

## Little guys of the plant world area hidden treat

by Ed Burg

One of the secret joys of nature study is the raw appreciation of the myriad forms of living creatures. At times this appreciation is like listening to music—a physical or sensory experience that delights the eye as music delights the ear. For me a visit to a botanical garden or the lichen-carpeted alpine is much akin to listening to a symphony orchestra, being awash in the variety of sounds and their endless combinations. When I put an insect or a flower under the microscope, it's like putting on a CD of music. Sometimes the melody is familiar and I recognize an old friend, but often I am learning a new tune, which can be both exhilarating and frustrating, like a student at the piano bench. Were I a trained musician, I would hear much more in music than I do. A trained ear can name the notes, recognize the chord progressions, and repeat complex rhythms. Musically, I am like the casual hiker in the woods who sees only trees, but not white spruce or black spruce, not aspen or birch, or who sees only green ground, but not fire moss, feather moss, or liverworts.

With nature study, more than music, it is necessary to know the names of things and the names of their parts. Most of us who lack a photographic memory simply can't accurately remember something if we don't have a name for it. Furthermore, it is hard to tell the difference between two similar things if we don't know the names of their parts and characteristics. Beginning botanists usually find plant vocabulary intimidating, but these technical words are used in the identification keys and must be patiently mastered, like a foreign language, if one is to fully appreciate the great variety of plant life.

Some twenty years ago I set myself the goal of learning the names of all the plants on the Kenai Peninsula. I soon realized that I had to collect each plant in order to learn it. From Boyd Shaffer's botany class at the Kenai Peninsula College, I learned to mount plants on 5 x 8" index cards with clear contact paper. I now have more than 600 of these cards, and add more every summer.

In the last several years I have turned to studying the mosses and lichens—the little guys that most people barely see and couldn't begin to name. Studying

the little guys is mostly done under the microscope. Actually, I use two microscopes: first a 10-20 power schoolroom dissecting scope, and then a 40-400 power laboratory scope for looking at the cells of moss leaves and for counting lichen spores.

Visiting the microscopic world is like going to another country with an entirely new set of plants—a new flora. There are probably many more species of mosses and lichens in Alaska than there are species of the large (flowering) plants. Exact numbers mosses and lichens are hard to pin down, and hitherto unreported species are being found every year in Alaska, as are brand new undescribed species.

Many of the little plants look very similar and are tricky to identify. For mosses it is usually necessary to gently pull off some leaves with a fine tweezers and examine them under a microscope. The leaf cells can be long and skinny, or short and fat. Some cells have one or more pimples; some have thick walls, thin walls or pitted walls. For lichens it necessary to use simple chemical tests. A drop of bleach may turn a lichen red or pink; a drop of sodium hydroxide may turn it yellow, blood red, or purple. Ultraviolet light in a dark room may display a drab brown lichen as bright icy blue-white. These quick tests reveal the chemical differences between visually similar species, much the way our taste buds distinguish wines that look identical but have interesting chemical differences.

It is necessary to have good books when studying plants, be they large or small. Eric Hulten's *Flora of Alaska and Neighboring Territories* (1968) is still the bible for the large plants. For the little plants of our area the best general book is Vitt, Marsh and Bovey's *Mosses, Lichens and Ferns of Northwest North America* (1988), which has excellent color photos and good keys. Readers with a green thumb will appreciate George Schenk's *Moss Gardening, Including Lichens, Liverworts, and Other Miniatures* (1997), also with many striking color photos. The two best lichen books for our area can be downloaded free from the Canadian Forestry site at <http://www.for.gov.bc.ca/hfd/pubs/docs/srs/srs08.htm> and [srs09.htm](http://www.for.gov.bc.ca/hfd/pubs/docs/srs/srs09.htm). (See srs01 to srs04 for flowering plant manuals.) The website of the American Bryological and Lichenological Soci-

ety is another rich source: <http://www.unomaha.edu/~abls/>

I will be giving a talk on mosses and lichens at 7pm next Tuesday (March 13) at River City Books (near the Soldotna Y). I'll bring my plant collections, and a pile of good plant books for show-and-tell, and we'll spend

the evening with the little guys of the plant world.

*Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. For more information about the Refuge, visit the headquarters on Ski Hill Road in Soldotna, call 262-7021 or see the website at <http://www.fws.gov/refuge/kenai/>.*