

HOPKINS MEMORIAL FOREST

The Year in Review

2012-2013



Drew Jones, HMF Manager

Williams College--Center for Environmental Studies

December 2013

SUMMARY: The Year 2012-13

During the period September 2012 through August 2013, Williams College's environmental field station, Hopkins Memorial Forest (HMF), hosted a wide variety of research and educational activities. Henry Art and a crew of three students continued work on long term vegetation growth, including a survey of the plots in the Beinecke Stand. Research continued on Joan Edwards' study of population dynamics of garlic mustard at three sites in the forest. In addition, we started to implement mowing treatments in the newly established study of the impacts of different mowing regimes on the aster and goldenrod diversity. David Dethier and Jay Racela continued their meteorological and geochemical monitoring activities and the northern saw-whet owl banding station was again in full operation during fall 2012.

During 2012-13, Hopkins Forest continued to be a focal point for local and regional educational programming. Williams College Biology and Environmental Science classes made regular use of the forest for field trips and study sites. Classes from other regional colleges, including Massachusetts College of Liberal Arts (MCLA), visited the Forest for their educational activities as well, and we conducted a variety of programs for local schools, home school families, and the general public. Student caretakers were again instrumental in helping us host a variety of public events, highlighted by the Fall Festival and Maplefest.

During the past year we continued to implement forest management practices – supported the Natural Resource Conservation Service – on our Vermont parcel. This timber stand improvement work included thinning to release 100 crop trees, mostly red oak, on the parcel's mid-slopes.

Strong storms again affected Hopkins Forest in 2012-13. Indeed, a May 29th 2013 thunderstorm dumped a record amount (as recorded at HMF weather station) of rain on the forest and caused considerable washouts and erosion to roads and trails. One washout along the Hoosic River trail was so severe that the trail had to be closed all summer for repairs. Thankfully, Tropical Storm Sandy, on October 29th 2012, did not prove to be nearly as destructive in and around Hopkins Forest, as it was farther south and east, along the Atlantic coast.

RESEARCH and MONITORING: Summer 2013 and Ongoing

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

Conservation of Asters, Goldenrods, and their Pollinators

This year, treatments began on this study of different mowing regimens and their effects on fall wildflowers and pollinators. The first set of four randomly selected plots was mowed on July 29th and the second batch was scheduled to be mowed the following October. Prior to the mowing, David Smith did some photographic samples of each 24x24 meter plot. In the coming year, all four treatments-- annual spring and fall mowing and a biennial early and late mowing – will be implemented. Dave Fitzgerald of the Facilities Department has been instrumental in helping us with the mowing treatments.

Long-term Vegetation Studies

During summer 2013, Professor Henry Art and his student assistants, Laura Stamp '16, Jamie Dickhaus '14 and Alice Stears '15, conducted surveys of the Beinecke (old-growth) Stand. These surveys are conducted on a five year interval. In addition, the crew did some follow-up work from the previous two summers of surveys of the Forest Service's original permanent plots.

Vernal Pools

Professor Art's crew, in addition to vegetation research, spent a week working on data from the 2006-10 vernal pool amphibian study, thus concluding the data-entry phase of this study.

Table I. HMF Williams College Student Researchers—Summer 2013.

Student	Supervisor	Project
Jamie Dickhaus '14	Art	Permanent Plot Survey
Laura Stamp '16	Art	Permanent Plot Survey
Alice Stears '15	Art	Permanent Plot Survey
Molly McEntee '14	Edwards	Garlic Mustard
Elissa Hult '15	Edwards	Garlic Mustard
Matthew Nemeth '15	Racela	Hydro/Meteorology; Lab assistant
Molly Pickle '15	Racela	Hydro/Meteorology; Lab assistant

Ant/Leaf Hopper Mutualism

There was no field work conducted in Hopkins Forest during the summer 2013 as Professor Manuel Morales chose to focus on other research sites in greater Williamstown in order to assess elevation effects on leaf hopper (*Publilia spp.*) /ant (*Myrmica spp.*) symbiosis in goldenrod fields.

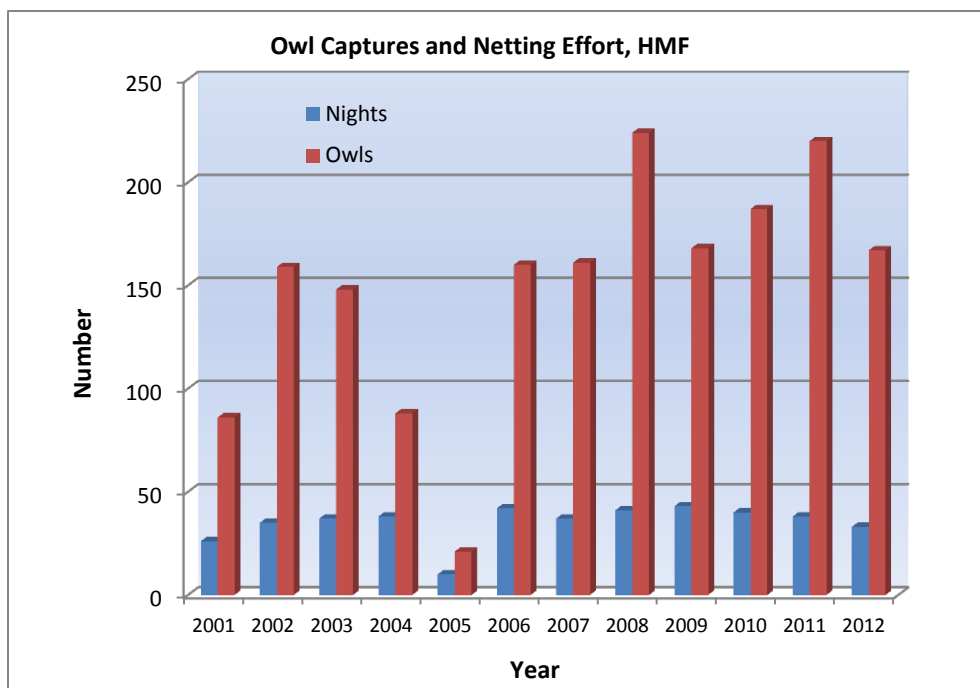
Garlic Mustard--Population Dynamics in Forested Ecosystems

Professor Joan Edwards' study of population dynamics of garlic mustard (*Alliaria petiolata*) continued in 2013. Elissa Hult '15 and Molly McEntee '14 provided the field assistance with this study, collecting growth and recruitment data on established plots in three separate areas in Hopkins Forest: the Beinecke Stand, the former mansion site, and the red oak stand.

Northern Saw-whet Owl (NSWO) Migration Banding

With the assistance of Dr. Ken Schmidt of Texas Tech University, the Northern saw-whet owl (*Aegolius acadicus*) banding station was active once again in autumn 2012. We used our customary single-tier array of four 12-meter nets (with an audio-lure) along a trail south of the Rosenburg Center to catch migrating owls. The station was open on dry, calm nights from dark until around midnight between October 1st and November 16th (for a total of 33 nights of operation). During this period we captured 167 individual saw-whet owls (Figure 1) including three recaptures of birds banded at other stations. The HMF station served as the basis for field trips by Williams Biology classes as well as Environmental Science and Biology classes from MCLA, Berkshire Community College, Hampshire College and Union College. In total, the station attracted 275 registered visitors during the season.

Figure I. Owl captures and netting effort, HMF, 2001-12.



In December 2012, Beth Watson of Texas Tech University completed her Masters thesis -- *Migratory Patterns of Northern Saw-Whet Owls (Aegolius acadicus) at Hopkins Memorial Forest* – which synthesizes 10 years of data from the HMF banding station.

Breeding Bird Point Surveys

In June 2013, I sampled singing males at the 44 breeding bird monitoring points around the Forest. The year’s total individuals (463) and species (51) represent numbers that are fairly typical for this site and represent slight increases over the previous year. Once again, the ovenbird and red-eyed vireo topped the list of most abundant species; they were followed by the American redstart, veery and scarlet tanager (Table II). These points will continue to be surveyed on an annual basis.

Table II. Most abundant bird species from point counts, June 2013.

Rank	Species	Number	Percent of total
1	Ovenbird	87	19.1
2	Red-eyed vireo	85	18.6
3	American redstart	33	7.2
4	Veery	24	5.3
5	Scarlet Tanager	16	3.5
6	Chestnut-sided warbler	12	2.6
7	Common yellowthroat	11	2.4
7	Black-throated blue warbler	11	2.4
7	American crow	11	2.4
7	Least flycatcher	11	2.4
7	Eastern wood-pewee	11	2.4
12	Black and white warbler	10	2.2

Rare Species

No Massachusetts listed rare species were monitored in the Forest this year. In the past a population of crooked-stem asters (*Symphiotrichum prenanthoides*) has been monitored along the Hoosic River Trail.

Watershed/Meteorological Monitoring (Environmental Analysis Lab)

The Center for Environmental Studies’ Environmental Analysis Lab--under the guidance of David Dethier (Geosciences) and Technical Assistant Jay Racela--continued to gather, analyze and archive meteorological, hydrological and biogeochemical data from the Forest (Figures II,III,IV). Four standard 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 (<http://web.williams.edu/weather/>) along with data from the Taconic Ridge 50-m MET tower and the Morley Science Labs photovoltaic array. Bi-weekly and monthly collection and laboratory analysis of rain or stream water also continued (1983-present) as part of ongoing forest geochemical research that focuses on acid deposition and how it and other pollutants are “processed” by the forest ecosystem.

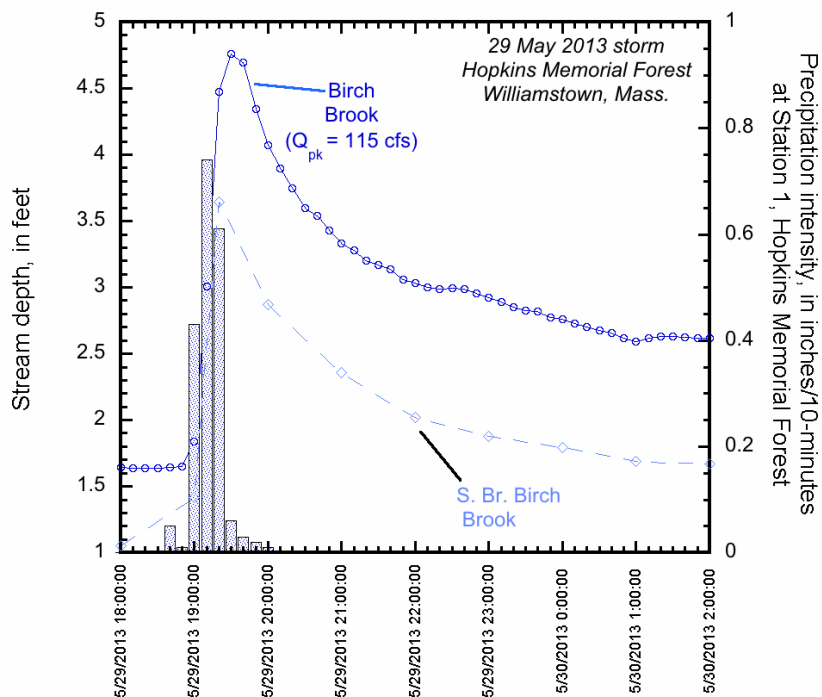


Figure II. May 29, 2013 the main HMF weather station recorded the highest ever 10-minute (0.74”), 20 minute (1.35”) and 30 minute (1.78”) rainfall since records began in 1994.

Molly Pickel '15 and Andrew Nemeth '15 worked as research assistants with Jay Racela during the past summer. In addition to their regular field and lab research duties, Molly and Andrew chemically studied the East Branch of the Green River, and created a poster illustrating their results for the Summer Science Research Fair.

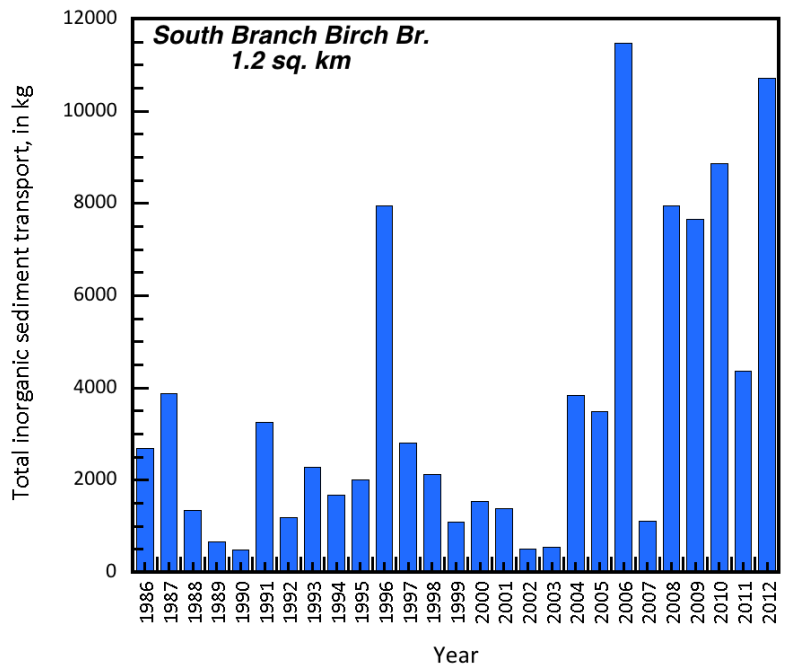
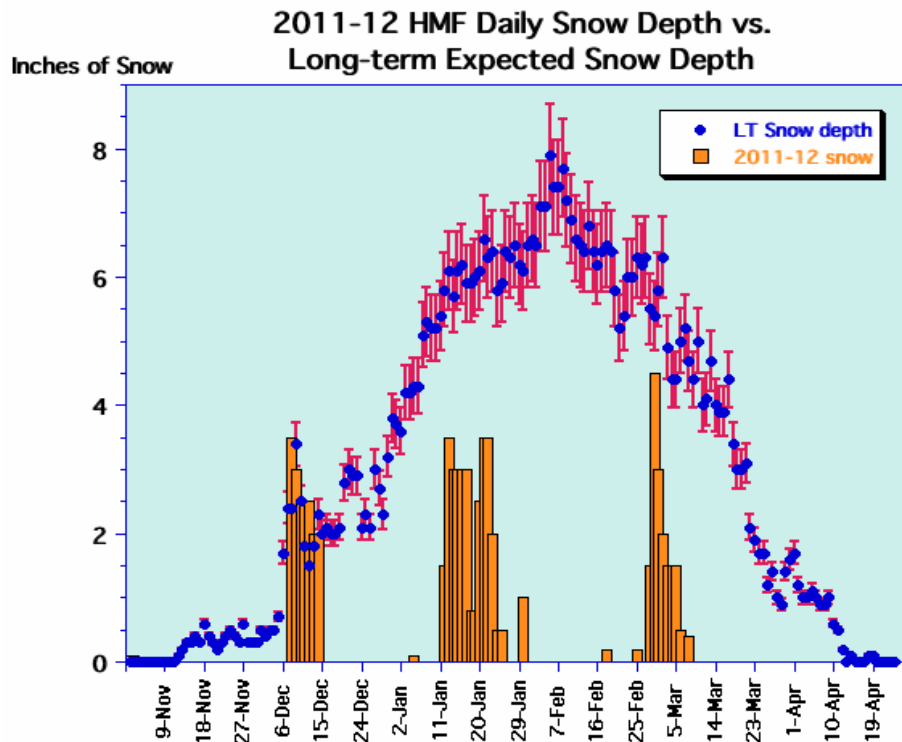


Figure III. Total inorganic sediment transported at the South Branch Birch Brook gaging station annually.

This year sediment in the weirs along the South Branch and Main Stem of Birch Brook was dredged and weighed by HMF and lab personnel and volunteers in mid-July. The sediment weight removed from the South Branch weir was much higher than average, reflecting long periods of high flow from Tropical Storm Irene and other big events. Unfortunately, total snowfall for the previous snow season was less than expected and strayed far from the expected amounts.

Figure IV.



EDUCATION and OUTREACH

Undergraduate Classes

During the fall semester, BIOL/ENVI 203—*Ecology* (Smith) held several lab sessions at the Forest. In contrast, ENVI 102--*Introduction to Environmental Science* (Art, Backus) used the Forest less this past spring as the class focused on the Hoosic River watershed instead. BIOL 102--*The Organism* also visited the Forest for laboratory exercises in the spring. In addition, BIOL 220—*Field Botany and Plant Natural History* made numerous visits to the Forest for field investigations. In addition, HMF also hosted field trips and lab sessions by Biology and Environmental Science classes from Massachusetts College of Liberal Arts, Berkshire Community College and Union College (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 23rd and, on a warm afternoon, drew more than 250 visitors (Figure V). In addition to the traditional forest and harvest activities—shake-splitting, cross-cut sawing, apple butter and cider production, and live fiddle music—the event featured guided tours of the canopy walkway.

- **Animal Tracking**— Dan Yacobellis, a naturalist from Grafton, NY was hired to lead the annual wildlife tracking workshop on February 16th. The event attracted approximately 20 participants, many of whom were Williams students.
- **Maple Festival**— “Maplefest” was celebrated on Saturday, March 9th, drawing a crowd of approximately 240 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’.
- **Amphibian & Reptile Program**– Tom Tynning of Berkshire Community College led a reptile and amphibian foray in Hopkins Forest on Saturday, April 20th. A good crowd of 60 people attended.
- **Wildflower Walk**– Hank Art led this annual event on Saturday, May 5th; this popular event attracted approximately 15 people this year.
- **Alumni Day**— HMF again offered a variety of activities, including a bird walk, hikes, and children’s activities during this year’s Alumni Weekend (June 8th). Nice weather this year resulted in a good turnout for the activities.
- **Urban Scholars**-- In summer 2013, the Urban Scholars, high school students from New York, visited the forest for a program on aquatic life.

Figure V. Shake splitting at the Fall Festival.



Schools

Public education continued to be a prominent part of our programming at Hopkins Forest. Fourth grade classes from C.T. Plunkett Elementary School in Adams visited the Forest for hands-on educational programs during the maple sugaring season. In addition, I made two visits to Mount Greylock to speak to two Environmental Science classes and to assist with a field (and paddle) trip on upper stretches of Lake Pontoosic. Home-school groups took advantage of Hopkins Forest as well, visiting for a program on owls in fall.

RECREATION

This year numerous hikers, joggers, horse-back riders, skiers, and nature observers took to the trails of the Forest in their recreational pursuits. We have been collaborating with the Taconic Crest Trail Consortium, which is dedicated to the stewardship of that 35-mile trail. We are monitoring stretches of the trail where incidents of unauthorized all-terrain vehicle use appear to be on the increase.

Williams Outing Club

The Outing Club cabin accommodated overnights regularly and it was integral to our hosting of the *Maplefest* event in March 2013. The Outing Club lean-to was used sparingly by the Williams Community. The ropes course continues to be little utilized and is in need of some refurbishing before regular programming can resume. The Outing Club Naturalists, under the leadership of Scott Weiman, planned several activities, including bird walks, in the forest during spring 2013.

Hunting

In fall 2012, 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. Seventy-four registered hunters harvested four deer during the twelve day season according to our unofficial sign-in (Table III). In 2012 permits were again distributed at no charge and the season ran smoothly. Williams College security officers were hired to provide surveillance during the busiest days of the hunt.

Table III. Hunting effort and deer harvested at HMF since 1999.

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean
Permits Issued	110	86	90	86	86	100	93	89	83	66	61	82	87	74	86.1
Total Deer Harvested	13	9	9	20	10	8	10	14	3	4	4	4	2	4	8.5
Success Rate (percent)	11.8	10.5	10.0	23.3	11.6	8.0	10.8	15.7	4.8	6.1	6.6	2.4	4.6	5.4	9.9

MAPLE SUGARING

The 2013 sugaring season was stronger than the last few with sap and finished syrup production rising to levels not seen since 2009. Indeed, student workers gathered 1845 gallons of raw sap, which was boiled into 42 gallons of syrup (Table IV). The finished syrup came out very light this year with many of the batches finishing as “Grade A - Light” (the sap averaged 2.5 percent sugar). During the sugaring season, we held our annual ‘Maplefest’ celebration, which attracted a solid crowd of community members and Williams students.

Table IV. Hopkins Forest Maple Syrup Production 2000-2013.

Year	Beginning Tap Date	Taps	Sap gallons	Sap per tap	Boil hours	Syrup drawn off gallons	Bottled syrup gallons	Sap boiled per hr.	Wood burned (cords)
2000	22-Feb	130	1495	11.5	135	26	23	11.1	1.3
2001	23-Feb	125	2170	17.4	100	44.5	40	21.7	2.2
2002	18-Feb	125	2580	20.6	109	48	40	23.7	2.4
2003	4-Mar	135	1625	12.0	68	34	30	23.9	1.7
2004	27-Feb	130	2130	16.4	93	44	39	22.9	2.2
2005	28-Feb	125	1680	13.4	71.5	37	35	23.5	1.9
2006	15-Feb	139	2005	14.4	72	42	39	27.8	2.1
2007	28-Feb	127	1225	9.6	46	28	26	26.6	1.4
2008	25-Feb	125	2760	22.1	116.5	63	58	23.7	3.2
2009	25-Feb	125	1935	15.5	84	41	40	23.0	1.9
2010	25-Feb	125	840	6.7	32	16	15.5	26.3	0.8
2011	23-Feb	128	1685	13.2	69.8	35	33.0	24.2	1.8
2012	13-Feb	130	1615	12.4	64	30	30	25.2	2.0
2013	22-Feb	133	1845	13.9	69.4	42.5	42	26.6	2.1
Mean	23-Feb	129	1828	14.2	80.7	37.9	35.0	23.6	1.9
Median	24-Feb	128	1765	13.7	71.8	39.0	37.0	23.8	2.0

LAND MANAGEMENT

Forest Management--Vermont Parcel

In October 2012, we had ten acres of timber stand improvement work done by a local Vermont forestry technician on the Forest's Pownal, Vermont parcel (Figure VI). The work was designed to release crop trees, primarily red oak, from competition. One hundred trees were released after I had selected and marked them. The funding was provided by the Natural Resources Conservation Service (NRCS) as part of our 2010 contract with that agency. The work was done in accordance with the forest management plan that we have on file with the state of Vermont.



Figure VI. View from the Vermont Parcel.

As of the end of this reporting period, only one contract item, the second early successional habitat cut, remained to be done; it was slated for fall 2013. Table V outlines progress on our NRCS Conservation Plan including the 2013 revision.

Table V. Status of practices to be implemented on the Pownal Tract as part of the revised NRCS Conservation Plan.

Practice	Purpose	Scope	Progress	Year
Forest Roads and Trails	Maintenance and restoration of access road	6000 feet	6000 feet	2010
Pest Management	Removal of invasive plants along road	2 acres	2 acres	2010
Early Successional Habitat	Creating clearings for biodiversity on Taconic Ridge	5 acres	completed	2011
Early Successional Habitat	Creating clearings for biodiversity on Taconic Ridge	5 acres	planned	2013
Wildlife Habitat Management	Mast tree release for oak	10 acres	completed	2012

Wire Bridge Farm

During 2012-13 we made significant progress toward completing the purchase of the Wire Bridge Farm from John Tietgens. Vice President for Operations Fred Puddester approved the purchase in concept and authorized Williams' Real Estate Specialist Steve Nesterak to start to lay the groundwork for the purchase.

Joel Burrington of Pownal, VT continued to cultivate corn and hay on the HMF's Wire Bridge Farm Parcel. In addition, Burrington has been keeping the weedy area near the south end of the parcel mowed.

Roads/Trails

Once again the summer caretaking crew conducted substantial drainage remediation work on the trails. Their focus was the Lower and Upper loops trails where they replaced about a dozen waterbars and performed maintenance on many other drainage structures and culverts. In spring 2013, the entry road to the Rosenberg Center was resurfaced and graded by a contractor hired by the Williams College Facilities Department.

FACILITIES

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 '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 continue to have to use this historic building in part for storage.

The Facilities Department has stopped planning for the installation of a wood gasification boiler and solar (hot water) array, and it is evident that this carbon-reduction retrofit of the Rosenburg is on hold for a while.

Canopy Walkway

This past year the canopy walkway was open for public visitation several times including during the Fall Festival and the 2013 Alumni Weekend. In 2013 we upgraded the safety equipment used to access the walkway; this included purchasing new climbing harnesses, ascenders, webbing slings, helmets and carabiners. The new equipment is generally more user friendly and should make using the canopy walkway a smoother, more expeditious endeavor.

Caretaking

As in the past, HMF relied on student caretakers for a major part of its maintenance, upkeep and outreach activities (Table VI). 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 Ben Keulthau '13. The fall crew kept busy preparing for and hosting the Fall Festival, keeping up with trail maintenance, gardening and boundary posting. In the spring, much time was devoted to the maple sugaring season and hosting *Maplefest*. Spring and fall hourly totals are detailed in Table VII.

Table VI. Student caretakers academic year 2012-13.

Ben Keulthau '13	Kiah Walker '15
Ben Nathan '15	Stephanie Durell '14
Anthony Miceli '14	Sonja Thalheimer '13
Helen Song '14	George Gurney '13
Henry Schmidt '14	Jessica Luning '14
David Rapp '13	

A seasonal caretaking crew comprised of Cody Remillard '16 and Zoe Dillon-Davidson '16 was employed throughout the summer 2013. The crew worked on many of the regular summer tasks—mowing, gardening, grounds-keeping, program facilitation, trail and water-bar maintenance and controlling invasive vegetation. Our crew did collaborate on occasion with the regional trail crew, consisting of Daniel Schwartz '13 and Adam Strawbridge '14, who were employed by the Williams Outing Club and the Williamstown Rural Lands Foundation respectively.

In addition to student workers, we also employed Debra Rogers-Gillig on a part-time basis during the summer to assist with the maintenance of Buxton Garden.

MEETINGS/AFFILIATIONS

Renssalaer Plateau Alliance—Community Forest Conference: Averill Park, New York, November 8, 2012 – Drew attended this conference and gave a presentation entitled, *Wildlife conservation in your community forest: getting the public involved*. The conference was sponsored by the Renssalaer Plateau Alliance and was intended to start the process of establishing a Community Forestry initiative in that part of neighboring New York.

Berkshire Environmental Action Team (BEAT): October 10th, 2012, North Adams. Drew gave a presentation on the Hopkins Forest’s Northern saw-whet owl research program to an informal gathering as part of this group’s monthly “*Green Drinks*” series.

Bascom Maple Farms Spring Open House: Drew attended this day-long event of workshops and demonstrations for maple sugar producers on May 3, 2013 in Alstead, Hew Hampshire.

National Ecological Observatory Network (NEON): In 2012-13 we continued to hold a seat on the NEON governing board but did not attend any meetings during this period.

Organization of Biological Field Stations (OBFS): We continue to hold an institutional membership in OBFS, though we did not attend the 2012 annual meeting.

Taconic Crest Trail Consortium: We continue to be involved with this consortium, which promotes sustainable recreation and coordinates stewardship activities on the 35 mile trail.

ADMINISTRATIVE

HMF Users Committee

The Hopkins Forest Users Committee--charged with oversight and planning responsibilities for the Forest--is comprised of faculty and staff who have vested research or teaching interests in the Forest (Table VII). Under the direction of new Chair Manuel Morales, the Committee met occasionally to discuss management and administrative matters during 2012-13.

Table VII. HMF Users Committee--2012-13.

Faculty	Department	Ex-officio	Affiliation
Manuel Morales, Chair	Biology	Ralph Bradburd	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
David Dethier	Geosciences		

FUTURE – What’s in store for 2013-14?

In the upcoming year we will execute additional mowing treatments in selected plots for the aster and goldenrod diversity study and we will continue work on many of our ongoing research and educational programs. This coming year we aim to collaborate with the Williams College Center for Learning in Action to increase the elementary educational programming offered in the Forest; this will likely entail hiring students to serve as designated part-time educational docents at the Forest.

As our 2010 contract with the Natural Resources Conservation Service has been fulfilled, we intend to apply for support for additional conservation/forestry activities for the Pownal Tract. Specifically, we would like to continue timber stand improvement practices to enhance the quality of our timber resource in that Parcel. Finally, we will continue working with all parties involved to try to make the purchase of the entire Wire Bridge Farm parcel a reality.

Thanks to Jay Racela for his contribution to this report.

APPENDIX I – Outside Organizational Users of HMF 2012-13.

Organization	Location	Department/Program	Type of Use
Berkshire Community College	Pittsfield	Environmental Science	owl banding
Massachusetts College of Liberal Arts	North Adams	Biology, Environmental Science	field trip; owl banding, spring wildflowers
Texas Tech University	Lubbock, TX	Biology	Owl Banding
Union College	Schenectady, NY	Biology/General	Owl Banding
Hampshire College	Amherst, MA	Biology/General	Owl Banding
Williamstown Area			
Hoosic River Watershed Association	Williamstown	Monitoring/Outreach	Monitoring lab/members event
Boy Scouts/Cub Scouts	Williamstown		Owl Banding
C.T. Plunkett Elementary	Adams	Student field trip	Maple Sugaring
Massachusetts Audubon	Berkshire Co.	Berkshire Sanctuaries	Owl Banding
Mount Greylock High School	Williamstown	11 th grade	Workshop; guest lecture
Home School Association	Berkshire Co.	Students/Parents	Owl banding
Williamstown Elem. School	Williamstown	Preschool	Field trip
Braytonville School	North Adams	Fourth Grade	Program at Log
Braytonville Camp	North Adams	Day camp	Field trip