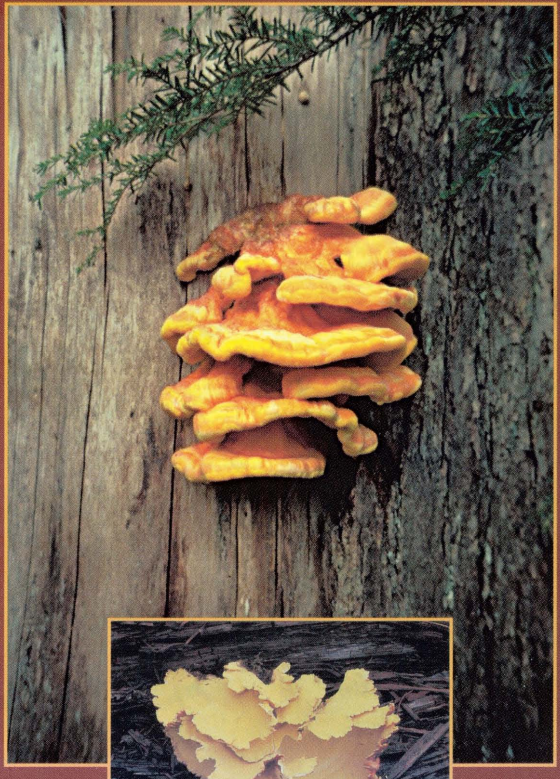
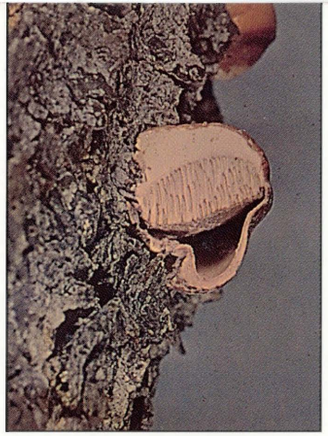
BRACKET FUNGI

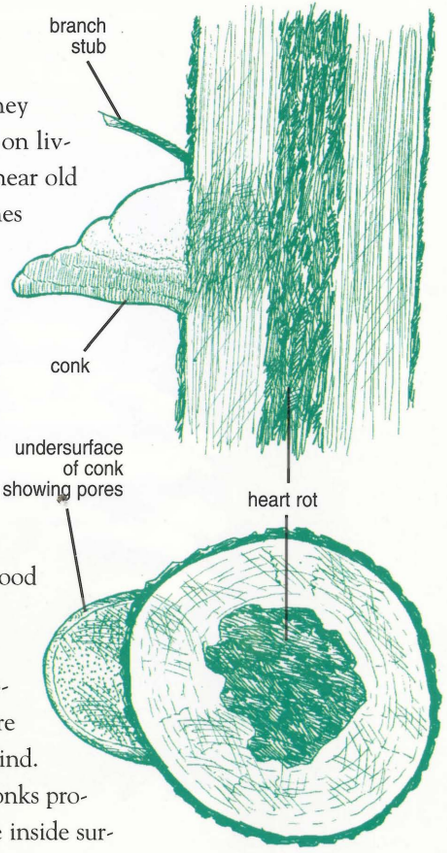
COMMON FOREST WOOD DECAY CONKS



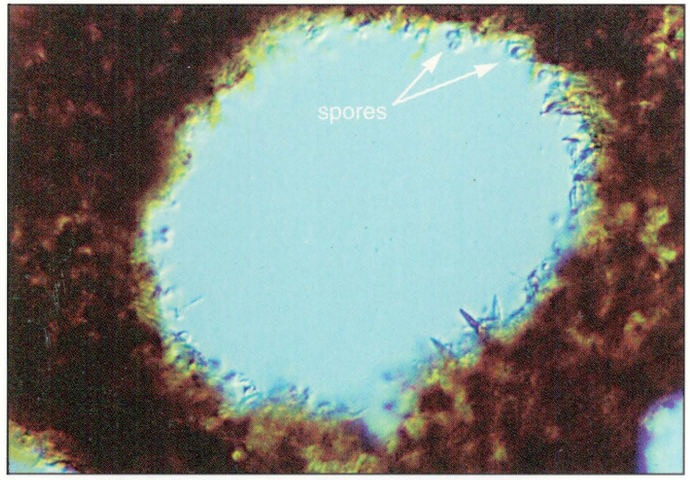
Conks, also called bracket fungi, are familiar residents of mature and old growth forests, fallen logs, stumps, and firewood piles. They come in different colours, shapes, and sizes; some look like rounded shelves, while others are more hoof-shaped. Conks can occur on dead standing trees, fallen trees, and on anything made of wood. They can also be found on living trees, usually near old scars, dead branches or branch stubs. A conk is an external sign that wood decay is taking place. Conks are the reproductive structures formed by many species of wood decay fungi. Each conk releases millions of microscopic spores, which are disseminated by wind. The majority of conks produce spores on the inside surfaces of pores on their undersurfaces.



Longitudinal section through the pocket polypore *Cryptoporus volvatus*, which occurs on standing dead or recently felled conifers.



Front cover: Top photo – *Trametes versicolor*. Bottom photo and inset – sulfur polypore, *Laetiporus sulphureus*, which causes brown rot of conifers and hardwoods.



Magnified view inside a fungus pore, where spores are produced.

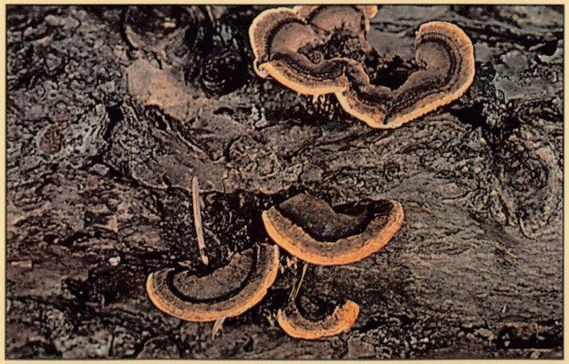
These fungi are collectively called 'polypores'. Sometimes their pores are easily seen, but they may also be very small and dense (5-7 per mm) and you may need a low-powered magnifying glass to see them clearly. The pores always point downward so that the spores can fall out easily.

Some conks are produced annually and soon decay. Others are perennial. Perennial conks become quite woody, and will continue to grow for decades on living or dead trees, producing a new layer of pores each year. These conks can be sectioned and aged by pore layers, much as growth rings are used to age trees.

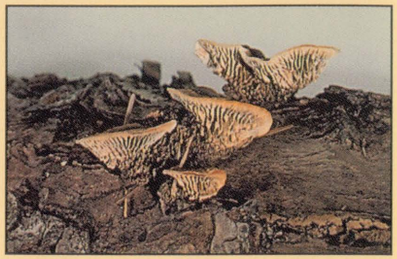
The quinine conk, *Fomitopsis officinalis*, grows a new pore layer each year. It causes brown cubical heartwood decay of conifers. Old conks may measure over a meter in length.

Vividly coloured undersurface of the sulfur polypore, *Laetiporus sulphureus*, which causes brown rot of conifers and hardwoods. The soft, annual conks are produced in late summer.

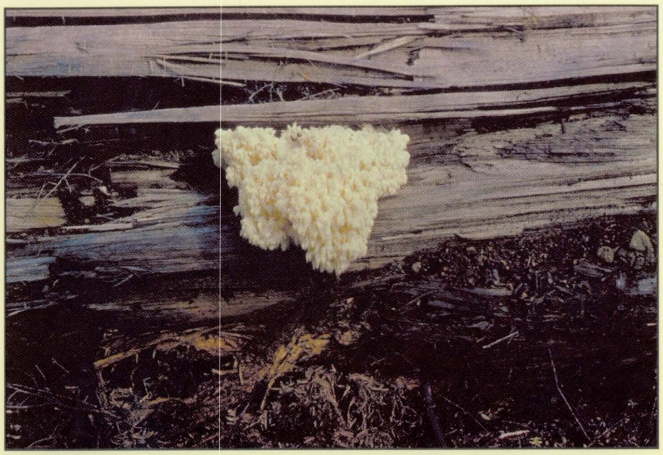
Not all conks have pores; some produce spores from a smooth, velvety underside, while still others develop spore-bearing spines, plates, or maze-like openings on their lower surface.



Gloeophyllum saepiarium looks like a polypore until viewed from the underside.



Spores of *Gloeophyllum saepiarium* are produced on gill-like plates. This fungus is common on fallen logs and old wooden structures, where it causes brown cubical rot.



Soft, icicle-like, annual conks of *Hericium americanum* produce spores on delicate, downward-pointing "teeth". This fungus causes white pocket rot of conifer wood.

Detail of *Hericium americanum* showing "teeth".

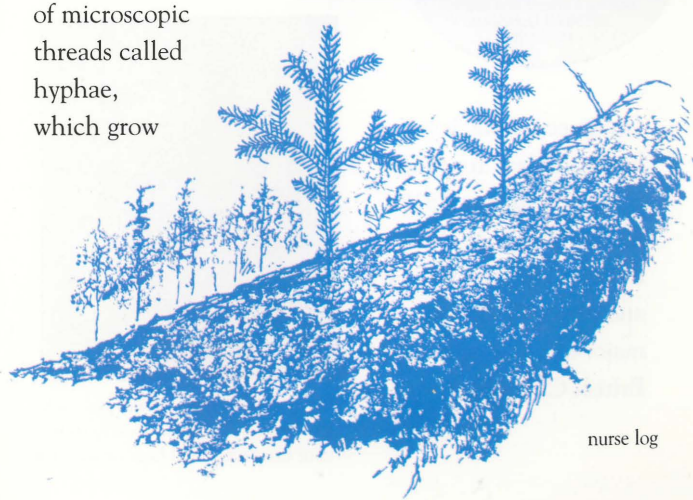
Echinodontium tinctorium conks have blunt teeth instead of pores, and are associated with yellow stringy heart rot of conifers.

Soft, annual, coral-like fruiting bodies of *Sparassis crispa* produce spores on the smooth surfaces of each lobe. This fungus causes brown rot of conifer roots.

THE ROLE OF CONKS IN THE FOREST ECOSYSTEM

Hyphae of wood decay fungi are only a few thousandths of a millimeter in diameter.

The active, feeding portion of a conk-producing fungus consists of microscopic threads called hyphae, which grow

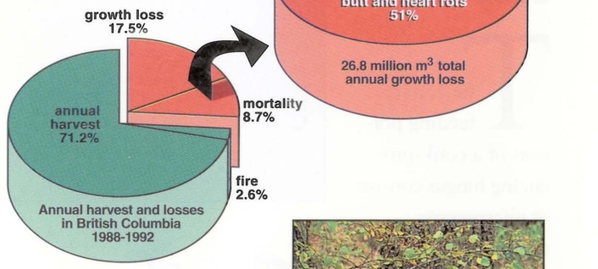


nurse log

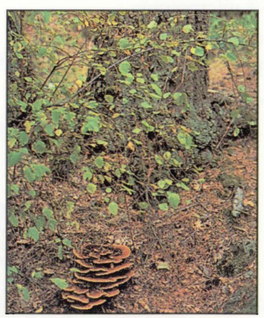
through the wood, sometimes for several meters, breaking down its cellular components to use as a nutrient source. Wood decay fungi are responsible for recycling much of the forest litter, freeing up nutrients so that they are available for use by other living organisms.

In addition, many cavity-nesting birds and animals rely on hollows and soft pockets of wood decay to facilitate nest-building in trees, snags and stumps.

woodpecker nest in a rotten snag

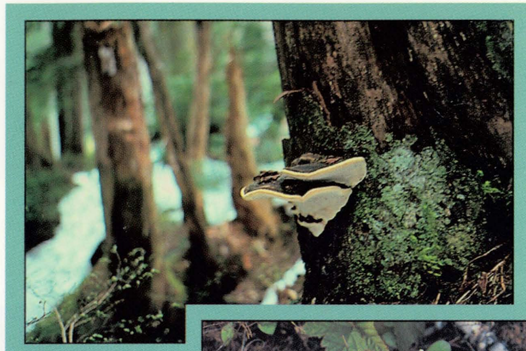


On an economic level, heart and butt rot fungi cause an estimated 51% (13,668,000 m^3) of the total annual growth loss and mortality due to all major forest pests in British Columbia.



Conks of *Phaeolus schweinitzii* near the base of a conifer usually indicate brown cubical butt or root rot.

Each species of conk-producing fungus breaks down wood in a slightly different way, although the majority of the resulting wood decay types can be placed in one of two general groups:



Perennial conks of *Fomitopsis pinicola* are very common on conifers.

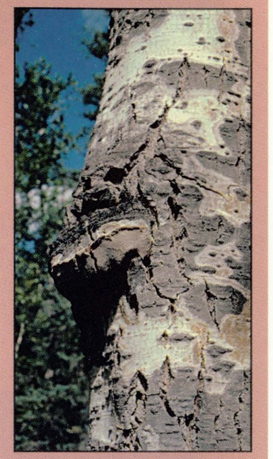
A cross section of a trunk bearing conks reveals the brown cubical rot within.

1) Brown rots - the fungus breaks down the cellulose component of wood, leaving behind the dark, brittle lignin, which often breaks up into cubes. Brown rotted wood is a major component of forest soils.

Perennial conks of *Ganoderma oregonense* occur on fir and hemlock and have a beautiful varnished appearance.

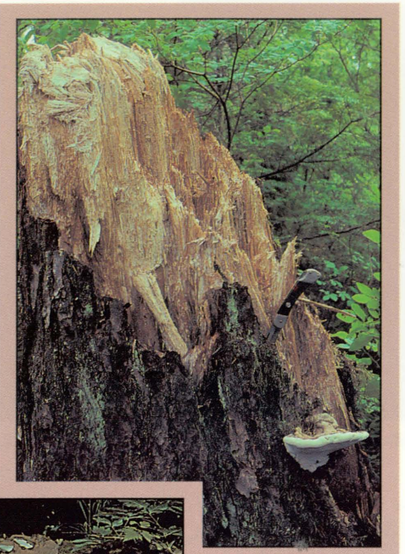
Cross-section of trembling aspen trunk with *Phellinus tremulae* conk and white heart rot.

2) White rots - the fungus breaks down both cellulose and lignin, causing a soft, white wood decay.
Some types of conks indicate localized pockets of wood decay, but with other types, the presence of a single conk on a standing tree might mean widespread heart rot and potential tree failure. Frequently, internal decay of trees is well advanced before conks even form.

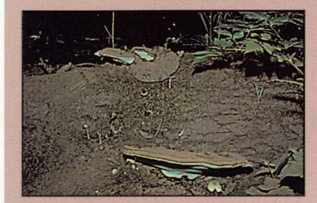


Perennial conks of *Phellinus tremulae* are associated with white heart rot of trembling aspen.

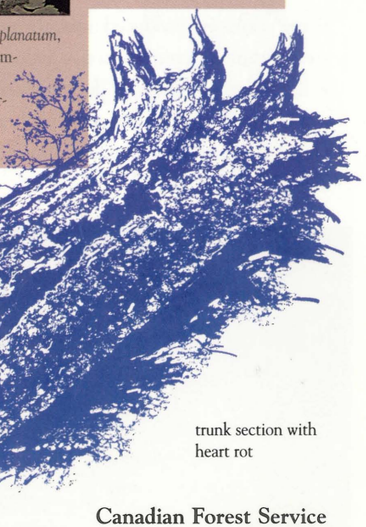
Phellinus pini causes a white pocket rot of conifer heartwood.



Wind-thrown tree showing extensive heart rot and *Ganoderma applanatum* conk



The artist's conk, *Ganoderma applanatum*, can grow to over a meter in diameter and produce trillions of spores each year. Its white undersurface stains brown when scratched.



trunk section with heart rot

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