

# BOREAL BITS

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## FUNGI

*"When one tugs at a single thing in nature, he finds it attached to the rest of the world."  
John Muir*

It was in late September that we first noticed them. A forest of over 120 mushrooms (or were they toadstools?) literally erupted from the ground between our place and neighbour John's. They were beautiful, maturing from bright yellow bulbs to flat topped saucers held aloft by a sturdy stalk. Some measured as much as 18 cm (7.25) inches across. We had encountered these before but never in these numbers. Another forty of them sprouted beneath the conifers lining our driveway. On walks through the bush we encountered them. What was this invasion?



First of all, they were fungi (plural of fungus and pronounced fun-guy or fun-jhi) but that was the easy part. Were they mushrooms or toadstools? It appears as though the term toadstool is a folksy name for mushroom and no serious book on mycology, the study of fungi, uses the term. Neighbour John, like many people, differentiates between the two terms by determining which are edible—mushrooms, and which are not—toadstools. For our purposes, mushrooms and toadstools are one in the same but we will use the former term.

The mushrooms that popped out of the ground are analogous to the apple that hangs on the tree. By picking the apple, there is no way the tree will die; it is simply the fruit, that which prepares the seeds and disperses them. So it is with the mushroom. The main body of the mushroom is underground and the fruit suddenly erupts to produce and disperse spores, which, in turn, will produce new fungi.

Fungi live just about everywhere. Should you rip the bark from a dead tree, you will see white thread-like filaments criss-crossing the trunk and inner bark and it is from these that mushrooms grow. Millions of kilometres of these threads called mycelia also grow through the soil borrowing carbohydrates from the roots of plants and, in a symbiotic relationship, repaying the favour by providing minerals and other nutrients.

Fungi are great decomposers, responsible for most of nature's recycling. In autumn leaves fall to the ground providing a carpet of colour that may last for a week or so or, if the weather is damp, for a few days before the leaves turn black, a sign that fungi are at work living off the avails of the sun's energy but only after other organisms have used it to make food. Without fungi, decay—recycling of organic material—would not take place and our forests would be littered with dead, unproductive material. Trees would fall and remain on the ground. Grasses, weeds and shrubs would die and their leaves and stalks would accumulate locking up all the nutrients so no other plant could use them and even if they could, sunlight could never reach through the litter.



Because fungi cannot produce their own food, they are not plants and biologists, have determined that there are actually three kingdoms of living things: animal, plant and fungi. Another reason why they are reluctant to include fungi in the plant kingdom is because the outer walls of fungi cells are made from chitin (pronounced kite-in), the same material that make up the exoskeletons of insects, and hair and fingernails. Plants don't produce chitin.

As for the beautiful mushroom pictured here, it is known as the Yellow-Orange Fly Agaric, a poisonous mushroom that prefers the ground beneath birch, aspen, oak and conifers, particularly pine and spruce. It is so named because it was used in older days to stupefy flies by adding it to a saucer of milk. The gills beneath the cap of this mushroom release spores that are carried away on the breezes, but other fungi use different means of spore dispersal. A stinkhorn mushroom, a fat spike that emerges from the soil creates a



slimy substance with an odour similar to rotting flesh that attracts insects which, in turn, carry spores of the fungus with them. Truffles have a taste that is pleasing to some animals, and its spores pass through the animals and are dispersed in the droppings.

Many names of mushrooms are delightfully descriptive such as: witches hat, velvet foot, black trumpet, tree-ear, swamp beacon, thimble cap, stinky squid, earthstar, shaggy mane, rabbit ears, puffball, moose antlers, inky cap, jack o'lantern, jelly tooth, fuzzy foot, dead man's fingers and, of course, the destroying angel. That last name brings to mind some very sage advice; it is definitely a good idea to go mushroom picking with someone who knows his or her fungi. And always say 'no' to a bowl of fly agaric soup!