

Field Notes - Summer 2009

What Lurks Beneath – Spring in Hopkins Forest

Do you ever wonder what biological forms might be lurking in those streams, springs and seeps that you pass on a walk in Hopkins Forest? This spring, the entire seventh grade class at Mouth Greylock High School got the chance to explore some of the Forest's representative wetlands in search of answers to just that question. Yes, they came -- dip-nets, buckets and magnifying boxes in hand -- to explore and inventory three different wetlands: a mountain brook, a seepage swamp and an isolated pond. Their findings did not fail to intrigue, astonish and "wig-out" many of these scholastic wetland explorers.

Sampling critters in Ford Glen Brook



During a four day event, sponsored by the Williams Center at Mount Greylock, middle school students teamed with adults from their school, Williams, and the community, seeking to find and describe the differences in aquatic biological communities. Their hypothesis was that the three very different physical environments that typify the pond, swamp and stream would impose different stresses and provide varying amounts of key resources that would significantly influence the structure and composition of the animal assemblages that live within. In order to describe their physical environments, students measured

environmental parameters such as water temperature, flow, and sunlight. Next, came the fun part: entering these aquatic worlds to find and describe their resident animals.

Not surprisingly, students encountered three quite different communities of small animals in the wetland triad. In the pond, students gawked and awed at the site of American toads laying their long spiral ribbons of eggs along the silty bottom. It appears that the unseasonably warm April weather had hastened the breeding activities of this common New England amphibian. Another amphibian, the red-spotted newt, was found in abundance on the bottom of the pond; but unlike the more ephemeral toad, this salamander spends much of its life in the pond, lurking among the weeds, waiting for a small morsel to float or swim by. Among the many six-legged denizens of the pond were water striders, water scorpions, and diving beetles. These bugs generally stay near the top of the placid water to breathe air. The diving beetle can actually carry a bubble of air with it as it heads below the surface in search of a meal.

The next stop was the swamp, just up the hill a bit from the pond. Here the water runs slow and shallow and there are a lot of hummocks that give rise to vegetation and trap sediment and leafy debris. This is clearly a tough place to get oxygen, especially for those who use gills to procure the dissolved form of this gas. Shredders and collectors, however, do well in this environment of slow, murky water. Here the seventh graders found some tadpoles, the larval form of the wood frog. Wood frogs use small ephemeral wetlands that are in or near wooded environments; so it was no surprise to find them in the swamp. The real winners, however, were the marsh



Wood Frog in Pond

beetle larvae and some ghastly looking rat-tail maggots and phantom crane fly larvae. These latter two are members of the *Diptera* or true flies, a group infamous for inflicting painful bites and agony as adults, but better known for tolerance of poor water quality as larvae. They tolerate these rather anoxic conditions by using a built-in narrow tube that reaches above the water surface to secure oxygen from the air. These small developing flies are, indeed, the snorkelers of the swamp.

A few minutes' walk away, another group of 10 seventh graders was exploring the clear, running waters of Ford Glen Brook. With its cool, oxygen rich waters, this wetland favored a different assortment of small critters, not the least of which is the long, lean two-lined salamander. Students pulled these 3 ½ inch yellowish salamanders, along with their smaller gilled offspring from their refuges among the rocks and logs of the stream bottom. These salamanders are of the *Plethodon* or 'lung-less' group and can assimilate the stream's high concentrations of dissolved oxygen through their porous skin (and lungs as juveniles). A closer look under the rocks [for finding small animals in a column of swiftly running water can be somewhat futile] revealed numerous small six-leggers clinging to the algae-clad undersides of the stones. Peel one off and you'd observe a small flattened insect with sprawling legs, three tail filaments and a row of feathery gills lining each side of its abdomen. Looking at their adaptations for stealth, anchorage and respiration, it was easy to see why these juvenile mayflies are the true rank-and-file members of the stream community.

Though it may be the large, charismatic creatures that cause the oohs and aaahs, it's the little, often cryptic ones that tend to define, if not dominate, their biotic communities -- just ask your local seventh grader.

Drew Jones

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