The Community VOICE

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The fungus among us

By Christopher Harrod April 7, 2011 11:51 pm

There is something mysterious that grows beneath our feet and plays a very significant role in the health of most plants and yet, often goes unnoticed until the fruiting body, called a "mushroom," appears on the surface.

Even then, most people don't bother to take a closer glance. Fungi often get overlooked when people talk about the landscape. In America, it's common to have a "fungi-phobia," because in this country, we don't have a rich history of collecting mushrooms in the wild, as compared to many places in Europe, for instance.

Fungi and the ecosystem

Fungi play an important part in almost every ecosystem. Biologists in the past haven't generally studied and focused attention on fungi as much as they have on plants and animals.

Although there is a lack of extensive research on fungi, there is a basic understanding of fungi and their unique relationship to plants. A few fungi types are parasitic, meaning that while they derive benefit from a plant, the plant itself is harmed. However, most fungi have a mutually beneficial relationship with plants.

Certain types of fungus decompose wood, which then provides nutrients for plants. If you have ever turned over a pile of leaves or woodchips and have found thick white netting, somewhat like a spider web, then you have a found the "roots" of a fungus, called mycelium.

The mycelium feeds on the decomposing litter. They also have the one-of-a-kind ability to break down lignin in oak leaves and pine needles. Lignin is a substance that helps reduce rot in conifer trees. The mushroom is the fruiting body of fungus and its way of spreading its spores. The spores can be considered the fungi's "seeds." It is important to understand not all fungi produce mushrooms.

Plant roots, fungi relationship

There is an often-unknown relationship between fungi and plant roots. Certain fungi have a symbiotic or mutually dependent relationship with plants; these types of fungi are called "mycorrhizal" fungi.

These types of fungi have the ability to exchange nutrients with plant roots. They act as an extension of the root, absorbing nutrients from the soil that the plant can't necessarily access. In exchange, the fungi obtain carbohydrates such as glucose and sucrose from the plant, which help the fungi grow.

There are two types of mycorrhizal relationships between plants and fungi. One is called an AM (short for arbuscular mycorrhizal) relationship. The fungi penetrate the roots to exchange nutrients. AM are found in about 90 percent of plant families. AM fungi do not produce the fruiting bodies we call mushrooms.

The other type is call EM or ectomycorrhizal. In this case, the fungus doesn't penetrate the root but fuses to the outside of the plant root. EM is found in approximately 10 percent of plant families, and these do usually create a fruiting body, or mushroom.
This means most plants, including most of our native plants and the plants we grow for crops, have some sort of relationship with these symbiotic fungi. This is an important reason to maintain a healthy and fungicide-free soil.

I hope you have a better understanding of fungi and the roles they perform in ecosystems. They provide essential nutrients to over 90 percent of plant families through two kinds of mycorrhizal relationships. Fungi also have the ability to break down organic matter and lignins. Mulching with leaves, woodchips, and most organic matter, can provide the food needed for the fungi to thrive while also providing benefits to surrounding plants. Also, not using fungicides can greatly improve your soil life.

Chris Harrod is a horticulturalist with a special interest in mushrooms. His passion is working with plants and enjoying the outdoors. He attends Sonoma State University and is happy to be receiving his degree in Environmental Studies and Planning this spring. Currently, he's serving as an intern with Cotati Creek Critters.

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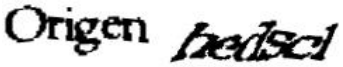

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