

Fungal Trophic Modes

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).

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:

■ soil, ■ wood, ■ dung, ■ invertebrate or ■ rock.

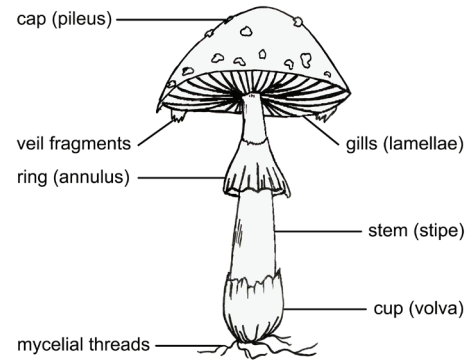
FUNGUS NAMES

Each species in the guide is represented by a scientific name and where one exists, a common name. The majority of Australian fungi are yet to be formally named and some species are only identified to genus level. Some names also have the qualifier 'group', which means it is part of a species complex.

FUNGIMAP TARGET SPECIES

Fungimap serves as a hub of information and interaction for fungus enthusiasts and includes the mapping of 200 target species. Target species in this guide are indicated by an asterisk (*). You may like to contribute your target species records to Fungimap. More information: www.fungimap.org.au.

Main Parts of a Fungus Fruitbody



Tooth Fungi/Corals/Puffballs/Earthstars



Phellodon niger
Black Tooth
■ TOOTH M



Calvatia lilacina
■ PUFFBALL S



Scleroderma cepa
Earthball
■ PUFFBALL M



Phlebia subceracea
Golden Splash Tooth
■ TOOTH S



*Calostoma fuscum**
■ PUFFBALL S



Vascellum pratense
Field Puffball
■ PUFFBALL S



Ramaria aff. formosa
■ CORAL M



Pisolithus sp.
■ PUFFBALL M



*Geastrum fornicatum**
Arched Earthstar
■ EARTHSTAR S



Ramaria sp.
■ CORAL M



*Podaxis pistillaris**
Black Powderpuff
■ PUFFBALL S



Geastrum triplex
Collared Earthstar
■ EARTHSTAR

Stinkhorns/Jellies/Morels/Lichens



*Aseroe rubra**
Anemone Stinkhorn
■ STINKHORN S



*Tremella fuciformis**
White Brain
■ JELLY S



Flavoparmelia rutidota
■ LICHEN Y



*Ileodictyon gracile**
Smooth Cage
■ STINKHORN S



*Tremella mesenterica**
Yellow Brain
■ JELLY S



*Lichenomphalia chromacea**
Yellow Navel
■ LICHEN Y



Calocera sinensis group
Pretty Horn
■ JELLY S



*Morchella elata**
Morel
■ MOREL S, M



Menegazzia sp.
■ LICHEN Y



*Heterotextus pezizaformis**
Golden Jelly Bells
■ JELLY S



Baeomyces heteromorphus
■ LICHEN Y



Rhizocarpon geographicum
Map Lichen
■ LICHEN Y

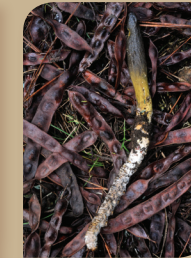
Cups/Discs/Clubs



*Aleuria aurantia**
Orange Peel Fungus
■ CUP S



*Discinella terrestris**
Yellow Earth Button
■ DISC S



*Cordyceps gunnii**
Dark Vegetable Caterpillar
■ CLUB P



Peziza sp.
■ CUP S



Poronia erici
Small Dung Button
■ DISC S



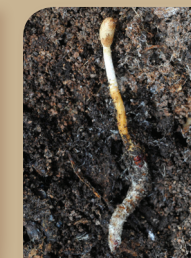
Cordyceps hawkesii
Fawn Vegetable Caterpillar
■ CLUB P



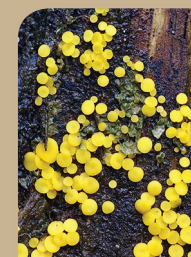
Anthracobia muelleri
■ DISC S



Pyronema omphalodes
■ DISC S



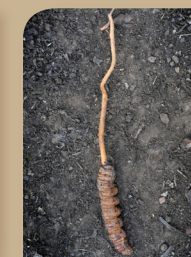
*Cordyceps menesteridis**
Red Headed Cordyceps
■ CLUB P



Bisporella citrina group
Lemon Disco
■ DISC S



Scutellina scutellata group
Eyelash Pixie Cup
■ DISC S



Cordyceps robertsii
Antlered Caterpillar
■ CLUB P

Fungi

of the Box Ironbark Forests
and Woodlands of Central Victoria



Agarics



Agaricus campestris
Field Mushroom
■ GILL S



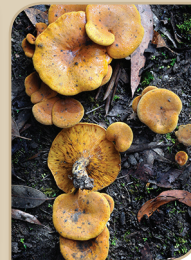
Armillaria luteobubalina^{*}
Australian Honey Fungus
■ GILL S, P



Coprinellus disseminatus
Fairy Bonnets
■ GILL S



Agaricus xanthodermus^{*}
Yellow Stainer
■ GILL S



Austropaxillus infundibuliformis^{*}
Funnel Pax
■ GILL S, M



Coprinopsis nivea
Snowy Ink Cap
■ GILL S



Amanita punctata
■ GILL M



Bolbitius vitellinus^{*}
Egg Yolk Fungus
■ GILL S



Coprinus comatus^{*}
Lawyer's Wig
■ GILL S



Amanita xanthocephala^{*}
Vermillion Grisette
■ GILL M



Collybia eucalyptorum^{*}
■ GILL S



Cortinarius austrocinnabarinus
■ GILL S

Agarics



Cortinarius clelandii
■ GILL M



Hypholoma australe
■ GILL S



Marasmiellus affixus^{*}
Little Stinker
■ GILL S



Cortinarius sublargus^{*}
■ GILL M



Hypholoma fasciculare
Sulphur Tuft
■ GILL S



Marasmiellus alveolaris
■ GILL S



Crepidotus variabilis
■ GILL S



Lactarius eucalypti^{*}
Eucalypt Milk Cap
■ GILL M



Marasmius elegans^{*}
Velvet Parachute
■ GILL S



Gymnopilus junonius^{*}
Spectacular Rustgill
■ GILL S



Macrolepiota clelandii^{*}
Parasol Mushroom
■ GILL S



Mycena albidofusca
■ GILL S

Agarics



Omphalotus nidiformis^{*}
Ghost Fungus
■ GILL S, P



Psilocybe subaeruginosa^{*}
Blue-Staining Psilocybe
■ GILL S



Russula purpeoflava
GILL M



Oudemansiella gigaspora group^{*}
Rooting Shank
■ GILL S



Rhodocollybia butyracea
Buttery Collybia
■ GILL S



Schizophyllum commune^{*}
Split Gill
■ GILL S



Phylloporus clelandii
■ GILL M



Russula clelandii group
■ GILL M



Stropharia semiglobata
■ GILL S



Pholiota sp.
■ GILL S



Russula persanguinea^{*}
Common Rosegill
■ GILL M



Volvoluteus gloiocephalus^{*}
Common Rosegill
■ GILL S

Fungi with Pores



Austroboletus lacunosus group^{*}
■ PORE M



Coltricia cinnamomea
Fairy Stool
■ PORE S



Piptoporus australiensis^{*}
Curry Punk
■ PORE P



Boletellus emodensis
Beefsteak Cap
■ PORE M



Fistulina hepatica^{*}
Beefsteak Fungus
■ PORE S, P



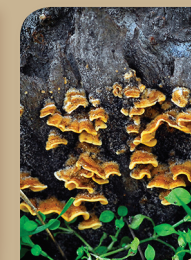
Pycnoporus coccineus
Scarlet Bracket Fungus
■ PORE S, P



Boletellus obscurecoccineus^{*}
Rhubarb Bolete
■ PORE M



Grifola colensoi
■ PORE S



Stereum hirsutum^{*}
Hairy Curtain Crust
■ PORE S



Phelebobus marginatus^{*}
Giant Bolete
■ PORE M



Laetiporus portentosus^{*}
■ PORE S



Trametes versicolor
Rainbow Fungus
■ PORE S

Fungi of the Box Ironbark Forests and Woodlands of Central Victoria

Hundreds, possibly thousands of species of fungi inhabit Victoria's Box and Ironbark Woodlands. Fungi are vital to the health and resilience of these ecosystems. Some fungi are the principle decomposers, breaking down organic material and recycling nutrients, while others form symbiotic (mutually beneficial) relationships with most plants, including every orchid.

The remaining woodlands are largely restricted to isolated remnants. Given the symbioses between fungi, plants and animals, fungi are likely to be similarly at risk from habitat loss and deterioration. Fortunately, these woodlands are now recognised in both State and National legislation and various community programs are underway to maintain and restore woodlands on both private and public land.

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. Lichens are also classified as fungi and grow on an even greater range of substrates including rock and human-made compounds such as glass, metal and rubber. Eighty-six fungus species that you might encounter in these habitats are illustrated in this guide.

IDENTIFYING FUNGI

Many fungi can be identified using field characteristics – i.e. features of the fruitbody that are visible to the naked eye. 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 Victorian Poisons Information Centre on 13 11 26.

SELECTED VICTORIAN FIELD GUIDES (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. A. (2005). *A Field Guide to Australian Fungi*. Blooming Books, Melbourne.
Young, A. M. (2005). *A Field Guide to the Fungi of Australia*. NSW Uni Press, Sydney.
Wombat Forestcare (2013). *Fungi of the Wombat Forest and Macedon Ranges*. WFC Inc., Glenlyon.

WEBSITES & BLOGS OF INTEREST

Upper Spring Creek Landcare Group & Mid Loddon CMN www.uslandcare.org.au
North Central Catchment Management Authority www.nccm.vic.gov.au
Wedderburn Conservation Management Network www.wedderburncmn.org
Fungimap www.fungimap.org.au
Field Naturalists Club of Victoria www.fncv.org.au
Australian National Botanic Gardens www.anbg.gov.au/fungi
Atlas of Living Australia www.ala.org.au
Victorian Poisons Info Centre www.austin.org.au/poisons

FRONT COVER IMAGE

The Split Gill, *Schizophyllum commune*, is a saprobic (recycling) fungus found throughout the Box Ironbark forests and woodlands.

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