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.

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
37 Dauncey Street
Kingscote SA 5223
Ph: (08) 8553 4444
Email: kinrc@sa.gov.au
Related Websites:
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/

This project was initiated by Friends of Parks KI Western Districts and supported by Natural Resources Kangaroo Island with funding from the State NRM Program Community Grants.

Acknowledgement to Pam Catcheside, State Herbarium of South Australia.
Fungi images by David Catcheside (DC), School of Biological Sciences, Flinders University and where not acknowledged, Colin Wilson.
Stereum hirsutum
Grows: In dense clusters on the dead wood of trees.
Appearance: Individual brackets are 0.5–2 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.

Crepidotus variabilis
Grows: Under leaf litter and can be easily overlooked.
Appearance: Most species have a developed cap and stem.
Facts: This rare truffle has only been found in Western Australia and on Kangaroo Island.

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.

Fairy stool
Facts: It is common on KI.

Varied slipper
Facts: It causes white rot in the heartwood of trees. Common on KI.

Omphalina nigra
Grows: On rotting wood or amongst leaf litter. Entoloma species grow all over the world in a wide variety of habitats.
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.

Hairy curtain crust
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.

Hairy curtain crust
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.

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.

Omphalina nigra
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.

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 2.5–7.5 cm across, usually on a short and stout stem with a bulbous base.
Facts: It is common at Kelly Hill Conservation Park.