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Australasian Mycological Newsletter

Editorial Panel

J.A. Simpson

C.A. Grgurinovic

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FIRST MEETING OF THE AUSTRALASIAN MYCOLOGICAL SOCIETY MELBOURNE UNIVERSITY, OCTOBER 1996

The inaugural meeting of the Australasian Mycological Society was held at Melbourne University, 2 October 1996. More than eighty delegates were registered for the Conference. Commerce Theatre 1 was full throughout the day. Delegates came from all States and Territories of Australia (except the Northern Territory), New Zealand, Hong Kong, the United Kingdom and the United States of America. It was wonderful to meet such a diverse group of people, united by their passion for fungi.

Sixteen papers were read and nineteen posters presented. The scientific merit and presentation of papers were of a very high standard and appreciated by the audience. Topics included aspects of mycological history, taxonomy (micro- and macro-fungi, morphological, physiological and molecular), and ecology. Some of these papers are to be published in *Muelleria* while others will be published elsewhere.

Lunchtime, 12.30–13.15, was the occasion for the launching of the *Fungi of Australia*. Short addresses were made by Jack Simpson, President of the Australasian Mycological Society, Dr Peter Bridgewater, Chief Executive Officer of the Australian Nature Conservation Agency, Senator Robert Hill, the Federal Environment Minister, and Professor David Hawksworth, Director of the International Mycological Institute. It was noted by the audience that each speaker pronounced 'fungi' differently. Copies of *Volume 1A. Introduction-Classification* and *Volume 1B. Introduction-Fungi in the Environment* were available for inspection and sale. During the day numerous interviews were conducted with media representatives.

The Annual General Meeting was rather hurried, taking place between the end of the formal paper sessions and a reception at Parliament House, hosted by the Premier of Victoria, Mr Kennett, for attendees of all the Conferences. During the general business session there was discussion of the possibility of an Australasian city hosting an International Mycological Congress, perhaps in 2006. Professor Hawksworth indicated strong support for such a proposal.

During the course of the day there was discussion about how to further develop the Society. One idea that received wide support was the establishment of Special Sub-Committees for Mycological Education, Conservation, Poisonous Mushrooms, and Data Basing. It is also intended to form an International Mycological Congress Sub-Committee.

Later that evening the Society held the Conference Dinner at Melbourne University, with fine food and wines, convivial company and an amusing and reflective after dinner speech from Tom May. The Conference was fruitful and enjoyable, enabling many Australasian mycologists to meet for the first time.

Saturday afternoon saw the real enthusiasts head off to the hills for a few days intensive collecting. Congratulations and our thanks to Dr Tom May, Sapphire McMullan, Mali Moir, and Katrina Syme for their help with the wonderful organisation of the Conference.

J.A. Simpson

AUSTRALASIAN MYCOLOGICAL SOCIETY CONFERENCE 1997

The concept of several societies co-operating to run concurrent conferences proved very popular at Melbourne. The Executive has therefore decided to participate in a series of conferences at Adelaide University in September 1997. The Societies participating are the Australasian Mycological Society (AMS), the Australian Systematic Botany Society, the Australian Society of Microbiology (ASM) and the Society for Australian Systematic Biologists. The ASM conference is to be very large (more than 1000 attendees) but mostly with medical interests. Dr Robert Samson, Centraal Bureau voor Schimmelcultures is to be the guest speaker at the meeting of the mycology section of the Australian Society of Microbiology Conference which understandably will focus on the Trichocomaceae. On the basis of the papers and posters presented at the last AMS meeting, and on the draft agenda for the ASM meeting, the two proposed mycology days would be rather different but complimentary. The intention is to have separate fees for each conference or, in the case of long conferences or symposia, each day.

The Australasian Plant Pathology Society is having a meeting in Perth the same week. At the Melbourne AMS meeting there were not many plant pathologists present so hopefully we can maintain numbers. However, much of the organisation of the Adelaide Conference may have to be done from interstate rather than by a local person or committee. We should be grateful for volunteers to assist!

The conference items that we think will be of greatest interest to mycologists are as follows:

Sunday 28 September.

Australasian Mycological Society: A **Fungal Foray** in the Adelaide Hills; site, *etc.* to be arranged. David Ellis assures me we should be able to find moist sites with plenty of fungi given average weather conditions.

Monday 29 September.

Australian Systematic Botany Society: **Software in Systematics.**

Tuesday 30 September.

(am) *Australian Systematic Botany Society*: **Software in Systematics**

(pm) *Joint Symposium*: **Advancing knowledge and conservation of Australia's biodiversity.** The Symposium to continue through until the afternoon of Friday 3 October. Of particular interest to mycologists are the sessions 'Southern Biogeography' and 'Systematics and conservation biology'.

Wednesday 1 October

Joint Symposium continues.

Australasian Mycological Society: **Mycology papers and posters** (hopefully 50–70 people).

Australasian Mycological Society **dinner** that night.

Thursday 2 October

Joint Symposium continues.

Australian Society of Microbiologists **Mycology Meeting.**

Friday 3 October

Joint Symposium continues.

Joint ASM–AMS **Workshop on Molecular methods in Mycology.** Suggestions on what should be included in this Workshop would be welcomed.

To be decided

The time and place for the annual general meeting of the Australasian Mycological Society.

In the next *Newsletter* we will be inviting papers and posters for the 2nd Australasian Mycological Society Conference in Adelaide. Details of the Australian Systematic Botany and Society for Australian Systematic Biologists meetings can be obtained from Robyn Barker, State Herbarium South Australia. Details of the Australian Society of Microbiology meeting can be obtained from David Ellis, Adelaide Womens' and Childrens' Hospital.

J.A. Simpson

AUSTRALASIAN MYCOLOGICAL SOCIETY DINNER 1996

From left: Eric McKenzie, Peter Buchanan, David Ratkowsky, David Cahill, David Guest, Kim Tynan, Peter Austwick, Eileen Scott, Sapphire McMullan, Tony Young, Ian Pascoe, Ian Endersby, Ceri Pearce.

From left: Sally Fryar, Peter McGee, Katy Syme, Kevin Hyde, Gretna Weste, Neale Bougher, Tom May, Cheryl Grgurinovic, Jack Simpson, Candy Briggs, Flora McKenzie, Alan Mills, Ann Bell, Karen Stott, Alec Wood, Bettye Rees, Geoff Baylis.

POTASSIUM CONTENT AND GROWTH RATE OF HIGHER FUNGI

Tjakko Stijve, Sentier de Clies no. 12, 1806 St Léger, Switzerland

The chemical element potassium is, like for all organisms, indispensable for the life of fungi, including mushrooms. Just as in green plants, potassium is the most abundant metal found in members of the fungal kingdom. Not surprisingly, there is a marked and selective uptake of potassium from the substrate: in laboratory cultures concentration factors of up to 5000 have been observed, especially for media poor in potassium.

As an intracellular cation, potassium regulates the water content of the cells by its osmotic properties. Moreover, the metal also plays a more specific role as a co-factor of several enzymes. It has a key position in the metabolism of the fungi. If there is not sufficient potassium in the soil, it can, to a certain extent, be replaced by other monovalent metals, although in practice only the ubiquitous sodium would be available in sufficient quantity. Other monovalent metals like lithium, rubidium and cesium are just too rare in the earth's crust.

The growth of mushrooms requires not only an increase in volume, and, therefore, an accelerated absorption of salts having an osmotic activity, but also a rapid and efficient metabolism. Both procedures need potassium and, consequently, one finds appreciable concentrations of this metal in rapidly growing mushrooms having a high water content. There is a clear correlation between the potassium concentration and the water content, although there are also other substances, e.g. mannitol, a typical sugar-like constituent of many mushrooms, which could play a role.

It is clear that genetic factors should also be considered: the amount of potassium in fungal tissues is foremost species-dependent. If this was not the case, different mushrooms growing on the same substrate would have the same potassium content!

The table shows a number of mushrooms from various families and genera listed according to their potassium content. There is an obvious relationship between the concentration of this metal and the growth rate of the fruitbodies. Mushrooms like inky caps and *Panaeoli* that literally spring from the ground in a few hours contain an enormous amount of potassium, up to 12 per cent on dry matter! On the other hand, there are the fungi belonging to the *Polyporus* family that grow very slowly and are poor in potassium. Certain species like *Inonotus hispidus* and *Fistulina hepatica* which contain more of the metal, also grow more rapidly.

The position of the mushrooms in the various classes should not be taken as absolute, since it is based on average values. The fluctuation between the potassium content of several collections within one species is often appreciable. For example, Seeger (1978) found in 8 samples of *Macrolepiota procera* between 1.90 and 4.05 per cent potassium, with an average value of 2.84 per cent (all expressed on dry weight).

Generally speaking, slowly growing mushrooms also have a longer life span. The confluent sporophores of *Thelephora terrestris* often take more than two months to cover several square dm of the ground. The big Stinkhorn (*Phallus impudicus*) lives on the average 30 days between the formation of the ghost egg and its eclosion. Among the gilled fungi belonging to the genera *Marasmius* and *Collybia* there are reviscent species which really live for a very long time, i.e. *Collybia peronata* the fruitbodies of which persist for more than 60 days!

On the other hand, every mycologist knows how difficult it is to keep the small inky caps for a sufficiently long time to permit their study. Even for *Coprinus micaceus*, one of the more persistent of its kind, an average lifetime of only 2.3 days has been reported (Leusink 1995).

References:

- Leusink, L. (1995). De levensduur van paddestoelen. *Coolia* **38**, 106–114.
 Seeger, R. (1978). Kaliumgehalt höherer Pilze. *Z. Lebensm. Unters. Forsch.* **167**, 23–31.
 Stijve, T. (in progress). Multi-element studies in higher fungi.
 Vetter, J. (1994). Kalium-Gehalt von essbaren Wildpilzen. *Z. Lebensm. Unters. Forsch.* **198**, 33–35.

% on dry weight	MUSHROOMS LISTED IN CLASSES OF INCREASING POTASSIUM CONTENT AND GROWTH RATE
0–1	<i>Hirneola auricula-judae</i> , <i>Stereum hirsutum</i> , <i>Fomitopsis annosa</i> , <i>Trametes versicolor</i> , <i>Ganoderma applanatum</i>
1–2	<i>Thelephora terrestris</i> , <i>Morchella esculenta</i> , <i>Lentinellus cochleatus</i> , <i>Albatrellus ellisii</i> , <i>Phallus impudicus</i> , <i>Collybia confluens</i> , <i>C. peronata</i>

2-3	<i>Laetiporus sulphureus</i> , <i>Sparassis crispa</i> , <i>Langermannia gigantea</i> , <i>Lycoperdon gemmatum</i> , <i>Boletus edulis</i> , <i>B. luridus</i> , <i>Lepista nebularis</i> , <i>Lactarius piperatus</i> , <i>Collybia fusipes</i> , <i>Macrolepiota procera</i> , <i>Marasmius wynnei</i>
3-4	<i>Sarcosphaera coronaria</i> , <i>Helvella</i> sp., <i>Sarcodon imbricatus</i> , <i>Leccinum aurantiacum</i> , <i>Suillus luteus</i> , <i>Calocybe gambosa</i> , <i>Amanita muscaria</i> , <i>Macrolepiota rhacodes</i> , <i>Leucopaxillus giganteus</i> , <i>Russula cyanoxantha</i> , <i>R. xerampalina</i> , <i>Cantharellus lutescens</i>
4-5	<i>Verpa bohemica</i> , <i>Fistulina hepatica</i> , <i>Inonotus hispidus</i> , <i>Xerocomus chrysenteron</i> , <i>Cantharellus cibarius</i> , <i>Amanita phalloides</i> , <i>Agaricus augustus</i> , <i>Clitopilus prunulus</i> , <i>Laccaria amethystina</i> , <i>Lepista nuda</i> , <i>Tricholoma terreum</i> , <i>Panaeolus campanulatus</i>
5-6	<i>Agaricus arvensis</i> , <i>A. silvaticus</i> , <i>A. campester</i> , <i>Armillaria mellea</i> , <i>Cortinarius bulliardi</i> , <i>Hebeloma sinazipans</i> , <i>Hygrophorus hypothejus</i> , <i>Inocybe geophylla</i>
6-7	<i>Agaricus silvicola</i> , <i>Amanita lividopallescens</i> , <i>Clitocybe ditopa</i> , <i>Coprinus atramentarius</i> , <i>C. micaceus</i> , <i>Hygrocybe conica</i> , <i>Psathyrella hydrophila</i> , <i>Ps. velutina</i>
7-8	<i>Hygrocybe psittacina</i> , <i>Hygrophorus chrysodon</i> , <i>Panaeolus sphinctrinus</i> , <i>Pluteus atricapillus</i> , <i>Psilocybe semilanceata</i>
8-12	<i>Panaeolus phalaenarum</i> , <i>Panaeolina foenicicii</i>

ABRS PARTICIPATORY PROGRAM

Funding for the ABRS Participatory Program was reduced by about 20 per cent this Financial Year, in line with cuts made to all Federal Government agencies, as the Government attempts to reduce the Budget deficit. On current planning, there are likely to be more cuts next year, which would reduce even further the capacity of ABRS to initiate new grants. The following ABRS grants in Mycology have been offered for 1997:

Beilhartz, V. C. Cercosporoid fungi on Australian native plants (new project). \$18,532.

Bougher, N. L. Taxonomic revision of the truffle-like Cortinariaceae (*Hymenogaster s. l.* and *Thaxterogaster*) in Australia. \$5,000.

Hyde, K. D. Flora accounts of family Phyllachoraceae. \$20,364.

Johnston, P. R. Rhytismatales of Australia, Part 1. \$8,000.

Shipton, W. A. Taxonomic studies of the family Saprolegniaceae and the order Leptomitales in tropical Australia. \$20,364.

Within the constraints outlined above, the ABRS Advisory Committee, which makes recommendations to the Minister for the Environment concerning the award of grants, assesses all applications against the Research Priorities as determined each year. For the year 1998, the Research Priorities will include three mycological taxa: *Cortinarius*, *Dermocybe*, and *Hygrophoraceae*. A call for applications for 1998 grants will be made in early February 1997, by means of an advertisement in the Weekend Australian, and in the ABRS Newsletter, *Biologue*. *Biologue* will be mailed to everyone listed on the ABRS Participatory Program Register.

Gwen Shaughnessy
Director-Flora
Australian Biological Resources Study.

PROPOSAL TO ESTABLISH A SPECIAL INTEREST GROUP IN EDUCATION

Peter McGee
School of Biological Sciences, The University of Sydney, NSW 2006, Australia.

The study of fungi has traditionally been concentrated in universities. Few formal courses have been taught outside educational institutions. The financial pressure on higher education has meant that areas of study that are less popular have been removed from curricula and staff specifically trained to teach them have not been replaced. Mycology is now taught in few universities in Australia; when taught it is usually as part of plant pathology. Mycology is in danger of disappearing as an independent area of study. An additional approach to the study of the fungi is required to ensure that appropriate material is readily available, in an appropriate form, to whoever wishes to study these diverse and valuable organisms.

At the annual general meeting of the Australasian Mycological Society, brief mention was made of the establishment of special interest groups within the Society. During the dinner that followed the meeting, I discussed a proposal to establish a special interest group in tertiary education with several members who are still employed in universities in academic positions. They gave support in principle to the proposal. I propose the establishment of a special interest group with the specific goal of developing a course in mycology that will become available over the internet.

The course would have introductory material with clear links to microbiology and other appropriate subjects. The curriculum would include taxonomy and biology of fungi. The various topics could be written for people who are attending tertiary institutions, for people with a general interest in mycology, and for people with specific questions to ask about fungi. Use of the internet will enable access to anyone with a modem and the skills to follow a simple package. In other words, we would construct a resource document and a teaching tool.

The use of the internet is deliberate. The cost to the user is minor. Access is available to anyone who wishes to use the material. The flexibility of the internet allows people to download relevant components in whatever order they choose. They may learn the program at whatever rate is appropriate. In particular, the internet will provide the means to interest and inspire school children, for the youngest internet users of today may be the mycologists of tomorrow. Finally, the material may be upgraded and revised whenever it becomes outdated.

The program has a secondary function. It will provide a package to which all members of the Society can contribute. We will, for example, require photographs, videos, information and feedback. We can include matters directly relevant to the Society and we can provide examples that are appropriate for Australians. Links to the Society are important as they provide one area where we may all contribute, and which may serve as a link to a wider Australasian and international audience.

If you are prepared to join a special interest group in education with the Society, would you please contact one of the following:

Dr Peter McGee, School of Biological Sciences A12,
University of Sydney, NSW 2006.
email: peterm@bio.usyd.edu.au
ph.: (612) 9351 2701
fax: (612) 9351 4771

Dr David Guest, School of Botany,
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Dr Ann Bell, School of Biological Sciences,
Victoria University, Wellington, New Zealand.
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IUCN DISCUSSION GROUP

International Union for Conservation of Nature and Natural Resources, Species Survival Commission, Committee for Fungi

Cheryl Grgurinovic, School of Biological Science, University of New South Wales, Sydney, NSW 2052

The Australasian Regional Committee members are: Cheryl Grgurinovic (co-ordinator), Neale Bougher, Tom May, Eric McKenzie and Jack Simpson.

The Species Survival Commission is the primary source of scientific and technical information required for the conservation of endangered species of fauna and flora. It recommends and promotes measures for their conservation, and for the management of other species of conservation concern. Its objective is to mobilise action to prevent the extinction of species, subspecies and discrete populations thereby maintaining biological diversity and improving the status of endangered and vulnerable species.

There are about 120 specialist groups. Each group exists to provide leadership for conservation, to determine and review the status and needs of taxa, and to make these known through publications, films, meetings, etc., in order to promote wise management.

Fungi and Conservation Newsletter, Number 3, September 1995

If you are interested in participating in this group contact the co-ordinator (Email: AEA.lab@unsw.edu.au).

THE AUSTRALASIAN FUNGAL POISONING NETWORK

Following the decision taken at the Annual General Meeting of the Australasian Mycological Society held in Melbourne last October, the formation of the Fungal Poisonings Network has begun. The three coordinators are:

Dr A.M. Young (**convenor**)
 'Bee Cottage'
 c/- Post Office
 Blackbutt, Qld 4306
 Ph.: 071 630 395
 Fax: 071 630 395

Dr Peter Buchanan
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 Charles Sturt University
 Wagga Wagga, NSW 2050
 Ph.: 069 332 093
 Fax: 069 332 107
 email: mcole@csu.edu.au

Although it is early days, the three co-ordinators are very keen to commence gathering information and members are encouraged to forward any relevant data on actual cases, literature, *etc.* to the relevant co-ordinator. As such a large area is being 'developed' by a rather small team, responsibilities for the Australasian area have been allocated as follows:

Peter Buchanan, New Zealand; Mary Cole, Vic, NSW, ACT, SA; Tony Young, WA, Tas, Qld, NT.

Future directions are hoped to include: development of a database, literature lists, a key to toxic fungi utilising Lucid and contact with the relevant poisons centres and medical associations in an attempt to raise both professional and public awareness of the toxic fungi.

(Note: because of solar power arrangements, Tony Young's fax machine is not always on. Please ring first if you wish to send faxed material so that the equipment can be turned on. The setting up of an email address for Tony is to take place shortly and when this is completed, the address will be made available.)

NOTES ON *TORRENDIA*, AND A REQUEST FOR INFORMATION ABOUT THE GENUS IN AUSTRALIA

N. L. Bougher

CSIRO Forestry & Forest Products, Private Bag, P.O. Wembley, Western Australia 6014

Torrendia is a genus of sequestrate (truffle-like) Basidiomycetes. It is generally considered to be a sequestrate relative of *Amanita*. *Torrendia* fruit bodies develop and mature underground, but they may crack the soil surface or partially emerge at a late stage of maturity. Their fruit bodies have a well developed stem and cap, and the stem is subtended by a cup-like volva. The hymenium is loculate and does not produce a spore deposit.

Torrendia has included only two species: *T. pulchella* Bres. which occurs in northern Africa and southern Europe, and *T. arenaria* O.K. Mill. & E. Horak which occurs in south-west Australia. However, there are at least two additional species which we have recently discovered in Western Australia. One is considerably larger than the other known species and is being published as *Torrendia grandis*. The other new species has rather untidy fruit bodies and is being published as *Torrendia deformans*.

Request for information about *Torrendia* in Australia

1. Does anyone have (or know of) records of *Torrendia* in areas of Australia other than Western Australia? It seems unlikely that the Australian species are restricted to WA.
2. Does anyone have records of specimens other than those belonging to *T. pulchella* and *T. arenaria* from anywhere? Perhaps some old dried specimens of *Torrendia* species are hiding under other names in the 'gasteromycetes' section of your herbarium?

If you are able to contribute any information (which will be duly acknowledged) could you please contact: Neale Bougher at CSIRO Forestry & Forest Products, Private Bag PO Wembley Western Australia 6014. Phone: (09) 3870673, Fax: (09) 3878991, or Email: nealeb@ccmar.csiro.au

Two references about the genus *Torrendia*

- Bas, C. (1975). A comparison of *Torrendia* (Gasteromycetes) with *Amanita* (Agaricales). *Beihefte Nova Hedwigia* **51**, 53–60.
- Miller, O.K. & Horak, E. (1992). Observations on the genus *Torrendia* and a new species from Australia. *Mycologia* **84**, 64–71.

THREE NEW PUBLICATIONS FROM WESTERN AUSTRALIA ON MYCORRHIZAL AND OTHER FUNGI

1. *Working with Mycorrhizas in Forestry and Agriculture*

By: Mark Brundrett, Neale Bougher, Bernie Dell, Tim Grove and Nick Malajczuk

This manual provides clear, concise and abundantly illustrated explanations of methods used to work with mycorrhizal plants and fungi. The colour illustrations include 120 pages of photographs and diagrams. There is emphasis on the practical utilisation of mycorrhizal associations in plantation forestry using Australian trees in Asia and Australia. However, we anticipate that most mycorrhizal scientists will find this book to be a valuable research tool, as will many other scientists, forest managers, or students who work with fungi or trees. Summaries of chapters are provided below.

1. The introduction provides essential background information, defines important terminology, illustrates key features of mycorrhizal roots and provides a brief introduction to microscopy.
2. Procedures for collecting, processing and describing macroscopic and microscopic features of larger fungi and the management of fungal collections are explained in detail. This section includes lists of diagnostic features of fungal groups and contains numerous photographs of fungal associates of Australian trees.
3. The identification of vesicular-arbuscular mycorrhizal fungi by characteristics of spores and mycorrhizal morphology is explained. Protocols for isolating and propagating fungi to provide inoculum for practical use are provided.
4. Procedure for sampling roots, examining mycorrhizal associations and quantifying fungal activity in roots and soil are described. An introduction to more advanced sectioning, staining and microscopy procedures is provided.
5. Detailed explanations of procedures for isolating and maintaining sterile cultures of ectomycorrhizal fungi are provided. Methods used for the synthesis of associations and the formulation and application of inoculum are also provided.
6. A guide to the management of mycorrhizal plants includes (i) the prediction of benefits from mycorrhizal inoculation and the selection of superior fungal isolates, (ii) the production, care and quality control assessment of mycorrhizal seedlings in the nursery, and (iii) the mineral nutrient requirements and fertilisation of plants in the nursery and field.
7. Discussion of mycorrhizal field experiments, which includes an introduction to the planning, maintenance and measurement of experiments, as well as data processing and statistical analysis.

This book is published by the Australian Centre for International Agricultural Research (1996). The cost is \$AUS120.00, and it is available through Bibliotech, Anutech Pty Ltd (Reply Paid 440, GPO Box 4, Canberra, ACT 2601, Australia. Phone (616) 249 2479; Fax (616) 257 5088. CSIRO Publishing, PO Box 1139, Collingwood, Victoria 3066; Phone 61 3 9662 7666, Fax 61 3 9662 7555 is also selling this book.

2. *Mycorrhizas for Plantation Forestry in Asia*

Edited by: Brundrett, M., Dell, B., Gong, M. & Malajczuk, N.

ACIAR Proceedings No. 62. Australian Centre for International Agricultural Research, Canberra.

This book contains papers presented at an ACIAR-sponsored conference and workshop organised by CSIRO Division of Forestry and the RITF Chinese Academy of Forestry. It was held at Kaiping, Guangdong Province, China from 7–11 November 1994, and was attended by about 100 delegates including researchers, and forest managers from China, Australia, the Philippines, Vietnam, Indonesia and Thailand. Although this meeting primarily focussed on practical applications of fungi in eucalypt plantations, many participants presented conference papers that encompassed broader interests, such as fungal biodiversity, physiology, ecology and edible fungi. The book contains sections on the following broad topics (1) the diversity, physiology and ecology

of fungi, (2) the development of mycorrhizal technology, and (3) field applications of this technology. This provides the first international exposure for much of the current Australian/Chinese research on mycorrhizas.

This book is published by the Australian Centre for International Agricultural Research (1995). The cost is \$AUS39.00, and it is available through Bibliotech, Anutech Pty Ltd (Reply Paid 440, GPO Box 4, Canberra, ACT 2601, Australia. Phone (616) 249 2479; Fax (616) 257 5088.

3. *Fungi of South-West Australia*

By: Neale Bougher and Katrina Syme

Flyers are now available for this forthcoming book. A copy is enclosed in this *Newsletter*. This book is being published by University of Western Australia Press, and will be on the shelves by March 1997. Comprehensive scientific information and microscopic line drawings are coupled with exquisite colour illustrations of fungi in their natural habitats.

To receive a notice of publication and/or any further information, contact: University of Western Australia Press, Tuart House, Nedlands Western Australia 6907. Tel.: (09) 3803670, Fax: (09) 3801027, Email: uwap@cyllene.uwa.edu.au

RELOCATION OF PLANT PATHOLOGY HERBARIUM (DAR)

The Plant Pathology Herbarium (DAR) is moving from its present location at the Biological and Chemical Research Institute, PMB 10, Rydalmere, NSW 2116, Australia.

From 16 December 1996 the new address of DAR will be:
Plant Pathology Herbarium (DAR)
Agricultural Research and Veterinary Centre
Forest Road, Orange, NSW 2800
Australia

Ph.: (063) 913800 (International +61 63 913800).
Fax: (063) 913 899 (International +61 63 913899).

The herbarium will be moved from its present location in December 1996 but will be unavailable for loans, *etc.* until late February 1997. The culture collection will also be unavailable during this time and perhaps longer until new staff are appointed. Please note that we will endeavour to be back on deck as soon as possible and our apologies for any inconvenience this may cause.

Please bring this to the attention of any of your colleagues.

Michael Priest
Curator DAR

MYCOSURFING ON THE WORLD WIDE WEB

There have been several recent changes to INVAM's Web pages (International Culture Collection of Arbuscular and VA Mycorrhizal fungi). See <<http://invam.caf.wvu.edu/directory.htm>> or <<http://invam.caf.wvu.edu>>

Detailed descriptions of viruses of plants are now available on the Internet. Nearly all known plant viruses are included. The descriptions are derived from the VIDE (Virus Identification Data Exchange) database, using the DELTA system. The descriptions include data on host range; transmission and control; geographical distribution; physical, chemical and genomic properties; taxonomy and relationships; and selected literature references. To access the descriptions begin at <<http://biology.anu.edu.au>>

The Medical Mycology Web site has been updated. It includes several new images of fungi of human, veterinary and environmental importance, short descriptions of most of the mycoses and a medical mycology procedure manual in .pdf format. See <<http://fungus.utmb.edu/myco.htm>>

AnaNet (the Anamorph Information Network) now has a home page on the Web. The issues of AnaNet since January 1995 can be read from this site and most of the issues previous to then can be downloaded as WordPerfect or ASCII files. See <<http://res.agr.ca/ecorc/program2/mycology/anamet/>>

FGSC on-line services have been updated. The FGSC now has the full text of the 43rd Fungal Genetics Newsletter available on-line. Also new at the Web site are the fully updated searchable *Neurospora* databases. See <http://www.kumc.edu/*fgsc/>

The British Society for Plant Pathology is now publishing research in molecular plant pathology and nematology in the electronic journal *Molecular Plant Pathology On-Line*. At <http://www.bspp.org.uk/mppol>. you will find full details of the journal, a list of editors and information for authors.

CONFERENCES AND WORKSHOPS

17–21 March 1997	IMI, Egham, UK	Identification of Industrial and Food Spoilage Fungi	Mrs Stephanie Groundwater, International Mycological Institute, Bakeham Lane, Egham, Surrey, TW20 9TY, UK Ph.: +44 (0) 1784 470111 Fax: +44 (0) 1784 470909 Email: s.groundwater@cabi.org (Please give your postal address.)
18–23 March 1997	Asilomar, CA, USA	The 18th Fungal Genetics Meeting	Dr N. Louise Glass, Biotechnology Laboratory, University of British Columbia, Vancouver, BC V6T 1W5, Canada Fax: 604 822 6097 Email: glass@unixg.ubc.ca
21 April–2 May 1997	IMI, Egham, UK	Modern Techniques in the Identification of Bacteria and Filamentous Fungi	Mrs Stephanie Groundwater, International Mycological Institute, Bakeham Lane, Egham, Surrey, TW20 9TY, UK Ph.: +44 (0) 1784 470111 Fax: +44 (0) 1784 470909 Email: s.groundwater@cabi.org (Please give your postal address.)
19–21 May 1997	IMI, Egham, UK	Identification of <i>Aspergillus</i> and <i>Penicillium</i> species	As above
15–20 June 1997	San Jose, Costa Rica	Tropical Diversity, Origins, Maintenance, and Conservation	< http://www.ots.ac.cr/ > or < http://ecology.umsi.edu/atb/ > OTS, PO Box 676-2050, San Pedro, San Jose, Costa Rica. < atbots@ns.ots.ac.cr >
11 August–19 September 1997	IMI, Egham, UK	International Course on the Identification of Fungi of Agricultural and Environmental significance	Mrs Stephanie Groundwater, International Mycological Institute, Bakeham Lane, Egham, Surrey, TW20 9TY, UK Ph.: +44 (0) 1784 470111 Fax: +44 (0) 1784 470909 Email: s.groundwater@cabi.org (Please give your postal address.)
28 September–3 October	Adelaide	Australian Society for Microbiology, Annual Scientific Meeting	Assoc. Prof. David Ellis Mycology Unit Women's and Children's Hospital North Adelaide, SA 5006 Ph. +61 8 8204 7365 Fax: +61 8 8204 7589 email: dellis@mad.adelaide.edu.au
29 September–2 October 1997	Radisson Observation City Hotel, Perth, Western Australia	Australasian Plant Pathology Society, 11th Biennial Conference	Ms M. Eyres, Secretary 11th APPS Conference Plant Pathology Agriculture Western Australia Baron-Hay Court South Perth, WA 6151 Ph.: (61 9) 368 3694 Fax: (61 9) 367 2625 email: APPS97@agric.wa.gov.au

29 September–3 October 1997	University of Adelaide	Australian Systematic Botany Society (ASBS) National Conference	Robyn Barker Ph.: 08 82282348 Email: rbarker@btg.lands.sa.gov.au
1 October 1997	University of Adelaide	Second Australasian Mycological Conference	Contact address will be in next Newsletter
13–17 October 1997	IMI, Egham, UK	Mycorrhizas—Identification and Techniques	Mrs Stephanie Groundwater, International Mycological Institute, Bakeham Lane, Egham, Surrey, TW20 9TY, UK Ph.: +44 (0) 1784 470111 Fax: +44 (0) 1784 470909 Email: s.groundwater@cabi.org (Please give your postal address.)
15–17 October 1997	Convention Center of Tapachula, Chiapas, Mexico	VI Mexican Mycological Conference	Jose E. Sanchez Vazquez, ECOSUR-Tapachula, Apdo. Postal 36. Tapachula, Chiapas. 30700 Mexico.
29–31 October 1997	IMI, Egham, UK	Culture Preservation Techniques for Filamentous Fungi and Bacteria	Mrs Stephanie Groundwater, International Mycological Institute, Bakeham Lane, Egham, Surrey, TW20 9TY, UK Ph.: +44 (0) 1784 470111 Fax: +44 (0) 1784 470909 Email: s.groundwater@cabi.org (Please give your postal address.)
17–21 November 1997	IMI, Egham, UK	PCR Techniques and Applications	As above
9–16 August 1998	Edinburgh, Scotland	7th International Congress of Plant Pathology	ICPP98 Congress Secretariat, c/o Meeting Makers 50 George Street, Glasgow G1 1QE, Scotland, UK
23–28 August 1998	Jerusalem, Israel	6th International Mycological Congress	Secretariat 6th International Mycological Congress PO Box 50006, Tel Aviv 61500, Israel
1–7 August 1999	St Louis, MO, USA	International Botanical Congress	Contact Don Pfister or Meredith Blackwell with any ideas of topics that will be of interest to the botanical community as a whole, as well as to mycology. Although the meeting is not until 1999, we must offer suggestions now if they are to be considered.

If you know of any other conferences, symposia, workshops, *etc.* that may be of interest to members, please send us the details so the information can be included in the next *Newsletter*.

C. Grgurinovic

REPORT FROM THE NATIONAL BIODIVERSITY COUNCIL

Conferences

Logging of native forests was discussed in a workshop held on 12 January 1996 in Sydney. The workshop was sponsored by the Mullum Foundation and was used by the National Biodiversity (NBC) Councillors to develop a response to government forestry policies, particularly the Comprehensive Adequate and Representative (CAR)

reservation process. Councillors involved included Harry Recher, Hugh Possingham, Roger Kitching and Margaret Blakers.

Forest management was also the focus of a conference organised by Pierre Horwitz and co-sponsored by the NBC and the Centre for Ecosystem Management, Edith Cowan University. The Design of Reserves for Nature Conservation in the Darling Botanical District, South-Western Australia was held on 26 June 1995.

Educating the Government

The NBC has been actively involved in formal decision making. Councillors have been working on several Government committees, including:

- Expert Advisory Group for the Regional Forest Assessment in Tasmania.
- NSW Biological Diversity Advisory Committee (BDAC).
- AQIS review panel.
- Commonwealth State of the Environment Committee.
- NSW Biological Survey Program Steering Committee.
- NSW Resource and Conservation Assessment Council (RACAC).
- Federal Government's BDAC.

In addition there have been two formal submissions made on specific threats to Australia's biodiversity:

1. Submission to the Environmental Protection Authority on the Development of Cape Range Peninsula, Western Australia. Pierre Horwitz and the Council argued that the area is home to some remarkable fauna, most notably, globally rare groups of Crustaceans, and recommended that planning take into account the potential impact on, and likely loss of, biodiversity.
2. Submission to the Australian Quarantine Review Committee on the Importation of Exotic Species. Pierre Horwitz and the Council argued that exotic species cause environmental problems in the Australian landscape which require an economic response. Insufficient regard is paid to potential environmental costs of deliberately introduced species. Under GATT, Australia may feel obliged to accept many more exotic species than is in the national environmental interest. They recommended that:
 - Quarantine provisions should exist between Australian bioregions, into Australia and out of Australia.
 - Adoption of the precautionary principle to protect Australian biodiversity should be recognised as a legitimate objective under the Technical barriers to Trade Agreement.
 - Native species must be investigated for their potential to fill the role proposed to be filled by a non-native species.
 - The impact of any translocations on natural ecosystems must be assessed.
 - Remote areas that are free from introduced organisms should be protected through legislation.
 - Escape of translocated organisms from confinement must be regarded as inevitable.
 - Translocations should only be done using propagules, to minimise the risk of accidental introduction of parasites, symbionts, *etc.*

The new National Biodiversity Council

There will be four key changes:

1. A secretariat will be employed to ensure effective communication between the Assembly and the Council, and to make sure that any responses are made in a timely fashion. The secretariat will also maintain the network of scientific experts, so that all NBC actions are well informed.
2. Assembly members will be able to make submissions and public comments on behalf of the NBC, but only after ratification by the Council to ensure that the NBC has a consistent agenda.
3. The Council will be expanded from 12 to 18 members. This will reduce the workload on individual councillors and allow greater diversity of scientific representation.
4. The Council will have quotas that must be filled. These include a minimum of 1/3 of the Council to be women, 1/3 to be men and 1/3 of the positions are to be filled by non-tenured scientists.

Funding

Without a paid secretariat the NBC will grind to a halt. The NBC urgently needs financial support to establish the secretariat's position. Additional funding will also be sought for running conferences, and covering costs that councillors might incur while representing the NBC. The NBC is seeking incorporation and will apply for tax deductability.

Outlook

There is enormous scope for expanding and improving the NBC. Already in the pipe line are a WWW site, embryonic State branches and issue-specific committees. A secretariat's position has already been established in Western Australia although it is not fully funded.

Environmental debate in Australia sorely lacks scientific input. The agenda are set by developers or government, with green groups reacting. It is our responsibility to make our voices heard and to force governments to recognise the value and implications of our research. The NBC provides a powerful framework that not only gives scientists a voice, but amplifies that voice in a way that people will not be able to ignore. When the new NBC is established, we will be able to build on the foundations laid by the former council, to bring science to the forefront of conservation debates.

Don Driscoll, NBC 1996 Co-ordinator

BOOK REVIEW

Paul Stamets, (1996). *Psilocybin Mushrooms of the World—An Identification Guide*. Ten Speed Press, Berkeley, California, USA. ISBN 0-89815-839-7, 243 pages, illustrated with colour prints. Price US\$24.95.

Towards the end of the 1970s, when interest in the possible occurrence of psilocybin mushrooms in Europe was just awakening, there was hardly any literature on the subject except for Roger Heim's now classic treatise on *Les champignons toxiques et hallucinogènes*. In this book Heim presented *Psilocybe semilanceata* and *Panaeolus subbalteatus* as psilocybin-containing mushrooms which could be found in Europe, but analytical data were still lacking then.

On the other hand, in the USA, a whole subculture surrounding the recreational use of at least half a dozen of these mushroom species existed already. A stream of pamphlets and field guides, often of poor quality, provided information on the identification and location of the hallucinogenic fungi growing in North America. A book that really distinguished itself favourably from all those amateurish publications was Paul Stamets' *Psilocybe mushrooms and their allies* (1978) published by Homestead Book Company, Seattle. This guide did not only give user-friendly keys for the genera *Stropharia*, *Psilocybe* and *Panaeolus*, but also excellent descriptions of the individual species, illustrated with very good colour prints. This book has been most helpful to those European mycologists who wanted to find out whether these mushrooms could also be found in their respective countries.

Now, some twenty years later, not only the number of known hallucinogenic *Psilocybes* and *Panaeoli* has increased dramatically, but on both sides of the Atlantic Ocean it was discovered that psilocybin and psilocin also occur in representatives of unrelated genera, such as *Conocybe*, *Pluteus*, *Gymnopilus*, *Inocybe*, and even in *Galerina*.

It was therefore time to bring out a new, updated book on the subject, and it was again Stamets who has taken the initiative in editing a worldwide guide. After short introductory chapters on, for example, history, ecology, world-wide distribution of psilocybin mushrooms, and habitats, the greater part of the book—characterised by yellow pages—is devoted to the psilocybin genera. The part on *Psilocybe* and *Panaeolus* is undoubtedly the most interesting. Not only are there good descriptions of macroscopic and microscopic characteristics, but also high-quality colour prints which are not to be found elsewhere. The illustrations are better than those in Guzman's well-known guide to the genus *Psilocybe*. As far as current knowledge permits, the contents of the active principles psilocybin, psilocin and baeocystin are listed for each species. There are also some descriptions of inactive species which are often erroneously considered hallucinogenic, for example, *Panaeolina foenicicii*, *Panaeolus antillarum* and *Psilocybe coprophila*. Of course many of the 63 species of *Psilocybe* described by Stamets are tropical or subtropical species, and there are even a few which have only been discovered quite recently, for example *P. samuiensis* Guzman, Allen & Merlin from Koh Samui Island, Thailand and a strongly blueing species *P. natalensis* described from South Africa by Gartz *et al.*

The chapter on 'minor psilocybin genera' is, as far as the hallucinogenic *Inocybe* species are concerned, mostly based on the papers by Drewitz, Gartz, and Stijve & Kuyper. For somebody familiar with the literature there are no surprises. The lack of photos of the said species of *Inocybe* is somewhat disappointing. The occurrence of psilocin/psilocybin in some *Gymnopilus* species is still a matter of conflicting reports. According to this reviewer's experience, a positive or negative result could well depend upon the time interval between collecting the mushrooms and their chemical analysis. Fresh, strongly blueing *Gymnopilus purpuratus*, for example, contain much psilocin, but this can disappear completely in about two weeks even in dried material.

In contrast to his previous book, Stamets is now making propaganda for the recreational use of psilocybin mushrooms, although there is the usual disclaimer from the editor who 'does not advocate violating the law'. It is, however, significant that Stamets' first book was prefaced by the mycologist Gaston Guzman, whereas in this volume the foreword is by the medical doctor Andrew Weil, who has gained some notoriety by his mystic and pseudoscientific writings. We should therefore not be surprised that this book subscribes to certain far-fetched

theories, for example, the faculty to biosynthesize psilocybin is seen as a competitive evolutionary advantage because the consumers help in disseminating the spores thus propagating the species. Moreover, the author states that psilocybin mushrooms are carriers of messages from Nature about the health of the Planet: their widespread consumption in the 1970s prompted the ecological movement! Furthermore, it is repeatedly emphasised that, during the past 20 years in the USA, *Psilocybe* mushrooms are increasingly found in places wherever people congregate: in parks, lawns by housing developments, schools, churches, *etc.* Admittedly, Stamets also mentions the role that the growing use of wood-chips plays in creating a suitable habitat for lignicolous species such as *P. stuntzii* and *P. cyanescens* in parks and gardens.

The author rightly points out the need to properly identify the psilocybin mushrooms one wants to collect. Indeed, severe cases of poisoning have occurred in people who were foolhardy enough to randomly ingest little brown mushrooms. Amateur collectors should be able to distinguish the highly poisonous amatoxin-containing *Galerina* species from *Psilocybe*. For this purpose the chapter on the dangers of mistaken identification shows a very good photograph, depicting *Galerina autumnalis* and *Psilocybe stuntzii* growing side by side.

In the chapter 'Good tips for great trips' the reader finds—as usual in this kind of literature—much talk about the great experiences offered by psilocybin mushrooms. The dangers of actually ingesting these consciousness-altering fungi, especially to nervous persons, are played down. Stamets even cites a psychiatrist who in 20 years of medical practice never had a patient complaining of a bad mushroom session. We should, however, give the author credit for suggesting a number of valid precautions to minimise bad experiences and maximise the positive, for example, he emphasises the importance of time and setting for the actual trip. Much attention is also paid to the right dosage by supplying tables and histograms based on comparative potency of the principal hallucinogenic *Psilocybes*.

The book has a literature list that is updated to 1996. It largely covers the relevant publications on the subject. This 12 page list is wrongly called 'Works cited', because many a paper is not mentioned in the text.

Summarising it can be said Stamets' book is by far the best and most complete guide to psilocybin mushrooms. Even if one is only mycologically interested in the genus *Psilocybe* the purchase is still warmly recommended. Considering the quality and quantity of information provided, the price of the book is very low.

Tjakko Stijve, Sentier de Clies no 12, CH -1806 St L gier, Suisse.

BLACK TRUFFLES

At least one firm of food wholesalers in Sydney has recently been flying in stock of fresh black truffles from France. Price is \$1865.00 per kg. I am told each consignment sells out within a few days. It would seem there are a lot of people in the 'foodie' capital of Australia who have a liking for expensive omelettes or is it the yearning for a Christmas turkey with a distinctive taste?

J.A. Simpson

NEW MEMBERS

Full members:

David Catcheside, Flinders University, SA.
 Pamela Catcheside, Bellevue Heights, SA
 Sophie Ducker, Balwyn, Vic.
 Ian Endersby, Montmorency, Vic.
 Douglas Parbery, Mont Albert, Vic.
 Gretna Weste, University of Melbourne, Vic.

Student member:

Michael Bock, Noble Park, Vic.

THE 11TH NEW ZEALAND FUNGAL FORAY

**Camp Wainui, Wainuiomata, Wellington
evening of Monday 5 May to morning of Friday 9 May 1997**

Camp Wainui is in the Rimutaka Ranges and on the southern edge of Wainuiomata, approximately 20 km by road from central Wellington. The range has a typical gully ridge system of forest types with *Nothofagus truncata* on the drier ridges and broadleaf podocarp forest in the damper gullies. The mosaic of forest types should provide good collecting although as usual we are at the mercy of the weather. A very limited number of microscopes and driers, *etc.* will be available.

The cost of accommodation will be about \$10 per night, plus the additional cost for food. In what I think can be called a long-standing tradition, meals will be prepared by Lawrie Taylor.

A limited number of grants towards the daily cost and/or transport to the foray are available for students. More information is available from Geoff Ridley.

Geoff Ridley, NZ Forest Research Institute, Private Bag 3020, Rotorua, New Zealand. Ph.: +64 7 3475899; Fax: +64 7 347 5333; Email: ridleyg@fri.cri.nz

✂ _____

Registration for the 11th New Zealand Fungal Foray, Wainuiomata, 5–9 May 1997

Name:.....

Address:.....

.....

.....

Ph.:

Fax:.....

Email:.....

Number attending:.....

Deposit (\$30/person) enclosed: \$.....

I require assistance with transport from Wellington city: YES/NO

Please make cheques payable to 'Foray account'.

✂ _____

CALL FOR CONTRIBUTIONS TO THE NEWSLETTER

The editors would like to thank all those who contributed to this issue of the *Newsletter*. We would greatly appreciate continued support and would particularly like to receive contributions from members who have not previously written articles for the *Newsletter*. We would appreciate it if authors would adhere to the *Newsletter*'s style, especially with regard to references where we would like the journal and book titles in full.

C. Grgurinovic & J. Simpson

DEADLINE FOR NEXT ISSUE

Articles for the next *Newsletter* are due by Friday 7 March 1997. If articles are more than half a page long, the editors would appreciate a copy on disc. The disc will be returned after publication of the *Newsletter*.

MEMBERSHIP IS NOW DUE FOR 1997

Please note that membership subscriptions for 1997 are now due. Subscription forms are at the back of this *Newsletter*. **New members who subscribed at the mycology conference at the University of Melbourne have already joined for 1997.**

RENEWING MEMBERS OF THE AUSTRALASIAN MYCOLOGICAL SOCIETY, INC.

Membership subscriptions are due on 1 January 1997. If you have not renewed your suscription by March 1997, this will be your last copy of the *Newsletter*.

Make cheques payable to the Australasian Mycological Society, Inc. Subscriptions should be sent to the Treasurer:

Mr Heino Lepp
PO Box 38
BELCONNEN, ACT 2616, Australia.

✂

Name:.....

Address:.....

.....

.....

.....

Phone Number:.....

Fax number:.....

Email address:.....

✂

NEW MEMBERS OF THE AUSTRALASIAN MYCOLOGICAL SOCIETY, INC.

AUSTRALASIAN MYCOLOGICAL SOCIETY INCORPORATED
(incorporated under the Associations Incorporation Act 1991)

APPLICATION FOR MEMBERSHIP

I,
of

(address)

Phone number:.....

Fax number:.....

Email address:.....

.....hereby apply to
(occupation)

(full time students must show evidence of enrollment at a secondary or tertiary institution)

become a member of the abovenamed incorporated association. In the event of my admission as a member, I agree to be bound by the rules of the Society for the time being in force.

.....
(signature of applicant)

Date

I,
(full name)

a member of the Society, nominate the applicant, who is personally known to me, for membership of the Society.

.....
(signature of proposer)

Date

I,
(full name)

a member of the Society, nominate the applicant, who is personally known to me, for membership of the Society.

.....
(signature of proposer)

Date

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