

A view from the high country

by Ed Berg

A trip to the high country is always close to the heart of the biologist. In the high alpine meadows and rocky slopes we see a great diversity of the little plants and lichens, often in great profusion, which we don't see in the muskegs and black spruce forests of the lowlands. In the high country the concept of "biodiversity" comes alive, with 20-30 species of mosses, lichens and liverworts on a single boulder, and dozens of species of flowers, and grasses and sedges, all blooming within a few weeks of the highly compressed growing season.

Sexual energy is intense among the small denizens above tree line; you can hear it in the hum of the bees as they busily carry pollen from one blossom to the next. Moss capsules and lichen sporangia are bursting with spores, and willow catkins are beginning to ripen so the wind can take their cotton-plumed seeds to new germination sites.

Asexual reproduction, too, is going full blast in the high country, although in less showy ways. Sedges are "tillering" (producing new shoots from underground runners); lichens are dispersing fine powdery fragments of themselves, each of which can regenerate a new lichen; and wingless aphid females are cloning babies without any male help at all. The dandelion, too, has given up sex: all those seeds are clones.

I make several trips a year to the high country, ostensibly for scientific purposes, but more for matters of the heart. God seems closer among the flowers in the high meadows and I am reminded that I am simply one creature among many, each of us taking our turn on the Great Cosmic Wheel. The hunter seeks his quarry, the miner seeks his mother lode, and the biologist seeks his specimens and numbers, but we're all drawn to the high country as pilgrims are drawn to Mecca.

With these thoughts in mind, I tighten my seat belt in the Refuge's Cessna 185 as Pilot/Biologist Rick Ernst lifts off Headquarters Lake and heads east to Twin Lakes at the top of Benjamin Creek, beyond the Killely River Canyon. As we descend into the rocky Twin Lakes basin, Rick points out a very blond sow with three nearly full-grown cubs on a nearby ridge. We land and unload our gear, adjust our packs, and set off

cross-country through the willow thickets.

This country is not easy walking for the overloaded backpacker. Our leader Ranger Gary Titus has long legs like a moose and seems to stride effortlessly over the tussocks and through the willows, but Ranger Dave Kenagy and I are shorter (and older), and have to pick our way at a slower rate. There are no trails here, so we study our route carefully to minimize the willow and alder thickets. We make one knee-deep stream crossing, where my lightweight sandals and stout walking stick prove their worth. We set up our first night's camp on a high meadow bench with enough breeze to keep down the bugs.

After dinner, Gary and Dave hike north in search of critters, and find a very large boar, and a black bear, which they graciously shoo off in my direction. I spend a delicious couple of hours exploring the meadow with collecting bags in hand getting reacquainted with old flowering friends like valerian, arnica, narcissus anemone, lousewort, cassiope, and forget-me-nots. Several wet seeps are "hot spots" of biodiversity with concentrations of moisture-loving mosses and liverworts like *Sphagnum*, *Plagiomnium*, *Ptilidium*, and *Marchantia*.

The drier, more open ground is often covered with miniature gardens of lichen. I am pleased to see the shrubby lichens in good abundance because they can carry the caribou through the winters. One of my scientific purposes of this trip is to evaluate the Twin Lakes-Benjamin Creek drainage for lichen forage for the caribou. In 1987-88 a herd of about 50 caribou were introduced by helicopter into the headwaters of the Killely River above Tustumena Lake. These caribou have reproduced very successfully and now number about 450. In the winter they forage for lichens on the high wind-swept slopes and ridges, where they can "crater" with their hooves to get at the lichen beneath the snow.

In 1998 Carlos Paez and I surveyed the Killely River headwaters for lichens, and found that the caribou were eating themselves out of house and home. The lichens were really hammered, and we have become concerned about a possible die-off of this herd in a hard winter. Fortunately, some of the more assertive

(i.e., more hungry) individuals have crossed the Killey canyon, perhaps near the glacier, and have moved into the Benjamin Creek drainage, where I am seeing much better lichen availability. Hopefully more of the herd will follow suit. Even so, on this trip we saw only four caribou, whereas in the western headwaters of the Killey we would have seen hundreds.

On day two we climb a high pass and drop down into the headwaters of King County Creek. We camp on a small beaver lake east of Marmot Lakes, and bemoan the lack of a fishing pole because the water ripples are practically piling up on top of each other. How could we have forgotten such an essential item!?

On our final day we hike down the beautiful Cottonwood Creek trail to the south shore of Skilak Lake. Dave's backcountry crew has cleared out most of the beetle-kill blow downs and the trail is in great shape. It descends through a hemlock zone, then through a

mixed hemlock-spruce forest (which Dave says is inhabited by hobbits), and then through a lush spruce forest with lots of alder, devil's club, and pushki (cow parsnip), which looks very much like the forests of Kachemak Bay.

Refuge mechanic Mark Wegner picks us up in the Boston Whaler, and our arrival at noisy Upper Skilak boat landing with kids and scooters reminds us that life has not missed a beat in the lowlands while we were in retreat up in the high country. I'll spend the next weekend identifying and mounting my three Ziploc bags of plants and lichens, recalling each one's special spot on those untrammelled high meadows and slopes.

Ed Berg has been the ecologist at the Kenai National Wildlife Refuge since 1993. Previous Refuge Notebook columns and information about the Refuge can be found on the Web at <http://www.fws.gov/refuge/kenai/>.