

Field Notes Spring 2007

Forest tent caterpillars: the rest of the story...

What a difference a year makes. It may sound cliché, but it couldn't have been more true for anyone plying the trails of Hopkins Forest in late spring 2007. At this vary time a year ago--you may recall from a dispatch in *Field Notes*--we were awash in forest tent caterpillars. Graduates were sliding on their greasy mats that lined the sidewalks of campus, while visiting alumni were swatting at caterpillars dangling by threads from the defoliated trees above. And the painters, who so ably clad the 100 year old Rosenberg Center with a fresh coat of powder yellow and white, were crazily flailing at the sluggish black and gray flesh flies that follow our lepidopteran invaders.

But not long after that, doom was in the air for the caterpillars. By July the carnage was noticeable as caterpillar corpses by the hundreds were seen hanging from the apple and maple trees near the Rosenberg Center. Nature had indeed responded to the invasion and controlled, albeit in a delayed manner, this run-away population that had defoliated 70 percent of the local trees. It seems that the caterpillars had eaten themselves out of house and home: competition for depleted food resources--coupled with a fungus fueled by an abnormally rainy spring--had taken its toll on the critters. Add to that the swarms of friendly flies (*Sarcophagid*) that were parasitizing the pupating caterpillars and the end of the invasion was at hand. By mid-July, few adults were seen flying around; this resulted in a severe decline in reproduction and a subsequent population crash. This scenario was a classic demonstration of nature regulating an irruptive population right in our backyard.



Dead caterpillars on apple tree, Summer '06

Though few seem to miss these messy worms this year, and the forest, on the surface, seems to be doing just fine, one does wonder about the legacy of the invasion of 2006. Has the forest simply rebounded as if nothing happened or will there be lasting effects from the outbreak? And if the forest changed, in what ways and how much has it?

Shortly after setting out on a recent jog on the lower loop trail, I was reminded of the caterpillars in spite of their absence from the trees and path. Looking west across the expanded weather station field, I could see the hulking skeletons of as yet defoliated poplar trees looming over the lower trees in the foreground. These dead 90-foot hulks--planted by the Forest Service fifty-five years ago--were evidently unequipped to withstand the defoliation and the loss of newly manufactured carbohydrates that it imposed. While younger, more robust trees were able to re-foliate and restart the process of photosynthesis later in the summer of 2006, that was not an option for these large older trees, whose energy balances were razor thin in the first place. A look toward the woods beyond the moon barn and behind the Rosenberg Center also reveals a generation of hybrid poplar trees finally brought to their deaths by the outbreak.

Aside from the old plantation trees, there appears to have been little arboreal damage exacted by the out break of 2007: most of the maples, oaks and ashes appear green and healthy. But perhaps the pain was felt in other ways. A look at this spring's Hopkins Forest maple syrup production suggests that all is not back to normal in the sugar-bush. We collected 37 percent less sap and boiled down 29 percent less syrup from the average of the previous seven seasons (the sap harvest was an eight year low and the syrup the second lowest in that period). How much of this reduction might have been caused by caterpillar defoliation as opposed to the record warm early winter weather or other factors in unclear. But we do know one thing: for whatever reason, there will be less HMF produced syrup at breakfast tables this year.

As for other forest dwellers, it is still uncertain to what degree they are still feeling the impacts of the 2006 caterpillar outbreak. We did notice an increased number of songbirds on breeding bird point counts last spring. However, this might have been more a result of sound (songs) carrying further due to defoliation than an actual increase in singing male birds. It may be that the ultimate ripple effects on songbirds will have been much more specific. Indeed, nesting failures among tree nesters might have been high as defoliation increased exposure of nests to predators and weather extremes. By contrast, ground nesters might have actually benefited from the increase in light reaching the ground level and the resulting flush of low growing vegetation to conceal their clutches. We may know more about the fate of the birds in the coming weeks--once the spring 2007 point counts have been tallied.

And that brings us back to the friendly flies, which have been buzzing around the forest again this spring. They may be able to find new hosts for their eggs to replace the forest tent caterpillar, but they will likely experience some leaner years and reduced populations until the caterpillars make their inevitable return.



HMF Maple Trees were less productive this year.
Photo: Tom Christensen

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