

# Nature Week at Heritage Village - Sept. 13th

## Lichens a tiny, very complex community

Science fiction writers sometimes ponder just how small we are in the universe, and they may picture the earth as a spec of dust with us tiny creatures living on that spec. Well, it turns out that lichens may be that tiny spec living among us. What we see as one organism, lichens on a rock or tree, is in fact a tiny world made up of two or three very different plant organisms and probably many smaller animals.

The main plant is a fungus, giving the lichen its general shape, growing in partnership with an algae and/or a cyanobacteria. The algae, the cyanobacteria or both create the food for the community through photosynthesis. The fungus offers protection from the harsh environment by capturing moisture and mineral nutrients. It also anchors the entire group in place, although some lichens are free to blow about.

Lichens are the first to appear on freshly exposed rocks and aid both mechanically and chemically in the weathering process, gradually breaking the rock into soil. Because lichens receive everything they need for life from the air, they are very sensitive to air pollution and ozone depletion and have been used to test for these conditions since 1859. More positively they are used in dyes, perfumes, and medicine.

The lichen dye we are most familiar with is the color in litmus tests. But lichen dyes are used in many traditional fabrics.

Medical scientists know lichen derivatives can be used to treat tuberculosis, and more importantly they act as bactericides against *E. coli* and *Staphylococcus*.

Environmentally lichens are important for pioneering on pristine surfaces such as the newly exposed rock faces, aluminum and vinyl siding, even on polyesters. They also form mats that hold together fragile mineral soils like our sand dunes. They are food for some animals, like reindeer and many birds use them for nesting materials.

Take a closer look at that colorful splotch on your rock or tree.

Foliose

Lorie Axtell



Fruticose



*Depending on the species of fungus, algae, and cyanobacteria the community can take one of three identified shapes. Crustose lichen is flat and tight against the substrate, like lumpy paint. Foliose lichen appears to have leaf-like pads. And fruticose lichens are thread-like.*

*Directly above is the lichen commonly called British Soldiers. Left are lichen-dyed wools by textile artists Glenna Dean and Karen Casselman. Photo: Stephen/Sylvia Sharnoff*



### Crustose

The yellow or orange stain you see on rocks is usually a crustose lichen



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