

FUNGI

of the South-West Forests

ISBN 978-0-7307-5528-2



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Fungi of the south-west forests / written
and photographed by Richard Robinson

DEPARTMENT OF PARKS AND WILDLIFE

What mushroom is that?

Bush Books are a series of practical field guides to help you learn about and discover WA's unique plants, animals and special features, region by region.

ABOUT THE AUTHOR

Richard Robinson is a research associate with Parks and Wildlife. He currently lives in Tasmania, but from 1996–2015 he worked for Parks and Wildlife as a senior research scientist involved in fungal biodiversity and ecology, native forest diseases, and forest management. He has written several articles on Western Australian fungi for *LANDSCOPE* magazine, as well as for specialist journals and books. He has also studied and worked on fungi in Tasmania and Canada and co-authored *Rainforest Fungi of Tasmania and South-East Australia*.

Publisher: Department of Parks and Wildlife, 17 Dick Perry Avenue, Kensington, Western Australia, 6151.
Visit Parks and Wildlife's website at www.dpaw.wa.gov.au.

Distributor: WA Naturally Publications, phone (08) 9219 9915 or fax (08) 9219 9839.

Editor: Carolyn Thomson-Dans.

Editor assistant: Verna Costello.

Design and production: Natalie Curtis.

Front cover: Splendid red skinhead (*Cortinarius persplendidus*).
Photo – Richard Robinson.

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Printed in 2003, 2016.

ISBN 978-0-7307-5528-2

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INTRODUCTION

Western Australia's south-west is known as one of the most botanically diverse regions in the world. It is particularly renowned for its wildflowers and soaring karri trees, and each year people flock to the region to see them. An even more diverse flora exists within the fungi. The jarrah and the towering karri and tingle forests are home to an amazing range of fungi, found in a variety of forms and colours.

Fungi play important roles in ecosystem functioning. They are the forest recyclers, breaking down forest litter and debris to provide nutrients for plants. They also aid the uptake of these nutrients into the plants. Underground truffle-like fungi provide a food source for several native mammals including the woylie and potoroo. For the majority of their existence, fungi persist in the form of microscopic filaments called hyphae. Hyphae colonise the soil or other organic matter such as leaf litter and wood, and at certain times of the year they develop the distinctive fruit bodies we refer to as mushrooms, toadstools or brackets. Most fungi fruit in the autumn or winter, but a few fruit in the spring.

Despite their importance, knowledge of Australian fungi is limited. There are at least 10 times as many fungi as plants in Australia, and at present only about five per cent of them have been formally described and named. The aim of *Fungi of the South-West Forests* is to introduce you to the world of fungi and the array of species found there. There are very few records of Indigenous people using fungi, and they were regarded suspiciously by the early European settlers. As a result, very few Australian fungi have common names. Most common names adopted for Australian fungi have been taken from European or North American cultures, and in many cases their original reference is to a different species. All the species featured in this book can be found along roadsides and walking tracks in the forests, woodlands and coastal communities of the south-west of WA.



Australian honey fungus (Armillaria luteobubalina)

Some species of fungi are edible, but it is not recommended that you eat any wild mushrooms before getting a positive identification from an expert. The advice given on edibility is a guide only. It was not gained from personal knowledge or research but from other published literature (often from European or North American publications) and the author or the Department of Parks and Wildlife do not accept any responsibility for those who wish to use or consume wild fungi. It is illegal to collect them from national parks and a permit is needed to take them from State forest.

There are two main types of fungi, the Basidiomycetes and the Ascomycetes. They differ in the way they produce their spores, a feature that can only be seen microscopically.

The microscopic filamentous hyphae make up the main part of a fungus. The fruit bodies are the reproductive stage, and can be equated to the fruits of a plant, for example, just like apples on a tree. The basic terminology used to describe typical mushrooms is quite simple, and most mushrooms can be described in terms of the shape, colour and texture of their cap, the gills or pores under the cap, and their stem. Not all fruit bodies are mushroom-shaped. Many are modified but represent simplified forms of this shape.

While their diversity may at first be overwhelming, with practice fungi can be separated into a number of groups. Despite being common, not all the fungi illustrated have names, but they can be readily identified, using the appearance of their fruit body, as belonging to a common group and to a genus within that group. The colour of spores can also be used to separate similar species or subspecies. Spore prints are obtained by removing the stem and placing the cap of the mushroom on a piece of paper (gills or pores down) and covering it with a bowl or jar for several hours. The released spores will leave a coloured deposit of spore powder on the paper.

The following is a quick reference to some of the common groups of fungi, all of which are represented in the book. These are not strict taxonomic groups but simple and convenient groups in which to put fungi for those with a basic non-scientific interest.

A. BASIDIOMYCETES: Includes the mushrooms, toadstools, coral fungi, puffballs, bracket fungi and others. The common groups within the Basidiomycetes include:

1. AGARICS: mushrooms with gills (see pages 6–29)
2. BOLETES: mushrooms with pores (see pages 30–35)
3. CORAL FUNGI: fruit bodies with simple club-like or multi-branched structures (see pages 36–37)
4. PUFFBALLS: sac-like fungi (see pages 38–39)
5. SPINE FUNGI: mushrooms or fruit bodies with spines (see pages 40–41)
6. TRUFFLE-LIKE FUNGI: underground fruiting fungi (see pages 42–43)
7. LEATHER, SHELF AND CRUST FUNGI: thin, leathery shelves or sheets on sticks and wood (see pages 44–45)
8. POLYPORES: firm or hard, woody bracket-like fungi on trees and wood (see pages 46–55)
9. JELLY FUNGI: soft, gelatinous fungi on wood (see pages 56–57)

B. ASCOMYCETES: This diverse group has fruit bodies that can be cup-like, disc-shaped, club-like, spherical or crust-like in appearance, and their texture can be fleshy to firm or hard and carbon-like. Some common groups of Ascomycetes are:

10. CUP FUNGI: cup or disc-shaped (see pages 58–59)
11. EARTH TONGUES: firm and fleshy with a tongue-like appearance (see pages 60–61)
12. MORELS: fleshy with a distinct elongated honeycomb-like cap (see pages 62–63)
13. FLASK FUNGI: usually hard and charcoal-like (see pages 64–69)

FOREST AND FIELD MUSHROOMS

(*Agaricus* species)

Mushrooms with gills on the underside of their caps are commonly referred to as agarics (described on pages 6–29). Most look like typical mushrooms or toadstools, but many that fruit on wood may be fan-shaped. The spore-producing cells are borne on the faces of the gills. Species of *Agaricus* are typified by their medium to large broad cream caps, pink gills which turn chocolate brown when mature, and slender or stout white stems which generally have a fragile ring about halfway down. They fruit on the ground, sometimes hidden under a layer of leaf litter. Some species are edible but others, such as the yellow stainer, can cause gastric upset and should not be eaten. The common field and commercial button mushrooms belong to this genus. *Agaricus* species have chocolate brown spores and fruit in the autumn to early winter on the soil or amongst the leaf and twig litter.

YELLOW STAINER (*Agaricus* aff. *xanthodermus*): The yellow stainer has a distinctive flat-sided, elongated button stage that opens into a broad flat cap, 10 to 15 centimetres across. Brown scales on the cap are darker and thicker near the centre. The young gills are very pink but become chocolate brown when mature. The stem is light buff to brown above the double-layered ring, and white below. If the mushroom is cut in half, the white inner flesh stains yellow, especially at the base of the stem. This species should not be eaten as it may cause vomiting, diarrhoea and sometimes coma.

RED-STAINING FOREST MUSHROOM (*Agaricus sylvaticus*): When this species is cut in half, the internal flesh is white but stains light reddish-brown. The broad flat cap expands to about 10 centimetres in diameter and is covered in dark reddish-brown scales. The gills are crowded, pink at first, changing to chocolate brown as they age. The stem is light brown, changing to cream at the bulbous base, with a white ring about halfway down.

GROUP: Basidiomycetes. Agarics.



Above: Yellow stainer

Below: Red-staining forest mushroom



WHITE-VEILED AMANITA

(*Amanita ananiceps*)

Species of *Amanita* are attractive, but some species are very poisonous. They are readily recognised, as most of them have scales or warts on the cap and a stem that emerges from a sac-like base, or has a pronounced bulb. The stem usually (but not always) has a ring just below the cap. Many species of *Amanita* are poisonous and are known to have caused fatalities. The notorious death cap (*Amanita phalloides*) is reported to be responsible for about 90 per cent of deaths recorded worldwide from mushroom poisoning. Although it is a northern hemisphere species, the death cap has been recorded growing under introduced trees near Adelaide and at several locations in Victoria and in the Australian Capital Territory, where it has been responsible for a small number of fatalities. Fortunately, it has not yet been recorded in Western Australia, but no species of *Amanita* should be eaten.

DESCRIPTION: The white-veiled amanita has a large and very distinctive pure white mushroom. The cap is six to nine centimetres across, with raised irregular-shaped warts that may turn dark brown on their tips as they age. The attractive fairy-like skirt around the rim of the expanded cap is fragile, and consists of mealy scales that are easily blown away on the wind or washed away by rain. The gills are white and remain white with age. The robust stem arises from a bulbous base.

SPORE PRINT: White.

HABITAT: This mushroom grows in soil under or amongst leaf litter within forests and woodlands.

FRUITING TIME: Late autumn to winter.

EDIBILITY: Amanitas are poisonous and should not be eaten (see above).

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



VERMILLION GRISETTE

(*Amanita xanthocephala*)

Vermillion grisette is unusual in that it is brightly coloured and does not have a ring on the stem. It is also smaller than most other species of *Amanita* found in the south-west. It is very common, widely distributed and has a longer fruiting period than other species. The yellow-headed amanita looks like a small, faded version of the fly agaric (*Amanita muscaria*), the red, white-spotted mushroom that features in many children's storybooks, which is common in the northern hemisphere and in pine plantations or under introduced trees throughout southern Australia including south-west Western Australia.

DESCRIPTION: The yellow to orange caps of this species are generally two to three centimetres in diameter, and have distinctive white or yellowish scales on the surface. The colour is most intense in the centre of the cap which, when wet, can be quite sticky. The gills are white or sometimes pale yellow. The stem is white, sometimes with a pale yellow tinge, and emerges from a bulbous, cup-like base with a yellow or orange rim. No ring is present on the stem.

SPORE PRINT: White.

HABITAT: Vermillion grisette is common and usually grows on bare soil or in litter in quite open areas of forest (including plantations) or woodland. It also grows in urban bushland areas, such as Kings Park.

FRUITING TIME: Mushrooms are produced over an extended period, and may be seen from autumn through to early spring.

EDIBILITY: Amanitas are known to be poisonous, and they should never be eaten (see page 8).

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



AUSTRALIAN HONEY FUNGUS

(*Armillaria luteobubalina*)

The Australian honey fungus is parasitic, and can infect the roots of most shrub and tree species, eventually killing them. In natural forests it infects and kills trees that have been weakened by some other factor, such as drought, lack of light and disturbance. It can often be seen fruiting in large clusters on the stems of dead trees, at the base of dead shrubs or on the ground amongst the litter. It can also be seen at the base of living plants that are infected. After some years of infection, forest trees develop scars at their base that look like fire scars. On karri trees, in particular, the fungus can spread up the trunk, under the bark, for several metres.

DESCRIPTION: Mushrooms are usually produced in clusters. The light yellow caps are three and a half to nine centimetres across and have a dense covering of small black to brown scales near the centre that feel like a cat's tongue when you rub a finger across them. The gills are at first white, then cream, and finally develop yellow or rusty spots on their margins. The stems are usually robust and about eight to 15 centimetres or more tall. The upper stem has a ring just below the cap and a blush of pink colour. Scattered or thick scales may cover the surface of the lower part of the stem (see photo on page 3).

SPORE PRINT: White.

HABITAT: The honey fungus is widespread throughout the southern forests, the coastal plain and interior woodlands, as well as urban parks and gardens.

FRUITING TIME: Late autumn to early winter.

EDIBILITY: Young caps are edible, but older caps are very hot and bitter. The bitterness may be removed by cooking in water, but then the cooking water should be discarded.

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



PINK CHANTARELLE

(*Cantharellus concinnus*)

The pink chantarelle was considered to be an Australian variety of the red chantarelle (*Cantharellus cinnabarinus*), which is common in North America, but is now known to be a distinct Australian species. In the northern hemisphere, where there are a number of species, chantarelles are plentiful and considered to be among the best of the edible wild fungi. Pink chantarelles are not as common as their northern relatives, but they are among the most exquisite mushrooms you may encounter in WA. Their delicate pink colour contrasts with the harsh, dark, brownish-black leaf litter in which they fruit.

DESCRIPTION: The caps of pink chantarelles vary from one to five centimetres across, and when fully expanded the margin is often lobed and upturned. Their colour varies from pale brownish-pink to an intense pinkish-orange. Under the cap, the light pinkish-white gills are broad and shallow, sometimes forked and run down the upper stem.

SPORE PRINT: White.

HABITAT: Pink chantarelles grow in small groups but are sometimes seen in large numbers. They are usually found amongst leaf litter on the forest or woodland floor.

FRUITING TIME: Late autumn to early winter.

EDIBILITY: Pink chantarelles are edible. The mushrooms may have a faint apricot odour but the taste is quite plain or bland, but they have a good firm texture when lightly cooked.

GROUP: Basidiomycetes. Although the pink chantarelle looks like a gilled mushroom (agaric) it is very closely related to the coral fungi (see pages 36–37). Chantarelles (mushrooms with gill-like folds) are often granted their own group, but here the pink chantarelle has been included in the agarics.



WEBCAPS

(*Cortinarius* species)

There are many species of *Cortinarius* in the south-west. Most are undescribed, but are readily recognised. The distinguishing feature is a cobweb-like or membranous structure called a veil (*Cortinarius* means 'pertaining to curtains'), stretching from the upper stem to the cap surface in young unexpanded fruit bodies. When the fruit body expands, the veil tears away and may persist as sparse scales or filaments on the surface or margin of the cap or as a web-like or membranous ring on the upper stem.

ARCHER'S WEBCAP (*Cortinarius archeri*): Archer's webcap has a large violet mushroom with a sticky or slimy cap. The cap may expand to be 10 centimetres across. The membranous veil also has a sticky coating and may persist on the upper stem as a sticky ring. The stem is usually lighter in colour than the cap and may be as long as 12 centimetres.

ELEGANT BLUE WEBCAP (*Cortinarius rotundisporus*): This species has a slimy metallic blue cap with a distinctive yellowish-brown zone in the centre, and is generally up to about seven centimetres in diameter. Gills are a pale greyish-lavender to brownish-lavender. The long slender stem thickens towards the base, is light coloured and may be up to 15 centimetres long, projecting the caps above the leaf and twig litter in which it fruits.

SPORE PRINT: Species of *Cortinarius* have brown spores.

HABITAT: Archer's webcap is most common in jarrah forest and is often found in clusters. The elegant blue webcap is most common in karri forest and fruits are single or in small numbers.

FRUITING TIME: Fruiting is generally in late autumn to early winter, but the elegant blue webcap may fruit in late winter.

EDIBILITY: Some European species of *Cortinarius* are very toxic, so eating any *Cortinarius* mushrooms should be avoided.

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



Above: Archer's webcap

Below: Elegant blue webcap



SKINHEADS

(*Cortinarius* species)

Skinheads are very closely related to webcaps but are distinguished by having dry caps and brightly-coloured pigments, some of which can be used as fabric dyes.

UNNAMED GREEN SKINHEAD (*Cortinarius* sp): The caps of this unnamed skinhead are dark green dry, and reach about six to seven centimetres in diameter. The gills are yellow, but change to brownish-yellow at maturity. The stem is yellow. It is very similar to another green and yellow species, *Cortinarius austroveneta*, which varies in colour from dark green to greenish yellow.

SPLENDID RED SKINHEAD (*Dermocybe persplendidas*): Splendid red skinhead has a dry dark brown to brownish-orange cap, generally two to six centimetres in diameter. The mushrooms are almost invisible in the leaf litter, but when they are turned up they display brilliant reddish-orange gills. The stem is light yellowish-brown and may be up to 10 centimetres tall. Filaments from the cobweb-like veil persist as a streaky brown zone on the upper stem.

SPORE PRINT: All species of *Cortinarius* have brown spores.

HABITAT: The unnamed green and the splendid red skinhead both fruit in the leaf and twig litter on the floor of karri and jarrah forests.

FRUITING TIME: Late autumn to late winter.

EDIBILITY: Edibility is not known, but skinheads belong to *Cortinarius* and thus should not be eaten (see page 16).

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



Above: Unnamed green skinhead

Below: Splendid red skinhead



GHOUL FUNGUS

(*Hebeloma aminophilum*)

The ghoulish fungus gets its name from its habit of growing around the carcasses of dead animals, where nutrients from the decaying animal matter appear to stimulate it to fruit. There are several species of *Hebeloma* that look very similar. *Hebeloma westraliensis* looks very similar to the ghoulish fungus but it does not occur near dead animals.

DESCRIPTION: The pale pinkish-brown caps of the ghoulish fungus are dome-shaped at first, but become flat when fully expanded and reach up to 12 centimetres in diameter. The gills are pale pink at first, then darken to pinkish-brown. The stem is generally six to 10 millimetres tall, creamy white to white, and is sometimes stained pinkish when the mature gills release their spores.

SPORE PRINT: Pinkish-brown.

HABITAT: The mushrooms of the ghoulish fungus are generally found in the early autumn, around the corpses of kangaroos that have been decaying for about six months. They appear to prefer growing within the bush as they are not (or very rarely) seen near dead animals on the roadside.

FRUITING TIME: Early autumn to early winter.

EDIBILITY: Edibility of the ghoulish fungus is unknown, but several species from the northern hemisphere are reported to be poisonous. Eating any species of *Hebeloma* should therefore be avoided.

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



WAX CAPS

(*Hygrocybe* species)

Members of this group, also known as wax-gills, are generally brightly coloured. The gills have a notably waxy appearance and texture, and the caps and/or stems can often feel greasy or slimy. The name *Hygrocybe* means 'bearer of moisture'.

CHANTARELLE-LIKE WAX CAP (*Hygrocybe cantharellus*): This small, bright red mushroom is found in the leaf litter in jarrah forest. The caps are rarely larger than six to seven millimetres in diameter. Beneath the caps, the thick yellow gills are widely spaced and run down the apex of the stem. The stem is long and slender, and is the same colour as the cap.

CONICAL WAX CAP (*Hygrocybe conica*): This species is characterised by its distinct conical light yellowish-orange cap, about one to two centimetres in diameter, and its habit of blackening when bruised or with age. Blackening usually begins on the margin of the cap and at the base of the stem, and intensifies until the whole mushroom is eventually black.

YELLOW WAX CAP (*Hygrocybe austrolutea*): The yellow wax cap appears to be a rare fungus in WA. It has only recently been recorded near Pemberton in the karri forest. The distinctive bright yellow caps are three to five centimetres across. The gills are pure white when young, but then develop a lemon yellow tinge. The stem is pale yellow, but becomes white near the base.

SPORE PRINT: The wax caps have a white spore powder.

HABITAT: The wax caps fruit on the ground in moss beds or in the leaf and twig litter of the forest, or on sand or in the grass of coastal plant communities.

FRUITING TIME: Late autumn (in the forest) to late winter (in coastal woodlands).

EDIBILITY: Unknown.

GROUP: Basidiomycetes. Agarics.



Above: Conical wax cap

Left: Yellow wax cap

Below: Chantarelle-like wax cap



BONNETS

(*Mycena species*)

Many species of *Mycena* are found in the southern forests. They are common amongst the leaf and twig litter. They generally fruit in large numbers, either singly in troops, or in clusters of up to 12 or more individuals. *Mycenas* or bonnets vary in size. Their stature is generally tall and slender, ranging in height from about two centimetres up to about 10 centimetres, with caps that vary in size from two to three millimetres up to about four centimetres.

WINE RED BONNET (*Mycena vinacea*): This species is common amongst the leaf and twig litter of karri forests, as well as pine plantations. Its radish-like odour, pale purple to purplish-brown cap and stem, white to pale pink gills and relatively large size distinguish it from other species of *Mycena*. The margin of the cap turns upwards when it is fully expanded. The cap is two to three centimetres across and the stem is four to 10 centimetres tall.

SMALL UMBRELLA BONNET (*Mycena* sp.): This is one of the smaller species of *Mycena*. It is recognised by the small, white, umbrella-shaped caps, two to six millimetres in diameter, atop a very slender pale yellow stem, up to three centimetres tall. It is found singly on karri leaves and small twigs, as well as in groups on the bark of logs and larger branches on the ground.

SPORE PRINT: Species of *Mycena* have white spores.

HABITAT: Bonnets are common and produce either single fruits or fruit in clusters on leaf litter, small twigs, stumps, logs and fallen branches on the forest floor.

FRUITING TIME: Different species of *Mycena* can be found from early autumn to spring.

EDIBILITY: Edibility of most *Mycena* species is unknown, but some are known to be poisonous. Thus no species of *Mycena* should be eaten.

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



Above: Wine red bonnet

Below: Small umbrella bonnet



HAIRY PANUS

(*Panus fasciatus*)

Hairy panus is a small, tough, hairy mushroom. It is easily recognised, as there are few very hairy mushrooms in Western Australia. The mushrooms are long-lasting. In warmer weather they dry out, often shrinking and cracking, but after rain they can rehydrate and regain their former shape and texture. Hairy panus is common throughout the drier forest and woodland regions of southern Australia, including the south-west.

DESCRIPTION: The caps have a tough texture, and are generally two to three centimetres in diameter. Beneath the light brown, hairy cap there are beautiful lilac coloured gills that are sometimes forked and which run down the apex of the stem. The stem is stout, very tough, and is also covered with short, stiff hairs.

SPORE PRINT: White.

HABITAT: The hairy panus fruits on dead wood in jarrah forest and the drier woodlands.

FRUITING TIME: The mushrooms generally appear in early spring, but the tough dried-out fruit bodies can be seen throughout the summer.

EDIBILITY: Unknown.

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



PLUMS AND CUSTARD

(*Tricholomopsis rutilans*)

Plums and custard is not a common species in the south-west, but it produces a large, attractive, eye-catching mushroom. The thick maroon-red shaggy scales that cover the yellow cap make it easy to recognise. Its common name is derived from its bright, contrasting colours.

DESCRIPTION: The caps of this species can expand to reach up to 15 centimetres in diameter. Beneath the shaggy maroon red scales, the cap has a yellow surface. The gills are a rich yellow and remain the same colour throughout the life of the mushroom. The stem can be up to 12 centimetres tall and is the same colour as the cap. The interior flesh of the cap and stem is yellow and quite firm, which gives the whole mushroom a robust structure.

SPORE PRINT: White.

HABITAT: Plums and custard is not common in the south-west. It fruits on rotting stumps and large pieces of wood derived from various tree species, including banksias in jarrah forest. It may also be found on wood or stumps in pine plantations.

FRUITING TIME: Late autumn to early winter.

EDIBILITY: Plums and custard is reported to be poisonous and, needless to say, should not be eaten.

GROUP: Basidiomycetes. Agarics (mushrooms with gills on the underside of the cap).



RIDGE-STEMMED BOLETE

(*Austroboletus occidentalis*)

Boletes (described on pages 30–35) have the typical mushroom appearance, but they have a layer of sponge-like pores on the underside of their cap instead of gills. The spore-producing cells are borne on the inner surface of the pores. Many species within this group have flesh or pores that stain blue, red or brown when the mushrooms are cut or bruised. There are many species in the northern hemisphere, such as the king bolete (*Boletus edulis*), that are edible and considered amongst the best edible wild mushrooms, but in Australia many species are undescribed and their edibility is unknown.

DESCRIPTION: The ridge-stemmed bolete has a large, distinctive mushroom. The combined features of the brown suede-like texture of the cap, a soft pink pore layer and deeply reticulated stem make for easy recognition. If the ridge-stemmed bolete is handled, it leaves a yellow stain and a bitter taste on your hands. The light brown cap can be up to 10 centimetres across. The cap is mildly conical and sticky when it first appears, but flattens out and becomes dry and soft as it matures. The soft pink pore layer beneath may be up to two centimetres thick with the pores up to a millimetre wide. The stem is creamy white, slimy and may be up to 15 millimetres tall, with a distinct net-like and ridged surface.

SPORE PRINT: Brown.

HABITAT: This species fruits in the leaf and twig layer of both karri and jarrah forest. It is common and fruits singly or in large groups.

FRUITING TIME: Late autumn to early winter.

EDIBILITY: Not known.

GROUP: Basidiomycetes. Boletes (mushrooms with pores).



RHUBARB BOLETE

(*Boletellus obscurecoccineus*)

The rhubarb bolete produces a magnificent and distinct mushroom. It is common in the south-west, but does not fruit in large numbers, generally being found as single mushrooms scattered throughout an area. The distinctive red and yellow colours allow for simple recognition and make it easy to see amongst the leaf and twig litter.

DESCRIPTION: The bright red cap is generally four to eight centimetres in diameter. The cap is dome-shaped at first, but can expand to be relatively flat. The pore layer under the cap is bright yellow. The fairly slender stem is mostly bright red, the same colour as the cap, but is yellow at the top, directly under the cap. The lower portion of the stem is covered with darker reddish scales. The flesh is pale yellow, but does not stain when cut or bruised.

SPORE PRINT: Brown.

HABITAT: The rhubarb bolete is common and is found in the litter layer of forests and woodlands. It is found throughout Australia, Borneo, New Guinea and Japan, as well as on the African continent.

FRUITING TIME: Winter.

EDIBILITY: Not known.

GROUP: Basidiomycetes. Boletes (mushrooms with pores).



BLUE-STAINING BOLETE

(*Boletus* sp.)

The distinctive feature of the blue-staining bolete is that the flesh rapidly stains an intense blue in both the cap and the stem when they are cut. There are several very similar species of *Boletus* with this characteristic, some staining more intensely than others, and they are difficult to separate on their physical appearance.

DESCRIPTION: This undescribed species has a dome-like maroon cap on a very short and stout stem. The cap barely extends above the litter layer. It is about six centimetres broad, with a yellow pore layer on the underside. The barrel-shaped stem is about four centimetres tall. Directly beneath the cap the stem is yellow, but the lower portion is the same colour as the cap. The flesh is very firm and pale yellow in colour, but when the mushroom is cut or damaged the colour rapidly changes to an intense blue. The pore layer also stains blue when damaged.

SPORE PRINT: Brown.

HABITAT: The blue-staining bolete shown in the photograph grows in and under leaf litter and is generally found in karri and jarrah forest. Similar species can be found in woodlands and coastal communities.

EDIBILITY: Unknown.

GROUP: Basidiomycetes. Boletes (mushrooms with pores).



CORAL FUNGI

Coral fungi are typically club-like or coral-like in appearance. They are generally delicate, and have a fleshy texture. Instead of having gills or pores, their spore-producing cells are borne naked on the upper surface of the fruit body.

CROWNED CORAL FUNGUS (*Artomyces austropiperatus*): This attractive fungus is one of the few species of coral fungi that grow on wood. It has small crown-like structures at the apex of its branches. It has a bitter, peppery taste and can be up to 12 centimetres tall. The spore print is white.

ORANGE CLUB FUNGUS (*Clavulinopsis* aff. *aurantia*): This simple club-shaped fungus grows to about six centimetres tall. There are several orange species, including *Clavulinopsis depokensis*, which are very similar and which can only be distinguished microscopically. Other common club-shaped species are yellow, reddish-orange or white. The spore print is white.

SALMON CORAL FUNGUS (*Ramaria capitata* var. *ochraceosalmonicolor*): The salmon coral fungus is one of several species of salmon, yellow or yellowish-orange species that have a cauliflower-like shape. It is predominantly salmon pink and may have yellowish tips on its branches, but may vary in colour. It is usually about six to eight centimetres tall, but may be as tall as 12 centimetres. The spore print is yellowish-grey.

HABITAT: Coral fungi fruit on the ground, generally in or under the litter on the forest or woodland floor. They rarely grow on wood, though the crowned coral fungus is an exception.

FRUITING TIME: Late autumn to late winter.

EDIBILITY: Edibility is generally unknown, but the salmon coral fungus and other species of coral fungi are reported to be poisonous.

GROUP: Basidiomycetes. Coral fungi (fruit bodies that are simple, club-like or multi-branched structures).



Above: Orange club fungus



Right: Salmon coral fungus

Below: Crowned coral fungus



EARTHSTARS

(*Geastrum* species)

Earthstars are modified puffballs and have an unusual appearance. Puffballs are sac-like fungi. These common fungi are well known to most people, occurring on almost every lawn. They can be firm and fleshy or have a soft, delicate structure. As they mature, the spores develop into a dry powder inside the sac which then ruptures, forming a pore-like opening at the apex. The pores are released when raindrops land on the sac, or when wind and air pressure cause spores to puff out in distinct clouds. Other puffballs simply split or erode and spores are released into the wind.

DESCRIPTION: Earthstars initially develop into a leathery sphere that then splits radially and unfolds to form a six to seven point star-like base. Inside is a delicate sac that has an opening at the top through which the dark brown spores are released. There are several species of *Geastrum* that are very similar in appearance. *Geastrum javanicum* is pinkish-brown and is about three centimetres across before it splits. When fully open, it may reach up to eight centimetres across. As it ages, the arms of the star curl under and may split off. There is no stem.

SPORES: A brown powder.

HABITAT: Earthstars are found on the ground where, due to their appearance and colour, they are often almost invisible in the leaf litter. They may also appear in urban gardens.

FRUITING TIME: Late winter to early spring.

EDIBILITY: Not known.

GROUP: Basidiomycetes. Puffballs (sac-like fungi).



SPINE FUNGI

Spine or hydroid fungi may look similar to a typical mushroom, or can look somewhat coral-like. However, all have a covering of fleshy spines on the underside of their cap or, in coral-like species, pendulous spines hanging from the many branches. The spore-producing cells are on the surface of the spines.

HEDGEHOG FUNGUS (*Hydnum repandum*): This looks like a normal beige or chestnut brown mushroom, but when it is turned over the lower surface of the cap is covered in dense cream to pinkish spines up to five millimetres long. Caps are three to five centimetres across, but may be larger, with larger specimens often having a lobed shape. The spines often extend a short distance down the white stem, which is often not centrally attached to the cap. The cap and stem stain brown to brownish-orange when bruised. The spore print is white. The hedgehog fungus fruits in the leaf litter of eucalypt forests or woodlands, generally in late winter. It is popular in Europe as an edible species, but the Australian species is reported to be tough and of inferior quality.

BLACK PHELLODON (*Phellodon* aff. *niger*): The black phellodon looks like a tough, leathery mushroom, but the underside of the cap is covered in short purplish-grey spines. It often grows in clusters, with several fusing together to give the appearance of being multi-stemmed. The cap is generally one to five centimetres across, is purplish-black and has a distinctive white zone around the margin. The stems extend into the litter and often branch into a fine root-like or flat felty base. When dry, the fruit bodies smell of fenugreek. Other similar species of *Phellodon* are brown with a white margin or black with a purple margin. The spore print is white. The black phellodon fruits in deep leaf litter in karri and jarrah forest, generally in early winter. Its edibility is unknown, but it is too tough to be of any value.

GROUP: Basidiomycetes. Spine fungi (mushrooms or fruit bodies with spines).



Above: Hedgehog fungus

Below: Black phellodon



STONE TRUFFLES

(*Mesophellia* species)

Truffle-like (hypogeous) fungi are found below the ground or on the surface of the soil under the litter. They are generally spherical or nearly spherical, with a firm and fleshy texture. This group of fungi is an important food source for woylies and other small mammals found in the south-west. Some species have a distinctive odour that, it is believed, helps animals to locate them. They feed on the inner contents and, if you look carefully around diggings in the bush, you may see discarded hard cases. They are an important food source, especially after fires, when diggings are very common and easy to see. Australia has a very rich diversity of truffle-like fungi, and many are related to species that fruit above the ground.

DESCRIPTION: Species of *Mesophellia* resemble stones. They have a hard, sand-encrusted casing that is usually embedded with small pebbles and plant roots. At least six species in this genus are found in the south-west, with the most common species being *Mesophellia trabalis*. The fruit bodies are two to four centimetres in diameter and, when cut in half, the interior consists of an olive green spore mass surrounding a white central core. The older specimens have a distinctive odour that resembles curdled milk.

SPORES: The olive green spores are produced as a dry powder inside the truffle.

HABITAT: The fruits are found about five to 20 centimetres below the surface of the soil, in eucalypt forests and woodlands.

FRUITING TIME: Stone truffles develop slowly and can be found at any time of the year.

EDIBILITY: Not known.

GROUP: Basidiomycetes. Truffle-like fungi (underground fruiting fungi).



Above and below: Stone truffles (*Mesophellia trabalis*)



LEATHER, SHELF AND CRUST FUNGI

This group of fungi forms thin, leathery, shelf-like or tiered structures, generally on wood. They are commonly found growing on old stumps, fallen branches, and the trunks of dead understorey trees. Some species form simple smooth skins or flat crusts that cover the underside of wood lying on the ground. The spore-producing cells are borne on the surface of the skin or crust or on the smooth underside of the shelf.

PAGODA FUNGUS (*Podoserpula pusio*): The pagoda fungus forms attractive, delicate multi-tiered fruit bodies that are readily recognised. The central stem is pinkish, and supports soft, chamois-like lobes that have delicate ridged and pinkish undersides. The whole structure may be up to seven centimetres high. The spore print is white. The pagoda fungus is commonly found in the litter around the base of rotting stumps or extending up from the underside of well-rotted wood lying on the ground. It fruits in autumn to early winter. Edibility is not known.

HAIRY STEREUM (*Stereum hirsutum*): The hairy stereum fruits on stumps and fallen logs and branches. It is thin and leathery and forms tough, shelf-like brackets that project one-half to two centimetres from the wood surface. The upper surface is hairy and zoned in various shades of brownish-orange. The lower surface is smooth and golden orange, and it may form a skin on the wood surface, extending down below the shelf. The spore print is white. The hairy stereum fruits on dead wood and stumps, in late autumn to early spring, and is very common throughout all the forest types in the south-west, including pine plantations. Edibility is unknown, but the species is too thin and tough to be edible.

GROUP: Basidiomycetes. Leather and crust fungi (thin, leathery sheets on sticks and wood).

Photo – Roger Hearn



Above: Pagoda fungus

Below: Hairy stereum



ARTIST'S CONK

(*Ganoderma applanatum*)

This species is given the name 'artist's conk' because the pore surface bruises brown and can be used to scribe messages or drawings. It is one of the polypores, or woody pore fungi (some of which are described on pages 46–55). Most polypores have a hard woody texture, but many can be firm and fleshy. They are typically hoof-shaped and have a pore layer on the underside. The hard woody species are perennial and produce a new pore layer each year, sometimes for as many as 25 to 30 years. The hoof-shaped fruit bodies are commonly referred to as brackets or conks. Some species, however, have stems and may resemble woody boletes. Polypores generally rot dead wood, but many also cause rot in the heartwood of living trees. The spore-producing cells are borne on the inside walls of the pores.

DESCRIPTION: The fruit body of the artist's conk is brown, hard and woody. It persists for many years, expanding and producing a new pore layer and growth band each year, producing concentric zones on the upper surface. The 50-centimetre specimen photographed was growing on the base of a fire-scarred tuart (*Eucalyptus gomphocephala*) for more than 20 years before it fell off. An almost identical species (*Ganoderma australe*) is also common in the south-west.

SPORES: The spores are rusty brown, and often cover the upper surface of conks that are growing in tiers.

HABITAT: The artist's conk, like other polypores, fruits on dead wood, and is often seen on the trunks of trees or high in the crown. It is found in forests, woodlands and parks and grows on both native and introduced trees.

EDIBILITY: Not edible.

GROUP: Basidiomycetes. Polypores (fleshy or woody bracket-like fungi with pores).



BEEFSTEAK FUNGUS

(*Fistulina hepatica*)

The beefsteak fungus has a firm but fleshy bracket-like fruit body that looks like an animal tongue sticking out of the tree. When it is cut or sliced it has juicy red-marbled flesh, hence the common name. In some countries it is referred to as 'ox tongue fungus'. The Aboriginal name is 'numar'. It is commonly seen fruiting on living jarrah trees, where it produces speckles and blotches in the wood, which is referred to as pencilled wood and which is highly prized for making furniture.

DESCRIPTION: When they first emerge, the immature fruit bodies of beefsteak fungus are purplish-red. As they mature and enlarge they become reddish-brown, and the upper surface develops characteristic wrinkles radiating from the point of attachment. Mature fruit bodies are hoof-shaped and may be as large as 25 centimetres wide. The underside is bright pinkish-red when young, then turns light brown with maturity and the pores are actually separate tubes that look like very fine, hollow spaghetti if looked at under low-power magnification.

SPORE PRINT: Light brown.

HABITAT: In Western Australia, this fungus fruits most commonly on the trunks of living jarrah trees, as well as on stumps and logs.

FRUITING TIME: Winter.

EDIBILITY: The fleshy parts are safe to eat but, despite its name, beefsteak fungus is not particularly sought after for its flavour. It may have a sour taste.

GROUP: Basidiomycetes. Polypores (fleshy or woody bracket-like fungi with pores).



CURRY PUNK

(*Piptoporus australiensis*)

Curry punk forms bracket-like fruit bodies on dead or sometimes living trees. The brackets are tough but fleshy, and produce a strong, yellow-staining juice. When they dry out, they have a distinctive pungent odour resembling spicy curry, which, together with its bright colour, give the fungus its common name. Like many polypores, they are wood decay fungi and can cause rot in the heartwood of living trees.

DESCRIPTION: Brackets may be hoof-shaped or half disc-shaped, bright orange to yellowish-orange, and generally about 20 centimetres across, but they can grow to be as large as 50 centimetres or more. They are tough but firmly spongy to the touch when fresh. The flesh is bright orange and very wet, producing a yellow-staining juice. Brackets may persist for some months and are eventually bleached white by the sun and rain. They then fall off and new ones will often grow in the same position the following year. Dried fruit bodies have a pungent, curry-like odour.

SPORES: White. If the conditions are right, and if you are lucky, you may see a white cloud of spores being discharged from the pores.

HABITAT: Curry punk most commonly fruits on karri wood and stumps, and on living trees with fire scars.

FRUITING TIME: Curry punk is unusual in that it fruits in the late summer.

EDIBILITY: Not known.

GROUP: Basidiomycetes. Polypores (hard, woody, bracket-like fungi on trees and wood).



Above: Upper surface of curry punk fungus Below: The lower surface



SCARLET BRACKET FUNGUS

(*Pycnoporus coccineus*)

The scarlet bracket fungus is one of the most common species found in the south-west, fruiting on the wood of many tree and shrub species. It can be found as a single bracket, or in large groups extending along logs or dead branches. The bright colour and rubbery texture make it easy to recognise.

DESCRIPTION: The scarlet bracket fungus is reddish-orange, generally three to 10 centimetres broad, and can fruit in clumps of up to 10 or more brackets. When they first emerge, the fruit bodies are irregular in shape, but they assume the bracket-like shape as they grow and mature. They are tough but pliable and often incorporate twigs or other debris into their structure as they expand. The pores are also reddish-orange and, if brackets are removed, reddish-orange mycelium (microscopic thread-like filaments – the form in which the fungus normally exists) can be seen in the wood behind the point of attachment.

SPORE PRINT: White.

HABITAT: Scarlet bracket fungus fruits on fallen wood, or on dead wood of living trees and is common in all eucalypt forests, as well as on the wood of introduced trees in pine plantations, fruit orchards, and parks and gardens.

FRUITING TIME: The tough brackets appear in winter to early spring, but persist for many months. They eventually weather to a creamy pink colour.

EDIBILITY: Edibility is unknown, but scarlet bracket fungus is too tough to be edible.

GROUP: Basidiomycetes. Polypores (fleshy or woody bracket-like fungi with pores).



STONEMAKER FUNGUS

(*Laccocephalum tumulosus*)

The stonemaker fungus colonises and rots fallen jarrah and possibly marri and karri logs. At some stage in its life cycle, the fungus grows from the log into the soil, where the mycelium (microscopic thread-like filaments – the form in which the fungus normally exists) binds with the soil to produce a hard, stone-like mass called a sclerotium. This structure gives the fungus its common name. Nutrients are supplied from the decomposing log and, over a number of years, the 'stone' may expand to eventually weigh as much as 30 kilograms. The cycle is completed when a fire destroys the log and the fungus fruits from the sclerotium, producing a mushroom that resembles a large bolete. The growth rate of the mushrooms is extraordinary. They can appear at the surface of the burnt ground within 24 hours and within another 24 hours they can be as large as a dinner plate. They quickly mature and release spores from a layer of pores on the underside of the fruit. The stonemaker fungus was formerly in the genus *Polyporus*.

DESCRIPTION: The stonemaker fungus produces a large, flat or irregular dome-shaped mushroom up to 30 centimetres across. The upper surface is generally light honey brown with irregular or patterned cracking that exposes a creamy white colour underneath. The pores are a pale pinkish-beige to beige. The stem is creamy white and extends from the 'stone' to the soil surface, rarely lifting the mushroom more than a few centimetres above the soil.

SPORE PRINT: White.

HABITAT: The stonemaker fungus colonises jarrah logs that are lying flat on the ground and the soil underneath the log. The mushrooms appear on bare ground, generally within two weeks after a fire in jarrah and mixed jarrah-marri forests.

FRUITING TIME: After bushfires.

GROUP: Basidiomycetes. Polypores (fleshy or woody bracket-like fungus with pores).



Below: A mushroom attached to its 'stone'



JELLY FUNGI

Jelly fungi vary in appearance from small, club-like or spine-like structures to those with a lobed or brain-like appearance. They all have a firm, jelly-like texture. Jelly fungi have a very high water content and dehydrate quickly, shrivelling up to form hard, horny structures barely resembling their original form. The spore-producing cells are borne on the surface of the jelly-like structure, but spore prints are difficult to produce due to the watery texture of the fruit bodies.

YELLOW BRAIN FUNGUS (*Tremella mesenterica*): This conspicuous and distinctive species forms a yellowish-orange, many-lobed or convoluted brain-like fruit body with a flabby jelly-like texture. Generally it is about five to seven centimetres across, but may be as large as a football. In wet weather, the colour fades and it may disintegrate rapidly into a yellowish-white amorphous mass. The yellow brain fungus is common and grows on rotting wood in late autumn to winter.

ANTLERED JELLY FUNGUS (*Calocera* sp.): This small jelly fungus produces simple or branched orange to yellow club-like fruit bodies seven to eight millimetres tall. It is common, and fruits in large numbers, on sticks or logs on the ground, in late autumn to winter.

JELLY BELLS (*Heterotexa peziziformis*): Jelly bells, as the name suggests, produces small bell-shaped fruit bodies that hang from the surface of twigs and sticks in the litter. The 'bells' are usually five to eight millimetres in size, and their jelly-like texture and yellow colour give them a delicate translucent appearance. They appear in late autumn to winter.

EDIBILITY: The edibility of most species of jelly fungi is unknown, but the white jelly fungus (*Tremella fuciformis*) is dried and used for medicinal and culinary purposes in Asia. Most species are likely to be unsuitable for eating due to their texture.

GROUP: Basidiomycetes. Jelly fungi (jelly-like fungi on wood).



Above: Antlered yellow fungus



Right: Jelly bells

Below: Yellow brain fungus



CUP FUNGI

The cup fungi make up a large group whose members have cup-shaped, saucer-shaped or disc-shaped fruit bodies. Many are brightly coloured and the majority range in size from two millimetres up to three centimetres. Different species can be found fruiting on wood, litter or bare soil. Several species are prolific in the autumn following bushfires. The spore-producing cells are borne on the inner surface of the cup or on the upper surface of the disc.

STALKED ORANGE PEEL FUNGUS (*Aleuria rhenana*): The stalked orange peel fungus is aptly described by its common name. It has bright orange, sometimes lobed, cups up to three centimetres across, with the upper surface of the cup being darker and brighter than the lower surface. The flesh is jelly-like, rubbery and easily broken. The stem can be up to two centimetres long and extends into the litter. It is usually covered with delicate white downy hairs that are easily removed or destroyed when handled or rubbed. If a sudden puff of air is directed into the cup, a white spore cloud is often discharged. The stalked orange peel fungus fruits in small or large groups in leaf litter in forests, woodlands and coastal communities, in mid-autumn to early winter.

BLACK CUP FUNGUS (*Plectania* sp.): This very common cup fungus has jet black, cup-shaped fruit bodies with a tough leathery texture, up to two centimetres in diameter. The upper surface is smooth, but the lower surface is wrinkled. It has a tough stem that extends into the litter, ending in a ragged arrangement of root-like or flat, felt-like strands. The black cups are found in small groups or clusters on decaying twigs in the litter of karri forest, usually in late winter to early spring.

EDIBILITY: The edibility of cup fungi is unknown.

GROUP: Ascomycetes. Cup fungi (cup or disc-shaped fruits).



Above: Stalked orange peel fungus

Below: Black cup fungus



VELVET BLACK EARTH TONGUE

(*Geoglossum nigrum*)

Species of *Geoglossum* and *Trichoglossum* are called black earth tongues. They have a spade-like or tongue-shaped cap on top of a long, slender stem. 'Earth tongue' is a literal translation of the name *Geoglossum*. The spore-producing cells are borne on the outer surface of the cap. Earth tongues may at first be mistaken for species of coral fungi (see pages 36–37) or flask fungi (pages 64–65), but there are no black coral fungi and earth tongues lack the pimpled surface and the white spore powder common on slender, club-like species of flask fungi.

DESCRIPTION: The velvet black earth tongue stands three to seven centimetres tall, and has a dry, brownish-black stem. A similar species, known as the glutinous black earth tongue (*Geoglossum glutinosum*), differs by having a slimy or sticky stem. Both species are common in the south-west.

SPORES: Black.

HABITAT: This species inhabits moss beds and litter in the wetter forest regions. The velvet black earth tongue is easily seen when growing in moss beds, but is well disguised when growing among the twig and leaf litter.

FRUITING TIME: The velvet black earth tongue fruits in late winter and early spring.

EDIBILITY: Unknown, but too tough to be worthwhile.

GROUP: Ascomycetes. Earth tongues (firm and fleshy fruits that have a tongue-like appearance).



BLACK MOREL

(*Morchella elata*)

Species of *Morchella* are known as morels. There are several species in Australia and they all look very similar. The black morel is probably the only species of morel found in the south-west. It is delicious to eat and easily recognised. The spore-producing cells are borne on the outer surface of the cap. Black morels sometimes fruit in large numbers after bushfires but they are unpredictable, as other conditions also have to be favourable.

DESCRIPTION: The black morel is five to eight centimetres tall. The cone-shaped cap is very distinctive, with its long vertical honeycomb-like ridges, and can vary in colour from light grey to brown. They are hollow but firm and odourless. The stem is white to pale pinkish-brown and hollow.

SPORES: Creamy white.

HABITAT: This species grows in forests, woodlands and coastal communities, and occasionally in gardens. Large numbers of black morels may be found fruiting in the spring a year or so after a fire in the wetter karri or jarrah forest regions. In unburnt areas they fruit only occasionally and in low numbers, usually along paths or in disturbed areas.

FRUITING TIME: Early spring.

EDIBILITY: The black morel is an excellent edible mushroom. People who like to eat wild mushrooms regard the morel as a prized delicacy. Both head and stalk are hollow, making them easy to stuff, but they are delicious simply sautéed in a small amount of butter. Always cook them, as raw morels can cause digestive upsets.

GROUP: Ascomycetes. Morels (fleshy fruits with a distinct elongated honeycomb-like cap).



FLASK FUNGI

Most flask fungi have hard, black charcoal-like fruit bodies. Some species are coloured differently at some stage of their development. The feature that groups these fungi together is that their spore-producing cells are borne in small flask-shaped structures embedded in the hard surface of the fruit bodies.

KARRI CUSHION FUNGUS (*Hypoxylon* aff. *subrutilum*): This species forms small, mounded cushion-like fruit bodies on the bark surface of dead karri branches and karri hazel (*Trymalium floribundum*) stems. As individual 'mounds' develop they coalesce to eventually cover larger areas of the bark surface. The openings of the 'flasks' are at the top of each mound on the reddish-brown surface of the resulting crust-like covering. A similar species (*H. aff. subcorticeum*) can be found on the wood surface of dead karri hazel and waterbush (*Bossiaea aquifolium*) stems. They are generally found in early spring and can persist for several months. The spores are brown. The karri cushion fungus and similar species are common in karri and mixed forest, fruiting on the sticks and dead wood of karri and understorey species.

CANDLE-SNUFF FUNGUS (*Xylaria hypoxylon*): Candle-snuff fungus forms long, finger-like or club-like or branched antler-like fruit bodies about four to five centimetres tall. Initially, the whole club is black, but then the upper portion becomes coated with white spore powder and then eventually is black again. In the white phase, if you tap the clubs with a small stick, the spores are released in a white cloud. The white spores are produced asexually, and the final black stage is the sexual stage, where flasks develop and produce black spores. Candle snuff fungi are common in all eucalypt forest types and coastal communities, fruiting on well-rotted wood, which is often buried below the litter layer.

EDIBILITY: Flask fungi are not edible.

GROUP: Ascomycetes. Flask fungi (hard, charcoal-like fruits).



Above: Karri cushion fungus

Below: Candle-snuff fungus



CRAMP BALLS

(*Daldinia concentrica*)

Cramp balls is a common species that is found throughout the world. Its common name is derived from an old folk belief that cramps could be cured if you carried one in your armpit. Other names include carbon balls and King Alfred's cakes, reflecting the story that he was once rebuked by a peasant for allowing her cakes to burn while he sat by her hearth preparing his bow and arrows for war.

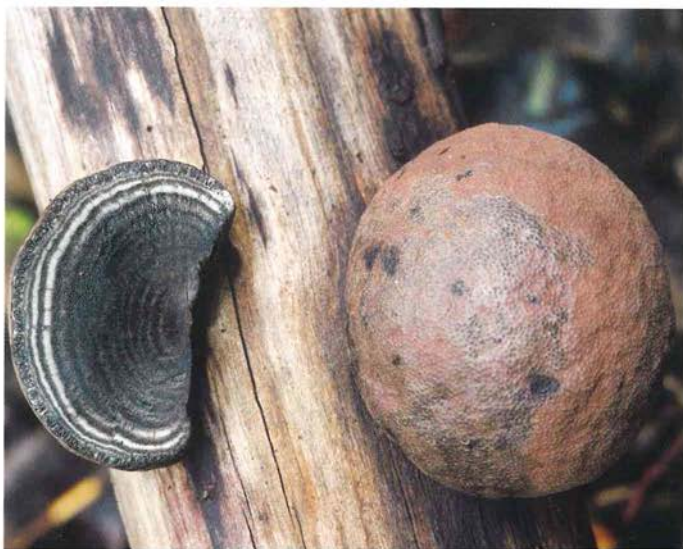
DESCRIPTION: Cramp balls forms irregularly spherical fruit bodies, which range in size from one to four centimetres across. When they first emerge they are greyish-brown, then turn reddish-brown as they develop further, and then finally become black and charcoal-like with a pimpled surface. If a 'ball' is cut in half, alternating dark and light concentric zones are clearly seen. The spore-bearing 'flasks' can be seen embedded in the outermost layer, and their protruding tips form the pimpled surface. When the fruits are mature, the 'flasks' open through a pore in the tip to allow the spores to be released.

SPORES: In the early stages of development, spores are produced asexually, and may cover the surface with a pale powder. In the final sexual phase, the spores develop in the 'flasks' and are black. Mature cramp balls produce a prodigious amount of black spores and are an excellent fungus to use for a spore print (see page 4).

HABITAT: Cramp balls are found throughout the south-west, usually on the surface of dead stems of understorey tree species, especially on dead karri hazel (*Trymalium floribundum*). A very similar species (*Daldinia escholzii*), which only differs in size and on microscopic characteristics, is very common on the burnt stumps of understorey shrubs following bushfires in karri forest.

EDIBILITY: This species is not edible.

GROUP: Ascomycetes. Flask fungi (fruits that are usually hard and charcoal-like).



BOLETE EATER

(*Hypomyces chrysospermum*)

The bolete eater is very unusual in that it does not form its own recognisable fruit body, but parasitises several species of *Boletus* mushrooms (see pages 30–35). In the northern hemisphere, other species of *Hypomyces* infect gilled mushrooms, including species of *Amanita*, *Lactarius* and *Russula*, as well as some coral fungi.

DESCRIPTION: The bolete eater starts as a white mould that attacks the bolete, then turns bright yellow and powdery. Eventually, the bolete becomes soft and mushy and has an odour resembling that of a dead fish. The final stage of development, a reddish-brown pimpled crust, is rarely seen, as it occurs only after the host has decayed beyond recognition. It is the final stage that develops the flask-like structures that are common to the group.

SPORES: The bolete eater produces white and yellow asexual spores in the first two stages. The final sexual stage is minute, consisting of only the tiny spore-bearing 'flasks'. In this stage, the spores can only be viewed with a microscope, under which they appear colourless.

HABITAT: This species is parasitic on bolete mushrooms. It is common throughout the south-west, and can be found in all forest and coastal plant communities.

EDIBILITY: The bolete eater is not edible, and may be poisonous.

GROUP: Ascomycetes. Flask fungi (fruits that are usually hard and charcoal-like).



Species	Date	Locality	Remarks
antlered jelly fungus			
Archer's webcap			
artist's conk			
Australian honey fungus			
beefsteak fungus			
black cup fungus			
black morel			
black phellodon			
blue-staining bolete			
bolete eater			
candle-snuff fungus			
chantarelle-like wax cap			
conical wax cap			
cramp balls			
crowned coral fungus			
curry punk			
earthstars			
elegant blue webcap			
ghoul fungus			
hairly panus			
hairly stereum			
hedgehog fungus			
jelly bells			
karri cushion fungus			
orange club fungus			

Species	Date	Locality	Remarks
pagoda fungus			
pink chantarelle			
plums and custard			
red-staining forest mushroom			
rhubarb bolete			
ridge-stemmed bolete			
salmon coral fungus			
scarlet bracket fungus			
small umbrella bonnet			
splendid red skinhead			
stalked orange peel fungus			
stone truffles			
stonemaker fungus			
velvet black earth tongue			
vermillion grisette			
unnamed green skinhead			
white-veiled amanita			
wine red bonnet			
yellow brain fungus			
yellow stainer			
yellow wax cap			
yellow-headed amanita			

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