

## FRIENDS OF DOUGLAS-FIR NATIONAL MONUMENT

Dispatch 35, May, 2025: An homage to lichens in Pacific Northwest forests

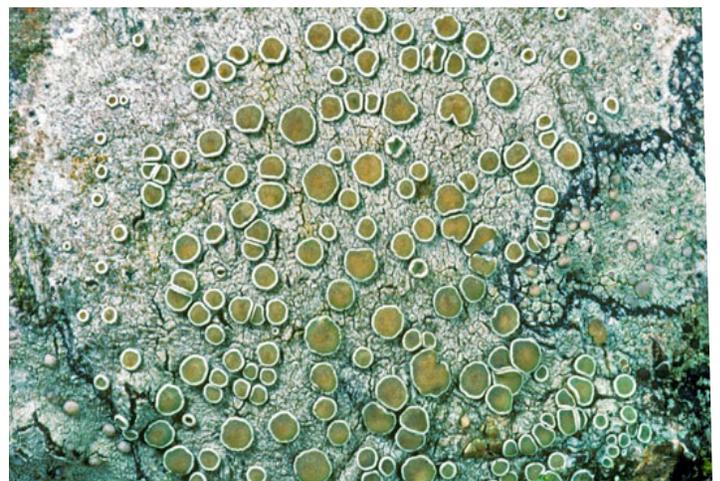
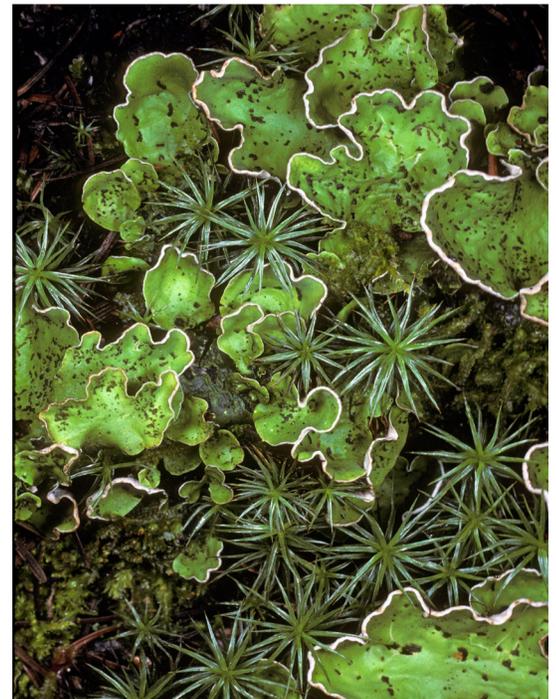
If you explore the forests in our proposed national monument, you'll probably encounter some lichens. They come in such a variety of forms and colors that people sometimes have trouble recognizing the different kinds as related organisms; they challenge our preconceived categories, so they're often overlooked, vaguely noticed as that "stuff" on trees and rocks. Lichens thrive in older forests, and they support forest ecosystems as well.

All lichens are a symbiosis between a fungus and a colony of algae, or sometimes cyanobacteria, or in some species, both. The algae or cyanobacteria are photosynthetic, providing carbohydrates that the fungus can use, and together they form a unique structure, quite unlike either partner by itself. They grow on bark, dead wood, rock, soil, sometimes leaves, and on almost anything that's fairly stable. Some are even semi-aquatic, growing on rocks in mountain streams.

Lichens are commonly classified by growth form. Some, called "foliose", are leaf-like, like the pelt lichen on the right, *Peltigera aphthosa*, growing intermingled with moss on the forest floor.

Another form is shrubby, or "fruticose", like staghorn lichen, *Evernia prunastri*, below left, a common species on the trunks and branches of deciduous trees in Oregon.

Other "crustose" lichens form patches on rock or bark, like *Lecanora pacifica*, below right. The disks on this lichen are reproductive structures that produce fungal spores.





Yet another growth form, called “squamulose”, has masses of tiny lobes, frequently with stalked structures, like this *Cladonia carneola* on the left, growing on a dead log.



An example of a lichen that has only algae as the photosynthetic partner is the shrubby wolf lichen, *Letharia columbiana* above; in Oregon one sees it mostly growing on old wooden fences.



Another example is the bright orange *Xanthomendoza hasseana*, left, on bark.

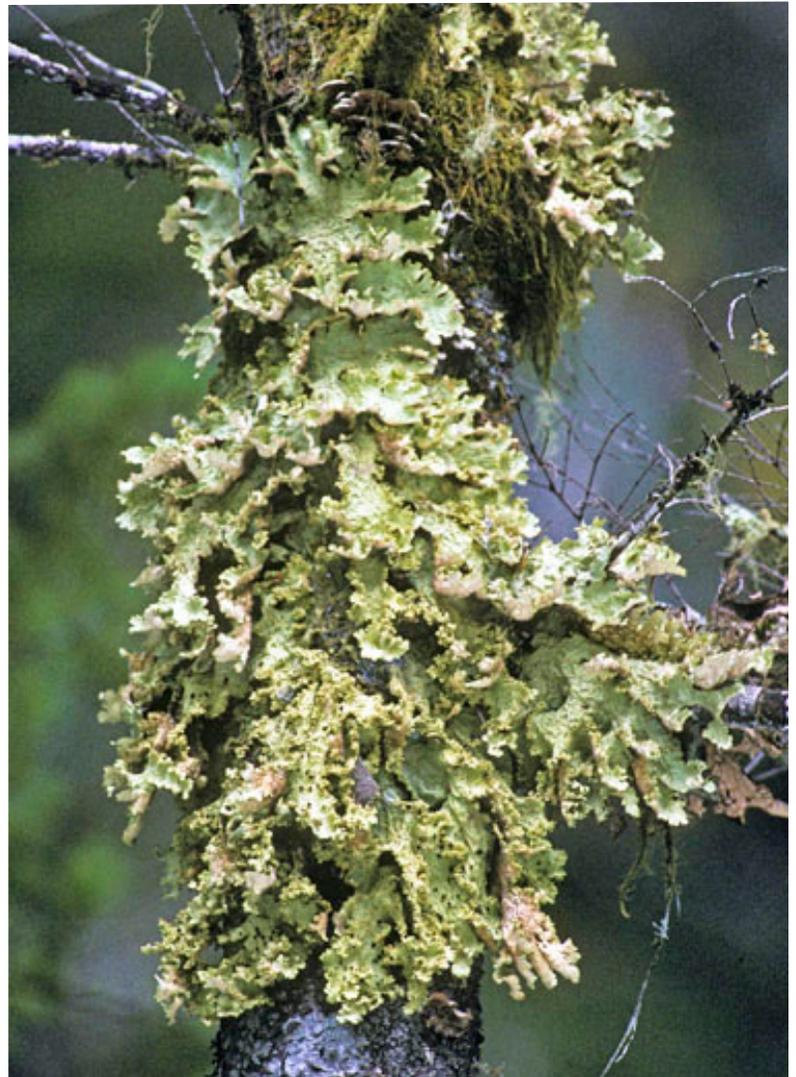
A widespread foliose lichen, often seen on the bark of deciduous trees and on dead wood, is the common greenshield, *Flavoparmelia caperata*.





In the “jelly” lichens, the main photosynthetic partner is a cyanobacterium, such as in *Collema nigrescens*, on the left. Jelly lichens are usually very dark green or brown to almost black, becoming almost translucent when wet. Other lichens have algae as the main partner of the fungus, but also contain internal bodies of cyanobacteria.

Lichens that contain cyanobacteria can “fix” atmospheric nitrogen, forming chemical compounds that plants need. Oregon lettuce, *Lobaria oregana*, is one of these. It forms large, leafy, pale green patches on tree trunks or frilly masses hanging from branches and, especially in old forests, it can become very abundant. Where it’s common, it can be the single most important source of nitrogen in the forest. This large clump was photographed in an old-growth stand in the H. J. Andrews Experimental Forest, in the Oregon Cascades





Lichens are used as nesting material by birds and northern flying squirrels, and as food by caribou in the far north, sometimes by deer in Oregon. In the Douglas-fir region, lichens are an important food for red-backed voles, a key prey species of the northern spotted owl.

The bird on the left is an Anna's Hummingbird, and its nest is coated with lichens.

Lichen diversity is associated with old, undisturbed, ecosystems, although some species are "pioneers", such as this *Cladonia macilenta*, right, growing on a rotting log.



Some kinds in particular, especially the "pin" lichens, like the tiny *Calicium viride*, above left, have been successfully used as indicators of old-growth forests. Lichens have varying sensitivity to air pollution, from fairly tolerant to extremely sensitive. The Forest Service has an active program using lichens to map air quality across the country, although it seems unlikely to survive the Trump administration's destruction of anything favorable to the environment.



I find some lichens particularly beautiful, such as Methuselah's beard, *Dolichousnea longissima*, said to be the original Christmas tree tinsel. It was once common in Scandanavia but has largely disappeared due to air pollution. In the Pacific Northwest it can sometimes be seen in abundance, hanging from trees along rivers, with strands as long as thirty feet. Lichens cannot (so far at least) be cultivated, and to me they are the essence of wildness. I am always pleased to see them.

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