



Kangaroo Island Fungi



What are fungi?

Fungi are neither plants nor animals but rather form their own unique biological kingdom. They exhibit an astonishing variety of sizes, forms, colours and behaviours. They usually exist as a mass of microscopic threads that weave their way through the soil, dead wood or other organisms. When they are ready to reproduce they form temporary fruiting bodies, the largest of which we recognize as mushrooms, toadstools, puffballs, earthstars, truffles and the like.

Without fungi, life as we know it would not exist. Fungi are an essential part of all ecosystems, forming partnerships with most plants, recycling organic matter, assisting with soil formation, as well as providing food and homes for a wide variety of animals. Without fungi, wood and other organic materials would pile up on the earth's surface and plants and other organisms would be deprived of essential nutrients.

Most species of fungi are too small to be noticed by the naked eye. This brochure, however, describes some of the larger, easily visible species found on Kangaroo Island.

Users of this guide should be aware that some species of fungi are poisonous to humans.

What makes K.I. special?

Areas of natural vegetation contain far more fungi than cleared areas, and large patches have more than small patches. With about half of its original vegetation cover still intact, much of it in large continuous blocks, Kangaroo Island maintains a greater diversity of fungi than elsewhere in South Australia where so much land clearance has occurred.

Kangaroo Island parks, especially Flinders Chase National Park and the Ravine des Casoars Wilderness Protection Area, are without doubt fungal 'hotspots'.

In the Rocky River area of Flinders Chase alone around 450 different fungi species have been recorded, in the Ravine des Casoars almost 300 species, and 140 species have been found at Kelly Hill Caves. This compares with approximately 130 fungi species recorded from Belair National Park and approximately 120 from Parra Wirra Recreation Park in the Mount Lofty Ranges.

As well as supporting an impressive array of widespread fungi, many of the species recorded from Kangaroo Island are extremely rare, and some have been found nowhere else. There are at least six new species of fungi from KI waiting to be officially described and named.



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Fungi and fire

Many fungi live amongst and break down dead wood and leaf litter, while others form close mutually-beneficial partnerships with plant roots. Fire destroys the habitats of wood and litter dwelling fungi and kills many plants with fungal root partners, leading to the temporary disappearance of these particular species. However the passage of fire also provides opportunities for other species of fungi.

A number of species such as the stonemaker fungus (see photo overleaf) appear almost immediately after a fire has passed. They are stimulated to send their mushroom-like fruiting bodies to the soil surface within days of a fire. Some of their spores may then land on dead wood where they germinate and begin decomposition.

The orange disc fungi, such as *Anthracobia* and *Byssonectria*, form bright carpets on the bare surface of recently burnt soil, preventing erosion and providing shelter and nutrients for mosses and grasses to begin the recovery process (see photo above).

It takes a number of years before the fungal community returns to its pre-fire state. Some species are only found in the year after a fire, while others persist for a few years but are absent from areas that haven't been burnt for a long time.

Threats to fungi

All organisms, including fungi, are threatened by habitat destruction. The fungi that use dead wood or leaf litter as a source of nutrients lose their food supply, and fungi that are in mutually beneficial partnership with the roots of specific native plant species disappear as well.

While many species of fungi are lost when native vegetation is cleared, other fungi can play a major role in restoring damaged or cleared sites. Some species colonise bare soil, helping to bind it together and prevent erosion, while others break down organic matter to provide nutrients for plants to grow.

But for this to happen there must be suitable species of fungi present. Natural 'islands' of vegetation, where they occur, can provide the fungi necessary so long as dead wood and leaf litter, with their accompanying communities of recycling fungi, are not removed.

Restoration may also be helped by spreading soil from non-degraded areas around new plantings, but beware of spreading harmful dieback organisms like phytophthora. Local fungi and plants are well adapted to each other, so it is important to use fungi from as close to the site as possible.

Further Information

Natural Resources Centre Kangaroo Island
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Email: kinrc@sa.gov.au

Related Websites:
www.naturalresources.sa.gov.au/
kangarooisland
www.environment.sa.gov.au

Fungimap

If you come across interesting fungi, submit the details to Fungimap and contribute to their National Australian Fungimap Database. Contact:

Fungimap Inc
Ph: (03) 9252 2374 (Monday–Thursday)
Email: info@fungimap.org.au
Website: <http://fungimap.org.au/>

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Hairy curtain crust *Stereum hirsutum*



Grows: In dense clusters on the dead wood of trees.
Appearance: Individual brackets are 2–8 cm across with irregular wavy edges. They have variable colours, usually yellow, orange or brown, that become paler towards the margin.
Facts: It causes white rot in the heartwood of trees. Common on KI.

Varied slipper *Crepidotus variabilis*



Grows: On decaying logs, twigs and fallen leaves.
Appearance: Small stemless, gilled, bracket, forming masses of shell-like fruiting bodies 0.5–2 cm across. The gills radiate from a central point like the rays of a fan.
Facts: The gills begin white and change to pale brown. Common on KI.

Fairy stool *Coltricia cinnamomea*



Grows: In conspicuous groups on the sides of paths, often at the base of tree stumps, in native forests.
Appearance: The leathery cap forms an attractive whorl of satiny rings of varying shades of brown, 1–5 cm across, usually on a central stalk 1–2 cm high.
Facts: It is common on KI.

Ghost fungus *Omphalotus nidiformis*



Grows: In overlapping clusters at the base of trees.
Appearance: A large, tough, fleshy, often funnel-shaped mushroom with variable colours: white with patches of purplish black, honey colour and brown.
Facts: At night it glows luminescent. It causes heart rot in damaged trees.

Fleshy ground cup *Aleurina ferruginea*



Grows: Singly or in scattered groups on the soil surface or rotting wood.
Appearance: A cup or ear-shaped fungus. The shallow discs are 1.5 cm across and 0.6 cm deep, with a velvety yellowish outer surface covered with tiny brownish warts and a smooth greenish-yellow inner surface.
Facts: Common in forests after rain.

Bird's nest fungus *Nidula niveotomentosa*



Grows: On well-rotted twigs and leaf litter or sometimes on recently burnt ground.
Appearance: The cup-shaped fruiting bodies of this species resemble tiny egg-filled birds' nests.
Facts: The spores are contained in egg-shaped capsules within the cup and are dispersed by rain splash.

Tooth fungus *Sarcodon species*



Grows: With tree roots underground.
Appearance: Distinctive because underneath the mushroom cap there are soft spines or teeth instead of the more familiar gills. The large cap is covered above in coarse brown scales.
Facts: Forms mutually beneficial partnerships with tree roots underground. Very rare.

Vermillion agaric *Amanita xanthocephala*



Grows: In native forests on the sides of tracks and in leaf litter.
Appearance: Colourful with a yellowish to reddish-orange cap 2–5 cm across, and white to lemon yellow gills underneath. The white or pale yellow stalk is 2–6 cm tall and has a cup-like base.
Facts: Common on KI.

Pinkgill *Entoloma species*



Grows: On rotting wood or amongst leaf litter. Entoloma species grow all over the world in a wide variety of habitats.
Appearance: Most species have a central stem. The gills become pink as the angular spores mature.
Facts: Entolomas with stems to one side, as this one has, are rare.

Purple turnover *Leucopaxillus lilacinus*



Grows: Under leaf litter and can be easily overlooked.
Appearance: The large, lilac coloured cap of this mushroom expands to be 15 cm across. The margin of the cap is curled under and the gills are white or cream.
Facts: It is abundant in Flinders Chase National Park but rare elsewhere in SA.

Slimy yellow cortinar *Cortinarius sinapicolor*



Grows: In groups or rings, often pushing up the leaf litter in native forests.
Appearance: A bright mustard-yellow mushroom with a very slimy covering over both the cap and stem. The cap is 3–8 cm across on a stem 1–3 cm tall.
Facts: It has a strong, peppery, sweetcorn smell.

Ruby cortinar *Cortinarius erythraeus*



Grows: In soil and leaf litter under eucalyptus trees, usually in scattered groups but occasionally is solitary.
Appearance: Distinguished by its red, slimy cap and lower stem. The cap is 2.5–7 cm across, usually on a short and stout stem with a bulbous base.
Facts: It is common at Kelly Hill Conservation Park.

Stone-making fungus *Laccocephalum species*



Grows: Within days following a fire.
Appearance: A fruiting body appears on the surface after fire as a large, nondescript, lobed, white mushroom covered in a dark brown skin.
Facts: Spends most of its existence feeding on fallen or buried logs, storing nutrients in a large football-sized underground mass.

Truffle *Torrendia arenaria*



Grows: The fruit bodies develop and mature underground, but they may crack the soil surface or partially emerge at a late stage of maturity.
Appearance: Tiny fungi with a well developed cap and stem.
Facts: This rare truffle has only been found in Western Australia and on Kangaroo Island.

Wineglass fungus *Podoscypa petalodes*



Grows: On dead or buried wood, often found in debris at the base of trees.
Appearance: The fruiting bodies occur as bunches of thin, tough, leathery, funnel-shaped rosettes. The upper surface is 4–7 cm across and it stands 6–8 cm tall.
Facts: Found in many parts of the world.

Lichenised coral fungus *Multiclavula species*



Grows: On wet sandy sites on KI where it is an early colonizer.
Appearance: The fruiting bodies are tiny white clubs about 1.5 cm tall.
Facts: Occurs in symbiotic partnerships with algae. This species is uncommon but other *Multiclavula* species are found in a variety of habitats from hot and dry to tropical rainforests.

Truffle *Zelleromyces daucinus*



Grows: Underground under eucalyptus leaf litter.
Appearance: Small, round, orange-brown, berry-like objects 1–2 cm across with an internal structure of intricate folds of light orange to pink tissues.
Facts: It may provide an important food source for the southern brown bandicoot. Common on KI.

Earthstar *Geastrum species*



Grows: On the ground in leaf litter beneath trees.
Appearance: The fungi first emerge as round balls. The skin of the ball splits into rays to reveal a soft, central ball filled with spores.
Facts: Some species close their rays during dry weather to protect the sac, opening again in wetter weather.