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HISTORY



The fungal garden

This photographic essay examines a little known and often misunderstood component of gardens and other landscapes, fungi.

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Lichens (above right) are among the earliest examples of organisms using terrestrial symbiosis. They first appeared in the Early Devonian, about 400 million years ago. Together with this jelly fungus *Ascocoryne sarcooides*, lichens work to break down the log.

Australians have historically had an uneasy relationship with these confounding organisms. Those of us with British Isles ancestry tend to take a fungus-fearing (‘mycophobic’) approach to the fungal kingdom as a whole. Unlike many continental Europeans, we mostly lack the extended histories of cultural association with fungi. By contrast, the European appreciation of the nutritive properties of fungi is often accompanied by an understanding of their ecological importance. The availability of a diverse European literature on fungi from field guides to culinary companions to mycological texts suggests their greater significance in European society.

Fungi also got off to rather an unsteady start in our attempts to catalogue life. For all the revelations and advancements of Swedish botanist Carl Linnaeus’s work in his hierarchical categorising of life, fungi did not fare well. They were assigned a low place, and the relationships between fungi, plants and animals were poorly understood. Fungi are still among the least known and least studied of organisms. In regarding plants as discrete and independent entities, we often fail

to perceive the importance and prevalence of the partnerships they form with fungi, without which neither partner would thrive.

The history of any land is therefore also a history not just of its plant species, but of its fungal ones. Although the health and resilience of plants reflect the unseen workings of subterranean relationships with the fungal kingdom, perceptions — even in horticulture — have focused on undesirable rather than desirable qualities. The fungi mentioned in gardening columns of newspapers have tended to be the pathogenic fungi — fungal spots on roses, for example, or rusts and smuts on grain crops — with suggestions for their eradication. Far fewer accounts elaborate on the beneficial relationships and roles of fungi.

‘How to destroy insects and fungi on plants’
Western Mail 1 September 1888 [headline]

‘Stinker Fungus — A Troublesome Growth’
Sunday Times 4 May 1924 [headline]



Pathogenic fungi can certainly be highly destructive, but almost all of the fungi in gardens are saprophytic (recyclers). The ‘stinker fungus’ and many others contribute to garden health by breaking down recalcitrant compounds such as lignin and cellulose, making nutrients available to plants and creating soil in the process. Other fungi, known as mycorrhizal fungi, form mutually beneficial relationships with plants. In these relationships, the fungal partner benefits the plant in multiple ways, extending its root system and offering greater access to water and nutrients, as well as providing protection from soil pathogens. Networks of fungal mycelia — the weblike vegetative part of a fungus — provide structural scaffolds in soils, enhancing water filtration and aeration. Protecting this subterranean fungal matrix from stresses such as chemicals, synthetic fertilisers, compaction, physical disturbance and overwatering, contributes to soil and plant health and a thriving garden.

The beauty and mystery of fungi in both landscape and garden are remarkable. Fungi delight the

imagination, with their unpredictable and ephemeral appearance, myriad forms and colours. Appreciating their aesthetics and symbolic potency prompts creative responses. They have long been a subject of artistic endeavour, creating rich cultural histories and mythologies across the globe.

Understanding fungal ecology helps us comprehend their ecological significance. By considering fungi as conduits of connectivity and interaction, this allows us to rethink concepts of nature, biodiversity, and gardens. Being able to identify a fungus imbues it with meaning, but contemplation of the mycelial matrix and fungal–plant symbioses presents a chance to look again at relationships and contexts, rather than understanding biodiversity only through the naming and cataloguing of life. For me, these curious and compelling organisms are also a source of sensuous enchantment.

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(Above right) The emperor cortinar (*Cortinarius archeri*) forms mutually beneficial relationships with *Eucalyptus* species.