

Wet Winter Woods

by Peggy Robinson



We humans tend to bemoan the superabundance of moisture at this time of year, but you can rouse yourself from gloom by getting to know the plants which actually thrive on fog and rain. Get out your Gore-tex and go for a walk in the woods!

Licorice Ferns

Ferns flourishing in mid-winter are an amazing sight to those of us who grew up in the Eastern U.S. Evergreen sword ferns decorate the forest floor here year round, and I have become used to them by now. But the more delicate tree-living licorice ferns still astound me every winter. For like the mosses and lichens, they revive in what is supposed to be the season of death and decay. These ferns have the seasons reversed, their leaves shriveling up and dying during summer drought.

Licorice ferns are also unusual because of their arboreal location (which is actually the easiest way for an amateur to identify them). They are usually found arrayed along high branches of big leaf maple, though they sometimes choose other kinds of trees. Like the mosses and lichens, they are epiphytes taking their moisture from the air.

Licorice fern got its name from the licorice taste of its rhizome (underground stem) which contains the same chemical that gives commercial licorice its flavor (glycyrrhizin). (I am trusting you to take my word for this and forsake the urge to uproot one of these beautiful adornments to our winter woods! After all, these "roots" would not taste like licorice candy because they are not sweet.)

Indians used the raw or roasted rhizomes as cough medicine, and early settlers used them to flavor tobacco. A decoction made

from the steeped rhizomes was used as a cure for dysentery and also as a worm medicine. The medieval herbalists recommended a decoction of licorice fern to treat depression and bad dreams.

Mosses and Lichens

At this time of year the mosses and lichens are also at their very best. The abundant moisture makes them glisten so much that they fairly leap out at you, and the more barren winter setting, devoid of the many small green plants of other seasons, sets them off to advantage. A magnifying glass will reveal many complexities of structure not available to the naked eye, while a dental mirror will provide an extraordinary view of "the underworld."

Mosses and lichens tend to be dormant during dry seasons because, as rather primitive plants, they lack conducting systems of roots, stems, and leaf veins for utilizing stored water—they have to take moisture and nutrients directly from the air. Mosses also need moisture for the sexual stage of their reproduction; without the medium of water the sperm cannot swim to the egg.

Mosses and lichens grow more profusely on deciduous trees than on conifers because the increased light available to them, after the leaves have fallen, facilitates the process of photosynthesis during winter.

Both plants are very adaptable, able to tolerate extreme conditions of dryness, heat, and cold for many years while patiently waiting for the rains to come again to revive them. Mosses grow on the wetter sides of three trunks, lichens on the drier. Both are pioneer plants which break down rock to form soil, enabling more advanced plants to get started.

Mosses hold many times their own weight in water which is why pioneers used moss chinking to keep water out of their log cabins. Here in the moist Northwest, the superabsorbency of moss is important in preventing soil erosion and flooding by holding moisture from rains and melting snow.

Nitrogen Fixers

As you walk along in the woods, be on the lookout for "lettuce leaves" lying along the trail. These bright green (almost chartreuse) leafy objects are really *Lobaria* lichen, otherwise known as lung lichen because of their superficial resemblance to lung tissue. And because of this resemblance, the medieval herbalists concluded (according to the doctrine of signatures, whereby God left a sign on each plant to tell humans what it was to be used for) that *Lobaria* would be good for treating lung ailments. And indeed it was, for recent experiments have shown that an extract of this lichen does inhibit growth of TB bacteria in the test tube!

But *Lobaria* lichens have a more important function, one crucial to the health of our magnificent conifer forests. From their home high in the tops of Douglas fir trees over 100 years old, these lichens capture nitrogen from the air. When winter storms blow them to the ground, the lichens decompose and their stored nitrogen enters the soil, making a vital nutrient accessible to the plants of the forest. The nitrogen-fixing capacity of *Lobaria* in mature Douglas fir forests is one of the important reasons for not destroying our remaining old-growth forests.

Witches' Hair

Perhaps the most obvious lichen around here is fishnet lichen, *Ramalina reticulata*. Its long gray strands festoon the oak trees like witches' hair, softening and giving an other-worldly appearance to the bare trees in winter. If you look closely at a piece of this lichen, spreading it out carefully in your hand, you'll observe the netlike structure that provides the species name, *reticulata*. Are these lichens harming the trees? No. Since they make their own food, they are not parasites. In winter their wet weight helps prune the trees by weighting down dead branches until they break off.

The structure and origin of lichens were long a mystery to botanists. In 16th century Europe they believed that these unusual plants were secretions of soil, rocks, and trees. In the 19th century some experts thought lichens were composed of air or water or some combination of the two, while others thought they had found an example of spontaneous generation!

Today we know that a lichen is a combination of an alga, a microscopic green plant, and a fungus, a non-green plant. In this mutually beneficial partnership, the alga, because it is green, can utilize sunlight and carbon dioxide to make food; the fungus holds water and provides structure and vitamins.

Lichens are very adaptable, becoming dormant during dry periods and at low temperatures. They can remain in this state for years, reviving whenever favorable conditions return. They grow very slowly but reach a great age—more than 2,000 years in some cases.

More to Read

Lots of people can identify wildflowers and trees, but very few know the names of even our most common mosses and lichens. Winter, a season free from the "distractions" provided by flowering plants, is the time to concentrate on these more primitive plants which have their own subtle miniature beauty. Unfortunately, most books on these fascinating and ubiquitous plants are intimidating to amateurs, but here are two identification books appropriate for beginners:

Common Mosses of the Pacific Coast by Marion P. Harthill and Irene O'Connor (Naturegraph, 1975).

The Observer's Book of Lichen by Kenneth Alvin (Scribners, 1977).

For a good general introduction to non-flowering plants, look up *A Golden Guide to Non-flowering Plants* by Floyd S. Shuttlesworth and Herbert S. Zim (Golden Press/Western Publishing Company, 1967). For fascinating moss and lichen lore, locate *Forests of Lilliput: The Realm of Mosses and Lichens* by John Bland (Prentice-Hall, 1971).

[Peggy Robinson is the author of Profiles of Northwest Plants: Food Uses, Medicinal Uses, and Legends; The Portland Walkbook; the guide to the nature trail at Mt. Pisgah Arboretum, and reviews in Co-Evolution Quarterly.]

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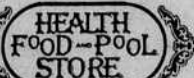
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