

FUNGI

By Stephanie Jackson

Here's a question for you. What forms of life are the most numerous on earth - animals, birds, plants, insects, or something else perhaps? The answer might surprise you, for it's fungi that are the most prolific organisms to inhabit the planet.

I've been fascinated by fun-

gi since my childhood when I was convinced that the sudden appearance of a ring of toadstools indicated that I was in the realm of fairies, or that a magical event was about to occur. Age and a little knowledge of reality have vanquished those youthful fantasies, and although I no

longer anticipate the arrival of magical creatures, I'm still convinced, whenever I see fungi, that there's a touch of magic in the air. Fungi, which are believed to have first appeared on earth some 600 million years ago, come in every colour imaginable and in an astounding diversity of forms, from those with intricate and beautiful designs to the bizarre, and even the revolting. And that's Mother Nature's magic at work.

Some 13,000 species have been recorded in Australia, but experts believe that the actual number in existence could be a staggering 250,000, and that means that, providing the conditions are right, you won't have to look far to find them.

The microscopic size of many species keeps them well hidden from the naked eye, and the ephemeral nature and fleeting presence of the fungi that are commonly referred to as mushrooms and toadstools means that many are rarely seen. But if you look carefully in woodlands, forests, parks, and gardens, particularly in the early morning when sunlight warms the earth after a damp night, you might find these curiosities of the natural world almost under your feet.

Fungi are not plants, as they don't contain chlorophyll, an essential ingredient that enables plants to obtain nutrients via photosynthesis, and their cell walls are not composed of cellulose like those of plants, but of chitin, the substance used to form the tough exoskeletons of insects.

The nutrients fungi require for survival are sourced from the soil or other material in which they grow, and are obtained via a web of fine thread-like filaments called hyphae





that clump together to form an often white mass known as mycelium. Fungi spread, within their local environment, via mycelium, but nature has equipped them with another means of propagation. The above ground parts of mushrooms and toadstools are their fruiting bodies, each of which produces thousands of minute dust-like spores that are spread, primarily by wind and insects, to new areas that fungi can colonise.

Life on earth would be unimaginable without fungi, for they are a vital component of every healthy ecosystem and play a variety of essential roles. Some have a symbiotic relationship with a specific plant species; others are parasitic and cause the death of their host plants; and some parasitise insects, including spiders. The many species that thrive on the forest floor are the recycling brigade that cleans up nature's endless supply of waste by converting fallen timber, leaf litter, animal dung, and the corpses of wildlife into nutrients that the surrounding plants can utilise for their growth.

Fungi also provide food for wildlife, with several species included in the diets of bandicoots, wombats, and birds, while some possums and wallabies detect and dig up fungi that grow underground.

Fungi have been a popular food for humans for millennia, but for anyone looking for a bit of bush tucker, caution is the key word. Many common fungi have a similar appearance to that of the white mushroom (*Agaricus bisporus*) that's been in commercial cultivation for aeons, but eating them can have disastrous consequences.

It's often said that if the skin on the cap of a mushroom can readily be peeled off, then it's safe to eat, but this is a dangerous misconception as several highly toxic species, including the Death Cap mushroom (*Amanita phalloides*) that lives up to its grim name, can be peeled in this way. Eating even a minute amount of this species can be fatal.

Another old wives' tale is that poisonous fungi, if rubbed on any item of silver, will turn it black, and

conversely those that have no impact on the precious metal will be safe to eat. This too is incorrect, as is the assumption that any fungus with a distinctive mushroom smell is edible. To be on the safe side, it's best to eat only cultivated species, and when it comes to the weird and wonderful array of fungi found in the wild, look but don't touch is the best rule.

Many fungi contain compounds with toxic, mind altering, or psychedelic properties, but it's not all bad news. Tales, from an era when all medications came from natural sources, tell of medicines derived from the woody bracket fungi that thrive on the trunks of forest trees; of pulverised mushrooms being applied to wounds to stop bleeding; and of spores from puffball species used as a coagulating agent to stem the flow of blood from nosebleeds and from the severing of the umbilical cord after childbirth.

Recent scientific studies have revealed that, in the not too distant future, fungi, some of which contain compounds that have antiviral, antibacterial, anti-inflammatory, and anti-diabetic properties, may play a valuable role in a range of modern medicines. Others, researchers believe, might one day be used in the treatment of a range of diseases, including cardiovascular disorders, some forms of cancer, and inflammatory bowel disease, in addition to physiological conditions such as vitamin D deficiency and glaucoma, and might even have the potential to inhibit the growth of tumours.

Fairies dancing in a ring of toadstools are definitely a figment of the imagination, but with the promise of great benefits for mankind, it seems that fungi really are imbued with a dash of magic.

Images:

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Page 3 - *Phallus indusiatus* - Stink-horn fungus

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