HOPKINS MEMORIAL FOREST

The Year in Review

2016-2017

Center for Environmental Studies

Williams College

December 2017

SUMMARY

September 1, 2016 through August 31, 2017

This year continued to feature a full slate of activities at Hopkins Memorial Forest (HMF), Williams College's environmental field station. In research, Manuel Morales continued his studies of tree-hopper/ant mutualisms using goldenrod fields in the Forest. Morales and four student assistants ran experiments designed to detect possible negative feedback mechanisms derived from the mutualistic driven herbivory on goldenrod plants.

We implemented another round of mowing treatments for Joan Edwards' study of differential mowing regimes and their effects on late season wildflowers and pollinators. In 2017 this study was the subject of a Biology honors thesis by Natalia Miller '18. In addition, Edwards continued her study of population dynamics of garlic mustard at three sites in the Forest.

Henry Art's research program turned to a phase of data and archival management. Alexis Royal '18 spent the summer digitizing the collection of archival materials and Kai Edwards '17 used a GIS to work on the HMF spatial databases.


Fall asters

David Dethier and Jay Racela continued their long-term meteorological and geochemical monitoring activities. In addition they made several upgrades in sensors and imaging of their geochemical monitoring installations. Once again the Northern saw-whet owl banding station was in full operation during fall 2016 and the annual breeding bird surveys were conducted in June 2017.

New to the forest this year was a study of the causes of geographic distribution limits in plants using lyre-leaved rock-cress *(Arabidopsis lyrata var. lyrata)* by researchers from the University of Basel in Switzerland. In late summer graduate students Antoine Perrier and Dario Sanchez Castro set up their field nursery near the Rosenburg Center to propagate potted specimens of *A. lyrata*. This study will continue into 2018.

The Forest continued to be a focal point for College and regional educational programming. Williams College Biology and Environmental Studies classes made regular use of it for field trips and study sites and Winter Study courses were also active there. Classes from other regional colleges visited for academic activities as well. In addition, this summer HMF participated in an educators workshop in conjunction with the Museum Institute for Teaching Science (MITS), hosting an afternoon field trip for teachers in July.

We continued our partnership with the Williams Center for Learning in Action (CLIA) and local school districts to carry out elementary school outreach programs during the spring and fall. Through the academic year 11 Williams student educators were engaged in planning and leading 18 curriculum-based programs for regional schools and youth centers. Student caretakers were again instrumental in helping us host a variety of public events highlighted by the annual Fall Festival and Maplefest. As usual the forest was used extensively for recreation, special permit deer hunting, and maple syrup production.

In addition, we continued to work with the Natural Resource Conservation Service (NRCS) on the conservation plan begun in 2014. Unfortunately, uncooperative weather conditions in May forced the postponement of a 25-acre prescribed burn on the Pownal, VT parcel. This burn has been rescheduled for spring 2018.

The upcoming year will be a busy one, as we look forward to hosting the 2018 Berkshire Bioblitz in addition to undertaking our continuing projects.

RESEARCH & MONITORING

The following scientific studies were underway during the past year.

Lyre-leaved rock-cress (*Arabydopsis lyrata*) Genetics
Dr. Yvonne Willi of the University of Basel, Switzerland, working with two PhD students, began implementation of a study of the causes of geographic distribution limits in plants using lyre-leaved rock-cress *(Arabidopsis lyrata var. lyrata).* In August 2017, graduate students Antoine Perrier and Dario Sanchez Castro, set up their field nursery in the meadow south of the Rosenburg Center to grow 1400 potted specimens of *A. lyrata* of different geographic stock to test their growth response at this, the northern extent of the species range. The pots were planted and initially nursed in the dry lab of the Rosenburg Center before being transferred to the field nursery at the end of August. Debra Rogers-Gillig has been hired by the research team to monitor germination and provide discretionary watering through the remainder of the fall growing season. This study has support from the Swiss National Science Foundation.

Field plantation of *A. lyrata* pots (beneath protective screening).

Ant/Tree Hopper Mutualism
Manuel Morales and his team of research assistants Jeff Pullano ‘19, Sonya Jampel ‘19, Jenks Hehmeyer ‘20, Danny Kirsch ‘18 continued their investigation of an insect-based mutualism in goldenrod fields during the summer. The goal is to ascertain the effects of the ant (*Myrmica*) and tree hopper (*Publilia*) mutualism on the host goldenrods and how these plants might respond, perhaps through increased production of anti-herbivory chemicals, to different levels of mutualism mitigated grazing. This summer’s work built on the investigation of tropic cascading effects that was begun the previous summer with the aid of external grant funding. The team will continue to work to decipher any medium to long-term effects on the host plant quality and possible consequent changes in the vigor and density of herbivore populations.

Garlic Mustard (*Alliaria petiolata*) in Three Different-aged Stands
Early successional (near the Rosenburg Center), mid-successional (Red Oak Stand) and late-successional (Beineke Stand) sites have been the focus of Joan Edwards’ garlic mustard study, which entered its 18th year. This ongoing investigation involves a complete annual survey of three sites in mid-July when researchers count all rosettes, reproductives and seeds in 0.5m x 0.5m permanent quadrats. This year’s field surveys were conducted Alexandra Griffin ‘18 and Molly Knoedler ’18.

So far results show that garlic mustard has had the most difficult time invading the mid-successional plot where there is a significant deposition of leaf litter every fall. The litter appears to kill most rosettes that were established earlier in the growing season. The late-successional stand has a persistent population of garlic mustard; invasion occurs there because the site is on a steep slope that is subject to regular disturbance by washouts. The early stand sustains the highest population of garlic mustard, but even there the population levels fluctuate due to catastrophic disturbance (e.g., major washouts when the plants were inundated with standing or fast moving water). Furthermore, the sites appear to cycle in unison with high population levels and low population levels co-occurring on

the three plots. Garlic mustard is a biennial and its life history stages also appear to cycle in unison as high rosette years typically alternate with high reproductive years. This is most evident in the early-successional plot.

Mowing Patterns and their Impact on Flower Production and Pollinator Activity
Joan Edwards' study of the effects of differential mowing regimes on fall wildflowers and their pollinators continued this year. The goal of this study is to assess the impact of both the timing and frequency of mowing on floral production and pollinator activity. The sixteen plots are divided into four blocks with treatments in a full-factorial randomized block design. This year, according to the schedule, we implemented only the annual treatments (four plots were mowed in July with eight more slated for late October). During autumn 2016 students and faculty gathered data on the plots.


Great-spangled fritillary on goldenrod.

During summer 2017, Natalia Miller, '18, was busy documenting pollinator activity using high resolution digital cameras fixed on one prominent inflorescence of *Solidago rugosa* (wrinkle-leaved goldenrod), a plan that occurs in every plot. She will analyze the imagery to ascertain the most abundant pollinator species and frequency of pollination visits within the sixteen plots.

Long-term Vegetation and Land-use History Studies
During summer 2017 Professor Henry Art's research entered a data processing and analysis mode. He hired Alexis Royal '18 to digitize the collection of archival materials – maps, documents, photos, etc. – relevant to the history of Hopkins Forest. A second student, Kai Edwards '17, working with Corey Campbell in the Office of Informational Technology, spent the summer working on the HMF spatial databases using the ArcGIS platform.

Table I. HMF Student Researchers—Summer 2017.

Student	Supervisor	Project
Natalia Miller '18	Edwards	Asters/pollinators
Alexandra Griffin '18	Edwards	Garlic Mustard
Molly Knoedler '18	Edwards	Garlic Mustard
Kai Edwards '17	Art	GIS Analysis of Landscape Data
Alexia Royal '18	Art	Archival Assistant
Kenechukwu Odenigbo '19	Murphy	Data Processing, Graphics
Morgan Harris '19	Racela	Hydro/Meteorology; Lab assistant
Lucy Saldaña '20	Racela	Hydro/Meteorology; Lab assistant
Jeff Pullano '19	Morales	Ant/leaf hopper mutualism
Sonya Jampel '19	Morales	Ant/leaf hopper mutualism
Jenks Hehmeyer '20	Morales	Ant/leaf hopper mutualism
Danny Kirsch '18	Morales	Ant/leaf hopper mutualism

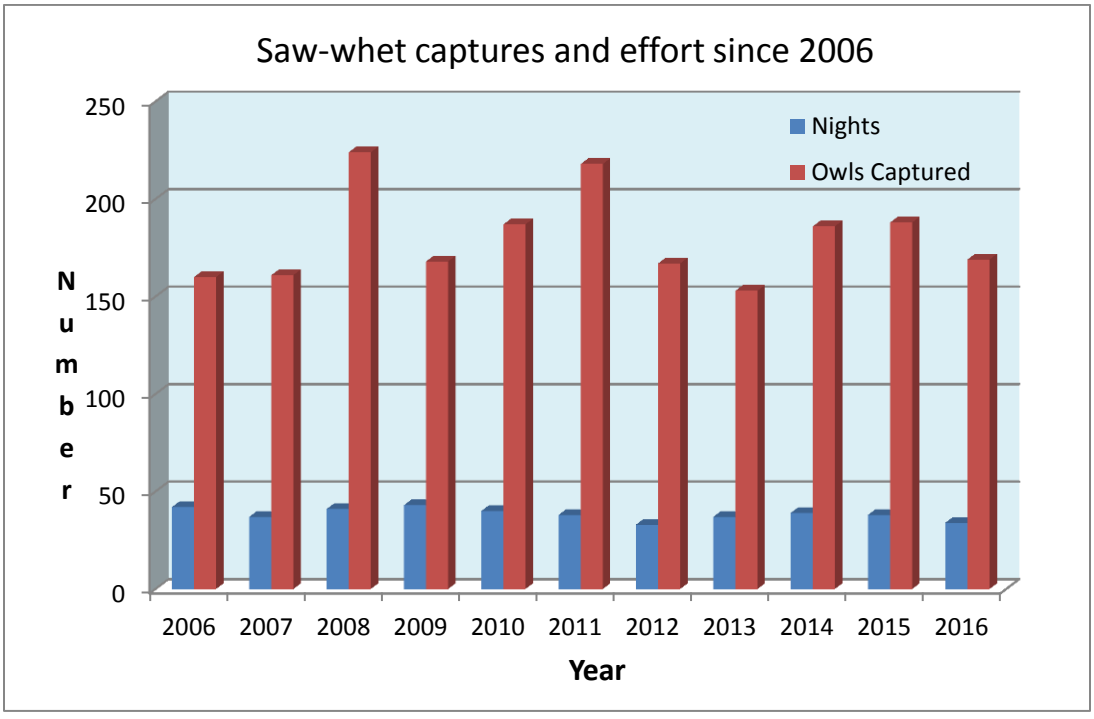
Northern Saw-whet Owl (NSWO) Migration Banding
With the collaboration of Dr. Ken Schmidt of Texas Tech University, the Northern saw-whet owl (*Aegolius acadicus*) banding station was active once again in autumn 2016. We used our customary single-tier array of four 12-meter nets (with an audio-lure) along a trail south of the Rosenburg Center

to catch migrating owls. The station was open on dry, calm evenings between October 2nd and November 17th (a total of 34 nights of operation). During this period we captured 169 individual saw-whet owls (Figure I) including six recaptures of birds banded at other stations. In addition, during the 2016 season we captured the first long-eared owl in the history of this station. The HMF station served as the basis for visits from Williams Biology classes as well as Environmental Science and Biology classes from MCLA and Berkshire Community College. In total, the station attracted 193 registered visitors during the season. This study was the subject of two public presentations this year: one at the Berskhire Natural History Conference in November 2016 and a second at the Center for Environmental Studies' weekly Log Lunch series in April 2017.

Saw-whet owl mist net array

During the summer of 2017 Kenechukwu Odenigbo '19 was hired to work on graphical presentation aspects of the saw-whet data set. Her graphical summaries will be used in presentations and made available through the web.

Figure I. Saw-whet Owl Banding Results.

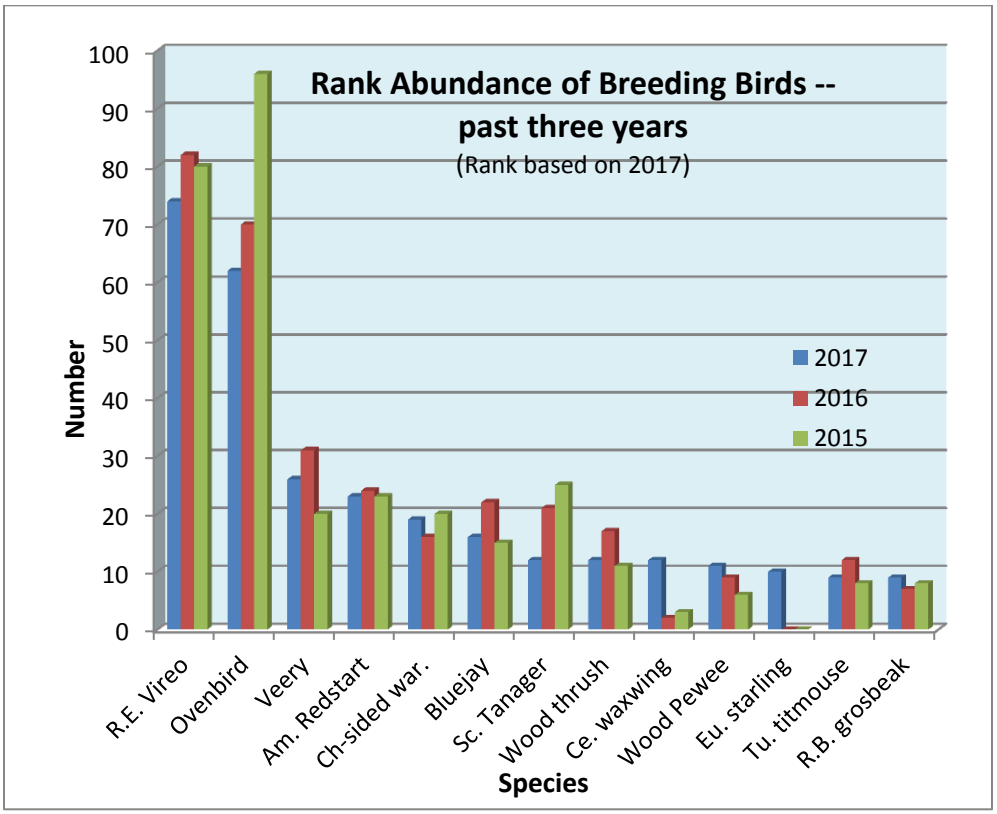


Breeding Bird Point Surveys

In June 2017, I sampled singing males at the 44 breeding bird monitoring points around the Forest for the 16th consecutive year. The year's total of individuals (431) was fairly low for this site while the number of species, 48, was somewhat typical. Once again, the red-eyed vireo and ovenbird were the

most abundant species; they were followed by the veery, American redstart and chestnut-sided warbler (Figure II). These points will continue to be surveyed on an annual basis.

Figure II. Most abundant bird species from point counts.



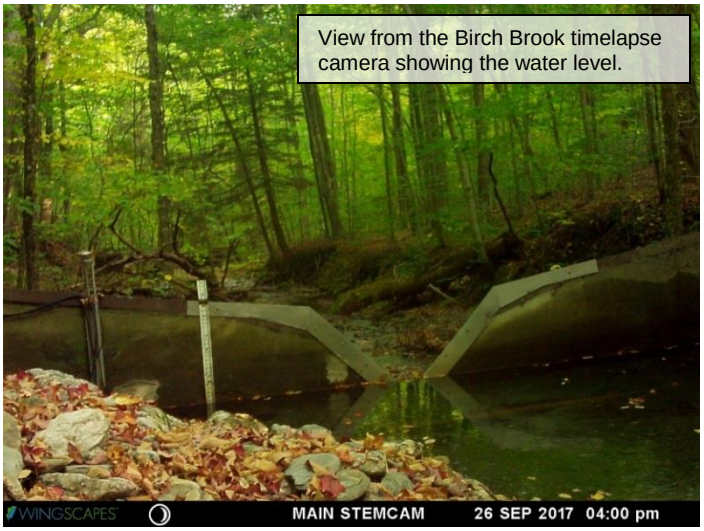
Watershed/Meteorological Monitoring (Environmental Analysis Lab)

The Center for Environmental Studies' Environmental Analysis Lab--under the guidance of David Dethier (Geosciences) and Lab Supervisor and Lecturer Jay Racela--continued to gather, analyze and archive meteorological, hydrological and biogeochemical data from the Forest. Four standard weather stations, one 50-m tower and two stream gaging stations, all 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 meteorological (MET) tower and the Morley Science Labs photovoltaic array. We also continued bi-weekly and monthly collection and laboratory analysis of rain and stream water, respectively, as part of ongoing forest geochemical research that focuses on acid deposition (1983-present) and how it and other pollutants are "processed" by the forest ecosystem.

During the summer of 2017 we installed several new monitoring stations in Hopkins Forest and beyond. The first of these is a pair of air quality sensors which remotely measure and publish the amount of small particulates in the air. One has been installed at the main weather station in HMF, while a second was put at the Class of 1966 Environmental Center entry.

Air quality sensor outside the Environmental Center. Real-time local or global data can viewed at http://www.purpleair.com/map – the higher the number the worse the air quality.

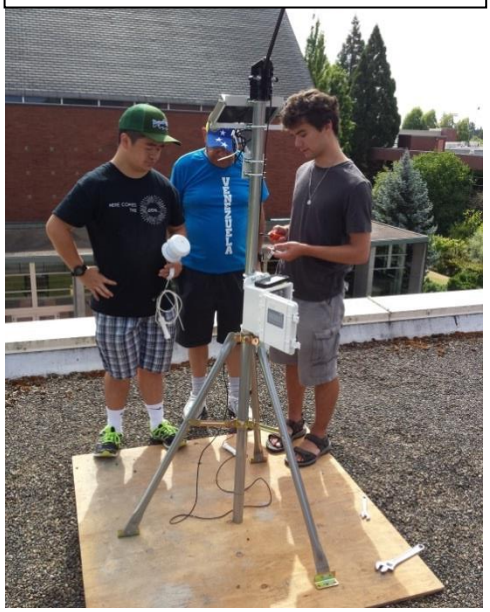
We also installed a timelapse camera at the main stem weir of Birch Brook in HMF. This camera allows us to visually record changes in Birch Brook water levels before, during and after precipitation events. Additionally we can monitor stream sediment buildup as storms deposit sediment upstream of the weir.



View from the Birch Brook timelapse camera showing the water level.

In cooperation with Jay Pasachoff in Astronomy, we purchased a new, relatively portable weather station. Jay and his students took the station to Salem, Oregon and used it to study short-term changes in meteorologic variables during the total solar eclipse on Aug. 21, 2017. After the station and researchers returned to Williamstown, we moved the station to a site adjacent to the 50-m MET tower and the current 3-m weather station.

Astronomy students Ross Yu '19, Prof. Marcos Peñaloza-Murillo (Univ. of the Andes-Mérida) and Christian Lockwood '20 with the weather station in Salem, OR for the total solar eclipse.

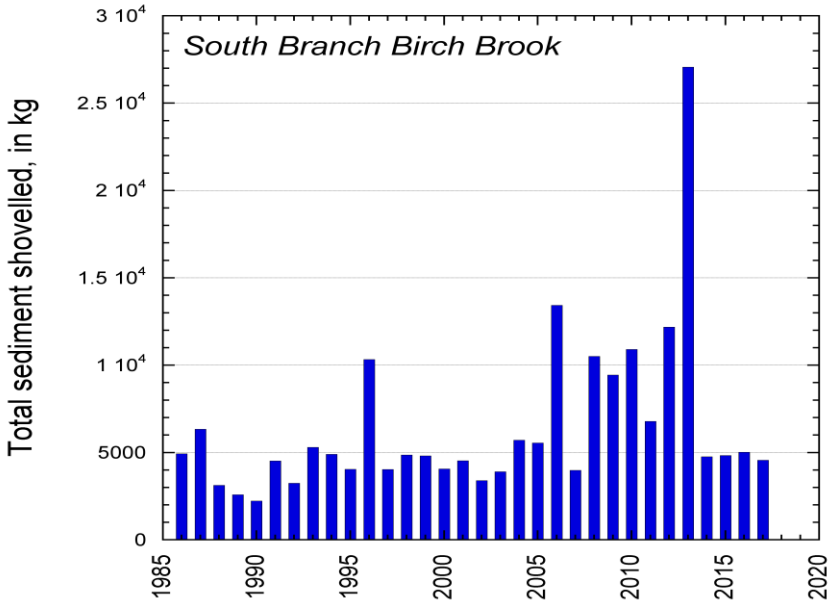


On campus we have been monitoring the water levels in the ponds adjacent to the Class of 1966 Environmental Center to help measure the water budget there. Due to an increased number of cattails growing in the large pond we moved the depth sensor to the pond solar pump housing for more consistent measurements. Jason Mativi assisted in mounting and connecting to the solar pump power to ensure measurement continuity.

The Environmental Center's garden solar water pump housing where the pond depth sensor is currently mounted. Water level here is the same as pond level.

Once again HMF and lab personnel and volunteers dredged and weighed sediment in the weirs along the South Branch and Main Stem of Birch Brook in July. As with the previous three years, sediment removed from the South Branch weir was about average, reflecting average streamflow from the fall of 2016 through the summer of 2017 and the absence of large events (Figure III).

Figure III. Record of annual sediment transport at the South Branch Birch Brook gaging station.



Morgan Harris ‘19 and Lucy Saldaña ‘20 worked as research assistants with Jay Racela during the past summer. In addition to regular field and lab research duties, Morgan and Lucy worked with Lauren Stevens and HooRWA to analyze the thermal characteristics of the Hoosic River and some of its tributaries. They were able to provide a foundation in studying how tributaries might affect Hoosic River temperatures and its trout population and they presented a poster illustrating their results.

Lucy Saldaña ’20, Ken Marshall ’20, Morgan Harris ’19, Drew Jones and Tom Kirby ’20 shoveling sediment in Birch Brook.

EDUCATION and OUTREACH

Undergraduate Classes

During the fall semester, BIOL/ENVI 203 -- *Ecology* (D.C. Smith) held about half of the course’s lab sessions at the Forest. ENVI 102 -- *Introduction to Environmental Science* (Apotsos) again used HMF for several of its lab exercises in the spring; these included soil sampling and tree biomass carbon estimation. BIOL 102--*The Organism* (multiple instructors) made visits for laboratory exercises on

amphibian breeding and plant development in the spring. BIOL 220—*Field Botany and Plant Natural History* (Edwards) came out for several investigations and Nicolas Howe's *Environmental Humanities* class visited for a guided field trip. 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.

For a fourth consecutive year, HMF provided the venue for the Winter Study Course, BIOL 18 -- *Animal Tracking* with Dan Yacobellis. In addition, two other Winter Study courses (Photography and Wood Turning) made use of the forest.

MITS Teachers Workshop

This year we collaborated with the Museum Institute for Teaching Science (MITS) to host part of a summer workshop for science teachers. Working with Leslie Rule of MCLA and Molly Polk of CLIA, Jay Racela and I attended organizational sessions and helped to plan the one week workshop whose theme was "*Exploring the Berkshires: from the top of its mountains to the bottom of its ponds*." Our primary role was leading the Tuesday (July 11th) field session on "*Midslopes*," which entailed taking the 17 participants on a walking tour of the forest to interpret some of its features including research installations and soil pits. Cory Campbell of the Office of Informational Technology, played an integral role in the program as well, conducting a morning session on mapping technologies.

Jay Racela sampling soils with teachers.

Elementary Education

This was our fifth year partnering with the College's Center for Learning in Action (CLIA) to provide field-based educational experiences for regional elementary school classes. Working with Lindley Wells, Molly Polk and Rene Sheik of CLIA, we hired a team of Student Educators (Table II) to develop place-based outdoor education curricula and host field trips for elementary schools from our region. There were a total of nine programs in the fall involving 360 children.

Tyra Winn '19 working with 5th graders.

In the spring, our team of Educators hosted a series of nine programs (260 children total) for elementary school classes from throughout North Berkshire County. The spring field trips highlighted themes of maple sugaring and biodiversity. Three had to postponed until June due to inclement weather; these were facilitated by our summer caretaker crew and interns from the Environmental Analysis Lab. The Student Educators again were employed by the CLIA, while Hopkins Forest did provide some funds for transportation to several schools that could not have otherwise afforded the trip.

Summer 2017 saw a continuation of youth education programs as the summer caretakers hosted several visits from the Williamstown Children's Center and a group from a summer day camp sponsored by the North Adams Public Schools.

Table II. Student Educators 2016-17.

Laura Lee '17	Ben Wipper '19
Emma McEvoy '17	Astrid Dubious '20
Natalie Di Nenno '18	Katie Loftis '19
Ian Concannon '18	Nigel Bates '17
Jackson Barber '18	Megan Powell '20
Tyra Wynn '19	

Community Events

Once again HMF hosted a variety of events for the public and College community:

- ***Fall Festival***— The Fall Festival was held on Saturday, October 1st. The cool, overcast weather didn't dampen spirits and the event drew a good crowd of 380 tallied visitors. They took part in the traditional activities including shake-splitting, cross-cut sawing, apple butter and cider production and live music. The event also featured guided tours of the canopy walkway and an active bee hive for observation.

- ***Animal Tracking—*** This annual program led by Dan Yacobellis, a naturalist from Grafton, NY, was cancelled this year on account of a snowstorm.

- ***Maple Festival***— "Maplefest" was staged on Saturday, March 11th, drawing a modest crowd of 144 on a bitterly cold, wintry day. Those who did brave the elements got to see sugaring exhibits and demonstrations and to taste HMF produced syrup served over pancakes and 'on snow'.

- ***Amphibian & Reptile Program***– Tom Tyning of Berkshire Community College led his annual amphibian foray in Hopkins Forest on Saturday, April 15th. A solid crowd of 40 people attended on a seasonably pleasant April day.

- ***Birdwalk and Wildflower Foray*** – On Saturday May 6th, a cool, gloomy spring day, we hosted two events: an early bird walk that I led and a later wildflower walk guided by Joan Edwards. In spite of the dank conditions, the activities attracted enthusiastic groups of six and 25 participants respectively.

- ***Alumni Day***— HMF again offered a variety of activities, including a bird walk, hike, canopy walkway, and children's activities during this year's Alumni Weekend (June 10th). In addition to the customary activities, this year we offered a morning hike on the Taconic Crest Trail, which attracted 17 enthusiastic hikers.

Taconic Crest Trail hikers
Alumni weekend 2017

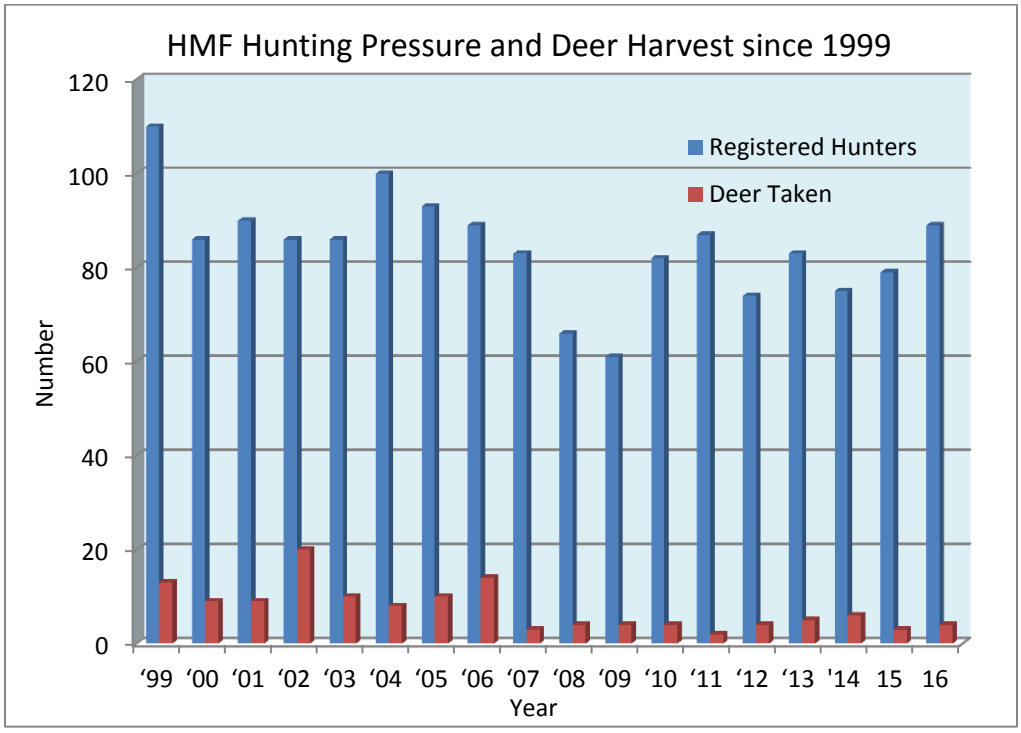
RECREATION

This past year numerous hikers, joggers, horse-back riders, skiers, and nature observers took to the trails of the Forest in their recreational pursuits. Thankfully, there appear to have been few problems with public use of the Forest during the past year and the recreational infrastructure is holding up reasonably well.

Williams Outing Club (WOC)
The Outing Club cabin accommodated overnighters regularly and it was integral to our hosting of the *Maplefest* event in March 2017. The Outing Club lean-to was used by students for First-year orientation activities. By contrast, the WOC ropes course has not been used recently and its future as a recreation resource is unclear.

Hunting
In autumn 2016, HMF again hosted its annual special permit deer hunt during the Massachusetts shotgun season. Eighty-nine registered hunters harvested four white-tail deer during the twelve day season according to our unofficial sign-in. This harvest rate was right in line with those going back to 2007 (Figure IV). Interestingly, the 89 registered hunters in '16 were the most to take part in the HMF hunt since 2006. Why there appears to be a modest increase in interest in hunting lately is unclear and it will be interesting to see if this trend will continue. Once again Williams College security officers were hired to provide surveillance during the busiest days of the hunt. With their help the season ran smoothly and no major problems were reported.

Figure IV. HMF Deer Hunting Results.



MAPLE SYRUP PRODUCTION

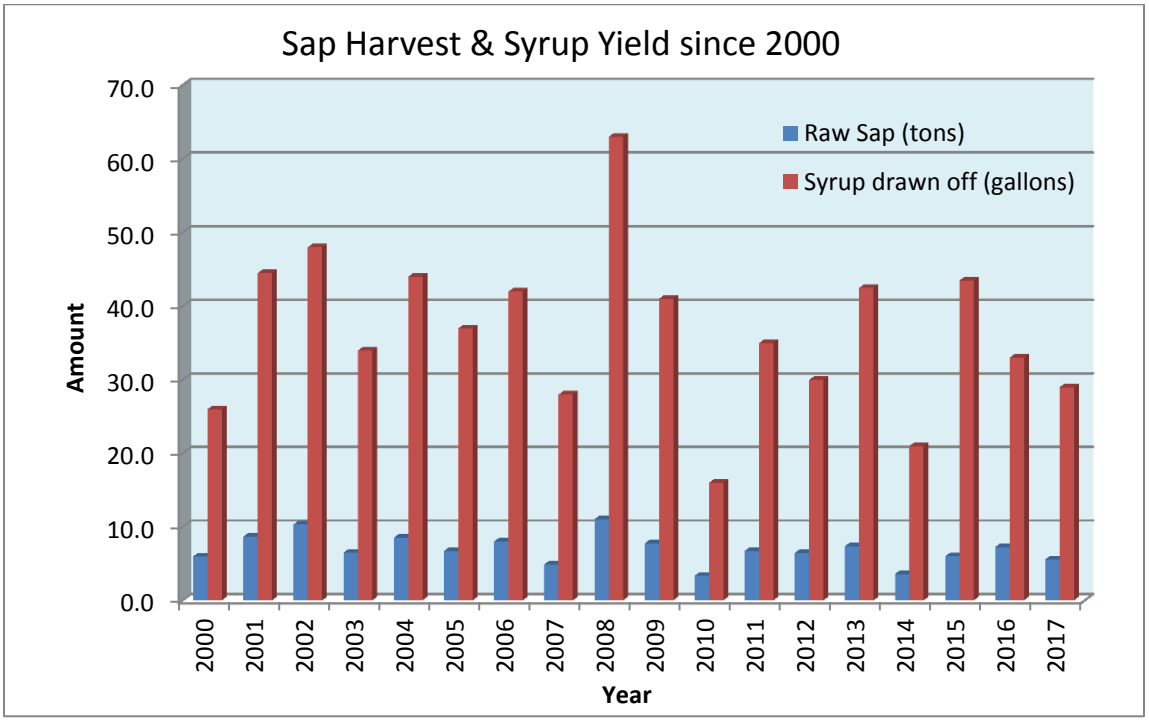
The 2017 maple season was lackluster in terms of syrup production, with 30 gallons of raw syrup produced. This total along with the 1395 gallons of raw sap collected were both significantly below the 18-year average for our operation (Figure V). Some warm winter weather – which undoubtedly induced early, pre-season sap runs -- likely contributed to our lower production this year. The

operation served as the focus for several school field trips and our annual “Maplefest” celebration again this year.

During a 2017 winter storm, a large limb landed on the woodshed and demolished its roof. The shed was rebuilt during by the summer caretaking crew.

Newly reconstructed woodshed

Figure V. Hopkins Forest Maple Syrup Production 2000-2017.



LAND MANAGEMENT & CARETAKING

Forest Management--Vermont Parcel

This year, we hired Fire Management Services, Inc. to develop a burn plan for a 25-acre section of the Vermont Parcel that is under a Natural Resources Conservation Service (NRCS) conservation plan. I met the crew for a site visit in April 2017 and they drafted a plan for a prescribed burn for the sloping area near the southeastern corner of the parcel. Plans to carry out the burn in May 2017 had to be postponed as weeks of damp weather rendered the prescription untenable during the customary burn window, which closes with leaf-out in mid-May. This prescribed burn has been re-scheduled for spring 2018.

A second NRCS-sponsored practice -- a forest stand improvement thinning on a 35 acres in the southwestern section of the tract -- is scheduled to be carried out during autumn 2017 (Table III).

Table III. Summary of practices supported by the current contract with the Natural Resources Conservation Service.

Practice	Purpose	Scope	Progress
Forest Stand Improvement	Pre-commercial Thinning	35 acres	Scheduled for fall 2017
Prescribed Burning	Burn Management Plan	25 acres	Completed spring 2017
Prescribed Burning	Prescribed Burn Implementation	25 acres	Postponed until spring 2018

Wire Bridge Farm
Joel Burrington of Pownal, Vermont continued to cultivate hay on the Wire Bridge Farm. No academic activities involving the farm took place during this period although the area continued to be used occasionally for recreation and wildlife viewing.

Roads/Trails
In May 2017, the entry road to the Rosenburg Center was resurfaced and graded by a contractor hired by the College's Facilities Department. Routine trail maintenance throughout the forest was performed by caretaking crews. The summer crew made a special effort to clear the culverts that run under the north spur (former forest service road) of the Lower Loop Trail and a spring crew focused on remediating drainage problems on the logging roads in the eastern reaches of the Pownal Tract.

Caretaking
As in the past, HMF relied on student caretakers for a major part of its maintenance, upkeep and outreach activities (Table IV). Indeed, the fall and spring semesters had a regular crew of four to twelve students, each working about three to six hours per week. The uncharacteristically diminutive fall crew kept busy preparing for and hosting the Fall Festival and keeping up with grounds keeping and some trail maintenance. In the spring, much time was devoted to the maple sugaring season and hosting *Maplefest*.

Table IV. Student Caretakers academic year 2016-17.

Nathan Leach '17	Tyra Wynn '19
Samuel Burrington '17	Kristen Bayrakdarian '19
Ivy Ciaburri '17	Liliana Bierer '19
Borah Lim '17	Tyra Wynn '19
Jackson Barber '18	Jeremy Smith '19
Johah Levy '18	Jane Tekin '19
Lucas Estrada '19	Isabelle Furman '20
Matias Korfmacher '19	

A seasonal caretaking crew comprising Thomas Kirby '20 and Kenneth Marshall '20 was employed for 10 weeks during the summer 2017. The crew worked on many of the regular summer tasks—mowing, gardening, grounds-keeping, trail and water-bar maintenance and controlling invasive vegetation. One of their major efforts this summer was to reseed the orchard site on the south side of the Class of '66 Environmental Center. Working with Zilka Center interns, Tommy and Kenneth helped to prepare the soil and plant, water and maintain this meadow throughout the summer. In addition, they were instrumental in reconstructing the demolished wood shed in the Forest's sugarbush. They also served as docents for our summer educational and outreach programs including the Alumni weekend.

Complementing our caretaker crew, Debra Rogers-Gillig served once again as part-time seasonal gardener, focusing on the Buxton Garden. Debra has been crucial to the rejuvenation and flourishing of the garden over the last several summers.

FACILITIES

Rosenburg Center/Moon Barn
The 111-year-old Rosenburg Center continued to function as a focal point for classes, lab set-ups, public events, and school field trips as well as an exhibit space for visitors during the past year. As a final stage of the recent renovation of the building, the two rear (apartment) staircases were re-constructed and the flagstone walkway to the apartment was replaced.

The **Moon Barn** continued to be used as public exhibit space during special events such as the Fall Festival and school visits. Due to a shortage of outdoor storage structures, we continue to have to use this historic building in part for storage.

Canopy Walkway
This past year the canopy walkway was open for public visitation several times including during the Fall Festival and summer alumni event. In May 2017 the walkway was inspected by Canopy Construction Associates. In addition to their routine inspection, the crew rebuilt the smaller south deck, which still had its original lumber; they used local, rough-cut locust for this job.

FUTURE – What's in store for 2017-18?

In the coming year we will continue to facilitate and expand our educational and research activities at Hopkins Forest. This will include efforts to broaden the scope of both undergraduate class and elementary school field trips to the Forest.

In research we will continue to support ongoing projects, notably the study of differential mowing regimes on late season wildflowers and pollinators. This will be a time of intense work on the *Arabidopsis* study as the nursery will continue to be cultivated and the final tally of survivorship and vigor of the propagules will be made.

In addition to academics, the coming year will feature the refurbishing of the 50-meter meteorological tower atop the Taconic Range. This will involve lowering the pole and installing new wind sensors and electronics onto this 13-year-old station.

In management, will intend to complete a 24-acre stand improvement cut in the southwestern corner of the Pownal Parcel. We also look forward to implementing the 25-acre prescribed burn on the eastern side of the parcel in 2018; of course, this practice will be contingent on late spring weather conditions.

Finally, we are pleased to have been selected to host the 2018 Berkshire Bioblitz. This 24 hour comprehensive biological survey of the property -- featuring scientists and volunteers from around the region -- will take place in mid-September 2018. We will spend some time in the meanwhile to organize and plan this event.

Special thanks to Jay Racela and Dee Dee Lewis and Roger Bolton for their contributions to this report.