

***HOPKINS MEMORIAL FOREST***

***Activities Report***

***2008-2009***



Drew Jones, HMF Manager

Williams College--Center for Environmental Studies

October 2009

## **SUMMARY: The Year 2008-09**

Once again, Williams College's environmental field station, Hopkins Memorial Forest, played host to a wide variety of research and educational activities in 2008-2009. In research, we continued our four year study of amphibian populations at two recently acquired vernal pools on the former Buxton Lane parcel. Under the guidance of Hank Art and myself, Williams students—with the help of collaborators from nearby colleges and community volunteers--continued to monitor a pitfall trap array surrounding the ponds during the fall of 2008 and again the following spring and summer. Meanwhile, Andrea Danyluk, of the Computer Sciences Department, made some headway in her efforts to develop a computational technique to identify spotted salamanders by their spots using images taken from our work.

Elena Traister, Assistant Professor of Environmental Studies at MCLA, continued her dissertation research on stream disturbance ecology using four streams in and around Hopkins Forest. Traister completed her fieldwork during this period and spent the summer of 2009 processing debris samples and identifying 44 families of macro-invertebrates that were taken from the streams.

During summer 2009 many of the Forest's other established research projects continued as well. Hank Art and his crew were busy laying the ground work for the next iteration of permanent vegetation plot surveys, set to begin in 2010. Manuel Morales and his crew continued their work on ant/leaf hopper mutualistic systems. Joan Edward's garlic mustard growth dynamics study was active again with field work continuing on three distinct populations within the Forest. In addition, David Dethier and Jay Racela continued their meteorological and geochemical monitoring activities. Indeed, their Environmental Analysis Lab ushered in some upgrades in data delivery (including a re-design of the web-based interfaces) from the main weather station and the 50 meter anemometer on the Taconic Range. The northern saw-whet owl banding station was again open regularly during the fall 2008, recording a station record number of captures.

There were two new studies initiated in Hopkins Forest in 2008-09. In autumn 2008, Christopher Himes, of the Biology Department, conducted two weeks of small mammal sampling in two different areas. The following summer, Tegan Morton of Tufts University undertook field work at two locations as part of her Masters thesis study of site dependent variation in chemical defenses in garlic mustard.

On the administrative front, there was no movement on the option to purchase the remaining acreage of the Wire Bridge Farm, though informal discussions with the owner were positive. Plans to implement study sites on this farm and in other fields, including the weather station field, were the topic of discussions by forest faculty researchers. Additionally, biologists from the Wildlife Management Institute visited the Forest and expressed a strong interest in supporting efforts to create and manage early successional habitats. Lastly, we made some significant infrastructural improvements--including the rebuilding of two aging Upper Loop Trail bridges.

Hopkins Forest continued to be a focal point for local and regional educational programming. Williams and Massachusetts College of Liberal Arts (MCLA) Biology classes made regular visits, while programs and workshops—including two special fall programs--were conducted for schools and the general public. In addition, we began a partnership with Mount Greylock High School: conducting a week-long field investigation for the entire seventh grade in April; and leading an on-site workshop for 11<sup>th</sup> graders in May. Student caretakers were again instrumental in helping us host a variety of public events, highlighted by the Fall Festival, Maplefest and Alumni Day.

## **RESEARCH and MONITORING: Summer 2009 and Ongoing**

Several scientific studies were underway during the past year (Table I).

### New Research – Garlic Mustard, Tufts University

Tegan Morton, a Masters student at Tufts University, launched a study to test the effect of a geographic mosaic (with regards to soil quality) on defense allocation in garlic mustard (*Alliaria petiolata*). She sampled populations in high nutrient sites in Hopkins in order to compare them with other high and low

nutrient sites throughout the state to detect the following differences: (1) in nutrient-poor sites, plants will have evolved to allocate greater resources to glucosinolates and other defenses because the cost of damage is higher in these populations; (2) conversely, in nutrient-rich sites, plants will have evolved to allocate less to defense and more to growth and reproduction. At each field site, Morton collected soil samples and measured light intensity to characterize the sites. She also collected leaf and other tissue samples from individuals at each site: one near the sugarbush and another near the Beinecke Stand. These samples will be analyzed for glucosinolates and other chemical defenses as well as for genetic relatedness of populations.

TABLE I. HMF Student Researchers—Summer 2009.

| Student                 | Supervisor | Project                          | Source  |
|-------------------------|------------|----------------------------------|---------|
| Ashley Turner '12       | Art/Jones  | Vernal Pool Amphibian Monitoring | Biology |
| Jared Nourse '11        | Art/Jones  | Vernal Pool Amphibian Monitoring | CES     |
| Jeffrey Stenzel '10     | Art        | Vegetation/Land Use              | Biology |
| Anne Elise Snyder '11   | Art        | Vegetation/Land Use              | Biology |
| Natalia Loewen '12      | Art        | Vegetation/Land Use              | Biology |
| Alex Taylor '10         | Edwards    | Garlic Mustard                   | Biology |
| Jillian Hancock '11     | Edwards    | Garlic Mustard                   | Biology |
| Sabrina Reid '11        | Morales    | Mutualism                        | Biology |
| Sarah Sedney '10        | Morales    | Mutualism                        | Biology |
| William Harron '10      | Morales    | Mutualism                        | Biology |
| Whitney Hitchcock '10   | Racela     | Hydro/Meteorology; Lab assistant | CES     |
| Cecilia Davis-Hayes '11 | Racela     | Hydro/Meteorology; Lab assistant | CES     |

#### New Research -- Small Mammals

Chris Himes, a postdoctoral visitor in the Biology Department, conducted small mammal trapping at two locations in Hopkins Forest from November 15-24, 2008. Himes--working with student assistants Jessica Walthew '09 and Emily Behrman '09—used arrays of 36 traps to sample meadow and adjoining wooded habitats at the weather station field and the south field. In their 360 trap-nights, Himes and his team captured 45 small mammals (Table II). This represented the first systematic sampling of small mammal fauna in Hopkins Forest in more than fifteen years.

Table II. Small mammals captured at Hopkins Forest by Chris Himes, November, 2008.

| Species                        | Common Name        | Capture |
|--------------------------------|--------------------|---------|
| <i>Blarina brevicauda</i>      | Short-tailed shrew | 20      |
| <i>Peromyscus leucopus</i>     | White-footed mouse | 9       |
| <i>Peromyscus sp.</i>          |                    | 6       |
| <i>Microtus pinetorum</i>      | Pine vole          | 5       |
| <i>Peromyscus maniculatus</i>  | Deer mouse         | 3       |
| <i>Microtus pennsylvanicus</i> | Meadow vole        | 1       |
| <i>Sorex cinereus</i>          | Masked shrew       | 1       |
| Total                          |                    | 45      |

### Stream Metabolism

During fall 2008 Elena Traister, Assistant Professor of Environmental Studies at MCLA, completed the fieldwork for her dissertation study on stream disturbance ecology using four brooks in and around Hopkins Forest. Her research examines the individual and combined effects of substrate size and substrate stability on carbon cycling and macro-invertebrate communities in the four streams including Ford Glen Brook. Professor Traister spent much of the summer of 2009 processing stream debris and macro-invertebrate samples in the Rosenberg Center lab. The forty-four families that she identified from her samples are listed in Table III.

Table III. Macroinvertebrate taxa found in Ford Glen Brook by Elena Traister (2009).

| Common Name | Order/Taxon   | Family  |
|-------------|---------------|---|
| Beetle      | Coleoptera    | Curculionidae (adult)<br>Dryopidae (adult)<br>Elmidae (adult)<br>Haliplidae (larvae)<br>Hydrophilidae (larvae)<br>Psephenidae   |
| True Fly    | Diptera       | Athericidae<br>Ceratopogonidae<br>Chironomidae<br>Dixidae<br>Dolichopodidae<br>Empididae<br>Psychodidae<br>Sciomyzidae<br>Simuliidae<br>Stratiomyidae<br>Tabanidae<br>Tipulidae |
| Mayfly      | Ephemeroptera | Baetidae<br>Ephemerellidae<br>Heptageniidae<br>Leptophlebiidae<br>Siphonuridae  |
| Isopod      | Isopoda       | Asellidae   |
| Moth        | Lepidoptera   | Pyralidae   |
| Dobsonfly   | Megaloptera   | Sialidae  |
| Nematode    | Nematomorpha  |   |
| Dragonfly   | Odonata       | Gomphidae   |
| Worm        | Oligochaeta   |   |
| Stonefly    | Plecoptera    | Chloroperlidae<br>Leuctridae<br>Nemouridae<br>Peltoperlidae<br>Perlidae<br>Perlodidae   |
| Caddisfly   | Trichoptera   | Glossosomatidae<br>Hydropsychidae<br>Lepidostomatidae<br>Limnephilidae<br>Odontoceridae<br>Philopotamidae<br>Polycentropodidae<br>Rhyacophilidae<br>Uenoidae                    |

Vernal Pool Amphibian Communities

Spring 2009 saw the continuation of a study begun in 2006 on amphibian use of two vernal pools on the former Buxton Lane property. This study aims to ascertain more about movement of *Ambystoma* salamanders and breeding phenology of a variety of amphibian species. To this end, both pools were again encircled by a drift-fence pitfall trap array; the traps were monitored twice daily during the spring and once daily by summer and fall crews. Jared Nourse '11 and Ashley Turner '12 carried out the summer monitoring activities. Their focus was to document the phenology and growth of metamorphs throughout the summer. Not surprisingly, the metamorph emigration from the pools was delayed this past summer; peak movements of young wood frogs and spotted salamanders appeared to be about one month behind that of summer 2008. Certainly the cool wet weather of 2009 had a role in this delay. Table IV lists the twelve species of amphibians encountered. Andrea Danyluk, Professor of Computer Science, continued to use computational techniques to develop a spot recognition method, and by summer 2009 she had some preliminary results ready to present.

**Figure 1.** Spotted salamander on drift fence.



The vernal pool study received a significant contribution from other institutions and community organizations, including Berkshire Community College (BCC) and Massachusetts College of Liberal Arts (MCLA). These entities provided students and volunteers to help with the collection and processing of data, especially during the busy spring migration period. Brett Dazell of MCLA worked on this study as part of an academic internship during the spring semester.

TABLE IV. Amphibians captured in pitfall traps during 2009.

| Common Name               | Scientific Name                  | Relative Abundance |
|---------------------------|----------------------------------|--------------------|
| Spotted Salamander        | <i>Ambystoma maculatum</i>       | Abundant           |
| Eastern Newt              | <i>Notophthalmus viridescens</i> | Abundant           |
| Red-backed Salamander     | <i>Plethodon cinereus</i>        | Common             |
| Northern Dusky Salamander | <i>Desmognathus fuscus</i>       | Occasional         |
| Two-lined Salamander      | <i>Eurycea bislineata</i>        | Occasional         |
| Jefferson Salamander      | <i>Ambystoma jeffersonianum</i>  | Rare               |
| Wood Frog                 | <i>Lithobates sylvaticus</i>     | Abundant           |
| Spring Peeper             | <i>Hyla crucifer</i>             | Common             |
| Green Frog                | <i>Lithobates clamitans</i>      | Common             |
| American Toad             | <i>Anaxyrus americanus</i>       | Common             |
| Pickerel Frog             | <i>Lithobates palustris</i>      | Occasional         |
| Bull Frog                 | <i>Lithobates catesbeianus</i>   | Occasional         |

Vegetation Monitoring

Professor Hank Art, along with his team of students, Jeff Stenzel '10, Anne Elise Snyder '11 and Natalia Loewen '12, carried out pre-survey work on the 440 permanent plots in the Forest. They spent the

summer locating plot corners, taking GPS positions of the plots and also doing GPS documentation of the significant features (boundary markers, survey stones, stone walls, foundations, etc.) on the landscape, thus laying the groundwork for a complete vegetative sampling of the plots that will begin during the summer of 2010 and continue over the following two summers.

#### Ant/Leaf Hopper Mutualism

During the summer of 2007, Professor Manuel Morales continued his research on the role of inter-specific communications in the mutualism between ants (*Myrmica*) and leaf hoppers (*Publilia*) on goldenrod plants. Morales and his crew of Sabrina Reid '11, Sarah Sedney '10 and William Harron '11 used the goldenrod fields along Northwest Hill Road for these investigations. The Northwest Hill Road fields are part of a study of effects of altitude on inter-specific population dynamics, and specifically, the survivorship of tree hoppers; the Hopkins Forest fields are a middle elevation representative. Morales also is investigating the effects of leaf-hoppers on goldenrod vigor (nitrogen content) and how these effects carry over into subsequent years.

#### Garlic Mustard--Population Dynamics in Forested Ecosystems

Professor Joan Edwards' study of the population dynamics of the invasive garlic mustard plant (*Alliaria petiolata*) continued in 2009. Alex Taylor '10 and Jillian Hancock '11 provided the field assistance with this study, collecting data on established plots in three different areas of Hopkins Forest: the Beinecke Stand, the former mansion site, and the red oak stand.

#### Northern Saw-whet Owl Migration Banding

With the assistance of Dr. Ken Schmidt of Texas Tech University, the Northern saw-whet owl (*Aegolius acadicus*) banding station was open once again in autumn 2008. We used a single-tier array of four 12-meter nets (with an audio-lure) along a trail south of the Rosenberg Center to catch the migrating owls. The station was open on dry, calm nights from dark until around midnight between October 2<sup>nd</sup> and November 19<sup>th</sup> (for a total of 41 nights of operation). During this period we captured and banded 224 saw-whet owls (Figure 1). This was the highest total and capture rate in the eight year history of this station, exceeding the high set the previous year by 39 percent. The HMF station served as the basis for field trips for two Williams Biology classes as well as two Environmental Science classes and a Zoology class from MCLA. It also drew visits from students and faculty from Union College and Berkshire Community College. In total, the station attracted than 309 registered visitors during the season.

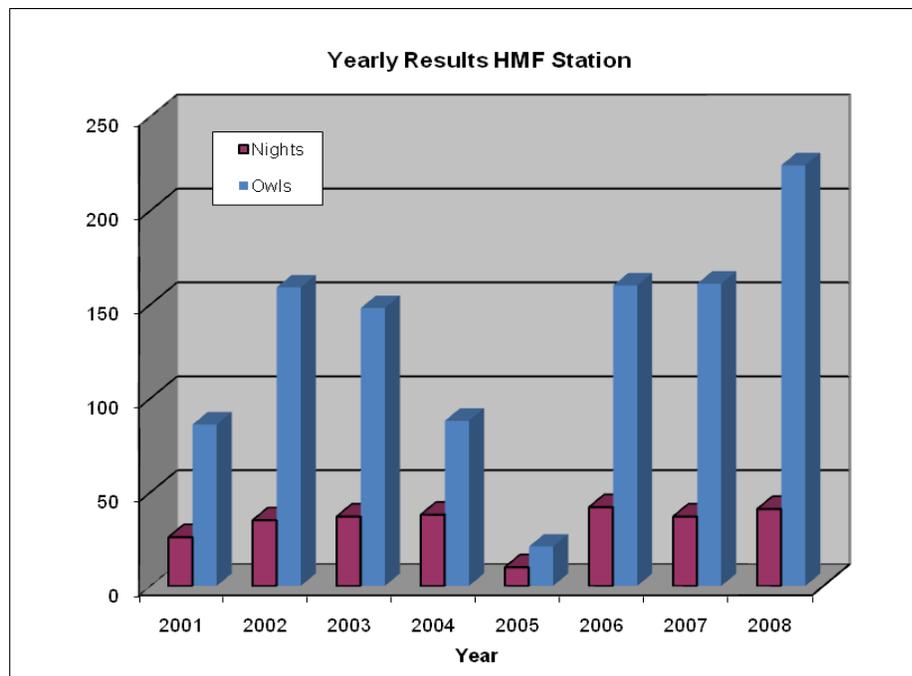


Figure 1. Northern saw-whet owl captures at HMF station 2001-08.

### Habitat Use by Wood Turtles

During this past year we continued to study the movements and habitat use of wood turtles (*Glyptemys insculpta*), a Massachusetts 'Species of Special Concern', in the Hoosic River Valley. One female turtle was monitored using a radio transmitter during the spring and summer months.

### **Watershed/Meteorological Monitoring (Environmental Analysis Lab)**

The Center for Environmental Studies' Environmental Analysis Lab--under the guidance of David Dethier and Technical Assistant Jay Racela--continued the process of gathering and analyzing meteorological, hydrological and biogeochemical data in the Forest. Four weather stations and two stream gaging stations, using digital data loggers, ran continuously throughout the year. Data from the main weather station are streamed to the campus information network and displayed ([www.williams.edu/Geoscience/weather/](http://www.williams.edu/Geoscience/weather/)). Real-time data downloads are now possible via the weather website, thanks to a 2009 Williams Informational Technology Department (WIT) site redesign that added data functions to more closely mimic National Weather Service and other weather sites. WIT also added "live" data feeds from the 50-meter meteorological monitoring (MET) tower on the Taconic Ridge and the Morley Science Labs (MSL) PV array to the new site. The Lab hired former 2009 WIT student Jeff Perlis '10 for the fall semester to continue needed website upgrades.

Due to recurring technical problems, the Lab upgraded the cell-phone data transmission equipment at the MET tower during the spring. This allowed continuous "live" wind speed/direction data transmission from the Taconic Ridge to campus websites, including the Sustainability site ([www.williams.edu/resources/sustainability/index.php](http://www.williams.edu/resources/sustainability/index.php)) authored by Environmental Analyst Amy Johns, who works with the Luce Foundation and the Zilkha Center for Environmental Initiatives.

Whitney Hitchcock '10 and Ceci Davis-Hayes '11 worked as research assistants with Jay Racela during the past summer. During their tenure in the lab, Whitney and Ceci designed and created a new HMF educational-based Deer Tick brochure available for HMF users at the kiosks. In addition they produced a new educational and interpretive MET tower sign that was installed just off the Shepherds Well Trail to the north of the MET tower.

In late July and early August of 2009, the weirs along the South Branch and Main Stem of Birch Brook were dredged and the sediment load weighed by HMF and lab personnel and volunteers. The sediment load removed from the South Branch weir was the fourth highest since 1986 and consistent with the wet weather of the past year.

### Breeding Bird Point Surveys

During June 2009, I sampled singing males at 44 points that were established to monitor breeding bird populations throughout the Forest in 2001. There was an increase over the previous year in the number of individual birds 526 and number of species (52) counted. Again the ovenbird and the red-eyed vireo were the most abundant species; they were followed by the American redstart, veery and hermit thrush (Table V). These points will continue to be surveyed on an annual basis.

TABLE V. The most abundant bird species on HMF point counts, 2009.

| Rank | Species                     | Total |
|------|-----------------------------|-------|
| 1    | Ovenbird                    | 95    |
| 2    | Red-eyed Vireo              | 82    |
| 3    | American Redstart           | 46    |
| 4    | Veery                       | 31    |
| 5    | Hermit Thrush               | 21    |
| 5    | Yellow-bellied Sapsucker    | 21    |
| 7    | Scarlet Tanager             | 16    |
| 8    | Chestnut-sided Warbler      | 15    |
| 9    | Common Yellowthroat         | 13    |
| 9    | Wood Thrush                 | 13    |
| 11   | Black-throated Blue Warbler | 12    |
| 12   | American Crow               | 10    |
| 12   | American Robin              | 10    |

## Rare Species

The population of crooked-stem asters (*Symphiotrichum prenanthoides*) along the Hoosic River Trail was surveyed for the fourth year. No other rare plant monitoring was conducted during this period. Other rare species that have been monitored in the past include:

- Wild Ginseng (*Panax quincifolia*)
- Glade fern (*Diplazium pycnocarpon*)
- Appalachian Brook Crayfish (*Cambarus bartonii*) – since de-listed
- Spring Salamander (*Gyrinophilus porphyriticus*) – since de-listed
- Wood turtle (*Glyptemys insculpta*)

## EDUCATION and OUTREACH

### Classes

During the fall semester, BIOL/ENVI 203—*Ecology* (Edwards) held several lab sessions at the Forest. The ENVI 102--*Introduction to Environmental Science* class (Thoman and Cook) used the Forest for some of its laboratory exercises; in addition, several student groups used aspects of the maple sugaring and vernal pool projects for their independent studies. BIOL 102--*The Organism* also visited the Forest for a laboratory exercise in April. The Forest also hosted field trips and lab sessions by Biology and Environmental Science classes from Massachusetts College of Liberal Arts and Berkshire Community College. These colleges took part in field activities ranging from saw-whet owl banding, to wood turtle tracking to amphibian/vernal pool monitoring (Appendix I).

### Public Outreach

#### Community Events

Once again HMF hosted several events for the public and college communities. The following events were held the past year:

- **Fall Festival**—The Fall Festival was held on Sunday, September 28<sup>th</sup> and, on a pleasant afternoon, drew a solid crowd of about 300. Traditional forest and harvest activities—beam hewing, shake-splitting, cross-cut sawing, apple butter and cider production, canopy walkway visits and live fiddle music--were featured.
- **An Evening with Scott Weidensaul** – Author and Naturalist, Scott Weidensaul, visited the Forest on October 8, 2008 and met visitors at the saw-whet owl banding station. Approximately 20 people attended the evening session. We also hosted a talk on campus earlier that afternoon, which drew approximately 40.
- **Fall Family Days**--This was the ninth year that events were planned for the fall family weekend with a student-led trail hike held on Friday October 24th.
- **New England Forest Diversity with Charles Fergus** – On November 8, 2008, Author and Naturalist Charles Fergus gave a presentation based on his book, “The Trees of New England”. This slide program was followed by a guided hike on the Lower Loop trail. Approximately 30 people took part.
- **Animal Tracking**—Two programs were conducted in 2009: the first, led by Drew, was on Sunday January 18<sup>th</sup>, 2009; Vincent Walsh led a second workshop on February 14<sup>th</sup>. Each program drew 15-20 participants, primarily Williams students.
- **Maple Festival**— “Maplefest” was celebrated on Saturday, March 14<sup>th</sup> and drew a good crowd of 200 on a seasonable late winter afternoon. People came to see sugaring exhibits and demonstrations and to taste HMF produced syrup served over pancakes and ‘on snow’.
- **Wildflower Walk** – Hank Art led this annual event on Saturday, May 3<sup>rd</sup>; approximately 12 people attended.

• **Alumni Day**—HMF again offered a variety of activities, including a bird walk, hikes, trips up the canopy walkway, and children’s activities during this year’s Alumni Weekend (June 13<sup>th</sup>). As usual, a good crowd of approximately 150 took advantage of a pleasant spring day to partake of the activities; the Taconic Crest Trail hike, however, was cancelled due to a lack of interest.

### Schools

School groups from Williamstown and North Adams made several visits to the Forest for hands-on educational programs. During April 2009, the entire seventh grade at Mount Greylock High School



visited Hopkins Forest for a program on aquatic diversity (Figure II). We worked with Williams students and volunteers to host four consecutive half-day, hands-on sessions. Our collaboration with Mount Greylock continued on May 18<sup>th</sup> when I visited the school to lead a workshop as part of the “Where I Am” program for 11<sup>th</sup> graders. We will likely continue the seventh grade program in 2010. Other scholastic groups that took part in programs included C.T. Plunkett Elementary School, Adams, MA and the Urban Scholars, Bronx, New York. We also hosted a local chapter of the Girl Scouts in May.

**Figure II.** Seventh graders doing stream study.

### **RECREATION**

This year numerous hikers, horse-back riders, skiers, and nature observers took to the trails of the Forest in their recreational pursuits. Fortunately, the year was a quiet one insofar as trespassing and public use problems were concerned. We have been cooperating with enforcement officials from the New York Department of Forestry in an effort to reduce the incidences of trespass by all-terrain vehicles on the Taconic Crest Trail.

### **Maps**

Based on revisions by Cartographer Pat Dunlavey, we had 10,000 new Hopkins Forest map/brochures produced in the fall of 2008.

### **Williams Outing Club**

The Outing Club cabin accommodated hostellers regularly during 2008-09. The cabin was also used during *Maplefest* in March. The Outing Club lean-to was used on several occasions by the Williams Community. The low-ropes course continued to be very popular, getting used by community and college members on approximately ten occasions.

### **Hunting**

In fall 2008, HMF again hosted its annual special permit deer hunt during the Massachusetts shotgun season. As usual, no hunting was permitted in Vermont, New York or east of Northwest Hill Road, nor was archery hunting allowed. Sixty-six hunters, overwhelmingly from Massachusetts, harvested four deer during the twelve day season according to our unofficial sign-in (Table VI). The participation and success rates were among the lowest in many seasons of hunting in HMF. Williams College security officers, along with Williamstown police officers, were hired to provide security during the hunt and the season went smoothly.

TABLE VI. Hunting effort and deer harvested at HMF since 1999.

| Year                   | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Mean        |
|------------------------|------|------|------|------|------|------|------|------|------|------|-------------|
| Permits Issued         | 110  | 86   | 90   | 86   | 86   | 100  | 93   | 89   | 83   | 66   | <b>88.9</b> |
| Total Deer Harvested   | 13   | 9    | 9    | 20   | 10   | 8    | 10   | 14   | 3    | 4    | <b>10.0</b> |
| Success Rate (percent) | 11.8 | 10.5 | 10.0 | 23.3 | 11.6 | 8.0  | 10.8 | 15.7 | 3.6  | 6.1  | <b>11.1</b> |

## MAPLE SUGARING

The spring of 2009 was a solid one in the sugarbush with sap and finished syrup production near our ten year averages (Table VII). This season did produce a higher proportion (approximately 50 percent) of darker, "Grade B" syrup. Given the near normal sugar content of this year's sap, (2.35 percent), and a near normal boiling rate, I'm not certain why the finished syrup tended to be darker. During the sugaring season, we again hosted the 'Maplefest' celebration, which attracted a good crowd.

TABLE VII. Summary of 2009 maple sugaring season (most figures are approximate).

| Activity                 | 2009 Season |
|--------------------------|-------------|
| Trees tapped (taps used) | 125         |
| Tapping Period (days)    | 40          |
| Tap Nights               | 4950        |
| Gallons of Sap           | 1935        |
| Concentration (percent)  | 2.35        |
| Days (sessions) Boiled   | 11          |
| Hours (boiling)          | 84.0        |
| Gallons Syrup            |             |
| Raw Syrup Drawn Off      | 41          |
| Bottled                  | 40          |

## FACILITIES/MANAGEMENT

### Wire Bridge Farm

We were not able to complete the purchase of the additional 37 acres of the Wire Bridge Farm parcel before the expiration of our contractual option in July, 2009; however discussions with the owner have been positive and a future purchase may still be possible. Meanwhile, Joel Burrington of Pownal, VT continued to cultivate corn and hay on the farm. He did some minor work on the road in the spring to improve access to the site.

### Timber Management--Vermont Parcel

No management activities were conducted on the Vermont parcel that we enrolled in the Vermont Use Value Appraisal Program in 2004. I did, however, tour the property with the Vermont service forester and, at his suggestion, applied for some management assistance from the Natural Resources Conservation Service's Environmental Quality Initiative Program. Although we were not funded in 2009, we aim to re-apply for assistance again in 2010. In addition, we have been in contact with the Massachusetts Woodlands Cooperative about having the land "green certified".

### Weather Station Field

During 2008-09 the three-acre weather station field was mowed once and monitored. In autumn 2008, the Hopkins Forest Users Committee met to discuss a plan for the use of the field, which had been divided into a grid of 20x20 meter plots; though no plan was finalized, the committee agreed to revisit the issue in the future.

### Rosenburg Center/Moon Barn

The Rosenburg Center was again used for classes, lab set-ups, public events, workshops, and as an exhibit space for visitors. The information technology network, including the three year-old 'WiFi' installation, generally functioned well, with the support of the Williams Information Technology Department. Once again, the Moon Barn was used for public exhibit space during special events such as the Fall Festival. Due to a shortage of storage space, we have had to use this historic building primarily for storage the past few years.

### Canopy Walkway

This past year the canopy walkway was open for public visitation several times. Several community groups--including "Rosie's Girls" of Bennington, VT and the "Urban Scholars" of New York, NY, in addition to Williams programs--used the facility, which passed its annual safety inspection in the spring.

### Vehicle/Machines

The three-year-old Toyota Tacoma 4x4 pick-up truck ran well and required no major expenditures. The John Deere 'Gator' trail vehicle continued to perform well and has required only routine maintenance since its acquisition in 2002.

### Roads/Trails

This past year we continued to monitor soil and botanical resources along the Hoosic River Trail as part of a conditional agreement that permits horseback riding on that trail. Nine transects along the trail were surveyed--using quantitative measurements and photography—for the fifth year to detect possible soil erosion. In addition, we sampled six, one square meter plots along the trail to monitor a population of crooked-stemmed aster (*Symphiotrichum prenanthoides*). These plots will be surveyed again next year to detect possible impacts from increased traffic on the trail. The Forest crew conducted routine maintenance on the trails, including the replacement of the bog bridges along the Taconic Crest Trail. Once again, the entry road to the Rosenburg Center was resurfaced in the spring of 2009 with funding from the Facilities Department.

### Bridges

Two bridge projects were completed in 2008-09. The Middle Branch of Birch Brook lower bridge was replaced in the fall of 2008 (Figure III). Due to the size of the stringers, this project had to be outsourced to a local contractor, who was able to set the logs using large machinery; the Williams College Facilities Department completed the decking and hand-rails for this bridge. The upper North Branch bridge was replaced in the summer 2009 by the Hopkins Forest crew, which worked closely with the regional trail crew. Both bridges were constructed to 8-foot widths to allow the passage of trail grooming machinery in the winter.



**Figure III.** Newly constructed bridge over the Middle Branch.

## Caretaking

As in the past, HMF relied on student caretakers for a major part of its maintenance, upkeep and outreach activities (Table VIII). The fall and spring semesters had a regular crew of eight to ten students, each working about three to six hours per week under the leadership of head caretaker Dan Perez '10.

The fall crew kept busy preparing for and hosting the Fall Festival, keeping up with trail maintenance, bridge construction and decommissioning the pitfall/drift-fence array for the amphibian study. In the spring, a major effort was the redeployment of this trap array as well as the maple sugaring campaign. The spring crew was also instrumental in hosting *Maplefest*. An ad-hoc crew was assembled to assist with sugaring and deployment of the amphibian trap lines during spring break.

TABLE VIII. Student caretakers -- academic year 2008-09.

|                        |                     |
|------------------------|---------------------|
| Camille Bevans '09     | Shawn Curley '11    |
| Emily Olson '09        | Abby Martin '11     |
| Jack Kling '09         | Henry Hall '11      |
| Daniel Perez '10       | Hilary Dolstad '11  |
| Elly Teitsworth '10    | Jack Rudolph '11    |
| Trevor Lynch '10       | Gabrielle Joffe '11 |
| Shawna McCardle '10    | Daniel Walsh '11    |
| Stefan Ward-Wheten '11 | Alec Blanz '12      |

A caretaking crew consisting of Stefan Ward-Wheten '11 and James McCarthy '11, was employed throughout the summer months. The crew worked on many of the regular summer tasks—mowing, gardening, equipment maintenance, program facilitation, trail and water-bar maintenance, and repainting the permanent plot cruise lines. In addition, we had significant assistance from the regional trail crew, consisting of Dan Perez '09 and Brian Cole '11, who were hired by the Williams Outing Club and Williamstown Rural Lands Foundation.

## MEETINGS/COORDINATION

### Affiliations

National Ecological Observatory Network (NEON): In 2008-09 we continued to hold a seat on the NEON governing board and we are awaiting a decision on Hopkins Forest's candidacy to be a "gradient" site for the Northeast Region (with headquarters at Harvard Forest).

Taconic Crest Trail Consortium: This consortium--which promotes sustainable recreation and coordinates stewardship activities on the 35 mile trail—met in December 2008 to discuss protection and security issues.

Hoosic River Watershed Association (HooRWA): HooRWA, and its Monitoring Director, Kelly Nolan, used the Rosenburg Center wet lab sparingly in 2008-09. They continue to house their equipment in the facility.

Bird Clubs: HMF continued to collaborate with North Berkshire Audubon on bird counts and bird walks. In addition, the Forest continued to be a destination for regional bird-watchers during the fall owl banding season.

### Conferences/Meetings/Panels

I attended the following meetings/conferences during the past fiscal year:

- Organization of Biological Field Stations (OBFS) Annual Meeting, September 18-21, 2008, Black Rock Forest, Cornwall, NY.
- North Berkshire Community Expo, December 6, 2008, North Adams, Mass. Participated on panel discussion of the North Berkshire Landscape.
- Massachusetts Keystone Workshop, April 23-26, 2009 Harvard Forest, Petersham, MA.
- Natural Resources Information Council Annual Meeting, June 19-20, 2009, Library of Congress, Washington, D.C. Gave presentation -- "Monitoring the Migrants."

### ADMINISTRATIVE

#### HMF Users Committee

The Hopkins Forest Users Committee--charged with oversight and planning responsibilities for the Forest--is composed of College faculty and staff who have vested research or teaching interests in the Forest (Table IX). Under the direction of David Dethier, the committee met and corresponded occasionally to decide matters of forest management and policy.

TABLE IX. HMF Users Committee--2008-09.

| Faculty              | Department  | Ex-officio  | Affiliation             |
|----------------------|-------------|-------------|-------------------------|
| David Dethier, Chair | Geosciences | Doug Gollin | CES Director            |
| Hank Art             | Biology     | Scott Lewis | WOC Director            |
| Joan Edwards         | Biology     | Jay Racela  | CES, Envi. Analysis Lab |
| David Smith          | Biology     | Drew Jones  | HMF Manager             |
| Manuel Morales       | Biology     |             |                         |

### FUTURE -- What is in store for 2009-10?

In 2010 the fourth major iteration of permanent vegetation plot sampling will begin. Several student crews will be hired for the summer to sample the plots, which were previously surveyed in the 1930s, 1970s, and 1990s. We expect that the process of surveying all 400 plus plots will take three summers and conclude in 2012. We will also be working on base-line planning and funding details for this three year survey. Most other research and educational activities will continue, although the future of the vernal pool study has yet to be decided; it is possible that this labor intensive investigation may be curtailed somewhat to free up resources for the vegetation work. We will continue to implement management activities on the Vermont timber parcel, Wire Bridge Farm and early successional areas as resources, time and logistics allow.

**Appendix I – Non-Williams Organizational Users of HMF 2008-09.**

| <b>Organization</b>                   | <b>Location</b> | <b>Department/Program</b>                     | <b>Type of Use</b>  |
|---------------------------------------|-----------------|---|---|
| Berkshire Community College           | Pittsfield      | Environmental Science                         | Vernal pools, owl banding                                     |
| Massachusetts College of Liberal Arts | North Adams     | Environmental Science                         | Class field trips: vernal pools, owl banding, turtle tracking |
| Massachusetts College of Liberal Arts | North Adams     | Biology                                       | Class Field Trip  |
| University of New Hampshire           | Durham, NH      | Biology                                       | Stream Metabolism   |
| Tufts University                      | Boston, MA      | Biology                                       | Plant Research  |
| Union College                         | Schenectady, NY | General                                       | Owl Banding   |
| Texas Tech University                 | Lubbock, TX     | Biology                                       | Owl Banding   |
|                                       |                 |   |   |
| Hoosic River Watershed Association    | Williamstown    | Monitoring                                    | Monitoring lab  |
| Bennington County Schools             | Bennington, VT  | Summer  | Canopy Walkway  |
| Urban Scholars                        | New York, NY    | Sponsored by Williams                         | Canopy Walkway  |
| C. T. Plunkett Elementary             | Adams           | School Classes, Summer Program                | Outreach Programs   |
| Williamstown Preschool                | Williamstown    | General                                       | Outreach Programs   |
| Mount Greylock High School            | Williamstown    | 7 <sup>th</sup> grade, 11 <sup>th</sup> grade | Workshops   |
| Home School Association               | Bennington, VT  | Students/Parents                              | Outreach Programs   |
| Girl Scouts                           | Williamstown    | Scouts and Brownies                           | Outreach Program  |