CES Notes, 2010

Spring in Hopkins Forest, *and what a strange one it was…*

Whether a symptom of global climate change or some more random factor it's too early to tell, but what we do know is that the first half of this year offered some very anomalous weather and its effects have rippled through the forest's soil and streams, flora and fauna. Certainly, everything from maple sugar production to salamander migrations to the blooming of wildflowers was a little off what we've come to expect around here. Let's take a stroll through the forest, starting back in February…

A February 2010 walk on the lower loop trail would have necessitated more in the way of a good pair of mud boots than skis or snowshoes; indeed the trail lay bear or under a mere thin coat of crusty snow during most of the month. After a warm, late-January rain washed away much of the early winter snow pack, the snow was slow to return, and generally short-lasted when it did – forcing Nordic skiers and other snow enthusiasts to head for the Green Mountains or Berkshire Plateau in search of good coverage. Jay Racela, CES's Technical Assistant, noticed that this snowless episode corresponded neatly to a span of abnormally high temperatures; with data from the Hopkins Forest's main weather station, Jay attested that a 70-day period from mid-January through late March recorded only eight days of sub normal mean temperatures, while many of the rest were well above long-term averages.

It's unclear to me to what extent these tame late-winter conditions affected the maple sap production in Hopkins Forest, but, suffice it to say, this was by far the leanest year for sap and syrup yields in my tenure at Manager. The season began like many others, with student caretakers going out in late February to hang 125 buckets. But within a few days, it became evident that there was something amiss with the trees: instead of the 200-300 gallons that we would expect during a good sap run (typically a warm day following a sub-freezing night), this year we were hard-pressed to get 100 gallons in the tank. Certainly, some of the sap might have run during some of the milder days in February, but that alone would seem insufficient to explain this vast deficit. Then, to make matters worse, in early March the low temperatures stagnated at or above freezing for many nights on end, and the sap slowed down to a trickle; this effectively ended the season by eve of spring break, the normal peak of sap production. Maple producers from here to Agawam pretty much all had similar laments this year.

The lack of snow and generally mild temperatures that affected the maples meant an early awakening for many of the forest's other dormant biota this spring. Indeed, we had hardly finished re-deploying the drift fence around the vernal pools when the annual amphibian migration broke in earnest. On the rainy morning of March 23rd students from Williams and Massachusetts College of Liberal Arts pulled nearly 1000 wood frogs from the bucket traps that encircle their breeding pools. These frogs were not alone: this early arousal, one to two weeks before normal, was also experienced by dozens of spotted salamanders and Eastern newts, spring peepers and red-backed salamanders and even one hearty hellgrammite (dobsonfly larvae) leaving the water at this early date to enter its pupal phase.

Around this time, the botanical side of the forest was springing to life as well. In March, poplar and maple trees were already breaking bud and flowers were visible on red and silver maples by the equinox. This flush was followed by a sequence of early blooms from all manner of spring wildflowers, each a week or more ahead of its traditional bloom date. This incongruity made for some surprises on Hank Art's annual Mother's Day wildflower walk. If participants were a tad disappointed to have missed some of the early spring ephemerals -- such as spring beauty and Dutchman's britches -- there must have been some consolation when they happened upon a stand of pink ladyslippers in their full splendor along the side of the trail; for this orchid is better known for flowering closer to Memorial Day.

The early flushes and blooms were not without their perils however -- for this is New England, and sooner or later, the weather will change. That change, which contradicted the long period of mild weather documented by Jay Racela, arrived on the week of May 10th when temperatures finally plunged below freezing for the first time in weeks. And the damage was evident: on a visit to the forest with local home-schooling group, young explorers questioned the brown and wilted appearance of the ferns growing along the trail. Certainly, these sensitive ferns are well named as it was clear from their atrophied leaves that they had fallen victim to the recent frost. The damage was also noticeable along the banks of the Hoosic River a week later as students from Mea Cook's Environmental Science class paddled by on their annual flotilla. Many of the ferns and knotweeds that line the river were shriveled and brown, and the sumacs and walnuts had dead leaves drooping from their branches. Even the sugar maple, a long time bastion of New England forests, exhibited symptoms of nature's cruel trickery. What will become of these plants that were lured back to life early only to be zapped by a mid-May frost? Certainly some are already recovering, releasing a new flush of shoots and leaves to replace their dead predecessors. These plants may live on but at a cost -- weakened by the loss of valuable energy that had been invested in their early leaf production.

Meanwhile, back in the forest, what was happening with the birds? Would the neo-tropical songbirds arrive ahead of schedule as with much of the other life? Most area bird watchers will tell you that May first is a magical time in ornithology, a moment when most of the small, colorful, boisterous warblers, tanagers, thrushes and orioles return from their winter haunts in the tropics to rear their broods in the vast northern woods. But unlike much of the other life in the forest, these long distance avian travelers were not early; for the cues they rely upon to signal their passage, including day length and solar angle, were not linked to the mild early conditions in the north, and by the time a suitable south wind flow piped up, the warblers and their kin were right on, but not ahead of schedule. Their arrival on and around May 2nd came just in time for the first of four scheduled field visits by students, in Heather Williams' Biology class, to observe them as part of a lab on wood warbler evolution. Whether these warblers, on returning from their 1500-mile journeys, found anything at all amiss on their summer grounds, it's hard to tell.