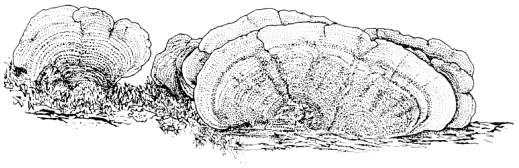
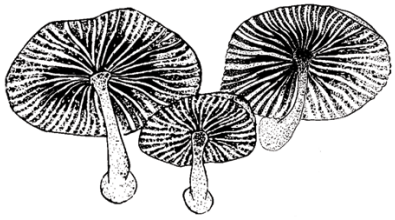
Tropical Factsheets

Fungus facts



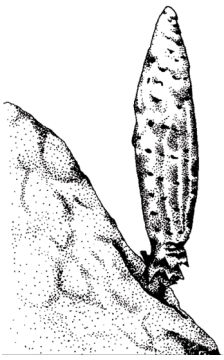
Bracket Fungus

- **Fungi** are in a group all of their own and are **neither plants nor animals.** The main difference between plants and fungi is that **fungi lack chlorophyll** (green matter).
- This means that they can't make their own food from sunlight through the process of photosynthesis. Instead, like animals, they must obtain food from other organisms.
- The **cell walls** of many fungi contain **chitin** (a product also found in insect exoskeletons).
- Plants use starch to store energy, but fungi are more like animals because they **store their energy as glycogen**.
- Generally, all we see of a fungus is the **fruiting body**. They are an important **food source** for animals. Over 30 Australian mammal species are known to eat them and some rely on them for survival.
- The rest of the fungus – the equivalent of the trunk and branches – is hidden from view. A vast network of extremely fine, hair-like filaments thread their way through soil, wood and leaf litter, breaking it down and feeding on the nutrients.
- These nutrient-gathering filaments (the 'roots') are called **hyphae**. They are usually thinner than a cobweb and are often invisible. The **mass of hyphae** is known as the **mycelium**.
- Fungi reproduce by releasing **huge numbers of spores**. A field mushroom releases spores at the rate of 200 million an hour, adding up to billions during its short life. Giant puffballs produce 15 trillion spores from each fruiting body.
- Spores are extremely **small**, with little food reserves to sustain them. They die quickly and very few survive. However, being so small and **light**, they can travel huge distances and colonise vast areas.
- Spores are mostly distributed by **wind**. But in the rainforest, the spores of many fungi are eaten and dispersed by **animals**. Truffles are a delicious delicacy for Northern Bettongs and other mammals.
- They may stick to the feet of insects (such as fungus gnats). Flies are attracted to the spore-saturated slime of the Bridal Veil fungus.



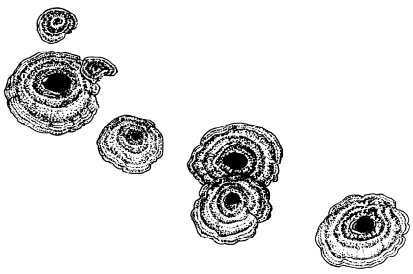
Fungus Caps

These fact sheets are based on the Tropical Topics newsletters edited by Stella Martin
and produced by the Wet Tropics Management Authority and the Queensland Environmental Protection Agency.



Puffball Fungus

- While the heat and enzymes in the guts of animals will kill the spores of many fungi, those designed to be dispersed this way are unaffected – and may even have their germination chances increased.
- **Fungi** are either ***saprophytic*** (they feed on dead plant and animal material), ***parasitic*** (they feed off a living host) or ***symbiotic*** (they share a mutually beneficial relationship with another organism).
- ***Saprophytic fungi*** release enzymes to soften the dead plant or animal. These enzymes speed up the process of decomposition and help the fungi to **digest their food externally.** Afterwards the fungi reabsorb the products, including the nutrients.
- Without **fungi**, dead plant material such as leaves, twigs and logs would pile up on the forest floor to form a massive heap as high as the canopy.
- Fungi are fantastic **recyclers**. They break down this dead plant material and free up the nutrients, making them available to other living organisms in the forest.
- **Fungi** are responsible for the release of 85% of the **carbon** within a forest, while bacteria and animals break down the remaining 15%.
- Without the fungi's excellent recycling service, those nutrients would be locked up in ever increasing piles of natural rubbish, soil fertility would steadily decline, and plant growth would be restricted.
- ***Parasitic fungi*** are often harmful to the host plants, and cause major damage in rainforests.
- ***Symbiotic fungi*** send their **hyphae** to penetrate the roots of a plant. The plant produces **carbohydrates** through the process of photosynthesis, and the fungus feeds on these carbohydrates. In return, the fungus acts as an extension of the plant's root system, because its **hyphae** spread further and into tinier spaces than the plant's roots are able to. They collect vital resources such as water, phosphorus and trace elements which are fed back into the host plant. The two organisms **join forces** to live efficiently.
- **Symbiotic fungi** also protect the host plants from fungal diseases. They attack invading fungi or simply leave no room for them to move in. A plant which is well fed by **mycorrhizae** is also better able to resist disease.
- **Mycorrhizal fungi** play an extremely important role in the ecosystem where there are nutrient-poor soils. Some plants cannot live without them. Some **orchids** can't germinate and grow without mycorrhizal fungi.



Saprophytic Fungi