Fungi of the southwest slopes & Upper Murray Region of NSW

Fungi underpin almost every terrestrial ecosystem on the planet. With their curious forms, complex life histories and short-lived fruitbodies, fungi provide a fascinating subject for naturalists and aesthetes alike. The Southwest Slopes and Upper Murray Region of NSW offer a huge diversity of habitats for fungi. The majority of fungi in the region await discovery with many still yet to be formally named.

The fungi illustrated in this guide represent just a selection of the more readily recognisable species. They can be found in substrates as diverse as leaf litter, living trees, fallen logs and woody debris, all sorts of soil and herbivore scats. Fungi also grow in marine and fresh water, although these are microfungi and not included in this guide. Lichens are also classified as fungi and grow on an even greater range of substrates including human-made compounds such as glass, metal and rubber.

Identifying Fungi

Many fungi can be identified using field characteristics - i.e. features of the fruitbody that are visible to the naked eve. The major field characteristics are illustrated in the accompanying diagram. Other species require examination of microscopic structures or DNA sequencing for accurate identification.

Be aware that it is not possible to identify fungi accurately from images alone as many species vary greatly in colour and form. The most accurate way to identify fungi to species level is with taxonomic keys that provide written descriptions of the diagnostic features. A selection of field guides and websites is listed below to assist you further with identifications.

Fruitbody Forms

The most familiar fungus fruitbodies are likely to be the Agarics - those that typically have an umbrella-like form and lamellae (thin plates also called gills) beneath the cap, commonly referred to as mushrooms. However, fungi appear in a great variety of other fruitbody forms such as puffballs, clubs, discs, polypores and coral fungi. The species in this guide are arranged alphabetically within these generic morpho-groups.

Edible & Poisonous Fungi

Foraging for edible fungi grows ever more popular, but be aware that knowledge about edibility of native fungi is scant and deadly poisonous species exist in Australia. Many cases of poisonings including fatalities are reported each year. In the event of a poisoning or suspected poisoning contact the NSW Poisons Information Centre on 13 11 26.

Websites and Contacts of Interest

GER/S2S Murray Local Land Services Fungimap Holbrook Landcare Network NSW Poisons Information Centre Australian National Botanic Gardens Atlas of Living Australia

greateasternranges.org.au murray.lls.nsw.gov.au 1300 795 299 03 9252 5374 fungimap.org.au holbrooklandcare.org.au 02 6036 3181 131126 poisonsinfo.nsw.gov.au anbg.gov.au/fungi

Selected Field Guides That Include NSW Fungi (Available from Fungimap)

Grey, P. & Grey, E. (2005). Fungi Down Under. Fungimap, Melbourne. McCann, I.R. (2003). Australian Fungi Illustrated. Macdown Productions, Vermont. Fuhrer, B. (2005). A Field Guide to Australian Fungi. Bloomings, Melbourne. Young A. (2005). A Field Guide to the Fungi of Australia. NSWUP, Sydney.

ala.org.au

Acknowledgements

Research, photography and illustration: Alison Pouliot. Copy: Alison Pouliot, Julia McCourt (MLLS) and Kylie Durant (HLN). Special thanks to Tom May, Paul George and John Walter for invaluable advice in validating fungus identifications and to Valérie Chételat for photographic assistance.

This project is supported through funding from the Australian Government.

Cover Image: Growing in leaf litter, the Ruby Mycena (Cruentomycena viscidocruenta) is a saprobic fungus, recycling organic matter and returning nutrients to the soil.

Fungi

of the southwest slopes & Upper Murray Region of NSW





NSW







Agarics





Vermillion Grisette

GILL M

Armillaria hinnulea

GILL S, P

Australian Honey Fungus

GILL S, P





Collybia eucalyptorum* Cortinarius archeri* Emperor Cortinar GILL M



GILL M

Amanita muscaria*

Fly Agaric

GILL M

GILL S





GILL S

Coprinopsis nivea Snowy Ink Cap

GILL S



Armillaria luteobubalina* Coprinus atramentarius* GILL S



Cortinarius austrovenetus*

Green Skinhead

GILL M

Australian White Webcap

GILL M

Elegant Blue Webcap



Coprinus comatus* Lawyer's Wig GILL S

GILL M







Agarics

Cortinarius sinapicolor*

GILL M



Gymnopilus junonius* Spectacular Rustgill GILL S



Hvpholoma fasciculare Sulphur Tuft GILL S



Agarics

Macrolepiota clelandii* Parasol Mushroom GILL S



Mycena austrofilopes

GILL S



Mycena subgalericulata Psilocybe subaeruginosa Schizophyllum commune GILL S

Agarics



Split Gill GILL S



Cortinarius austroalbidus* Cortinarius sublargus* Hygrocybe astatogala* GILL S



Lactarius deliciosus Saffron Milk Cap GILL M



Marasmiellus affixus* Little Stinker GILL S



Mycena clarkeana GILL S



Omphalotus nidiformis* Ghost Fungus GILL S, P



Blue-Staining Psilocybe

Rickenella fibula Little Pin

GILL S

Stropharia semiglobata GILL S



Crepidotus variabilis Variable Oysterling GILL S

Ruby Mycena

GILL S







Cortinarius rotundisporus* Cruentomycena viscidocruenta* Hypholoma brunneum* GILL S



GILL M

Lepista nuda*

Blewitt

GILL P

Lactarius eucalypti* Marasmielllus alveolaris*

Eucalypt Milk Cap GILL S



Marasmius elegans* Velvet Parachute GILL S



Yellow-Stemmed Mycena GILL S



Mvcena interrupta* Pixie's Parasol GILL S

Oudemansiella gigaspora group* Russula persanguinea* Tricholoma aff. terreun Rooting Shank









GILL M

Volvopluteus gloiocephalus* Common Rosegill GILL S



Deer Mushroom

GILL S







GILL M







Fungi with Pores

Suillus luteus

Suillus luteus

PORE M

Fistulina hepatica*

Beefsteak Fungus

PORE S, P

PORE S

PORE P

Pycnoporus coccineus

Scarlet Bracket Fungus

PORE S, P

Rigidoporus lateus

PORE P

Ryvardenia campyla

Weeping Polypore

PORE P



Austroboletus lacunosus group* PORE M



Fistulinella mollis Marshmallow Bolete PORE M



Laetiporus portentosus*

Boletus barragensis PORE M



Boletellus obscurecoccineus* Rhubarb Bolete PORE M





Rainbow Fungus PORE S

Pores / Tooth Fungi / Corals / Earthstars

Hvdnum repandum*

Hedgehog Fungus

ТООТН М

Phellodon niger

Black Tooth

TOOTH S

Clavaria miniata

Flame Fungus

Ramaria aff. formosa

CORAL M

Geastrum fornicatum'

Arched Earthstar

EARTHSTAR S

CORAL S

Puffballs / Chantarelles / Jellies / Truffles / Clubs

Craterellus cornucopiodes*

Horn of Plenty

CHANTARELLE M





Aleuria aurantia* Orange Peel Fungus CUP S



Tremella fuciformis*

White Brain

JELLY S

Plectania campylospora* DISC S



DISC S



Bisporella citrina group Lichenomphalia chromacea* Lemon Disco DISC S

Phlebia subceracea Stereum ostrea* Golden Curtain Crust PORE S

PORE S

Podoscypha petalodes*

Rosette Fungus

PORE S

Stereum hirsutum*

Hairy Curtain Crust

PORE S







Golden Splash Tooth

Stereum rugosum Clavaria amoena* Wrinkled Stereum

CORAL S

EARTHSTAR S

Geastrum triplex Collared Earthstar

Pisolithus sp.

PUFFBALL M

Calostoma fuscum

Common Prettymouth

PUFFBALL S

Lycoperdon pyriforme

Stump Puffball

PUFFBALL S

Scleroderma cepa

Earthball

PUFFBALL M

Pseudohvdnum gelatinosum Cordvceps robertsii oothed Jelly JELLY S















Antlered Caterpillar CLUB P























CUP S



Cups / Discs / Lichens / Slime Moulds





Map Lichen

Chlorociboria aeruginascens* Rhizocarpon geographicum Blue Green Stain Fungus DISC S LICHEN Y



Icicle Fairly Fans MYXO S

Fuligo septica

Dog Vomit Slime Mould

MYXO S

DISC S



Yellow Navel LICHEN Y

Slopes to Summit and the Importance of Connectivity

Slopes to Summit (S2S) is governed by a Working Group of nine organisations including Nature Conservation Trust of NSW, Charles Sturt University, Holbrook Landcare Network, Murray Local Land Services, CSIRO, Australian National University, Parklands Albury Wodonga, Albury Conservation Company, and the NSW Office of Environment & Heritage. The group has a vested interest in the management and protection of biodiversity in the Eastern Murray region of NSW, and ensuring the protection the region's biodiversity in the face of climate change. The S2S region extends from the mountains of Kosciuszko National Park in the east to the fragmented agricultural landscapes of the southwest slopes including the Murray River and Billabong Creek catchments. The area includes box-gum woodlands, riverine forests and floodplains, and wet and dry sclerophyll forests.

S2S is one of the regional partnerships under the Great Eastern Ranges (GER) initiative that are working together to improve habitat and connectivity. Over 64 percent of NSW's listed threatened species exist within the GER area. Our local biodiversity, which includes an abundance of fungi, plants and animals, is under enormous stress resulting from widespread clearance, fragmentation of habitat and climate change. Connectivity conservation is about ensuring we enable a range of a species to move between habitats and therefore maintain healthy and resilient populations.

Fungi support ecosystems through their expansive scaffolds of mycelia (the vegetative underground part of the fungus). They bind soils and aerate them by creating spaces between particles, as well as filtering water. Along with bacteria and invertebrates, fungi are major recyclers of organic matter. Through enzyme secretion fungi dismantle large organic molecules into simpler forms, building soils in the process. Fungi cycle and govern nutrient and energy flows through ecosystems, regulating resources for subterranean and above-ground organisms.

You can help protect fungi by managing the landscape matrix

- · Protect remnant vegetation and increase diversity of mid and understorey species
- Retain organic matter such as leaf litter and fallen wood of various sizes and ages on the ground
- Maintain good ground cover in pasture areas
- · Minimise soil compression through use of heavy machinery
- Minimise irrigation and chemical application
- Retain areas of native pasture
- · Establish connections between patches of vegetation for movement of species
- Control pests and weeds as they compete for resources and degrade habitat
- · Retain and protect paddock trees and have a succession plan for them



Fungal Trophic Modes

Fungi can be divided into three groups based on how they obtain their nutrition:

- 1. Most fungi are saprobic (saprotrophic) and decompose dead organic matter. They can break down lignin, cellulose and chitin and grow in rotting logs, leaf litter and other organic material.
- 2. Some fungi are parasitic and obtain nutrition from a living host organism, with no benefit to the host. They grow in living plants and other fungi, while some specialised groups parasitise invertebrates and other animals.
- 3. Mycorrhizal fungi form symbiotic, mutually beneficial relationships with the rootlets of plants.

Another symbiosis is that of lichens which is a relationship between a mycobiont (fungus) and a photobiont (an alga or cyanobacterium). Lichens are classified as fungi.

These trophic modes assist in identification, as particular species are associated with certain habitats or plant species. Nutrition modes are indicated by the following symbols: M (mycorrhizal), S (saprophytic), P (parasitic) or Y (symbiotic).

Slime Moulds

Another unusual group is the Myxomycota or slime moulds. Slime moulds are not fungi but occupy a kingdom of their own, the Protista. Slime moulds are included in this guide because historically they have been adopted by mycologists and often attract attention due to their bright colours and bizarre forms.

Fungal Substrates

Fungi grow on a huge diversity of substrates including various types of soil, living or dead wood, leaf litter, native animal scats, moss beds, invertebrates as well as other fungi. The type of substrate where each species is usually found is indicated with a colour code:



Fungimap Target Species

Fungimap serves as a hub of information and interaction among fungal experts and enthusiasts and includes the mapping of 200 easily recognisable target species. Those images in this guide that are target species are indicated by an asterisk (*). You may like to contribute your records of target species to the Fungimap project. Further information and record sheets are available on the Fungimap website.



Lvcogala epidendrum Wolf's Milk MYXO S

