A GUIDE TO MACROFUNGI IN THE SHIRE OF DENMARK MT HALLOWELL & WILSON INLET FORESHORE RESERVES

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for the Shire of Denmark
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INTRODUCTION

Fungi Kingdom

Fungi occupy a kingdom of their own, forming a major component of Australia's biological diversity, many times larger than the plant & animal kingdoms combined. There are thousands of species of *macrofungi (*i.e. those which can be seen with the naked eye) which are unique to Australia, many of which remain to be discovered and named, thus making mycology (the study of fungi) an exciting field of research. In fact, knowledge of the distribution, ecology and diversity of even very distinctive named species is poorly known. You can learn more about fungi and help map the location of many of the most easily-identifiable species by joining the national community-based organisation *Fungimap.* Details are included in the reference section at the end of this guide.

Fungi in the Shire of Denmark:

Having a variety of ecosystems ranging from coastal heath to tall closed forests, the Denmark Shire is home to a remarkable and diverse array of macrofungi. However, until enough data has been amassed for each species, it is difficult to be specific in matching most of them to particular ecosystems or soil types.

Fungi in this Field ID Guide:

Species within this field id guide are grouped together by similar shapes, in readily-recognisable, morphological groups. For some species this does not match the current formal classification at family and order level, but is convenient for a field guide of this nature. For each species depicted, the dates given are for the fruiting period recorded in the Denmark Shire. Fruiting of fungi is unpredictable, depending on the weather. Some of the fungi depicted occur across the South Coast Natural Resource Management Region (broadly from Walpole to Esperance) and beyond, but there are others which are restricted to certain habitats, such as dry woodland, coastal dunes or specific vegetation types containing the plants which are utilised by, or which partner, certain species of fungi. For terrestrial species of macrofungi, the mycelium from which the fungal fruiting bodies grow can cover many hectares, so there is no guarantee that the same species will appear in exactly the same place each year.

Fungi as food :

It was recorded by early Europeans colonists that the indigenous people ate a lot of fungi, but we no longer know which species these were. Fungi are host to a vast array of invertebrates and are an important source of food for vertebrates, some of which, such as Potoroos and Woylies, only eat fungi – particularly truffle-like species (most of which are believed to be mycorrhizal).Just like plants and all other living things, some fungi are edible, most aren't very palatable, while others are poisonous to humans. It's common sense that you don't consume anything unless it can be identified as being safe to eat. You cannot rely on guides from other countries, as most species found here are unique to Australia. This small field book is not a guide to edibility of fungi.

Fungi as saprotrophs:

Fungi are recyclers of organic matter – particularly plant material, a role which is '*absolutely essential for the continuation of life on this earth'* (Stephenson 2010). '*In older trees and forests, decay fungi contribute to the development of suitable habitat for many native birds and animals*.' (Robinson, 2009)

Fungi as symbionts:

Another suite of fungi form intimate partnerships, known as mycorrhizas, with 80-90% of all vascular plants. Despite our nutrient-poor soils, we enjoy an amazing diversity of plants because of the role played by this group of fungi.

Fungi as parasites and pathogens:

Most of the fungi in this group are microscopic; but there are a few species of macrofungi which play this important role, providing checks and balances in nature. Parasites and pathogens become a problem when ecosystems are damaged or invaded by organisms which are out of place.

Fungal mycelium

Fungi exist as threadlike structures throughout the soil and organic matter. The mycelium releases enzymes into the surrounding environment and these enzymes break down complex organic polymers into simpler compounds (generally various sorts of sugars) which are then absorbed through the mycelium's hyphal walls.
See **www.anbg.gov.au/fungi/mycelium.html**

Left: Mycelium of *Mycena yirukensis* on the bark of a fallen tree branch.
Below: Mycelium of *Gymnopilus allantopus* on fallen wood.

Examples of mycorrhizal fungal mycelium in the soil.

Some gilled fungi found in the Denmark Shire but not yet recorded on the Shire Reserves included in the surveys.

Hygrocybe polychroma

Cantharellus concinnus

Armillaria luteobubalina

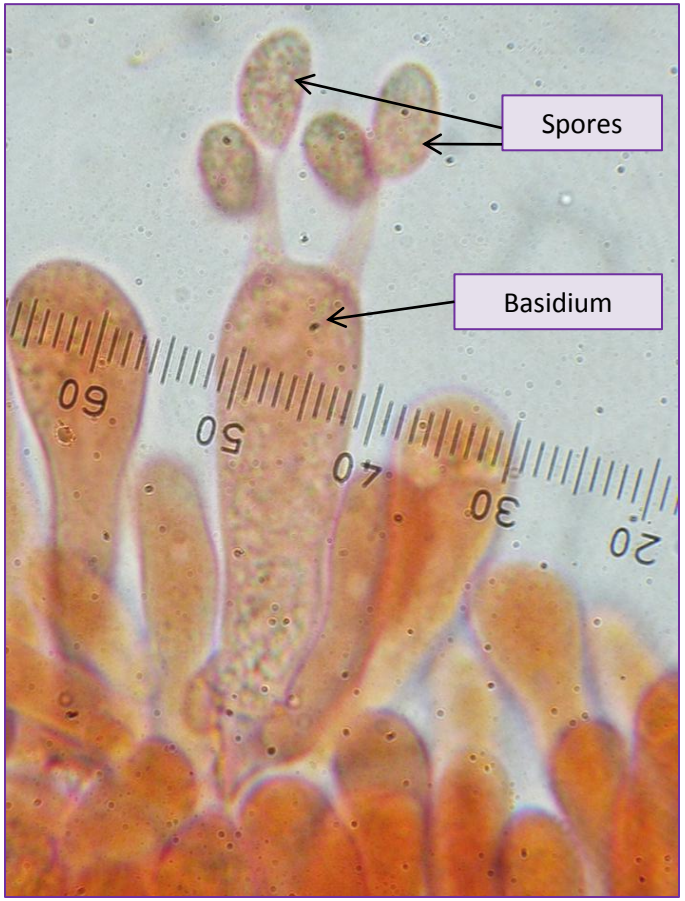
Russula flocktoniae

Entoloma kermandii

Stropharia semiglobata

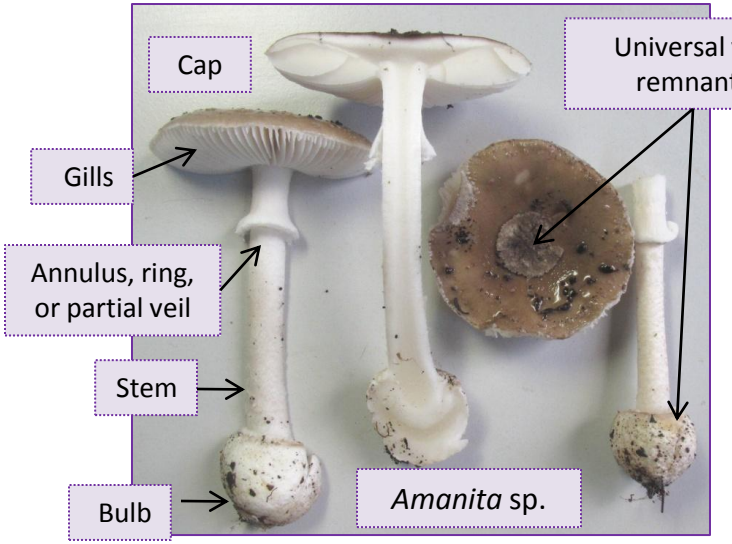
The view of Wilson Inlet with Mount Hallowell in the background – taken from above Poison Point.

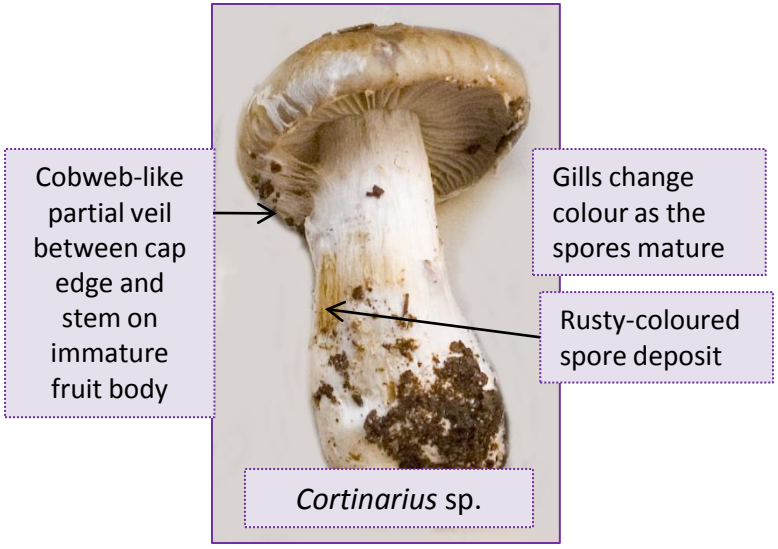
BASIDIOMYCETES



Microscopic features on the fertile surface of a basidiomycete.

AGARICS





Some features of Agarics

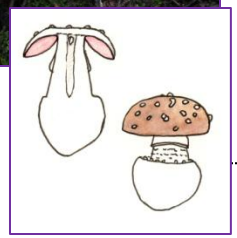
***Agaricus sp.* 'small with red-brown fibrils'**

Life mode: saprotrophic.

Recorded: May-July; common.

***Amanita* spp.**

There are many unnamed species of Amanita. All species form mutually beneficial (mycorrhizal) partnerships with surrounding plants. Most have a powdery or membranous ring on the stem a bulb or sac at the base, as well as patchy, warty or powdery pieces of tissue on the cap surface. They all have white or rarely very pale – coloured) spores. The sketch below left is of a small pink-gilled species collected some years ago at the northern base of Mt Hallowell. It is probably very rare, as it has never been seen again.



Amanita ananiceps

Life mode: mycorrhizal.

Recorded: May-September; common.

Amanita basiorubra

Life mode: mycorrhizal.

Recorded: May; infrequent.

Amanita umbrinella

Life mode: mycorrhizal.

Recorded: April-September; common.

Amanita xanthocephala

Life mode: mycorrhizal.

Recorded: June-August; common and widespread in most habitats.

A Fungimap target species

Anthracophyllum archeri

Life mode: saprotrophic.

Recorded: April-August; common, especially in karri forests.

A Fungimap target species

Arrhenia sp.

Life mode: unknown.

Recorded: June-August; infrequent.

Austropaxillus infundibuliformis

Life mode: mycorrhizal.

Recorded: May-August; common.

Austropaxillus macnabbii

Life mode: mycorrhizal.

Recorded: April-July; common.

***Camarophyllopsis* sp.**

Life mode: saprotrophic.

Recorded: June-August; infrequent.

***Cortinarius* spp.**
All Cortinarius have rusty to brown coloured spores and are mycorrhizal. There are many brown species and it is difficult to distinguish between them. As well, the majority have not yet been formally named. A cobweb-like veil between the edge of the cap and the stem is usually present on young specimens.

Cortinarius archeri
Life mode: mycorrhizal.
Recorded: May-June; relatively common in jarrah/sheoak woodland.

Cortinarius australiensis
Life mode: mycorrhizal.
Recorded: May; appears very early in the fungus season, is very large and relatively common.

Cortinarius basirubescens
Life mode: mycorrhizal.
Recorded: May-July; common in a variety of habitats.

Cortinarius rotundisporus
Life mode: mycorrhizal.
Recorded: June-September; common.
A Fungimap target species

Cortinarius violaceus

Life mode: mycorrhizal.

Recorded: May-June; uncommon

***Cortinarius* sp. 'pointy cap'**

Life mode: mycorrhizal.

Recorded: May-September; common.

***Cortinarius* sp. 'rust with subdistant gills'**

Life mode: mycorrhizal.

Recorded: July; common.

***Cortinarius* sp. 'violet with pinkish scales'**

Life mode: mycorrhizal.

Recorded: July; uncommon.

***Craterellus* sp. 'grey brown'**

Life mode: mycorrhizal.

Recorded: July; uncommon.

Crepidotus nephrodes

Life mode: saprotrophic.

Recorded: July; relatively common.

Crepidotus variabilis

Life mode: saprotrophic.

Recorded: April-August; common

***Cystolepiota* sp.**

Life mode: saprotrophic.

Recorded: May; uncommon

***Cystolepiota* sp.**

Life mode: saprotrophic.

Recorded: July; relatively common.

Dermocybe clelandii

Life mode: mycorrhizal.

Recorded: May-July; common.

Dermocybe kula

Life mode: mycorrhizal.

Recorded: June-August; relatively common.

Dermocybe splendida

Life mode: mycorrhizal.

Recorded: June-July; relatively common.

A Fungimap target species

Descolea maculata
Life mode: mycorrhizal.
Recorded: April-August; relatively common.



***Entoloma* spp.** vary in size and stature; many are small and delicate, while others are larger and more robust, but all of them have pinkish spores. The caps and stems are often smooth and are never circled by a partial veil, ring or annulus.

Entoloma sericellum
Life mode: saprotrophic.
Recorded: May; common.

***Entoloma* sp. 'blue grey'**
Life mode: saprotrophic.
Recorded: May; infrequent.


***Entoloma* sp. 'rosy'**
Life mode: saprotrophic.
Recorded: June; uncommon.

***Galerina* spp.**

Without a compound microscope, it is very difficult to distinguish between these small, rusty brown or ochre yellow fungi. All of them have a rusty coloured spores and many have a small ring or annulus on the stem. They grow in moss, on the soil or on gumnuts, twigs and wood. One of the latter, shown at left, is a much larger species than the others, which are invariably diminutive. They are found throughout the wetter months and are saprotrophic.

Gymnopilus allantopus

Life mode: saprotrophic.

Recorded: May-July; common.

Hebeloma aminophilum

Life mode: mycorrhizal.

Recorded: June-August; relatively common.

Hohenbuehelia bingarra

Life mode: saprotrophic.

Recorded: May; infrequent.

***Hygrocybe* spp.**

Wax-cap fungi are often brightly coloured and smooth all over, mostly with a waxy feel. Some of them have a glutinous coating. Their spores are white.

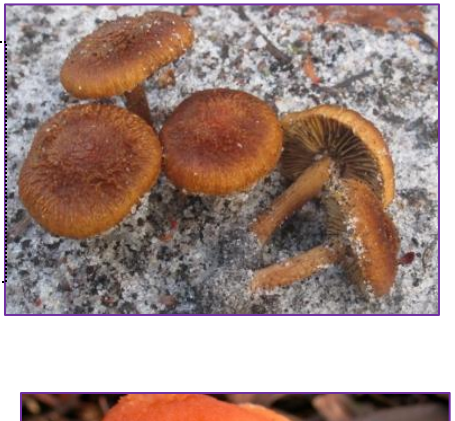
Hygrocybe viscidibrunnea

Life mode: saprotrophic.

Recorded: June-July; relatively common.

Inocybe spp.

There are many species of small brown fungi, including members of the genus *Inocybe.* They are important partners for plants and fascinating microscopically, but often difficult to identify in the field.



***Inocybe* sp. 'orange fibrillose'**

Life mode: mycorrhizal.

Recorded: May; relatively common and widespread.

Laccaria lateritia

Life mode: mycorrhizal.

Recorded: April-September; very common.

***Laccaria* sp. 'pale gills'**

Life mode: mycorrhizal.

Recorded: June-August; common.

Lactarius clarkeae

Life mode: mycorrhizal.

Recorded: May-August; common.

Milky fluid exudes when gills are broken.

Lactarius eucalypti

Life mode: mycorrhizal.

Recorded: May-August; very common.

Milky fluid exudes when gills are broken.

Lepiota aspera

Life mode: saprotrophic.

Recorded: May-July; infrequent.

Lepiota haemorrhagica

Life mode: saprotrophic.

Recorded: June; uncommon.

***Lepiota* sp. 'orange cap'**

Life mode: saprotrophic.

Recorded: May; relatively common.

Leucopaxillus lilacinus

Life mode: mycorrhizal.

Recorded: May; uncommon

Lichenomphalia chromacea

Life mode: a lichenised basidiomycete, growing with algae.

Recorded: May-September; very common in poor sandy soils.

Marasmiellus candidus

Life mode: saprotrophic.

Recorded: August; infrequent.

***Marasmius* sp. 'brown cap'**

A horsehair fungus.

Life mode: saprotrophic.

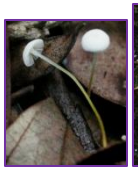
Recorded: June-July; common.

***Marasmius* sp. 'orange cap'**

Life mode: saprotrophic.

Recorded: May-August; common.

There are many unnamed species of ***Mycena***. All of them are saprotrophs, breaking down fallen leaves, bark and wood. They have white spores and many of them are small and fragile.



Mycena carmeliana

Life mode: saprotrophic.

Recorded: May-June; common.

Mycena pura

Life mode: saprotrophic.

Recorded: July; relatively common.

Mycena viscidocruenta

Life mode: saprotrophic.

Recorded: October; relatively common in damp areas.

A Fungimap target species

Mycena yirukensis

Life mode: saprotrophic.

Recorded: April-July; very common.

Omphalotus nidiformis

Known as the 'ghost fungus', it glows in the dark.

Life mode: saprotrophic.

Recorded: May-June; common.

A Fungimap target species

Panellus ligulatus

Life mode: saprotrophic.

Recorded: August; infrequent.

Phaeocollybia ratticauda
Life mode: mycorrhizal.
Recorded: June; infrequent.

Pholiota communis
Life mode: saprotrophic.
Recorded: July; common.

***Pholiotina* sp.**
Life mode: saprotrophic.
Recorded: August; uncommon.

***Phylloporus* sp.**
Life mode: mycorrhizal.
Recorded: August; uncommon.

Pleurotus australis
Life mode: saprotrophic.
Recorded: June-July; relatively common on living *Agonis flexuosa* (peppermint), especially in coastal areas.

Pluteus atromarginatus
Life mode: saprotrophic.
Recorded: May-June; uncommon.

Psilocybe coprophila

Life mode: saprotrophic on kangaroo dung.

Recorded: June-July; very common.

Rhodocollybia* aff. *butyracea

Life mode: saprotrophic.

Recorded: June-July; common.

Rhodocybe* aff. *piperata

Life mode: saprotrophic.

Recorded: July; relatively common.

Rickenella fibula

Life life mode: saprotrophic in moss.

Recorded: June-July; very common.

Russula adusta

Life mode: mycorrhizal.

Recorded: April-July; very common.

Russula* aff. *albonigra

Life mode: mycorrhizal.

Recorded: May-July; relatively common.

Russula* aff. *cyanoxantha

Life mode: mycorrhizal.

Recorded: April-July; common.

***Russula clelandii* group**

A complex of similar species.

Life mode: mycorrhizal.

Recorded: May-July; very common.

Russula flocktoniae

Life mode: mycorrhizal.

Recorded: June; relatively common, especially in jarrah forest and coastal heath.

Russula neerimea

Life mode: mycorrhizal.

Recorded: April-July; very common.

Russula persanguinea

Life mode: mycorrhizal.

Recorded: October; common.

***Russula* sp. 'large white'**

Life mode: mycorrhizal.

Recorded: May-July; relatively common.

***Russula* sp. 'small purple and cream'**

Life mode: mycorrhizal.

Recorded: July; uncommon.

Tricholoma eucalypticum

Life mode: mycorrhizal.

Recorded: May-July; very common.

***Tricholoma sp.* brown cap**

Life mode: mycorrhizal.

Recorded: May-July; relatively common.

***Tricholoma* sp. 'glutinous cap'**

Life mode: mycorrhizal.

Recorded: June-July; infrequent.

Tricholomopsis rutilans

Life mode: saprotrophic.

Recorded: May-July; uncommon.

Tubaria rufofulva

Life mode: saprotrophic.

Recorded: May-July; common.

A Fungimap target species

BOLETES

Ornamentation on stem

Sponge-like pores & tubes

Boletellus obscurecoccineus, a very common species not recorded in the Shire Reserves surveyed.
It is a Fungimap target species

Some features of Boletes

An unnamed species of *Boletellus* found elsewhere in the Denmark Shire.

Austroboletus occidentalis

Life mode: mycorrhizal.

Recorded: May-July; very common.

Boletellus* aff. *ananiceps

Life mode: mycorrhizal.

Recorded: any time of the year following rain; common.

***Boletus* sp. 'purplish and white'**

Life mode: mycorrhizal.

Recorded: June; uncommon.

***Boletus* sp. 'red and yellow, bruising blue'**

Life mode: mycorrhizal.

Recorded: May-June; relatively common.

Fistulinella mollis

Life mode: unknown.

Recorded: June; common.

Gyroporus* aff. *cyanescens

Life mode: mycorrhizal.

Recorded: March-August; common.

CORAL FUNGI

Branches arising from a single base

Found elsewhere in the Denmark Shire, *Ramaria capitata* has flattened, glutinous tips.

The group includes smaller, more simple structures.

Some features of Coral fungi

Artomyces piperatus

Life mode: saprotrophic.

Recorded: July; relatively common.

Clavaria* aff. *alboglobospora

Life mode: mycorrhizal.

Recorded: June-July; relatively common.

***Clavaria* sp. 'small red'**

Life mode: mycorrhizal.

Recorded: July; relatively common.

Ramaria lorithamnus

Life mode: mycorrhizal.

Recorded: June-July; very common.

Ramaria ochraceosalmonicolor

Life mode: mycorrhizal.

Recorded: May-July; very common.

Ramaria versatilis

Life mode: mycorrhizal.

Recorded: May; relatively common.

Ramariopsis depokensis

Life mode: mycorrhizal.

Recorded: June-July; very common

***Ramariopsis* sp.**

Life mode: mycorrhizal.

Recorded: July; relatively common.

Ramaria lorithamnus habitat

DYEBALLS, EARTHBALLS & EARTHSTARS

Earthstar: the outer layer splits and peels back to reveal a thin inner globe containing the spores, which are ejected from the opening in the centre.

Earthball: the outer layer cracks and wears away to reveal a dark inner spore-mass. The skin is leathery and can persist as an empty cup-like structure for months.

Dyeball: Cross-section shown with maturing spores at the apex. The skin wears away at the top and the khaki-brown spores blow away in the wind. Dyes wool and silk gold, tan and mustard brown colours, hence the traditional name.

Puffball: small, white balls with a thin skin. When the spores mature, they are released through a split in the upper surface of the spherical fruit body; mature specimen shown. They have been recorded elsewhere in the Shire.

Examples of Gasteromycetes

Geastrum javanicum

Life mode: saprotrophic.

Recorded: June-August; infrequent.

Pisolithus albus

Life mode: mycorrhizal.

Recorded: May-July; very common.

Pisolithus marmoratus

Life mode: mycorrhizal.

Recorded: May-July; common.

***Scleroderma* sp.**

Life mode: mycorrhizal.

Recorded: May-July; common.

TOOTHED FUNGI

Spores are borne on spine-like structures underneath the cap.

Sarcodon, one of the 'toothed' fungi, is a genus which has been recorded very rarely elsewhere in the Denmark Shire.

***Phellodon* spp.**

Hydnum repandum

Life mode: mycorrhizal.

Recorded: May-July; very common.

***Hydnum* sp. 'chestnut'**

Life mode: mycorrhizal.

Recorded: May-July; much less common than *H. repandum.*

***Hydnellum* sp. 'red brown'**

Life mode: mycorrhizal.

Recorded: May-July; common.

***Phellodon* sp. 'brown'**

Life mode: mycorrhizal.

Recorded: May-July; common.

***Phellodon* sp. 'niger slender'**

Life mode: mycorrhizal.

Recorded: May-July; common.

***Phellodon* sp. 'silver & brown'**

Life mode: mycorrhizal.

Recorded: July; infrequent.

TRUFFLE-LIKE FUNGI

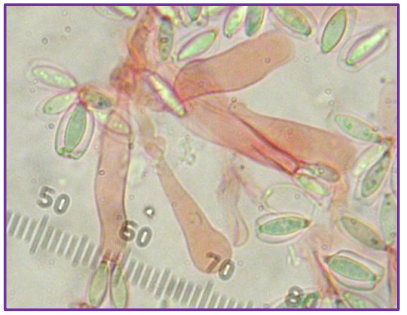
Austrogautieria manjimupana

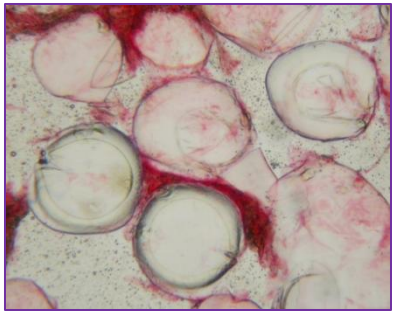
Stephanospora sp.

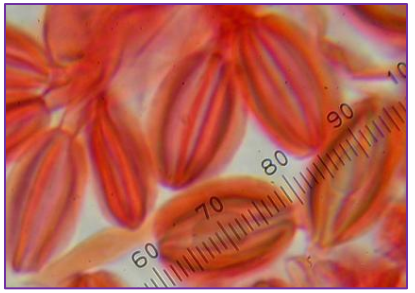
Hysterangium spp.

Examples of truffle-like fungi found in the Denmark Shire, but not recorded during the surveys.

Australia has more species of truffle-like fungi than anywhere else in the world. Their fruiting bodies are found below (or sometimes just above) the surface of the soil. Unlike other macrofungi, they cannot release their spores, depending on vertebrates (particularly specialist fungi-eaters such as Potoroos and Woylies) as well as invertebrates, to spread their spores. Most of these fungi are thought to have a mutually beneficial relationship with 90% of our native plants, resulting in a complex and rich bio-diverse symbiosis between them and fungi, invertebrates and mammals.







Examples of spores of truffle-like fungi.

Castoreum radicatum
Life mode: mycorrhizal.
Recorded: May-July.

Cystangium balpineum
Life mode: mycorrhizal.
Recorded: May-July.

Cystangium theodourii
Life mode: mycorrhizal.
Recorded: May-July.

Descomyces albus
Life mode: mycorrhizal.
Recorded: June- August.

***Hydnangium* sp.**
Life mode: mycorrhizal.
Recorded: May-July

Hysterangium rhodocarpum
Life mode: mycorrhizal.
Recorded: May-July.

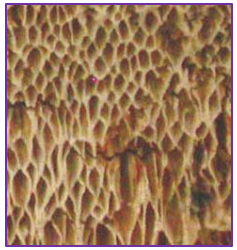
Protrubera canescens
Life mode: unknown.
Recorded: May-July.

Russula luteirosea
Life mode: mycorrhizal.
Recorded: May-July.

***Scleroderma* sp.**
Life mode: mycorrhizal.
Recorded: June.

Torrendia arenaria
Life mode: mycorrhizal.
Recorded: May-July

POLYPORES & BRACKETS



Polypores come in a variety of forms. Some are annuals, others are small and have stalks, while others are hard & woody and grow a new layer of pores each year.

Antrodiella citrea

Life mode: saprotrophic.

Recorded: July-August; relatively common.

Coltricia cinnamomea

Life mode: saprotrophic.

Recorded: May-July; very common and widespread.

Fistulina hepatica

The beefsteak fungus.

Life mode: saprotrophic.

Recorded: May-July; common.

A Fungimap target species

Fomitopsis lilacinogilva

Life mode: saprotrophic.

Recorded: July-August; relatively common.

Ganoderma australe

Life mode: saprotrophic and parasitic.

Recorded: May-July; relatively common.

Podoserpula pusio

The pagoda fungus.

Life mode: saprotrophic.

Recorded: May-July; common.

A Fungimap target species

Perenniporia ochroleuca

Life mode: saprotrophic.

Recorded: July; infrequent.

***Phellinus*? sp.**

Life mode: saprotrophic.

Recorded: May-June; relatively common.

Piptoporus australiensis

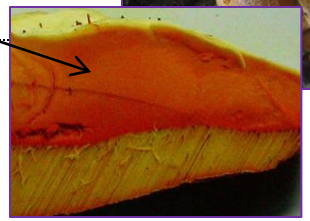
The curry punk.

Life mode: saprotrophic.

Recorded: May-July; very common.

A Fungimap target species

cross-section



Pycnoporus coccineus

Life mode: saprotrophic.

Recorded: throughout the wetter months; very common and widespread.

Stereum hirsutum

Life mode: saprotrophic.

Recorded: May-July; common.

A Fungimap target species

***Trametes* sp. 'grey pores'**

Life mode: saprotrophic.

Recorded: May-July; uncommon.

Trametes versicolor

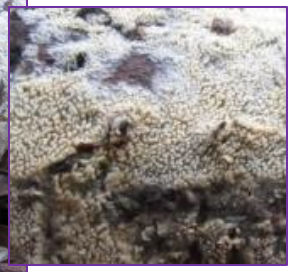
The rainbow bracket fungus

Life mode: saprotrophic and parasitic.

Recorded: May-July; very common.

PAINTS & PATCHES

A few skin or paint fungi are easily identifiable, but many are not, and need to be examined under a compound microscope in order to identify them. Some of them are known to form mycorrhizal relationships with plants.



Unknown sp. 'fine white teeth'
Life mode: unknown.
Recorded: June.

***Grandinia* sp.**
Life mode: unknown.
Recorded: December.

***Tomentella* sp.**
Life mode: unknown.
Recorded: December.

***Tomentellopsis* sp.**
Life mode: unknown.
Recorded: December.

JELLY FUNGI

Convoluted, slippery folds are a feature of this genus.

Tremella mesenterica, a common species which was not recorded in Shire Reserves during the surveys.

Calocera guepinioides
Life mode: saprotrophic.
Recorded: June-July; very common.

***Dacrymyces* sp.**
Life mode: saprotrophic.
Recorded: June; common.

***Exidia* sp.**
Life mode: saprotrophic.
Recorded: July; relatively common.

Heterotextus peziziformis
Life mode: saprotrophic.
Recorded: May-August; common.

Tremella* aff. *globospora
Life mode: saprotrophic.
Recorded: April; relatively common.

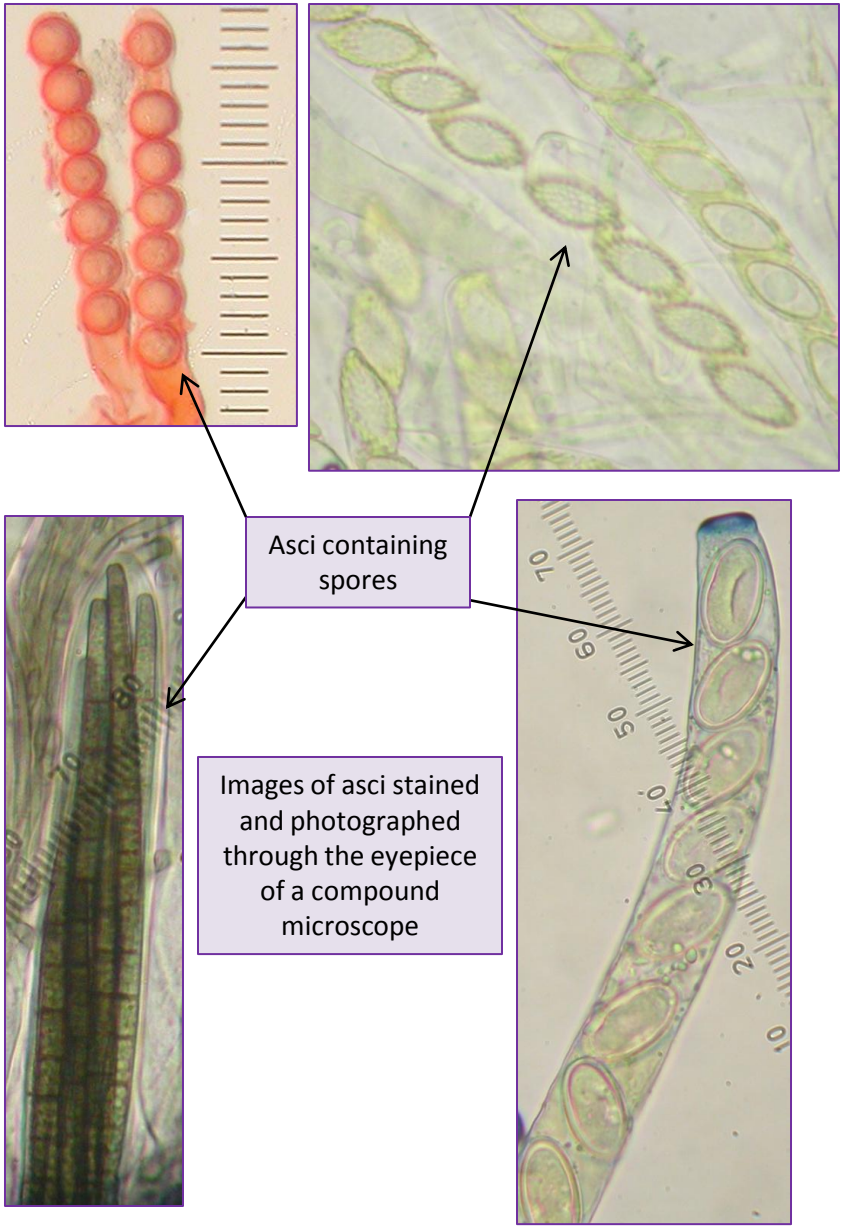
ASCOMYCETES

INCLUDING CUP, DISC & FLASK FUNGI

Elaphomyces chlorocarpus – a truffle-like ascomycete

Life mode: mycorrhizal.

Recorded: May-July.



Aleurina ferruginea

Life mode: saprotrophic.

Recorded: June; relatively common.

***Banksiamyces* sp.**

Life mode: saprotrophic.

Recorded: July; relatively common on *Banksia quercifolia.*

Discinella terrestris.

Life mode: saprotrophic.

Recorded: June-August; very common.

***Geoglossum* sp. 'black clubs'**

Life mode: saprotrophic.

Recorded: August; relatively common.

Glonium circumserpens

Life mode: saprotrophic.

Recorded: May; relatively common.

***Hypoxylon* sp.**

Life mode: saprotrophic on *Hibbertia cuneiformis.*

Recorded: June-August.

Lachnum pteridophilum

Life mode: saprotrophic on dead stems of Bracken fern (*Pteridium esculentum*).

Recorded: August.

Nectria cinnabarina

Life mode: saprotrophic.

Recorded: July.

Peziza vesiculosa

Life mode: saprotrophic.

Recorded: August; common.

Poronia erici

Life mode: saprotrophic.

Recorded: Any time of the year; very common.

Pulvinula archeri

Life mode: saprotrophic.

Recorded: August; very common in burnt areas.

Xylaria polymorpha

Life mode: saprotrophic.

Recorded: July; relatively common.

cross-section of fruit body

PARASITES AND PATHOGENS

Spores produced at apex

Soil surface

Cordyceps parasitise invertebrates and a small number have been recorded in the Denmark Shire, found emerging from the larvae of moths and beetles buried in the ground.

beetle larva

Beauveria bassiana (or possibly) ***Metarhizium* sp.**

Life mode: parasitic, grows on invertebrates.

Recorded: May-July.

Paecilomyces tenuipes

Life mode: parasitic; found fruiting from a cocoon.

Recorded: May

Hypomyces chrysospermus

Life mode: parasitic, grows on boletes.

Recorded: May-July; very common.

RESERVES SURVEYED

Mt Hallowell Reserve 46618

South of Monkey Rock: Bibbulmun Track and Fire Access Track

North: track heading west, accessed from Coughlan Grove via Ravenhill Heights

Wilson Inlet Foreshore Reserves:

12344 Poison Point

25347 Poddyshot Place to Greenbury Place

26480 Little River to Poddyshot Place

34742 Payne's Bay to Little River (Campbell Rd walk trail)

14376; 36714; south west of Rivermouth

24452 Heritage Rail trail east of Rivermouth

41815 Heritage Rail trail south of Golf Club

24596 West of Ocean Beach Rd near Prawn Rock channel

43923 Below Springdale Heights subdivision

Pre-2010 records from these and some adjacent reserves have been included.

Fungi records:

- 449 sightings of fungi
- 100 named species
- 115 recognisable unnamed taxa
- 12 species of truffle-like fungi
- 87 herbarium collections

The remainder are either duplicate records of the same species from different locations, or records of unknown fungi requiring further research, including taxonomy.

SURVEY METHODOLOGY

Collecting, recording, preserving and documentation of fungi takes a considerable amount of time. One day's field work requires three or more days' for documentation of each collection of fungi, microscopy on new and difficult to identify species, data entry, management of images and dehydration and packaging of specimens.

A further 85* records of fungi made between 1992 and 2008 in the Mt Hallowell and Wilson Inlet Foreshore Reserves have been included in the final list. Some of these were made in 2006 and 2007, during surveys which were part of the *Fungi Component* of the South Coast Natural Resource Management Region's *Biodiversity Inventory Program,* funded by the Commonwealth and administered by the Department of Environment and Conservation.

The most recent surveys, commissioned by the Shire of Denmark with funding from both the Shire of Denmark and Lotterywest, began mid-way through the fungal fruiting season in 2010 and continued through to June 2011. In that period, a further 364 sightings of fungi were recorded making 449 in total.
Fifty collections of fungi made during 2010 -11 have been fully documented and preserved and will be lodged in the W.A. herbarium. Some of the earlier number* included 37 herbarium collections.

Limitations of this short-term study:
In order to gather as much information as possible, limited studies such as this require opportunistic forays carried out when and where macrofungi are fruiting. Of course, the best results are provided by long-term studies, such as the *Walpole Fire Mosaic* Biodiversity Research, currently being conducted by the Department of Environment and Conservation, which allows for the setting up of transects which are surveyed over many years.

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Colour Reference: the 'Online Auction Color Chart © (2004) (www.OnlineAuctionColorChart.com)

Disclaimer

The author has taken every care to ensure that the information included is reliable and correct at the time of writing, however no guarantees are made in respect of the accuracy or completeness of this information.

MANAGEMENT OF FUNGI

In all their roles, fungi are so intrinsic a part of ecosystem functioning that in order to encompass all their diversity, management of whole ecosystems is needed.

Fire is part of Australian ecosystems and best practice involves fire mosaics which include not only a variety of fire ages, but also highly valuable areas of native bush which are left unburned for many years, and which can provide both a benchmark for measuring the impacts of fire and as refugia for all manner of native species. Areas such as this which also remain in a pristine state are not only rare, but are of inestimable value. An example of a long-unburned, pristine habitat is the Shire-managed Mt Hallowell Reserve. As such, it is deserving of lengthy, sustained research.

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