



Fungimap Newsletter Issue 9 April 1999



Australian Fungi Mapping Scheme

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Fungimap News Editor: John Julian

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New Fungimap Developments

Good News

Three new developments have now happened with the Fungimap Project. Together, these have meant a delay in the newsletter while we have been considering a restructure of the project.

The three new developments are:

- New National Fungimap structure;
- Funding; and
- New species to the target list

A major issue has been that Fungimap commenced in Victoria. In Victoria we have run several seminars and workshops around the State and this has helped many people to be involved. It has been impossible to do this interstate. One effect of this is that we have had many more records coming from Victoria than other States.

Therefore we have been working at creating a national structure that will allow for specific state based activities to encourage people to be involved with fungi and as recorders.

Funding

We have been successful in gaining funding from the Ian Potter Foundation. The logo of this Foundation will now appear in the newsletter and publications as a major sponsor of the Fungimap project.

The initial grant is for a one year period when the project will be evaluated and further funding considered.

In particular the funding will allow us to continue and importantly, allow for us to create a national structure with State based support for fungi hunters in other States.

We thank the Ian Potter Foundation which has been involved in initiating and creating many worthwhile natural history projects.

New Species added to list

At long last we have finalised the list of the additional 50 species bringing the total to 100 target species. These take up the bulk of this newsletter.

How to start out

I have had a number of enquiries from groups and individuals who want to help but are unsure where to start.

To start, you have several choices, depending on how much knowledge your group possesses about fungi.

If you have no knowledge, then one place to start is with a selection of 5 to 6 species from Bruce Fuhrer's FIELD COMPANION. Pick some that are easily identifiable. Check with friends or books where these species grow and go out and see if you can find them!

If you have any questions, send them in and we will answer them in the newsletter.

From this point you can then add various fungi from the 100 species list. More than half of the 100 species (54) are in Bruce Fuhrer's excellent book, *A Field Companion to Australian Fungi*. Other books can be found in the notes about the 100 species in this Newsletter.

It is important to note that we need historic information as well. If you go through your records and can identify the species accurately, let Pat Grey know the details.

The main point is to select a number of easily identifiable fungi that you can find in your field trips.

You do not have to have a specific field trip about fungi - it can be combined with your other activities. The main information we need can be found on the last page of this newsletter Good luck with your hunting!

What is Fungimap?

The Fungimap project is the first mapping scheme of fungi to occur in Australia and aims to gather information about the distribution and spread of 100 selected species of fungi. In essence, we are increasing the knowledge of the distribution and ecology of Australian fungi. Literally we are mapping a new scientific frontier in Australia.

The Australian Fungi Mapping Scheme is a volunteer group working in close conjunction with professional mycologists. It undertakes the Fungimap project as well as carrying out field research of specific areas each year. In the last few years field expeditions occurred to Mt Buffalo and Wilson's Promontory National Parks.

In the Fungimap project, 100 target species have now been selected (see later) and volunteers have been searching for 50 of these species for nearly 3 years, with 2,600 records received to date. Volunteers are able to identify the species from photographs in readily available texts, predominantly Bruce Fuhrer's *A Field Guide to Australian Fungi*. For further project information you can contact John Julian, P.O. Box 178, BRIGHT VIC 3741, phone (03) 5750 1796 or preferably, by email at wandivalley@netc.net.au

Records of target species

For each record, please record the following information: Name of target species / State / General region / Locality / Grid Reference (latitudelongitude, AMG or MELWAY) / Date / Recorder's name / Habitat and substrate.

Send all records to: Fungimap, National Herbarium of Victoria Birdwood Ave, South Yarra 3141.

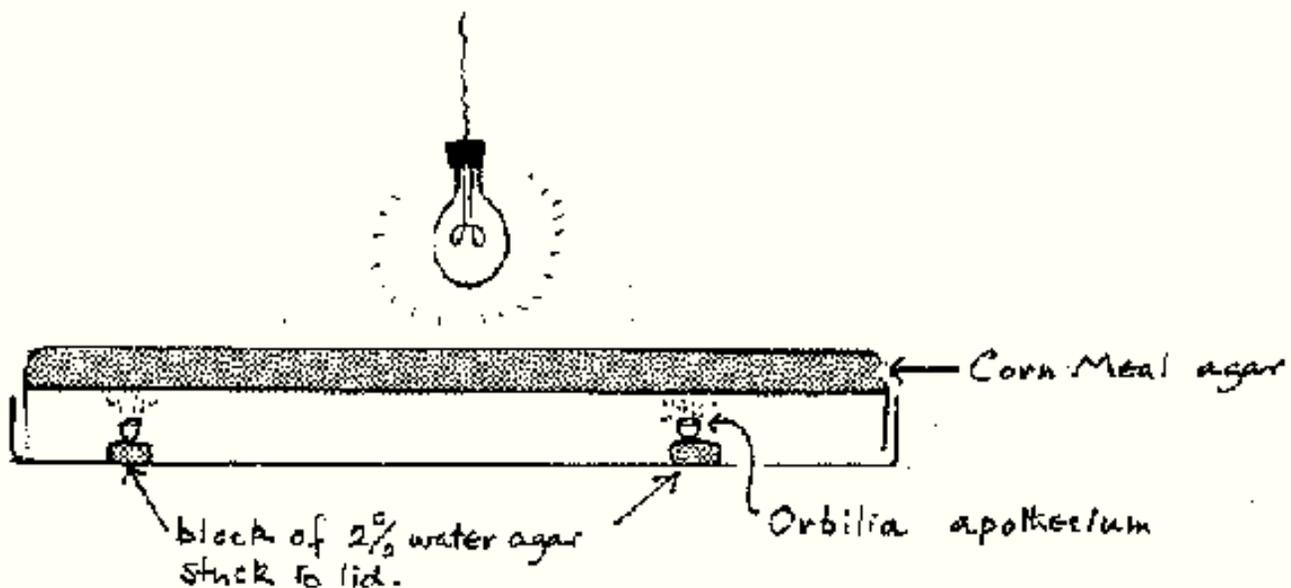
Dung Update: Ann Bell

My teaching spell for 1998 now being over, I have been able to get back to studying these fascinating Australian coprophilous fungi. As a special treat to myself I decided to look at something especially 'exotic', so I incubated dung collected from near Alice Springs and from Queensland dung of such animals as the Agile Rock Wallaby, the Red Legged Paddymelon, the Musky Rat Kangaroo, and the Cassowary. At the time of writing (12th November), I am still studying these samples. Already one of them has yielded a beautiful new species of *Podospora* (a genus with which I am fairly familiar). This was a most exciting find and its description will be submitted in a separate paper.

To date I have 155 records of coprophilous Ascomycetes belonging to 23 genera and 60 species. The most frequently found genera to date have been: *Podospora*, *Ascobolus* and *Iodophanus*. One particular fungus of interest among these records is a species of *Orbillia* most probably *O. coccinella* (Somm.) Karst., (= *O. alnea* Velen. of Korf in *Mycotaxon* Vol. XLV, pp. 503-510, 1992).

The genus *Orbillia* has been receiving some recent attention by mycologists because it needs some revision, and in part because a number of species sport a nematophagous or an aquatic anamorph. *Orbillia coccinella* is most beautifully illustrated by Boudier (*Icones. Mycol.* Tome 3, Pl 461, published 1905-1910). The Australian material of this fungus was located on the dung of the Eastern Grey Kangaroo collected in the Glenmore State Forest by Mr Ron Fletcher, but the *Orbillia* did not appear until after some 3 months of incubation! Luckily sufficient apothecia developed for identification purposes and to also provide for a decent herbarium specimen (Herb. No. 679). Dr Dan Mahoney (my husband and fellow mycologist) took some excellent colour photographs of it. It took some patience (and luck) to get it into culture since the ascospores are only approximately 2 x 4 µm and hyaline, (they look a little like yeast cells). Hence my normal procedure of picking up germinating ascospores with the aid of a sterilised insect pin was not possible.

Instead I used the technique described in the article on *Orbilia fimicoloides* by Webster et al. (*Mycol. Res.* 102(1): pp. 99-102, 1998). Four ripe apothecia (each approx 250 μ m diameter) were picked off, each with a little piece of dung attached, and each mounted on a small block of 2% water agar. These blocks were then stuck equidistantly to the lid of a Petri dish whose base contained a thick layer of corn meal agar. The assembled Petri dish was placed in an inverted position under a lamp in order to stimulate the apothecia to discharge their ascospores up on to the agar. The set up looked like this:



After ascospores were discharged on to this agar, a fresh Petri dish base of corn meal agar was lowered in place to repeat the process. This was repeated a third time. The apothecia took some time to discharge their ascospores but after a few days all three Petri dish plates had discharged ascospores on them. None of the ascospores from the first plate germinated but on plates 2 & 3 groups of ascospores did germinate well, but took nearly three weeks in order to do so! Growth of the resultant mycelium was extremely slow even though we tried several different kinds of agar including two laced with dead or alive nematode worms - (hoping for a nematophagous anamorph!). The preferred agar to date is malt agar, but even on this the *Orbilia* grows but slowly. So far the cultures have only produced chlamydospores.

The finding of this fungus confirms once again the importance of continuing to study incubated dung cultures for a long time - for three months if possible. *Orbillia* is not the only fungus to appear to favour old dung (or long incubation times). Some species of *Podospora*, *Cercophora* and *Coprotus* show the same characteristic .

Once again I want to record how indebted I am to the many people who have collected all these dung samples for me. It is truly appreciated. Even if I were able to collect samples in sufficient quantity myself, without the knowledge of the animals, their behaviour and their scats, I would not have any chance of collecting so many and varied samples.

Edible and Poisonous Mushrooms: An Introduction

I R.Hall et al.

Available from FNCV Book Brokering Service.

Special price of \$40.00. plus POSTAGE \$5 for Victoria. \$8 rest of Australia.

This recently published book by New Zealand authors covers cultivation of edible fungi (including truffles) and describes common edible and poisonous macrofungi, many of which occur in Australia

Updates to Fungimap Target List: 50 New Target Species

With this issue of the Newsletter the list of target species is extended to 100. Many of the 50 additions are thought to be relatively widespread and reasonably common. As with the initial batch of target species, your records are needed to confirm the distribution pattern, and to answer questions about host and habitat preference. A number of the additional species, and some of the original 50, appear to be quite rare or restricted in distribution. Due to the inclusion of these rare species in the scheme, it is important to

maintain a steady stream of records of the commoner species. It is this intensity of recording that helps to demonstrate that the paucity of records of apparently rare species is due in fact to their rarity, rather than to under-recording. For these additional targets, as with all target species, both old and new records are of interest.

While the original 50 targets were almost all illustrated in one book (*Field Companion to Australian Fungi*), we have had to go further afield for the additions. Recently published books (especially *Fungi of Southern Australia* and the *Fungi of Australia* series) provide high quality illustrations that are very helpful for identification. It seems worthwhile to expand the list to include species in these and other books, although this does mean that illustrations must now be sought in a range of books. If you have access to a restricted range of books, it's fine to just record the species which you can identify from those books. *The Field Companion to Australian Fungi* still provides a good range, with illustrations of 54 target species. Bougher & Syme illustrate 27 of the targets, and Fuhrer & Robinson illustrate 11. Between them, *Field Companion* and Bougher & Syme include 64 of the 100 targets.

The additional targets, like the original 50, are an eclectic selection of species that are considered to be readily recognisable in the field. Thus some familiar species are not included due to problems of confusion with similar species. In time, it is intended to further expand the list of targets. Suggestions are always welcome of highly distinctive species to add to the list of targets.

Updated List Of 100 Target Species

Target species are arranged under major groups of fungi based on gross appearance. These groups are merely for convenience of identification and do not necessarily signify evolutionary relationships. Thus, some 'polypores' are more closely related to 'agarics'

than to other 'polypores'. For the new targets (listed in bold), brief notes on identification and similar species are also provided below.

Name Changes

Vibrissea bicolor is now known as *Chlorovibrissea bicolor*. Among species of *Chlorovibrissea*, it can be distinguished by the contrast of yellow head and dark green stalk, while *C. tasmanica* and *C. melanochlora* are totally green. For some species, in a cluster of closely related species, or where the taxonomy is yet to be resolved, a 'group' is now used. An example is the *Oudemansiella radicata* group, where this cosmopolitan species has often been recorded from Australia, but there are also recently described local species (such as *Xerula australis*) which might be the same thing - and which name should be used needs clarification. A few targets have become 'groups' by inclusion of additional, macroscopically identical species (such as the *Tremella mesenterica* group which now includes *T. aurantia*).

Illustrations

Standard works (see references) are referred to in small capitals (e.g. BOUGHER & SYME). Numbers in bold are pages of illustrations in FIELD COMPANION. Selected illustrations from other recent works are also noted, and otherwise references are provided to illustrations in technical monographs. Illustrations are in colour unless otherwise noted. Comprehensive lists of illustrations in field guides and similar works can be found in 'A Checklist of Australian Macrofungi illustrated in Field Guides' (part of the FNCV Fungi Kit). For a few species, there are no illustrations in Australian guides, and overseas works are referred to.

Fungimap Target Species - March 1999

The 50 new target species are listed in bold. Numbers in bold are pages of illustrations in FIELD COMPANION.

AGARICS are fungi with gills (lamellae) - mushrooms and toadstools. Mostly fleshy, rarely tough. Stem central or lateral. *Agaricus xanthodermus* (15) *Amanita austroviridis* (BOUGHER & SYME 159) *Amanita chlorophylla* (B&W - Wood, 1997, p. 32) *Amanita muscaria* (FUNGI OF AUSTRALIA I B: 135; FUHRER & ROBINSON 22) *Amanita phalloides* (FUNGI OF AUSTRALIA IB: 135) *Amanita xanthocephala* (21; BOUGHER & SYME 173) *Anthracophyllum archeri* (BOUGHER & SYME 191; FUHRER & ROBINSON 24) *Armillaria luteobubalina* (22; BOUGHER & SYME 193; FUNGI OF AUSTRALIA IB: xvi) *Bolbitius vitellinus* (BOUGHER & SYME 231) *Camarophyllum lilacinus* (FUNGI OF AUSTRALIA IA: xiv, 163) *Coprinus comatus* (BOUGHER & SYME 291; FUNGI OF AUSTRALIA IA: 163) *Cortinarius austroalbidus* (in FIELD COMPANION 29 as *C. albidus*) *Cortinarius radicans* (34) *Cortinarius rotundisporus* (36; BOUGHER & SYME 257) *Cyptotrama aspratium* (Young, 1994, Pl. 25) *Dermocybe austroveneta* (31) *Dermocybe splendida* (in FIELD COMPANION 13 as *Cortinarius* sp.; BOUGHER & SYME 265) *Entoloma virescens* (FUNGI OF AUSTRALIA IA: 164) *Gymnopilus pampeanus* (45; FUNGI OF AUSTRALIA I B: xx) *Hebeloma aminophilum* (BOUGHER & SYME 275) *Hygrocybe graminicolor* (FUHRER & ROBINSON 40 as *Gliophorus*) *Hygrophorus lewellinae* (48) *Lepista nuda* (52) *Leucopaxillus lilacinus* (BOUGHER & SYME p. 201) *Marasmius elegans* (BOUGHER & SYME 203; in FIELD COMPANION 54 as *Marasmius* sp.) *Marasmius oreades* (55) *Mycena austrororida* (57) *Mycena interrupta* (59; FUHRER & ROBINSON 53) *Mycena leaiana* (FUHRER & ROBINSON 53) *Mycena nargan* (B&W - Grgurinovic, 1995, p. 533) *Mycena viscidocruenta* (Macdonald & Westerman, 1979, 65) *Neolentinus dactyloides* (in FIELD COMPANION 52 as *Lentinus terrestris*) *Nyctalis mirabilis* (B&W - May & Fuhrer, 1995, p.

387) *Omphalina chromacea* (62; BOUGHER & SYME 209) *Omphalotus nidiformis* (70; BOUGHER & SYME 211; FUNGI OF AUSTRALIA IB: 133) *Oudemansiella radicata* group (67; includes *Xerula australis*, BOUGHER & SYME 221) *Panus fasciatus* (in FIELD COMPANION 51 as *Lentinus fasciatus*; FUNGI OF AUSTRALIA IA: xiv) *Pleurotus australis* (BOUGHER & SYME 325) *Rozites metallica* (B&W - Bougher et al., 1994, p.368) *Rozites roseolilacina* (B&W - Bougher et al., 1994, p.368) *Rozites symeae* (BOUGHER & SYME 281; B&W - Bougher et al., 1994, p. 369) *Schizophyllum commune* (76; FUNGI OF AUSTRALIA IA: xiv) *Tubaria rufofulva* (BOUGHER & SYME 239; FUNGI OF AUSTRALIA IA: 164) *Volvariella speciosa* (77; BOUGHER & SYME 227)

BOLETES are soft-textured or fleshy, with pores, and cap and stem.

Boletellus obscurecoccineus (80; BOUGHER & SYME 305; FUHRER & ROBINSON 60)

CHANTARELLES: mostly soft textured fungi, with spores on gill folds (then similar to agarics) or underside of funnel-shaped fruit bodies, or tiered caps on stalk. *Craterellus cornucopioides* (Phillips, 1981, p. 190) *Podoserpula pusio* (132; BOUGHER & SYME 327; FUNGI OF AUSTRALIA IA: xx)

CLUB FUNGI and other miscellaneous ascomycetes (microscopically have spores in asci) are stalked with simple or honeycomb (*Morchella*) heads, or apex acute, or else globose fruit body with pits (*Cyttaria*).

Chlorovibrissea bicolor (in FIELD COMPANION 154 as *Vibrissea*) *Cyttaria gunnii* (147; FUNGI OF AUSTRALIA IB: 132; FUHRER & ROBINSON 86) *Helvella villosa* (FUNGI OF AUSTRALIA IA: xvii.) *Leotia lubrica* (150) *Morchella elata* group (including *M. conica*; in FIELD COMPANION 151 as *Morchella* sp.; BOUGHER & SYME 101) *Morchella esculenta* (Phillips, 1981, p. 264) *Underwoodia beatonii* (B&W - Rifai, 1968, p. 71) *Vibrissea dura* (FUNGI OF AUSTRALIA 1B xvi)

CORAL FUNGI: spores borne on the outside of fleshy cylindrical or coral-shaped fruit

bodies, sometimes massive and highly branched (like cauliflower).

Hericium clathroides (108; FUHRER & ROBINSON 68) *Macrotyphula juncea* (in FIELD COMPANION 85 as *Clavariadelphus*) *Mucronella pendula* (in FIELD COMPANION 90 as *Myxomycidium*; FUNGI OF AUSTRALIA 1 A: 166)

DISC FUNGI: ascomycetes (microscopically have spores in asci) with fertile portion the top or interior of a fleshy disc, or sometimes cup-shaped, with or without stem.

Ascocoryne sarcoides (144) *Banksiamyces macrocarpus* (146) *Cookeina tricholoma* (B&W - Rifai, 1968, p. 35) *Plectania campylospora* (153, FUNGI OF AUSTRALIA IA: xviii) See also *Poronia erici*.

HYDNOID FUNGI: fungi with spores produced on surface of layer of spines or pegs.

Fleshy or tough-textured. May have caps and a central or lateral stem, or be flat against the substrate (resupinate).

Beenakia dacostae (FUHRER & ROBINSON 63) *Mycoacia subceracea* (109) See also *Hericium clathroides* and *Pseudohydnum gelatinosum*.

JELLY FUNGI are gelatinous in consistency, and can rehydrate after drying. A variety of fruit body forms from simple or branched clubs, to convoluted brain-like shapes.

Pseudohydnum gelatinosum (142; FUHRER & ROBINSON 80) *Tremella fuciformis* (138; FUHRER & ROBINSON 80) *Tremella mesenterica* group (140; FUNGI OF AUSTRALIA IA: xviii; including *T. aurantia*, BOUGHER & SYME 111).

POLYPORES: tough textured fungi with pores. May have caps and a central or lateral stem, or be flat against the substrate (resupinate).

Amauroderma rude (113) *Dictyopanus pusillus* (FUNGI OF AUSTRALIA I A: 163) *Fistulina hepatica* (116) *Flabellophora superposita* (B&W - CUNNINGHAM 1965, p. 89)

Gloeophyllum concentricum. (B&W - CUNNINGHAM 1965, Pl. VII) *Microporus affinis* (= *M. flabelliformis*; B&W - CUNNINGHAM 1965, Pl. 111, as flabelliformis) *Microporus xanthopus*

(118) *Piptoporus australiensis* (119; BOUGHER & SYME 323) *Piptoporus maculatissimus*

(121) *Polyporus hartmannii* (Marks et al., 1982, Pl. 23) *Polyporus mylittae* (123, 124, BOUGHER & SYME 329)

PUFFBALLS: spores are formed as a powdery mass inside a covering layer (peridium).

Peridium may be of several layers (as in the earthstars). With or without a stalk.

Astraeus hygrometricus (Phillips, 1981, p. 254; B&W Willis, 1934, p. 118; B&W -

CUNNINGHAM 1944, Pl. XXVII, as *Geastrum*) *Battarraea stevenii* (B&W - CUNNINGHAM

1944, Pl. XXX) *Calostoma fuhreri* (B&W - Crichton & Willis, 1986, p. 5) *Calostoma fuscum*

(94; B&W - CUNNINGHAM 1944, Pl. XIV) *Calostoma rodwayi* (FUNGI OF AUSTRALIA IA:

xxi; B&W - CUNNINGHAM 1944, Pl. XIV) *Geastrum fornicatum* (Phillips, 1981, p. 254;

B&W - Willis, 1934, p. 121, as *G. fenestriatum*; CUNNINGHAM 1944, Pl. XXVII, as

fenestriatum) *Podaxis pistillaris* (100; B&W - CUNNINGHAM 1944, Pl. XXX) *Schizostoma*

laceratum (B&W - CUNNINGHAM 1944, Pl. XXX)

RUSTS are classed with the microfungi, because their fruit bodies are generally

microscopic. There are several stages in the life cycle, some forming rusty patches on

plants, especially on leaves. The aecial (cluster cup) stage forms small disc-shaped or

cylindrical fruit bodies, often yellow or orange.

Uromyces politus (FUNGI OF AUSTRALIA IA: 167)

STINKHORNS: spores in a slimy, foul-smelling mass on or in a receptacle, which may be

a simple sphere, a net, or with branched or unbranched arms, or cylindrical with or

without lacy network.

Anthurus archeri (102) *Aseroe rubra* (102; FUNGI OF AUSTRALIA IA: xix) *Claustula*

fischeri (Mills et al, 1997, p 33; B&W - CUNNINGHAM 1944) *Colus hirudinosus* group

(including *C. pusillus*; 105; BOUGHER & SYME 115 *pusillus*) *Dictyophora indusiata*

(FUNGI OF AUSTRALIA IA: xix) *Ileodictyon gracile* group (including *I. cibarium*; in FIELD

COMPANION 101, 104 *gracile* as *Clathrus cibarius*; BOUGHER & SYME 119)

THELEPHORES: tough textured fungi with smooth spore-bearing surface. May have caps and a central or lateral stem, or be flat against the substrate.

Cymatoderma elegans (FUNGI OF AUSTRALIA I A: 166.) *Stereum hirsutum* group (including *Stereum complicatum*) (BOUGHER & SYME 339; FUNGI OF AUSTRALIA I B xx; *S. complicatum* FIELD COMPANION 135) *Stereum ostrea* (FUHRER & ROBINSON 72)

VEGETABLE CATERPILLARS have a club-shaped fruit body (sometimes branched) arising from a mummified arthropod, often moth caterpillars.

Cordyceps gunnii (154; FUNGI OF AUSTRALIA IA: xvii) *Cordyceps hawkesii* (155)

CRUST FUNGI are ascomycetes (microscopically spores produced in asci) which form a thin to thick crust, often with fine dots (may need hand lens).

Hypocreopsis sp. A (B&W - May & Eichler, 1993, p. 76) *Poronia erici* (in FIELD

COMPANION 158 as *P. punctata*; BOUGHER & SYME 105; FUNGI OF AUSTRALIA IA: xvii)

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Additions To Target Species, February 1999

This list contains the new species only with brief descriptive notes. A number have been chosen because they appear rare or restricted in distribution, at least on current information. As always, if you are unsure of the identification of any target species, please indicate this with your records, and send in a photograph to support your identification. For the rare species, a photo is especially requested, so that a high standard of veracity of records can be maintained. The listing of species as rare is provisional, some are more likely to turn out to be uncommon rather than rare; and no doubt information from recorders will help to indicate the status of species more accurately.

Amanita austroviridis. An AGARIC with green gills and a pale green cap. Under Allocasuarina in WA. See also *A. chlorophylla*. RARE. *Amanita chlorophylla* An AGARIC with green gills and cap cream with greenish hue. Very close to *A. austroviridis*, and similarly found under Allocasuarina, in Vic and NSW. RARE. *Amanita phalloides*. An introduced AGARIC found under oak, deadly poisonous; cap greenish; stem white with ring initially and ample volva (cup at base). RARE. *Anthracophyllum archeri*. Bright reddish orange AGARIC with stem short and lateral or absent; gills widely spaced. On wood. *Astraeus hygrometricus* (= *Geastrum hygrometricum*). A PUFFBALL of the

earthstar type, distinguished from other earthstars (*Geastrum*) by the 7-12, leathery, hygroscopic rays (which curl inwards when dry) and the inner surface of the rays pale with darker cracks. Probably an exotic. RARE. *Beenakia dacostae*. A stalked HYDNOID FUNGUS, with pale spines and a soft, whitish cap. Habitat particularly among dry debris under logs in wet forest. RARE. *Bolbitius vitellinus*. AGARIC with yellow, radially grooved, sticky cap; pale stem; brown gills and spore print. Often in lawns. *Calostoma fuhreri*. PUFFBALL with short gelatinous stem (to 20 mm long) and globose mesoperidium (which contains the spore sac) up to 8 mm diam., mouth red. Outer layer not falling away in one piece (as in *C. fuscum*) but persisting as small black granules. In semi-arid areas (Little Desert). RARE. *Calostoma rodwayi*. PUFFBALL with bright red, lobed mouth to mesoperidium, on short gelatinous stem (to 25 mm long). Outer layer does not fall away in one piece (as in *C. fuscum*), but flakes away, often leaving warts on mesoperidium. Only under *Nothofagus*. *Camarophyllus lilacinus* (= *Cantharellus lilacinus*). AGARIC with lilac cap, and waxy, strongly decurrent gills, which are relatively widely spaced. *Claustula fischeri*. STINKHORN with a hollow, white, egg-shaped receptacle up to 50 diam, initially covered by purple brown volva RARE *Colus hirudinosus* group (includes *C. pusillus*). STINKHORN with horizontally wrinkled, red arms united at apex, where can form a lattice. *Anthurus archeri* has arms which although joined at apex, almost always become free. RARE. *Cookeina tricholoma*. DISC FUNGUS growing on wood with long stalk and deeply cup-shaped disc, pinkish orange inside, up to 20 mm diam., hairy outside with conspicuous fringe around cup edge. Tropical. Compare *Cookeina sulciceps* with orange or pink cups and hairs arising from ridges around the cup, and *C. colensoi*, with yellow to bright orange cups which are downy on outside. Compare also *Scutellinia* with eyelash-like hairs around margin of bright red or orange disc, but without well developed stem. *Coprinus comatus* Deliquescent AGARIC (typical inky cap), initially with very elongated

cap with uplifted scales (common name: Lawyers Wig or Shaggy Cap). Larger than most *Coprinus*. *Craterellus cornucopioides*. CHANTARELLE with deeply funnel-shaped fruit body, inner surface granular, blackish-brown, outer surface blue-grey. Seems restricted to Cool Temperate Rainforest. RARE. *Cymatoderma elegans*. Large THELEPHORE on wood, with funnel-shaped fruit body on short stalk; underside grey with shallow ridges. Australian collections are var. *lamellatum*. *Cyptotrama aspratium*. AGARIC with bright orange cap, covered by prominent conical warts; gills and spore print white. On wood. RARE. *Dermocybe splendida*. Robust AGARIC with intense orange-red gills; stipe yellow below, with yellow mycelium, orange-red above; cap red to brown; spore print brown. *Dictyopanus pusillus*. POLYPORE with small, ping-pong bat shaped fruit body; stem short and lateral. Massed on wood. *Dictyophora indusiata*. STINKHORN with white stalk and pale yellow cap, covered with slimy spore mass; with a white lacy frill hanging from apex. The other species of *Dictyophora* in Australia (*D. multicolor*) has an orange cap and a pink frill with a smaller mesh. *Entoloma virescens*. AGARIC with intense sky blue fruit body; cap conical; spore print pink. RARE. *Flabellophora superposita*. Stalked POLYPORE to 18 cm tall, with several laterally attached caps arising from common stem. Buried pseudosclerotium at stem base. RARE. *Geastrum fornicatum* (= *G. fenestriatum*). PUFFBALL of the earthstar type, with mycelial layer forming a basal cup, to which are attached the tips of the 4-5 rays; these rays arch under the globose endoperidium, which is 10-20(-40) mm diam. RARE. *Gloeophyllum concentricum*. POLYPORE with densely imbricate clusters of dark brown caps arising from a common base with underside of irregular elongate 'pores', often concentrically aligned. On wood in tropics. RARE. *Hebeloma aminophilum*. AGARIC with large (to 11 cm diam.) pinkish brown cap; gills and spore print pinkish brown; stem white; always on and around animal carcasses and bones. *H. westraliense* is identical, but not on carcasses. *Helvella villosa*. CLUB FUNGUS

with grey brown disc to 25 mm diam., on long stem (to 50 mm diam.); outer surface of disc and stem hairy. On ground. RARE. Compare *Plectania campylospora*. *Hygrocybe graminicolor* (= *Gliophorus graminicolor*). AGARIC with slimy green cap and stem; cap translucent striate and becoming depressed; gills pale green with gelatinous thread along edge (hand lens); whole fruit body dries pink. Care is needed to distinguish from three closely related species: *H. stevensoniae* (= *Gliophorus viridis* FUHRER & ROBINSON 41) which dries pink, but lacks the gelatinous thread along the gill edge and has a convex to plane rather than depressed cap; *H. pseudograminicolor*, which does not turn pink on drying and has bright green gills; and *H. vallomarginata* which has a non translucent-striate cap, and lacks a gelatinous thread on the gill edge. *Hypocreopsis* sp. A. This undescribed CRUST FUNGUS forms fruit bodies which clasp with finger-like lobes the branches of tea tree and other shrubs in long unburnt stands: the surface is brown, with fine dots (hand lens). RARE. *Leucopaxillus lilacinus*. Robust AGARIC with convex to uplifted cap to 10cm diam.; cap and stem purple; gills crowded, decurrent, white, with many lamellulae (short gills); spore print white. Could be confused with purple *Russula* sp., but these do not have decurrent gills, and lamellulae are rare. RARE. *Marasmius elegans* (= *Collybia elegans*). Tough AGARIC with orange brown cap; white gills and stem white above grading to dark below. *Microporus affinis* (= *M. flabelliformis*). POLYPORE with very fine pores (more than 6 per mm); stem well-developed and lateral (attached to side of cap), stem base expanded to form disc at point of attachment. On wood in tropics. Compare to *M. xanthopus* which has central or eccentric stem. *Morchella esculenta* group. Here the 'cap' is often ovoid to subglobose (or conic) and with the ridges irregularly arranged, in contrast to the *M. elata* group, where the cap is usually elongated and conical, and the ridges are more or less longitudinally arranged. Seems to occur near the coast. RARE. *Mycena leaiana*. Small, clustered AGARIC with reddish brown

cap; gills bright orange, with darker edges; stipe slimy. Spore print white. RARE. *Mycena nargan*. Small AGARIC with very dark blackish brown cap (to 18 mm diam.), spotted with small white scales; stem with white scales at base. Gregarious, on wood. RARE. *Mycena viscidocruenta*. Small, bright red AGARIC with very slimy stem and cap. Attached to leaves and small woody debris. *Nyctalis mirabilis*. AGARIC with small (to 3 cm) silvery grey caps, growing on old Russulaceae fruit bodies in Cool Temperate Rainforest. RARE. *Plectania campylospora*. A large (to 5 cm diam.) deeply cupshaped DISC FUNGUS growing on wood; with a short stem and dark brown to blackish interior to cup. Compare *Helvella villosa*. *Pleurotus australis*. AGARIC with large (up to 20 cm) brown cap; stem short and lateral; on living or dead trees. Compare to *Omphalotus nidiformis*, which is luminescent and has the cap often pale at least at the margins, or with purple or blue tints. RARE. *Polyporus hartmannii*. A stalked POLYPORE, with a velvety, reddish-brown cap to 15 cm diam., pores crowded, pale yellow. At base of tree trunks arising from buried pseudosclerotium. RARE. *Polyporus mylittae*. POLYPORE with large cream cap and stipe, but more often seen as the sclerotium, a large (up to 60 cm diam.) rounded underground organ, with characteristic marbled interior; firm at first, becoming hard and horn-like on drying. *Rozites metallica*. AGARIC with glutinous (very slimy) blue grey cap, brown with age, at first with small white scales; gills and spore print brown; stipe white with membranous ring. In Cool Temperate Rainforest. RARE. *Rozites roseolilacina*. AGARIC with mauve-lilac cap, becoming yellowish, only greasy (not glutinous); gills and spore print brown; stipe white with membranous ring. RARE. *Rozites symeae*. AGARIC with cap initially purple brown and glutinous, with small white scales, then brown; stem with membranous ring; gills and spore print brown. RARE.

Acknowledgements: thanks to Neale Bougher, Bruce Fuhrer, Pat Grey, Heino Lepp, Ian McCann, Jack Simpson, Katie Syme and Jenny Tonkin for useful suggestions of additions

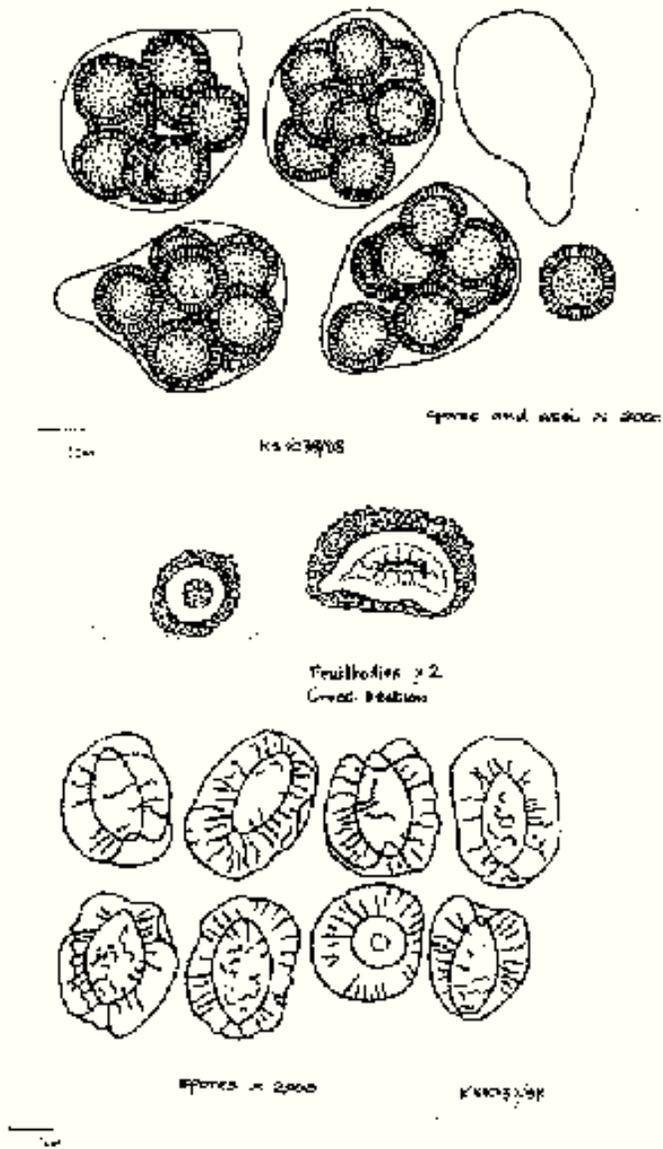
to the list of target species.

Hypogeous Fungi And Gilbert's Potoroo In Western Australia

Katrina Syme

Once a month for most of this year, Geoff Evans and I have been searching areas of the Two Peoples Bay Nature Reserve east of Albany for hypogeous or truffle-like fungi. Geoff is administering the World Wide Fund for Nature 1998 Community Grant for Community Conservation of Threatened Species and Ecological Communities funding received by the Denmark Environment Centre for this study. We are working under the auspices of the Department of Conservation and Land Management Potoroo Recovery Team to try and identify the fungi eaten by the Gilbert's Potoroo (*Potorous gilbertii*).

This small rat kangaroo had not been seen for 120 years and was presumed extinct until being rediscovered at Two Peoples Bay in 1994, almost by accident. Only 38 are known to exist -- 21 tagged Potoroos in the Reserve and 17 in the holding pens as part of a captive breeding program. It is the most critically endangered marsupial in Australia. So far, we've found about 31 species of fungi, the most common so far being *Thaxterogaster luteirufescens*, *Castoreum* sp. and two other species I haven't yet identified. Now that we have good herbarium collections of these four species, we are including surplus specimens in the Potoroos' evening meal.



The two unidentified species are found under a thick white mat of mycelium with a chewing-gum like consistency (although not sticky). They have a solid greenish or brownish gleba and a long rhizoid extending from the outer peridium. Potoroos eat all of this fungus, whereas with the *Castoreum* species, the outer thin brown peridium is discarded and can often be found lying near the diggings made by the Potoroo while the thick, inner white peridium is eaten. The gleba consists of a pinkish-brown powdery spore mass held together with fine filaments. *Thaxterogaster luteirufescens* is described in 'Fungi of Southern Australia.' It is a glutinous yellowish rusty colour, with a rusty gleba consisting of fairly large, irregular, empty chambers lined with spore-bearing basidia. The white columella frequently extends all the way to the top of the fruit body.

October and November collections included some scarlet-orange spherical fungi, with hyphae incorporating soil and humus on the outside. The centre of the fungus was white with a soft, stuffed central core and some slight blue stains. Microscopic examination of a small portion of this material revealed beautiful blue spherical spores and empty globular asci. For some time, we have been finding copious amounts of yellow mycelium in the humus and pale sandy soil under *Allocasuarina fraseriana*, but we have never found fungi -- that is, until last month. Suddenly, whilst searching through the upper layer of soil, the yellow colouring became more and more intense, then we found small acid-yellow, hypogeous fungi, the spores of which were also blue and spherical and many were still inside the asci. (see picture and drawing) We also discovered a species of *Castoreum* we'd not previously encountered and some relatively large *Hysterangium* sp.. We also found a fungus with golden rust coloured spores and a huge exosporium (a sac encasing the spore - see picture). I had found these in early 1995 whilst examining the scats of the first Potoroos captured but had never found the fruiting body of the fungus. Strangely, we have not yet collected any *Mesophellia* sp. although I collected them during a previous survey in an area a few kilometres from our current study site. It will be interesting to see what we find as summer progresses.

Who to Contact

All fungi records should be sent to the: Fungimap PROJECT, (Pat Grey) National Herbarium of Victoria, Birdwood Avenue, South Yarra, 3141.

All administrative and general enquiries should be sent to John Julian, P.O. BOX 178, Bright Vic 3741. Telephone (03) 5750 1796 Preferred contact mode is by the cheaper and environmentally sounder method of email at: wandivalley@netc.net.au

Held over for next issue

Pat Grey's Column - with acknowledgment of recent batches of records. Call for collections - we will be asking for collections of Xylaria and Dermocybe, stay tuned for details. Split gill in your sinus - Schizophyllum commune as a human pathogen. Targets by habitat - list of targets species from different habitats such as desert and rainforest.

Australian Fungi Mapping Scheme

Fungimap Project

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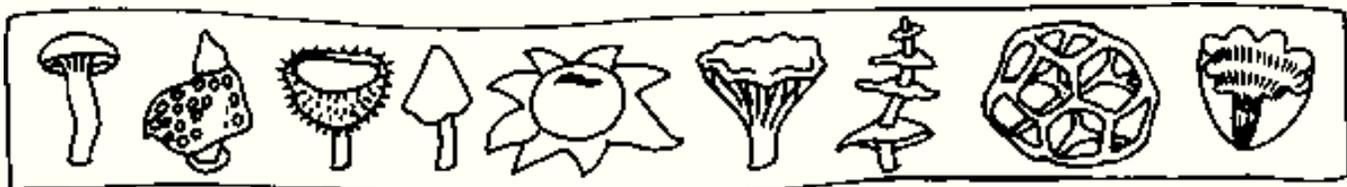
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Putting Australian fungi on the map