

appearing in early Spring when the snow has just disappeared. The authors call it a tasty mushroom which was formerly sold in large quantities. However, in Western Switzerland people still pay the equivalent of about \$5 for 100 grams of these mushrooms, which are now even imported from France.

The photographs of the Parrot waxcaps (*Hygrophorus psittacinus*) are breath-taking, but the text mentions that the green pigment is water-soluble, and that older specimens may therefore have a yellow appearance. This is hardly true. Just as other photographers of fungi, Waldvogel must have known that the greenish coloration rapidly fades in direct light, and that one must work rapidly to take the picture.

Clearly, the book is worth buying because of its competition-defying photographs. The amateur mycologist will use it mainly at home to check his preliminary identifications performed in the field. The book also has photographs of rare mushrooms which are not easily found elsewhere. Just to give an example, this reviewer could, simply by leafing through the book, readily recognise two recent findings done among alder shrubs in a swamp. A bizarre Roll-rim proved to be *Faxillus rubicundulus*, whereas a less current bluing bolete with a bent stipe, growing in sheet-like clusters, was readily identified as *Gyrodon lividus*.

Purchase of this book is warmly recommended.

A TALE OF TWO CDS

Reviewed by H. Lepp

Fungimap. (2001). *Compendium of Fungimap Target Species*, CD-ROM, Version 1.0. Fungimap, Melbourne, Australia.

'Requires PC/Windows and screen resolution at least 800×600 and high colour'. \$15 + \$3 postage (within Australia). Enquiries to: fungimap@rbg.vic.gov.au or Fungimap, Royal Botanic Gardens Melbourne, Birdwood Avenue, South Yarra 3141, Australia.

Young, A.M. (2001). *101 Forest Fungi of Eastern Australia*, CD-ROM, Version 1.0. Knowledge Books & Software, Brighton, Qld and ABRIS, Canberra.

Requirements: 'Windows 3.X, Windows 95-98, Windows ME, NT 4.0/ Web browser IE or Netscape/ 486SX or Pentium/CD ROM double spin or better, 4mb RAM, VGA card, Mouse'. \$95 + \$5 postage (within Australia). Enquiries to: rob@kbs.com.au or Knowledge Books and Software, 40 Seaview Street, Brighton, Queensland 4017.

While these CD-ROMs have some common content and are targeted at non-mycologists, they have quite different aims. The first aims to let those involved in the Fungimap project (explained below) answer the Basic Question: Is the fungus I found today one of the target species? The other CD-ROM aims to provide some general information about fungi as well as an easy key to 101 (mostly common) fungi found in the forests of eastern Australia.

Fungimap

Fungimap aims to allow non-mycologists help map the Australian distributions of 100 target species, each recognizable by macroscopic features. Few people will see all 100 species but, no matter where you live, you should see some target species locally. Most of the Fungimap CD-ROM is devoted to those 100 species. There is also an explanation of Fungimap (and how to get involved), copies of all the Fungimap newsletters up to issue 12 (August 2000), and if you have an Internet connection you can get to the Fungimap website simply by pressing a button. Fungimap is based on reports of visual sightings not on submitted specimens so access to good photographic images of the target species is essential and that's the prime aim of this CD-ROM.

When you load the CD-ROM, the first screen gives you the option of going to the target species, to Fungimap details, information about the CD-ROM or some basic fungal background information. The 'How to use this CD-ROM' section explains the workings of the CD-ROM and gives admirably clear explanations of features and their uses. A couple of screen headings in that section have overprinted headings. That glitch does not hinder the user in any way. The basic background section gives some very limited mycological detail, references, a glossary of technical terms without illustrations, and brief hints on how to photograph fungi. All of this information is fairly basic, as acknowledged by the creators, and the plan is to greatly expand these areas in Version 2.

If you want to go to the target species you start by choosing a category. For example, you can ask for Puffballs/Earthstars and you will then be shown large thumbnail photographs of eight species of powdery-spored gasteromycetes. Click on a thumbnail and you will be taken to the main screen for that species. Of course you could have chosen type of hymenophore (Gills or Pores or Spines) or Bracket Fungi or one of a few other options instead. There is also the option of going to an alphabetic listing of all species, or a taxonomic list (e.g. Ascomycetes by order and family). You can choose by colour. The user is given a good variety of entry points to the target species but you cannot combine selection criteria. So you can choose Orange or you can choose Gills but not 'gilled, orange fungi'. For fungi other than agarics that is not a problem since any non-agaric choice gives you just one screen of thumbnails. However, if you select Gills, you get three screens of thumbnails (at 15 per screen), in alphabetic order of genus/species. That's still not a tiring number of thumbnails to scan, but for the agarics the ability to use colour as an additional selection option would be helpful. The species are multiply classified where necessary. Thus *Mycena interrupta* can be found under Gills and under Blue while *Podaxis pistillaris* can be found in three categories: Club-like, Desert species and Puffballs.

When you get to the main entry for a particular species, there will be (usually) a large colour photo of the species, with arrows to the distinguishing features, and notes about it. Nine species lack photographs. There will also be notes about habitat, lookalike species (if any) and how to separate them. Usually sizes are given but there are exceptions, e.g. *Camarophyllus lilacinus*, *Dictyopanus pusillus* and *Entoloma virescens*. The screen also gives the etymology of the genus and species names and the taxonomic hierarchy (Division, Order, Family) for each species.

There are said to be 700 photos on the CD-ROM, so usually there are several photographs of each species and these extra images are easily called up. The quality of the photographs varies from poor to superb, but (except for the nine cases noted above) there is always at least one good photograph for a species. In the Further Information page there's usually a well laid out verbal description of macroscopic features (remember Fungimap works on macro features only) and further references. Sometimes the references are given in full, but often they are cryptic (for the novice), e.g. 'Fuhrer p80'. Even those with full references may end with cryptic codes such as D, P or CP which presumably means the reference in question gives a Description, Photo (b/w) or Colour Photo. *Hygrophorus lewellinae* is referred to as *Hygrocybe lewellinae* in the Further Information page. The producers state on the CD-ROM that 'completing all descriptions and photographs and improving consistency' is a high priority for Version 2.

There is a distribution map for each species with herbarium records, literature records and Fungimap visual records shown in different colours. This immediately shows the Fungimap contribution; e.g. in Tasmania there are Fungimap records but no herbarium records for *Mycena interrupta* and *Omphalotus nidiformis*! I have pointed out some shortcomings in this CD-ROM, but that does not diminish my admiration for the product.

101 Forest Fungi

There are two components to this CD-ROM: Fungi Key and Fungi Reference. The first part is a Lucid key to the 101 species (though the sleeve claims 100 species) while the second contains general mycological information. For brevity I'll refer to the two components as Key and Reference respectively.

To get to a species, the Key lets you choose combinations of characters (not possible with the Fungimap product), thereby allowing you to quickly refine your search. As each character is selected (via an easy click and drag from one window to another) the species still remaining are listed in another window on the screen. There is an online tutorial to explain Lucid's workings. Screen 3 refers to the 'Character States Available' window when it means 'Character States Chosen' window. Within Lucid there is an Information button which lets you bring up text about various topics. This text is duplicated in the Reference section. However, in the Reference section you can see the illustrations that go with the text whereas in the Key you can see text and picture captions but no pictures.

When you have keyed out to a species you have three options. You can choose to read the notes about the species, look at the image(s) or search further on the Internet. The quality of the photos varies from poor (e.g. the heavily shadowed *Cyttaria gunnii* ascocarps on a tree) to excellent, but there is at least one good image for each species. The notes contain a macroscopic description of the species, spore details, habitat, distribution (the latter in very general terms not the maps of Fungimap) and other useful features. The description is in a block of text and not as well laid-out as on the Fungimap CD-ROM. It is unfortunate that, with only the rare exception, no further references are given for the user who wants to find out more about the species in question.

The species notes in the Key are duplicated with one difference in the Reference section. Except for one species, all the descriptions in Key contain measurement errors, for they have no enrules (dashes) to separate range extremes. So in the *Amanita punctata* entry for example, the spore size is given as $1012.5 \times 9.511.5 \mu\text{m}$ (instead of $10-12.5 \times 9.5-11.5$). Incidentally, you can see this error even on the screen image shown in the advertising flyer for the CD-ROM. The curse of the missing enrule also affects many of the macroscopic descriptions e.g. the cap of *Conchomyces bursaiformis* is '36cm in diameter (although caps as large as 12cm have been reported)'. The enrules do appear, in the identical text, in the Reference section.

The non-mycologist will be able to identify many common eastern Australian species but such a user will also have problems. As acknowledged by Young, many common species are not included so reference to 'lookalikes' would have been useful. For example, *Amanita punctata* is not the only grey-capped *Amanita* and someone who misses the tiny pores on *Microporus xanthopus* (not in the Key) could think this to be a species of *Cymatoderma* (in the Key).

There are various textual or image inadequacies (or errors). Here are some examples: in the description of *Calostoma fuscum* there is particular mention of the stem structure but the stem is not shown in the one photo of this species. Young writes it is 'Uncertain if the Australian species [*Cyttaria gunnii*] has been tested for food' yet in Volume 1B of the *Fungi of Australia* Kalotas cites references from the 19th Century to this species being eaten by Aborigines. The fruiting bodies of *Fuligo septica* do NOT form 'rather slimy masses', that is the plasmodial stage and there is no mention of the powderiness of the sporing stage. In the description of *Lactarius clarkeae* there is no warning that latex production may not be evident in dry weather. To my inexpert eye, Figure 9 (labelled as 'Cicada nymphs infected with an undescribed *Cordyceps* species') looks very much like *Paecilomyces cicadae* as featured in Figures 25 and 26 of *Fungi of Australia*, Volume 1B.

You can ask for an Internet search using any or all of five search engines (Altavista, Excite, Google, Infoseek, Yahoo). However, there seems to be an inherent problem with this CD-ROM facility. I looked for *Aseroe rubra* using Altavista via the CD-ROM and after 90 seconds was unsuccessful. An immediate Altavista search outside the CD-ROM gave 55 references in under 2 seconds. This happened with several of the fungi I searched for.

The Reference section discusses various mycological topics and, as noted above, duplicates the species information of the Key. In Reference the species are grouped by types, so you can choose to get a list of all jelly fungi or the stinkhorns etc. a bit like the Fungimap grouping. Within each group you'll get a list of species (not thumbnails) and by clicking on a name you'll get the information (with dashes!) and photos for that species. The rest of the Reference section touches on a variety of topics (e.g. mycorrhizae, Gondwana, ascomycetes, basidiomycetes, mycelia, fairy rings, luminous fungi, vegetable caterpillars, fungal toxins, growth/reproduction) giving an adequate introduction? each a few paragraphs long. Consumption of fungi by animals is disposed of in two sentences. Given the great variety of sequestrate fungi in Australia and the good documentation of marsupial use of these, this seems inadequate. There is mention of cellulose breakdown by fungi but nothing about the fungal breakdown of lignin, a more recalcitrant polymer. While mycorrhizae are discussed why not put some oomph into the text and say that 80-90% of plants are mycorrhizal? There is also a glossary and a list of further references. Within the Reference section there are numerous links (e.g. to the glossary or other subsections) but for me few of them took me where they were supposed to take me.

The following are some of the terms used on the Young CD-ROM but not included in the glossary: adpressed, apiculus, ascomycete, basidiomycete, ectomycorrhiza, plasmodium, sterigma. Sure, they are defined elsewhere but the same is the case with many other words in the glossary. There are also some oddities in the glossary: boletus is taken as synonymous with bolete; veil is defined when partial veil is meant. As with the Fungimap CD-ROM there are no diagrams; at the very least, gill attachments should be defined with the help of diagrams.

Further References lists Australian and European works from beginner to specialist level. While I do not expect a massive list I was surprised at what has been left out. Jack Aberdeen's self-published booklet on Australian Lepiotoid fungi is not mentioned. Ann Bell's marvellous monograph on New Zealand dung fungi is also missing. If you're going to include Cunningham's seriously outdated polypore book why not add the up to date Quanten (1997) *Polypores of Papua New Guinea*? The first two volumes of the *Fungi of Switzerland* should be mentioned since many of the ascomycetes and aphylophorales pictured there can be found in Australia and rarely get much space in Australian field guides. Then there is nothing American. So Richard Phillips' large format European picture book of fungi is noted but not the American equivalent. What about the Mad River Press publications and Bryce Kendrick's wonderful *Fifth Kingdom*?

I haven't the space to list all the shortcomings. Overall, I am left with the impression that this CD-ROM was produced in a great rush with insufficient attention to proofreading and checking of information.

Conclusion and comparison

Do these products achieve their aims? The Fungimap CD-ROM comes very close, falling short just because of those species without photographs. With all other species, a non-mycologist should be able to answer the Basic Question confidently and even in some of those image-less cases the verbal descriptions should be enough to do the job. The non-mycologist will pick up some basic fungal facts from 101 Forest Fungi and be able to identify a number of species but is also likely to leave with a false sense of confidence. The two CD-ROMs have 34 species in common. So, if you buy both you won't have a great duplication of species. However, while the Fungimap CD-ROM gives excellent value for money, the other is a disappointment. With only a little more effort it could have been a great product.

A FIELD COMPANION TO AUSTRALIAN FUNGI, REVISED EDITION
by Bruce Fuhrer (2001) Bloomings Books, Hawthorn, Victoria, Australia
Price \$AUS24.95 sales@bloomings.com.au

Reviewed by C. Grgurinovic

This book has had a previous casebound edition, the first printing in 1985 and the second in 1993. This revised edition is paperback.

This edition has the corrections in the errata page in the 1993 printing included in the text, and a number of other corrections. The reviewer is aware of a number of other recent changes: page 24 lists *Coprinus micaceus*. This is probably *Coprinus truncorum*. *Gymnopilus pampeanus* has recently been reduced to synonymy under *G. junonius*. *Paxillus infundibuliformis* has been recently transferred to *Austropaxillus*. However, these are only minor corrections.

The beautiful photographs in this book and its inexpensive price make it an ideal addition to the library of anyone interested in Australian natural history.