



16th Australasian **Botanic Guides Conference**

Beauty rich and rare
Kings Park and Botanic Garden Western Australia

16 - 20 September 2019

WALK and TALK SUMMARY: FABULOUS FUNGI

Fungi are abundant worldwide but are inconspicuous most of the time. They are noticed when they produce a fruiting body e.g. Mushroom or Hoof Fungus. Since the 1970s, scientists have understood that fungi belong in their own separate and highly specialised Fungi Kingdom which contains far more species than the Plant Kingdom.

Flora, Fauna and Fungi (3Fs) are all equally essential in the functioning of ecosystems.

Role of Fungi

The term four part harmony is a good description of the interconnected relationships within ecosystems. Fungi can be:

1. Mates (or mycorrhizal partner)

90% of terrestrial plants have a mycorrhizal (symbiotic) relationship with one or often more species of fungi. Fungi draw on the sugars produced by plant photosynthesis and, in return, provide minerals that the plants are unable to access (e.g. phosphorus) as well as water. The seeds of our Australian native orchids (eg Pink fairy orchid) cannot germinate without the aid of a fungal partner. Endophytes (fungi that grow within plant tissues) can also assist plants to avoid disease and grazing by animals.

e.g. a *Cortinarius* sp.



2. Recyclers

Fungi are major recyclers of organic material and are essential to maintaining healthy ecosystem functioning. Without fungi, life on earth would be unsustainable for example fallen timber would render forests impenetrable. Fungal hyphae proliferate throughout all soils and are essential for good soil structure, stable carbon sequestration, water retention and nutrient availability.

e.g. Golden Wood Fungus (*Gymnopilus allantopus*)



3. Food

Some fungi can be food for both vertebrates and invertebrates. Our large numbers of native truffles are food for local Quendas here in Kings Park as well as for rare and endangered species such as Gilbert's Potoroo and Woylies, and for specialised insects too. The way to find fungi that are edible for vertebrates like us is to look in your supermarket or local farmer's market.

Truffle found in Kings Park, *Hydnangeum carneum*



4. Pathogens (those that cause disease)

As with all diseases, this can be a problem for other plants and for animals (including people).

The Honey Fungus – a pathogen found in many parks including Kings Park: (*Armillaria luteobubalina*)



Fungi in Kings Park

Look for fungi in the bushland especially after rain. Regular fungi surveys within Kings Park bushland have led to the formal identification of 392 species of fungi so far. With a high proportion of previously undocumented fungi being identified each year it is anticipated that many more species are yet to be discovered.

Reports providing detailed information on fungi forays conducted in the bushland are available upon request. <https://www.bgpa.wa.gov.au/kings-park/area/bushland/fungi-kp>

For further information see:

Fungimap – Australia wide Fungi organisation. <https://fungimap.org.au>

inaturalist – App for your smartphone which when combined with Fungimap project can be used to share fungi images and learn to identify your own fungi species.

'How trees talk to each other' https://www.ted.com/talks/suzanne_simard_how_trees_talk_to_each_other