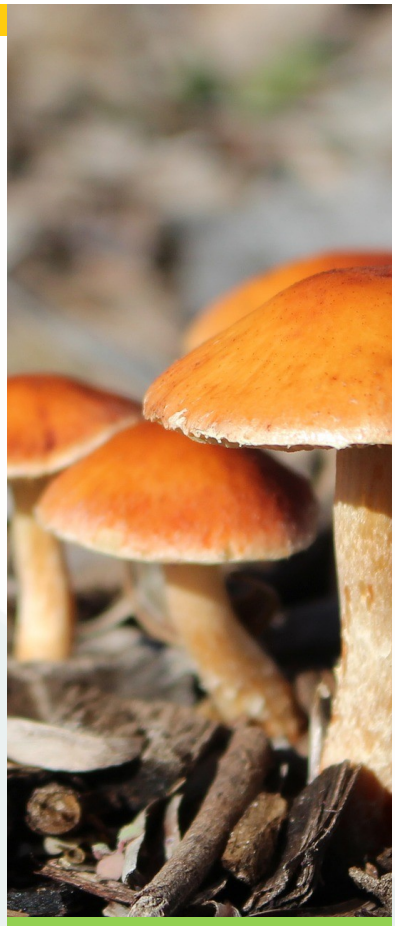


WA Fungi

Bryanna Minchin – Business Support Officer

Did you know there are more fungi in Australia than there are plants? And that we have only discovered about 10% of the fungi in Australia? (Perth Urban Bushland Fungi Project, 2020)

Fungi can be grouped into three major types:

- Multicellular filamentous moulds
- Macroscopic filamentous fungi (Macrofungi such as Mushrooms, Puffballs & Truffles)
- Yeasts

Many of us are familiar with mushrooms; we often see them growing in our gardens after recent rain. However, the mushroom that we see above the ground is only the 'fruiting body' of the fungi that develop at certain times of the year. Most of the time, fungi exist as microscopic filaments called hyphae (Department of Biodiversity, Conservation and Attractions, 2019). Macrofungi can be found in a diverse range of habitats, primarily terrestrial, and not only in well-watered areas, as many would think (Lepp, 2012).

The importance of fungi

Fungi are an important part of our ecosystems. They play a vital role as natural recyclers of organic material. Different types of fungi can:

- Form symbiotic relationships with plants – converting organic material into nutrients for plants
- Be food sources for animals – for example, many Australian marsupials feed on native truffles.

Our Local Fungi

Not many of our local fungi have common names, even the common and readily identifiable ones. Generally, you can see the fruiting bodies of fungi in Autumn and Winter. It is not unusual for fungi species to appear slightly different across different regions (L.Bougher, 2007). Below are some common and unusual fungi species you may see in Western Australia:

Earth Tongues - *Geoglossum cookeianum*
A decomposer often found in grasses and lawns.

IMG: Paul George, Atlas of Living Australia

Naming Fungi

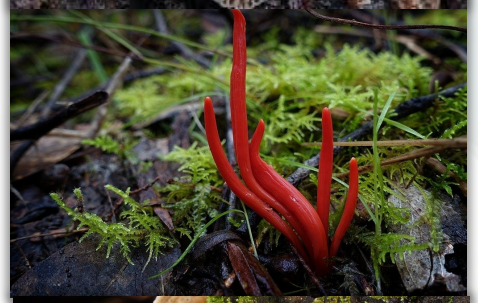
Not many of our local fungi have common names, even the common and readily identifiable ones.

Australian Honey Fungus - *Armillaria luteobubalina*
An endemic parasitic fungus that, that form in large clusters at the base or root of infected or dead plants.
Responsible for the disease Armillaria root, which causes the death of Eucalyptus trees and forest dieback.
IMG: Judith Roach, Atlas of Living Aus

DPAW Factsheet

Campanella gregaria
This fungi fruits in large numbers on the dead wood of banksias, sheoaks and jarrah.
IMG: Richard Robinson, DPAW

DPAW Factsheet



Flame Fungus - *Clavaria miniate*
A type of coral fungi found on the ground in eucalypt forests and woodlands.
IMG: Torbjorn von Strokirch, Atlas of Living Australia

DPAW Factsheet

Rainbow Bracket - *Trametes versicolour*
A common fan-shaped fungus found on dead wood on both live trees and dead branches. Also known as the Turkey Tail.
IMG: Reiner Richter, Atlas of Living Australia

DPAW Factsheet

Native Bread - *Laccocephalum mylittae*
This large fungus fruits soon after bushfires in Karri forests. Aboriginal people used to eat the underground fruit body of the fungus.
IMG: Richard Robinson, DPAW

DPAW Factsheet

Fungi & Orchids

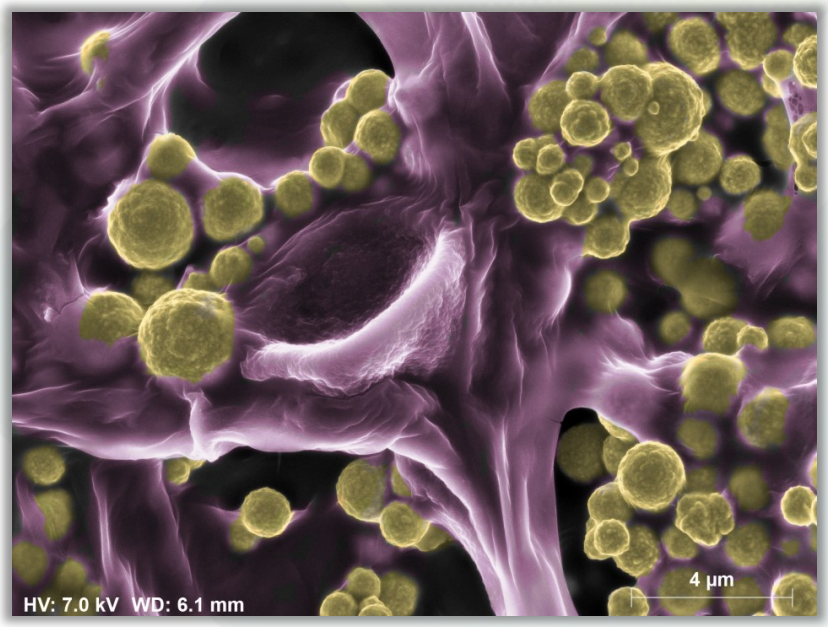
While many plants have a symbiotic association with fungi in their natural environments, the symbiotic relationship between orchids and their symbiotic fungi is unique. Our native orchids rely on fungi within the cortical cells of their roots, stem or seedlings to germinate and obtain nutrients from the soil (because most orchids do not have the capacity to draw these nutrients from the soil with their reduced or non-existent roots) (Brundrett, 2010). As a result, conservation efforts to propagate rare and endangered orchid species is extremely

difficult. Recently, Kings Park and Botanic Garden researchers were able to germinate seedlings from the Queen of Sheba orchid (*Theylmitra variegate*) from symbiotic fungi extracted from a wild orchid (Botanic Gardens & Parks Authority, 2020).

Queen of Sheba Orchid grown in a lab – DBCA

Gold-Speckled Fungi

Near Boddington last year (2019), scientists discovered a unique phenomenon – gold-coated fungi in the soil. The fungus is a strain of the filamentous *Fusarium oxysporum,* a type of soil fungi found worldwide and is considered a plant pathogen (The University of Adelaide, 2016). The fungus was found to dissolve gold by producing a superoxide chemical and then transforming the gold into tiny nanoparticles that are fixed to the fungus strands (Salleh, 2019). Not much is known about why the fungi are attracted to gold. However, it has been observed that the strands of gold-coated fungi grew more vigorously than those that were not absorbing gold (Lehmann, 2019).



Source: **CSIRO**

Black Truffle Cultivation

In our South-West, areas around Manjimup and Pemperton, are famous for their commercial plantations of Black Truffles. Black Truffles are not native to Australia. They are an introduced species from Western Europe that are cultivated by inoculating host tree seedlings with truffle spores. The seedlings are planted in fields, and then the truffles are harvested using specially trained dogs in five to seven years. Truffle crops are highly valuable; however, due to their high demand for capital expenditure and specific conditions, many crops fail (Alison Mathews, 2018).

Learn more

If you are interested in our local fungi or would like to identify a species, there are several resources on West Australian fungi available that may be able to help:

- Fungi Perth Website
- Fungi of the Perth Region and Beyond: A self-managed field book
- Fungus Factsheets

Like native plants and animals, it is illegal to collect fungus from national parks or state forest (without a permit) (Department of Biodiversity, Conservation and Attractions, 2019). So please remember to look and perhaps photograph, but not touch!

Black Truffles – WA Agriculture and Food

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