

## Lichens, Fungi, and Algae, Oh My!

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Friends often ask me where I get ideas for columns. “It can’t be easy to come up with a new topic every week.” It isn’t that hard. Most of the ideas come from my own observations of nature’s accomplishments on our property. Our gardening successes and failures provide many topics. The furry, feathered, and scaly animals and the crawling, flying, and biting things are endlessly interesting to research and write about. Friends, neighbors, and fellow Master Gardeners ask questions, offer opinions, and suggest subjects. Readers email and call me with questions.

It doesn’t hurt that I am curious by nature. I am always trying to figure out how things work and why a plant or animal will thrive under certain conditions and not others. I like learning how to protect the environment by using varied and alternative gardening, pest and plant disease reduction methods.

I want to know what nature is trying to tell me and that brings me around to lichens. I noticed a striking and lovely lichen bouquet atop a neighbor’s fence post a few days ago. I like lichens, the intricate whorls, the crispy edges, the soft blue-gray-green color of many species, but what are lichens? Are they parasites? Are they helpful or harmful to trees and shrubs? Do they have a message for us?

Lichens are complex structures, each composed of two living organisms, a fungus and a green alga or a cyanobacterium, sometimes referred to as blue-green alga. The two organisms survive in a symbiotic relationship in which each one contributes to and derives benefits from existing with the other. The fungus provides most of the physical characteristics of the lichen, but lacks chlorophyll and cannot create energy from sunlight to make food through the process of photosynthesis. The alga or cyanobacterium component of the relationship can photosynthesize and provides food for the fungus.

People sometimes confuse lichens with mosses. Mosses are primitive green plants frequently found growing in the same areas as lichens. They are not part of the fungus-alga relationship, but do contribute to the lichen life-cycle because of their ability to retain water.

At least 3600 species of lichens have been identified. Found on trees, rocks, and wooden structures like barns and fences, lichens vary in shape, color, and composition. Some are breathtakingly beautiful and provide arresting subjects for nature photographers. Most lichens are found in the southern and southwestern United States. The water-loving alga is protected by the fungus, allowing it to survive in areas with minimal rainfall.

Lichens are sensitive to air pollutants and absorb toxic chemicals like carbon, sulfur, and heavy metals from the atmosphere. Scientists can extract the toxins in order to identify specific pollutants in a geographical region. There is an indication that areas where lichens thrive may have cleaner air.

Lichens have a variety of uses. Deer, birds, and insects consume lichens. Some insects camouflage themselves in lichen structures and birds gather bits of lichens for their nests. Lichens are a source of natural dyes and are used by craftsmen and artisans to create attractive colors. Lichens were used in the past as a food source for humans and animals, but many are toxic and are suspected of causing mass deaths among sheep and elk. Some species of lichens are used in the manufacture of medications and cosmetic products.

Lichens on rocks and trees generally are harmless to the environment, although some people consider them to be aesthetically unattractive. Since the dominant components of lichens are fungi, the development of lichens on wood siding and fences can be an indication of wood rot.

Read the USDA Forest Service article “Lichens” at <http://www.fs.fed.us/wildflowers/beauty/lichens/>, written in non-scientific language, for information on these interesting life forms. The attached Photo Gallery contains stunning pictures of many species of lichens.

It isn't necessary to identify lichens or learn their scientific names. Just enjoy the beauty of their varied shapes, textures, and colors.

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