Fungimap Newsletter Issue 2 -- June 1996

Australian Fungi Mapping Scheme

Fungimap of Victoria Project

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Blackburn 3130

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Volunteer fungimap project off to flying start!

Phenomenal! Congratulations to everyone who has sent in records! We have now received 216 records. See the barometer!

Our target for the 1996 fungi season is 500. **This means we are nearly half way there!**

Tom May stated that the information we are now getting "....considerably extends the existing knowledge of the distribution of the target species".

The Fungimap project owes a big thank you to Tom May and the National Herbarium. Without Tom the project would not be going as well as it is. His advice and time has been invaluable

Tom has agreed to spend up to a maximum of 4 hours a week on the Fungimap project, but this obviously depends on his other duties. Tom has many other duties at the Herbarium and for him to be able to fit this time in is a real benefit to the project.

At the moment, until we receive funding, the project will be held to the eight target species which are described in the colour brochure. Please do not send in fresh collections or dried fungi - a photograph is the best way to do it. At this stage of the

project we are just interested in the eight target species; and are not able to identify other material (photo or dried specimens). Next year the project will extend to 100 species.

Thanks.

John Julian

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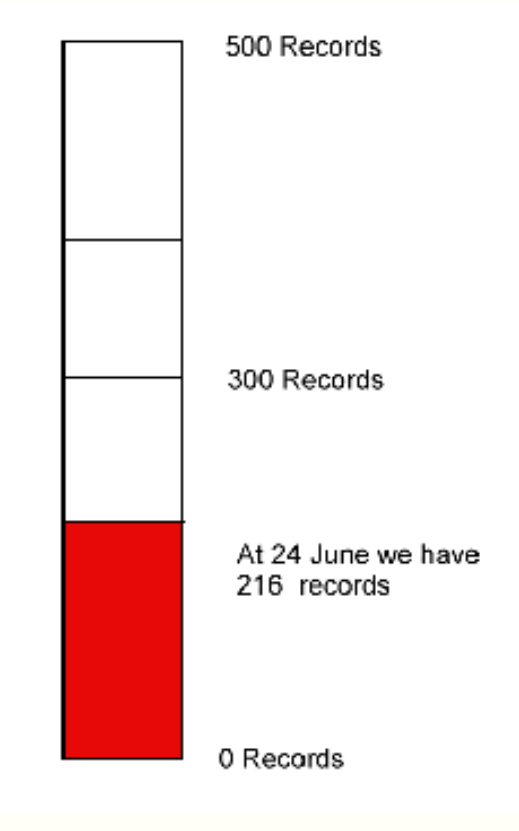

Fungimap barometer

We have now set a target for the number of records for the 1996 fungi season at 500. 216 records have been sent in so far.

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A big thank you

Robert Bender and Heino Lepp have made significant donations to the project which means this newsletter can continue to be printed and posted.

Thank you very much!

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Welcome to fungi hunters from other States!

We now have collectors and people interested in the project from NSW, South Australia and Tasmania. Tom was recently in Tasmania on a regular research trip and spoke to newspapers about the project-- we have had about 6 responses so far!

Many people are asking how they can help with the project. The project is an Australia-wide project to map the distribution and spread of specific identified fungi species. Some of the research questions addressed by Fungimap are in an article in this issue.

We are starting out with 8 species in the pilot stage. When we receive funding the number will be increased to 100. Approximately 90% of the species are native and 10% exotic.

To help, all you need is the list of target species and to send in the following when you see one:

· A photograph (if available)

· Species name.

· Locality

· Grid Reference. Either latitude/longitude (to nearest minute is fine). or Australian Map Grid co-ordinates. or grid reference from Melway etc Please ensure that full grid references are given.

· Observer's name and address

· Habitat and associated tree species.

A colour brochure of the target species and a kit on collecting and preserving fungi are

available Unfortunately, we have to charge for these as the project has no funds of its own.

Other notes on recording are inside this edition.

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Research objectives and research questions

Background to Research

Fungi are known to have a vital role in the ecosystem as decomposers, as pathogens and as partners in mutualisms (symbioses) such as mycorrhizas. Without fungi, our life on earth would be vastly different, if it existed at all. Fungi are the main recyclers of most dead plant material. Fungi also considerably aid humanity in other ways, e.g. yeast are fungi and many biologically active compounds, such as antibiotics, are produced from fungi.

Current research in other areas, especially conservation research, is hampered by the lack of basic knowledge of fungi.

The distribution of even the most well known species of Australian fungi is poorly known. There are few published distribution maps. Fungi could be highly affected by pollution and a mapping study of fungi would add considerable knowledge on the spread and effects of pollution.

In general, the study of fungi is one of the last frontiers of natural science available for study that is accessible to the lay person. Taking into account the importance of fungi in our world, it is critical that this knowledge be gained as quickly as possible.

Research Questions Addressed by a Mapping Scheme

· What is the **scale** of distnbution of fungi (are most fungi localized, or do they have wide

distnbutions)?

· What are the major **patterns** of distnbution? Examples might be species found in south-east and south-west Australia, or species restricted to one of these regions.

· What factors determine the **limits** (boundaries) of distribution? Are species limited by rainfall, temperature, soil type, host or combinations of these factors?

· Within their area of distribution, what is the **habitat and substrate** preference?

· Which species survive in **remnant** vegetation? Of particular interest is urban remnant vegetation.

· What is the effect of various forms of **disturbance** such as fire or logging on the occurrence of fungi?

· Are **exotic species** of fungi spreading into native forests?

· Is the effect of **atmospheric pollution** detectable? There is a need fo baseline data against which to measure any decline in fungi.

· What is the **time of appearance** (phenology) of the fruiting bodies, and what factors might affect this?

As can be seen from the questions above, we do not currently have even the most basic data on fungi.

These notes are taken directly from the submission for funding wntten by John Julian and Tom May.

Research into fungi is 100 years behind research into our fauna and flora.

Who to contact

All fungi records should be sent to the Fungimap Project, National Herbarium of Victoria, Birdwood Avenue, South Yarra 3141

All administrative and general enquiries should be sent to John Julian, c/- FNCV, Locked Bag 3, Blackburn 3130. John can be contacted on (03) 9830 4795 on Mondays between 10am and 2.30pm or on 0419 895 873 at other times.

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Volunteer of the month

We now have about 90 people on the database and about 45 have sent in collections. Obviously, you may have gone out looking and not seen any of the target species. If this has happened to you, drop me a line just to let me know how much time this type of activity is taking.

The **Volunteers of the Month** are (with number of records):

Cecily Falkingham 13

Pat Grey 8

John Eichler 7

Congratulations Cecily, Pat and John.

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Record of the month

Record of the month goes to John Rocke. John has found an *Aseroë rubra* at Wattle Park in the Melbourne suburb of Burwood. This is the first recorded lowland sighting in Victoria. Since John made this sighting, several people have commented that they have also seen it, especially in the Eltham and hills areas. They have not sent in any recorded sightings, however.

Well done John!

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Volunteer wanted

We need a volunteer to assist with transferring Grid References into longitude and latititude.

We need some one who can work independently, has a knowledge of geography and can spare a few hours each month which can be spent in the Herbarium with maps

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Books and kits

Following the successful Fungi Identification Seminar on Saturday, 16 June, a number of people expressed an interest in books.

1. Cleland, J.B. (1934-1935) *Toadstools and Mushrooms and other larger fungi of South Australia* Part I. (A.B. James, Government Printer, South Australia.) Reprint 1976.
In particular, Cleland was mentioned at the Seminar as being on sale at the Museum for a reasonable price. It is not available there any more!
Pat Grey however has contacted the publisher in South Australia and we will be getting 10 copies of the booklet. It will cost about $7.00 posted.
The first ten in will get one.
2. Cole, M, Fuhrer, B. & Holland, A. (1984) *A Field Guide to the common genera of gilled fungi in Australia.* Revised edition (Inkata Press: Melbourne)
Bntce Fuhrer has also been able to get us nine copies of *The Field Guide to Common Genera* by Cole, Fuhrer and Holland. This will cost about $10.00 when packaged and posted. This guide is made up of a folder and a number of loose leaf sheets.
The first nine wtll get one. Please write and let me know if you want one.

Both items will be sold on a first in first served basis.

Please ring your order through to John Julian on 9830 4795 10am to 2.00pm on Mondays

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A Glossary of Terms A Beginners Guide - by Rus Shulla

Agaric	This is the word often used synonomously with 'mushroom' - it means to be a member of the Agaricaceae
Annulus	This is a remnant of the partial veil left as the mushroom matures. It often leaves a ring of membranous tissue around the stem (stipe)
Bolete	The common name for soft textured fungi which generally have pores instead of gills
Bulbous	Refers to a bulbous like swelling at the base of the stem (stipe), often underground
Button	Immature specimen
Cap	The pileus which is the umbrella or bell like 'hat' of the mushroom. The pileus holds the spores in either gills or pores
Carpophore	The complete fruit body of the fungus (i.e. cap, stem, gills, etc). Sporophore and sporocarp are other names also used
Cup	The description given to the saucer shape of the Ascomycetes group
Face	The side of a gill
Genus	Taxonomic term meaning a group of similar species. Genera which are closely related are placed into families
Gill	The spore-bearing structure of mushrooms
Ink cap	Common name of the **Coprinus genus**-- the caps turn to an inky mess when picked and before you can dry them!
Margin	The outermost edge of the gill (i.e. the edge facing downwards)

Milk	A liquid exuded from certain species such as **Lactarius deliciosus**
Mycelium	The vegetative part of the fungus which grows in the host or soil and produces the fruit body. The mycelium is like a mass of often microscopic fibres
Mycologist	A species of **Homo sapiens** in danger of extinction due to a practice of walking around looking downwards resulting in head damge from bumping into things. Little funding is put aside for this endangered species, especially the sub-group looking for macrofungi
Mycorrhiza	This refers to the association between the mycelium of a fungus and the rootlets of plants. Little is known of the associations between fungi and plants in Australia hence the important questions on habitat and nearest tree/plant in the mapping scheme
Naturalist	Another species of **Homo sapiens** recently having a population growth spurt due to finding fungi which give food for thought Currently having a population explosion which needs to be monitored and encouraged
Odour	The smell of the fruiting body
Partial veil	The covering of the gills while very young that breaks open, often leaving remnants on the stem (stipe)
Polypores	Common name of tough-textured fungi with pores
Pileus	The cap
Species	A group of individuals with certain common characteristics
Spore	A microscopic part of the fungus which can germinate to reproduce the fungus
Spore print	The spore material left on paper when the cap is left for a period of time -- the colour can be an important identifying characteristic
Stipe	The stalk or stem of the fruiting body of the fungus
Universal veil	Material which completely covers the young immature mushroom

Volva	This refers to the remnant of the universal veil sometimes lefl at the base of the stipe (stem)

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Spore print by Tom May

Thank-yous

Because Fungimap is run on a voluntary basis, at present, we are not able to send out individual acknowledgments to our recorders. So, in addition to those who we have already acknowledged, a big thank you to the following who have sent in records over the last few months: John Rocke, Andrew Stenhouse, Matt White, Ian Endersby, Ewen Johnson, John Kiernan, Marie McIntyre, Robin Dzedins, Alan McMahon, Tom Verbene, Judy Shilton, Sally Green, Colin Parker and Ian McCann. Some of you had specific enquiries; we have tried to answer these in this newsletter, and otherwise we request your patience in awaiting a response.

Grr Grr--What do I do about grid references

One of the main aims of a mapping scheme is to produce maps. Computer programs are now available that allow plotting of distributions at various scales, and with overlays such as rainfall or soil types. The mapping programs used by Fungimap work from latitude and longitude. Records can be submitted with various types of grid references, but all records will eventually need to have a latitude and longitude. Fortunately, other grid systems can be readily converted to latitude and longitude.

The level of precision used by Fungimap is to about the nearest 1 kilometre. So, latitude/ longitude needs only to be given to the nearest minute (as for example 37deg.46'S, 145deg.09'E).

For grid references from topographic maps (Natmap or other series), the best scale is 1:100,000, or a larger scale such as 1:50,000 or 1:25,000. Latitude/longitude can be worked out from these maps, but the values are usually only given along the edge of the map in intervals of 10 minutes (for 1:100,000 maps). The grids that are printed on these maps are the Australian Mapping Grid (AMG).

To give an AMG reference find the vertical grid line to the left of your locality (read off the number from the top or bottom of the map); if the locality is on a grid line place a zero at the end of this number, otherwise if the point is not on a grid line, estimate how far it lies between the grid lines on either side (a number between 1 and 9, with 5 being half way between two grid lines), and place this number after the first number. This gives a three digit number like 010 or 978. Repeat this process for the horizontal grids to give another three digit number. You then need to specify the map, which has a name and a number (ignore the letters identifying the 100,000 m square). Putting all that together gives something like 8022--Healesville- 742.280 (which is the water tower at Badger Creek).

There is a computer program which converts Australian Map Grid references to latitude and longitude, and for this the full grid references are required. For the example above, the full grid reference will be in the form 3742.57280. Note that there is a prefix '3' for the vertical grid, and a prefix '57' for the horizontal grid. These prefixes are the small numbers in front of the normal grid numbers, and are given at the south west corner of the map, and usually every 10 grid lines. The prefixes change at 100, so be careful that the prefix applicable at one corner of the map is the same as that in other parts of the map. Some topographic maps I have seen have the prefix printed before every grid number, which is less confusing (if that is possible!).

When giving Australian Map Grid references, the complete form is, for example,

3742.57280 (for this you don't need the map name and number). If you want to give the reference in the basic form, write it as follows: 8022--Healesville--742.280 (the map number and map name, followed by a dash, with the vertical and horizontal coordinates separated by a full stop).

For metropolitan areas, street directories are also a good way of giving a grid reference. For the Melway, for example, just give the map page and the letter and number of the square. Where I am sitting at the moment in the National Herbarium of Victoria is Melway--2G- A12. Even better, the Melway has Australian Map Grid lines on each map; they are the very fine red dotted lines. The only tricky part can be when your location is at the edge of a map, and you can't see where the next AMG grid line is, but you can work out what the distance between grid lines is from the centre of the map. The grid nurnbers are given in the complete form (ie with the prefixes). For the Herbarium the complete AMG reference is 3219.58108.

The Vicroads Country Directory also gives complete AMG grids (the fine blue dotted lines), and latitude and longitude (the red grid lines -- but difficult to use because there are eight divisions within each 30' section and you need to interpolate to get the precise minutes).

A useful series of maps for Victoria are the ESMAPs. These are books which are produced for the use of emergency services such as the CFA and contain maps at a scale of I :50,000 with the complete AMG grids marked. There are ESMAPs for various parts of the state, enquiries about availability can be directed to VICMAP marketing, (03) 9651 1814.

For out of the way places (which we hope that you will all be visiting and recording fungi at) the Readers Digest Atlas of Australia could be used. It is at a scale of 1: 1,000,000, with a grid for latitude and longitude.

So, give a grid reference where you can, and preferably give just one sort of grid reference for each record. If you are still saying grr to grids, and it all seems too complicated (and you don't feel like getting a degree in mapology), don't worry, in the absence of a grid reference, a reasonably specific descriptive locality is still useful - something like 50km north of Coober Pedy on the Stuart Hwy is fine. A photocopy of a map with an X marking the spot will also do (but only do this if you can't give a grid reference).

Follow-up records

We were pleased to receive from Alan McMahon of Erica, Victoria a second batch of records this year. Alan sent in one of the first batches of records in 1995, and this year he has observed *Mycena interrupta* again, along with new sightings *of Aseroë rubra* and *Omphalina chromacea.* Follow-up records are useful because some fungi might appear at different times in different years.

Fungimap milestones--the 200th record

Records reached 200 in June when we received a batch of four records of *Aseroë rubra* from Matt White of Alexandra.

Old Records

Old records are wanted of all target species. The time of appearance of *Amanita muscaria* in your area is of particular interest, because this is an introduced species, which has become widespread in south-eastern Australia since the 1940s, but is of quite recent appearance in some areas.

Submitting Records Electronically

During the pilot project, there is just a list of things that we would like recorders to note (place, time etc.). When the next stage is reached, with a list of 100 target species, a form will be available. It is also anticipated that records will be able to be submitted in electronic form, either on disc, or via the internet. For those of you who are already typing up your records on computer, we currently store records in a simple database with the following fields: **Species**, **Recorder** (your name and telephone number), **Locality** (descriptive), **Grid** (includes map name and grid reference), **Month**, **Year**, **Comments** (associated vegetation etc.). We are happy to receive batches of records in this form (IBM compatible, as MS-Word, Excel or ASCII files, but other formats are acceptable -- contact John Julian). A more elaborate database structure will be developed for the next stage of the project.

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How did it all start?

In 1994 several events happened simultaneously which got Fungimap onto the drawing board.

First was a talk by Tom May from the National Herbarium to the Botany Group of the Field Naturalists Club of Victoria (FNCV). Second was the creation of a Botany Research Group in the FNCV. Third was the President's Picnic at Wattle Park at which many fungi were noticed. At the same time, Tom May was also preparing an initial concept paper on Fungimap.

The FNCV decided to survey Wattle Park for fungi and this was started by Noel Schleiger with John Julian. The project was soon joined by other people from FNCV and the Friends of Wattle Park. This project is due for completion in August 1996 after 500 collections

have been made. More than 12 visits have been made to the park and it is recognised as the first survey of fungi in an urban park in Australia. The project will be written up in two papers, one by John and the second by Noel Schleiger

Tom May was essential to the project in that he identifled the species collected on the day following each visit. After this all the samples were dried, frozen and then labelled properly.

It became apparent that, with guidance and support, volunteers were easily capable of resourcing a broader project. Tom and John then worked on the Fungimap project based on volunteer collectors. This included development of a consistent strategy to gain funding. In this process Tom was encouraged by several people around Australia who now make up the Scientific Advisory Committee to the Project.

In conjunction with this, several articles were written which now make up the Fungi Kit

Submissions for funding have now been made and we are waiting for the results.

"Identifying macro fungi are difficult to learn but are extremely worthwhile and interesting for the naturalist as now our knowledge is being recorded. "

Rus Shulla

See Rus's article on the next page.

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Fungi Kit

The "Fungi Kit" is now available through the FNCV at a cost of $5.00 plus $1.50 P&P.

The Kit includes:

1. A guide to making permanent collections of fungi.

2 A checklist of australian macrofungi illustrated in field guides.

3 Labels for collections of fungi.

4 Leaflet on poisonous fungi

You can obtain publications by writing to

FNCV, Locked Bag 3, Blackburn 3130 or by contacting John Julian on

(03) 9830 4795 or 0419 895 873

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Field Trip to Wattle Park

The last visit to Wattle Park?

The next, and possibly the last, visit to Wattle Park will be held on:

August, Sunday 18, 1996

This field trip will start at 10.00 am and finish at about 3.00pm

BYO lunch.

Meet at the Chalet Car Park at Wattle Park (Melway 60K3)

Noel & John will take the fungi back to the Hall afterwards to dry -- you're welcome to help with this.

Beginning an interest in fungi - Part 1

As a rank beginner involved in fungi, it may be worthwhile to make some notes about how I got started and what was useful. Fungi is difficult as it doesn't seem to make sense until you've had a bit of experience.

I started out mainly because I found the colours in fungi fascinating and because I had discovered that not much was known about it.

It took me two years to start to feel confident about identifying different genera, although I knew a number of isolated species which I have taken the time to learn.

Trying to identify species is almost impossible in many cases without a microscope with x1000 magnification -- and don't be conned that you can see spores with less magnification.

The very first thing I actually did was to identify two species -- the Fly Agaric, *Amanita muscaria*,and the Rainbow bracket fungus, *Trametes versicolor.* With these easily identifiable fungi, I examined each in detail to learn about the various parts. In doing this I kept in mind our common eating mushroom available in shops. I found out about gills versus pores; cap shape, size, colour and texture; stems or no stems; the presence of the annulus or ring and whether there was a volva (cup at the base).

Armed with these notes I marched out into the field and started describing what I saw -- I still couldn't identify many though. With each species I found I took a photograph of the cut up fungi on a piece of card board. I cut it to show gills, shape of cap and placement and type of stem. The cardboard had one centimetre wide strips of coloured card threaded through it and allowed me to check the photograph's colour accuracy and also gave a size reference for later use.

I also put a label on next to each collection being photographed. The label gave location, date and collection number.

When I went out I took containers -- old margarine containers, 35mm slide containers or even freezer bags. I also took a note book and pen, pocket knife to cut the fungi into half or quarters for photographing and of course my carnera.

When I got home I would look up the books I had until I came to a photo that looked similar and had a similar description. While I was wrong more often than not, I think this practice made me more discerning later on.

After attending a lecture by Tom May at the Field Nats, I went out to buy some books and pamphlets to add to the famous and extremely useful introduction *A Field*

Companion to Australian Fungi by Bruce Fuhrer. These publications are:

Fungi: Toadstools, mushrooms and their relatives. (Junior Survival) a pamphlet by the Gould League

Tony Young; *Common Australian Fungi*; UNSW Press 1994

CJ Shepherd and CJ Totterdell; *Mushrooms and Toadstools of Australia*, Inkata Press, 1988

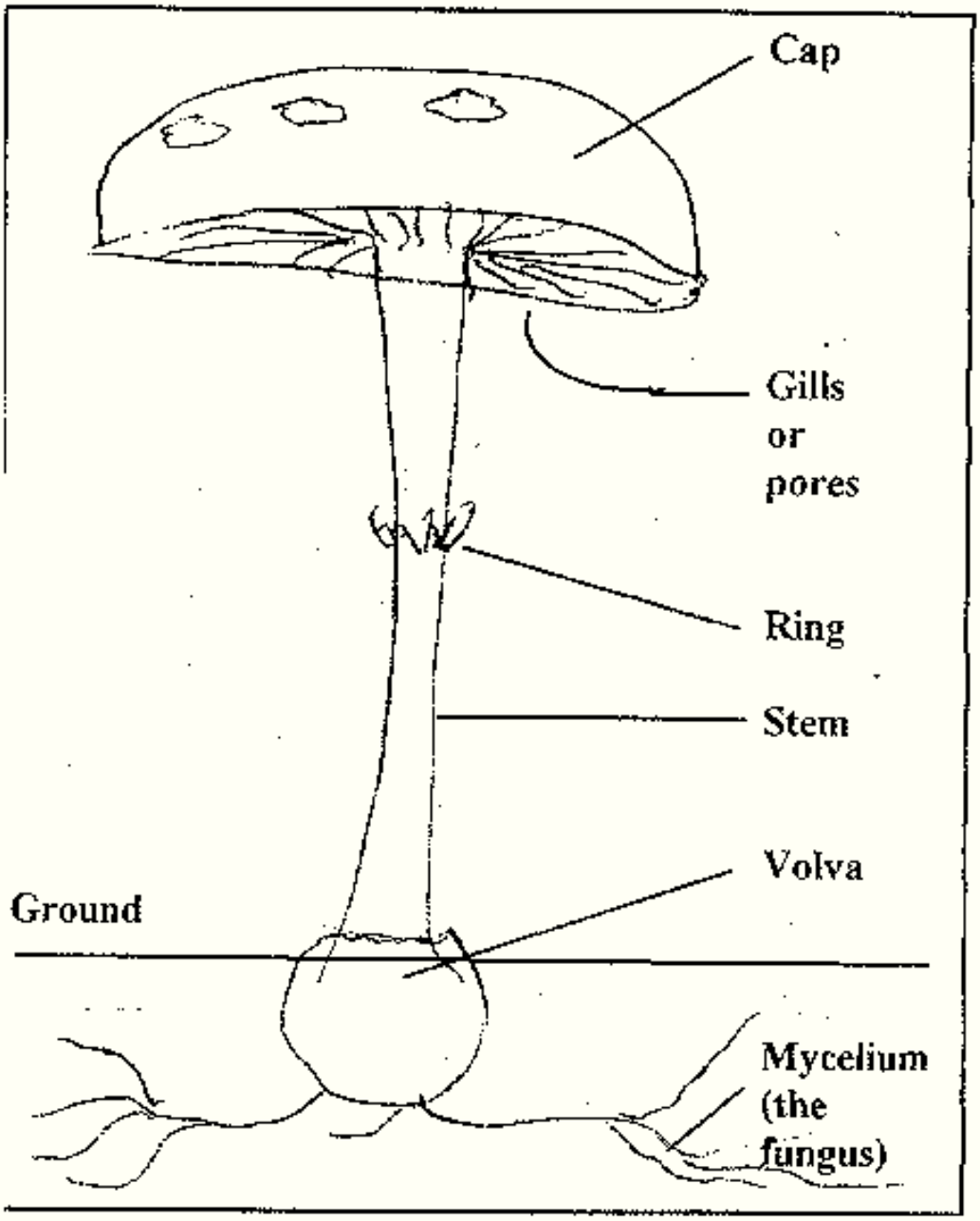
These were excellent and well worth the money.

Now, I can identify fungi into broad categories and recognize some genus that I have taken a particular interest in. One of the more interesing ones I have found is the *Bolbitius vitellinus* and *Aseroë rubra* which occur where I live. The best way to learn, however, is to go on a field trip with a group and to attend a lecture or seminar on fungi. The FNCV has many field trips these days looking for fungi. Going out with people means you will learn a lot and have fun while you're doing it. I might even be able to make it down for the Wattle Park field trip although its a fair way to come.

See ya in the next newsletter.

Yours,

Rus Shulla.



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Target species and colour brochure

The pilot scheme is well and truly running and we would like to thank those people who have already sent in fungi records.

The project still has available the brochures with colour photographs of the eight target species.

A small charge of $3.50 means that we will be able to keep printing copies of the

brochure to maintain supply.

In addition to photographs, the brochure includes descriptions of the target species and what to record.

It is hoped that later in the year the target list will be expanded and, if funding is available, resource material will be provided to volunteer collectors free of charge.

We sincerelv thank Bruce Fuhrer who provided the photographs at no cost.

The eight target species are:

Amanita muscaria (Fly Aganc)

Amanita xanthocephala (Verrnilion Amanita)

Aseroë rubra (Anemone Fungus)

Battarraea stevenii (Drumstick Fungus)

Dermocybe austroveneta (Green Dermocybe) (= *Cortinarius austrovenetus*)

Mycena interrupta (Pixies Parasol)

Omphalina chromacea (Chrome Omphalina) (= *Omphalia chromacea*)

Omphalotus nidiformis (Ghost Fungus) (= *Pleurotus nidiformis*)

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Who to contact

All fungi records should be sent to the Fungimap Project, National Herbarium of Victoria, Birdwood Avenue, South Yarra, 3141. All administrative and general enquiries should be sent to John Julian, c/- FNCV, Locked Bag 3, Blackburn 3130. John can be contacted on (03) 9830 4795.

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The Who's Who on the Scientific Advisory Committee

The Field Naturalists Club of Victoria has agreed to auspice the Australian Fungi Mapping Scheme.

The Committee which guides the project is made up of the following people:

Dr Tom May - National Herbarium of Victoria (Convener)

Professor Rob Wallis, Deakin University School of Aquatic Science and Natural Resource Management

Bruce Fuhrer - Monash University/National Herbarium of Victoria **Cheryl Grgurinovic** - Australian Biological Resources Study

Dr Noel Schleiger - Field Naturalists Club of Victoria

Jack Simpson - State Forests of New South Wales

John Julian has been appointed as Executive Officer and currently works half a day per week in an honorary capacity.

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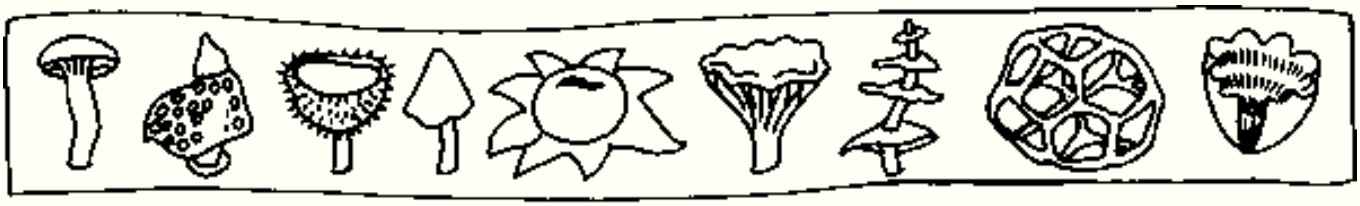
Joke of the month

Why did the girl take the mushroom to the party? He was a fun guy to be with!

Fungimap is supported by the Myer Foundation.

Last modified on 7 August 2003



Putting Australian fungi on the map