

Highstead

To the Members and Friends of Highstead

Fall 2008

Last week I arrived at Highstead on a gorgeous morning as the sun lit up the Barn headquarters framing it on the hill against the oak forest and a brilliant blue sky. I sat down minutes later to meet with the staff and remarked that we had much to celebrate and work with. I would like to share some of these thoughts with you.



First are our resources. We have a remarkably talented new director, a beautifully renovated building and a greatly expanded land base. As you will read below, Director Bill Toomey brings more than a decade of experience in New England conservation, field ecology, organizational management and development. Our post and beam building has been greatly enlarged with flexible office and work space, expansive windows and high ceilings that complement our beautiful lecture room, gallery, library, kitchen and archives. Meanwhile, the hillside gifted to Highstead this past year adds large meadows and forests to our diverse oak woodland, swamp, pond and stream landscape.



Second, as this newsletter displays, Highstead has a clear direction for advancing the mission statement that appears at the head of this page. Ours is a three-pronged approach of ecology, conservation and stewardship of plants and landscapes. We apply science to explore important ecological issues that confront our natural world and then convey the results broadly so they can be appreciated and applied. We

seek to advance conservation through the protection and management of natural landscapes and through collaborative efforts with many groups. And, we demonstrate the management of plants, forests and meadows across our own landscape at a scale that is relevant to private landowners. Being small, we are selective in our work and strategically seek to identify real needs and opportunities in each of these three areas.

Finally, we have identified an appropriate scale for our work. Our home and center is rooted in our own land, in Redding and in southwestern Connecticut. But from this base we reach out broadly to work with and learn from others and to explore and address issues that are common across southern New England, adjacent New York and much of the northeastern U.S. We hope and believe that the information we develop and share has relevance across a much broader national scale.

As you read more of our work here and on our webpage I hope that it encourages you to join with us, to share your thoughts and ideas, and to appreciate, as we do, how much we all have to celebrate and work with.

David Foster
Chairman

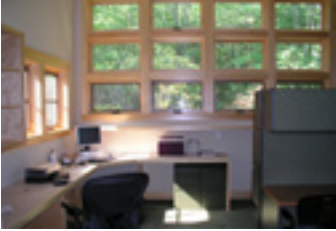


David Foster is Director of the Harvard Forest at Harvard University and Chair of the Highstead Board.



Happenings, Events, and News

info@highstead.net



You're Invited!

In these days of instantaneous global communication, we would like to be able to communicate with Highstead members and supporters quickly and efficiently.

We invite you to send us your email address so that we can notify you of Highstead happenings, events and news electronically.

Please send your email address to us at info@highstead.net.

Thank you.

Electronic Happenings, Events and News

*Invitation cards to some
Highstead events.*

Clockwise:

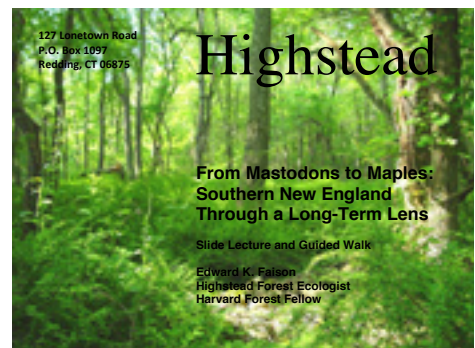
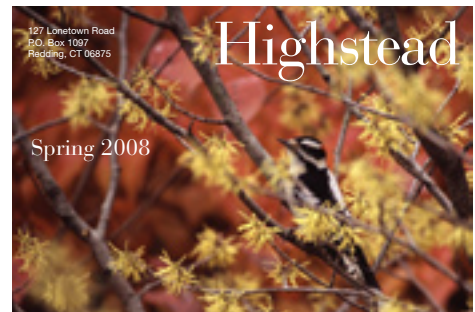
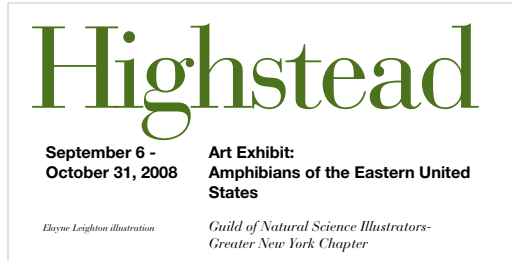
*Fall 2008: Guild of Natural
Science Illustrators Exhibition
on Amphibians of Eastern
United States.*

*Spring 2008: Announcing two
walks: Bird walk and
Azalea walk.*

*May 13 2007: Bird walk and
slide show by Birgit Freybe
Bateman.*

*Fall 2008: From Mastodons
to Maples: Southern England
Through a Long-Term Lens.*

*Fall 2006: Announcing a wide
range of programming: Jim Levitt
(from Walden to Wall Street),
Brad Roeller on deer resistant
plants, Fern Art Exhibition
by Guild of Natural Science
Illustrators, Fern Walk by
Robbin Moran.*



From the Director

Bill Toomey
Director



Dear Highstead Members and Friends:

I am very pleased to be writing to you as Highstead's new Director. I began my journey with Highstead just a few short weeks ago, but it is already starting to feel like home. I want to thank the staff, board and those of you whom I have recently met for a warm welcome and strong support.

By way of introduction, I come to Highstead with over 18 years of experience in the fields of conservation and environmental science. For the last decade I worked for the Nature Conservancy in both Connecticut and western Massachusetts where I worked with local communities and other conservation organizations to produce tangible conservation results within large forested landscapes and watersheds. Prior to that, I managed the residential recycling program for the city of San Jose in California and have also worked in private environmental consulting. I have a B.S. in Biology from Fairfield University and a M.S. in Soil Science from North Carolina State University.

I am joining Highstead at an interesting point in its evolution as an organization. What started as an idea of Jim and Elisabeth Dudley over 26 years ago has become a solid organization with effective programming that is grounded in a well managed and highly diverse landscape. From this sense of place, Highstead's staff of talented professionals demonstrates good stewardship practices on the land, initiates important research projects and helps other organizations to launch new landscape partnerships throughout the region.

Over the next few months, I will be working to familiarize myself with Highstead's history and its existing operation and programs. I look forward to working with the staff, board and the membership to increase the effectiveness of Highstead's high quality programs and initiatives, and to explore potential new collaborations, partnerships and programs that will build upon the solid foundation that Highstead has already built.

In the coming months I would invite you to do one or more of the following: visit us here in Redding for one of the upcoming events, enjoy a hike on our trails, or just say hello; visit our new website (www.Highstead.net) and stay abreast of our work; or just give us a call, as we would love to hear from you.

I look forward to meeting many of you in the coming months, but in the meantime I welcome your thoughts, insight and advice and invite you to contact me at any time. I look forward to a long and productive relationship with Highstead, and I would like to thank you again for the opportunity to join the Highstead family.

Bill Toomey
Director

Regional Conservation

Bill Labich
Regional Conservationist



Creating Constituencies for Forest Conservation

In October of 2007, Highstead established a Conservation Program by hiring Bill Labich to promote regional conservation and to advance forest protection and sustainable management throughout the Northeast region. The Northeast is home to hundreds of conservation land trusts and environmental groups that work to conserve their communities' landscapes and natural resources. Yet, development across the region continues to threaten our forests that provide many benefits including clean water, clean air, recreational opportunities, wildlife habitat, wood products, and carbon storage. To conserve this regional green infrastructure requires working together in new and often innovative ways. As Regional Conservationist, Bill seeks to assist and complement the many efforts across the greater New England region.

In 2004, scientists from Harvard University's Harvard Forest developed a conservation vision entitled Wildlands and Woodlands (W&W; www.wildlandsandwoodlands.org). This vision calls for the protection of more than half of the region's forests in a combination of Wildlands (forests that are shaped by natural disturbance regimes) and Woodlands (forests sustainably managed for multiple forest products and values). Highstead is supporting the Wildlands and Woodlands vision and is working with a wide range of organizations to increase the pace of forest conservation.

Over the last year, Bill has worked primarily on:

- Creating Constituencies for Forest Conservation;
- Advancing Conservation Innovation; and
- Promoting Regional Conservation Partnerships.

Creating Constituencies for Forest Conservation

Highstead and its partners believe that forest landowners and municipalities play key roles in increasing the pace of forest conservation across the Northeast. Forest landowners often look to professional foresters, land use planners and community leaders for advice on forest management and land conservation options.

Foresters and Forest Landowners

Private lands that are actively managed with the assistance of consulting foresters and are permanently protected from development can be powerful sources of information and examples for other landowners and local community leaders by showing the benefits of long-term management and permanent conservation. In collaboration with the Norcross Wildlife Foundation and Connecticut Forest & Park Association, Highstead will be leading a *Forester to Forester Conservation Workshop*

Regional Conservation

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(March 2009) for public and private foresters in CT, RI, and MA. The workshop will help public and private foresters become better skilled in land conservation options so they are able to communicate accurate information concerning the appropriate land protection and management options.

Land Use Planners & Communities

Small rural towns in the Northeast often have either a professional land use planner or a volunteer-run board or commission that helps to shape the growth and development of their communities. Bill Labich is using his eight years of experience as a land use planner to assist regional conservation partnerships to enroll town and regional planners in conserving forest lands. Bill will promote greater understanding among planners and conservationists of effective land use codes including zoning bylaws that can be used to increase the amount of protected forests and balance this with smart and focused development. Bill will also be exploring innovative ways planners can help protect their town's green infrastructure in partnership with their region's conservation community.



Advancing Conservation Innovation

One of Bill's primary roles is to enhance the sharing of new ideas and lessons to advance the conservation and stewardship of forests. For example, many towns and conservation groups are making great strides in developing new ways to reach landowners with information on land protection and forest management and securing funding for these activities.

Highstead and Bill support and promote the Wildlands and Woodlands vision and share new thinking on forest conservation regionally by:

- Coordinating the Wildlands and Woodlands Partnership, a multi-state group of 100 individuals from over 40 member organizations including state agencies, universities, forestry and wood products businesses, landowners, and conservation groups.
- Developing its new website (www.wildlandsandwoodlands.org).
- Co-authoring manuscripts that present the implementation of W&W as complementary to smart growth and sustainable development for ecological services within urbanizing landscapes.
- Publishing new papers such as "A Wildland and Woodland Vision for the New England Landscape: Local Conservation, Biodiversity and the Global Environment" co-authored by Bill Labich and David Foster. See the Highstead web page at <http://highstead.net/publications/publications.shtml#science> for a copy.

Regional Conservation

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Promoting Regional Conservation Partnerships

These partnerships are informal collaborations of public and private organizations and agencies that are working together to advance conservation. Activities range from landowner education and outreach to managing coordinated land protection projects. Bill is working with eight partnerships throughout Connecticut and Massachusetts by: assisting their development and operations (see Internship Program below), providing information and examples on effective multi-partner collaborations, and facilitating interactions among the coordinators of these partnerships (see Fig. 1).

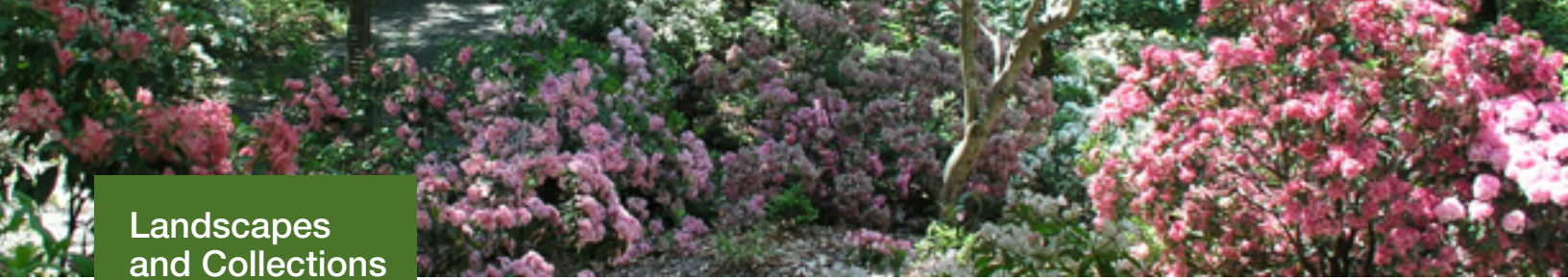
Highstead's Twelve-week Regional Conservation Internship Program

Emily Silver and Eva Weyers, recent graduates of Brandeis University and Allegheny College, respectively, will be working with Bill Labich and Harvard Forest's Brian Hall on several projects for regional conservation partnerships:

- In the North Quabbin Region of Massachusetts – Developing maps of future conditions under different development scenarios to highlight the value of zoning and conservation planning.
- In several towns in the Mass-Conn Sustainable Forest Partnership – Providing updated maps to help with conservation planning.
- In Western Fairfield County, CT – Creating a map of woodland areas to show the sizes of forest blocks and their proximity to others in and outside of the region.



Figure 1
Highstead works with Regional Conservation Partnerships to advance forest conservation.



Landscapes and Collections

Kathleen Kitka
Landscape and Collections
Manager



Kalmia in Bloom

Members and guests who had the opportunity to view Highstead's Kalmia Collection in early June were treated to one of the most spectacular bloom events to occur in recent years, due in part to our efforts to increase light. A selection of overstory trees and companion shrubs on the one-acre site were thinned and pruned during the previous year. As a result, the Kalmia species, forms and cultivars that had been under a shaded canopy produced heavier blooms.

Highstead's native Mountain Laurel growing in open areas in and around the Azalea Collection and Barn landscape bloomed prolifically as well.





Forest Ecology

*Ed Faison
Highstead Ecologist*



Assessing Forest Change Wrought By Deer, Moose, and Human Activity

Over the past two years Highstead’s ecology program has grown to span the breadth of the southern New England region, from studies in our own woodlands to fieldwork across conservation properties in Redding and southwestern Connecticut to research at the Harvard Forest in north-central Massachusetts. Thematically the research has also expanded from studies of forest variation and invasive plants to the browsing impacts of deer and moose, to the historical and anticipated changes in our forests due to human activity.

This past summer, ecologist Ed Faison and student interns Luke Reese (University of Minnesota) and Dave Grunzel (Washington and Jefferson College of Pennsylvania) covered much of this breadth in geography and topics including a new study of the survival and regeneration of Mountain Laurel at Highstead. Results from all of these projects are beginning to emerge and will be submitted as articles to scientific and popular journals in the coming year.



Ecology Interns
Dave and Luke measuring Mountain Laurel regeneration sprouting from a cut stem in Highstead’s oak forest.

The Decline of Mountain Laurel

In a year that saw one of the most spectacular blooms of Mountain Laurel in recent memory, it was ironic to investigate the decline of this dominant native shrub and flagship species of our Kalmia Collection. But decline it has in southern Connecticut where at Highstead we have noted that plants are thinning, branches are dying, and new sprouts are not replacing the declining stems. Meanwhile, our collaborators at the Connecticut Arboretum in New London have documented a major reduction in stem densities since the 1980s.

Sprouts

New growth sprouting from the base of cut Mountain Laurel stems.



Identifying the primary cause of the decline from many contributing causes was the focus of this summer’s study led by Ed and Board Member Peter Del Tredici from Harvard’s Arnold Arboretum. Two primary suspects are land use history and deer. Mountain Laurel grows vigorously under high light, and thus it thrives following forest disturbance such as logging but then gradually declines as the shade increases under the new forest canopy.

Historically this process has occurred at Highstead and across the region, as oak forests were repeatedly logged, including salvage logging after the chestnut blight in the early-mid twentieth century. However, in more

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recent decades, forest harvesting has declined, and the region has been largely free of widespread disturbance beyond the gypsy moth defoliations of the early 1980s. Thus, Laurel may be deteriorating largely due to the extended shady conditions. However, deer populations have also increased substantially, and increased browse of mature plants and sprouts may be accelerating the species' decline. Ed, Peter, Luke and Dave sampled mature *Kalmia* and *Kalmia* sprouts inside and outside of our deer exclosures to determine the extent to which the species' lack of vigor is attributable to reduced light versus excessive winter browsing. We will continue to monitor the growth of the *Kalmia* stems next summer and will begin measuring canopy light levels above the shrubs.

Three Hundred Years of Forest Change in Southwestern Connecticut

In our fall 2007 newsletter, we discussed how studies of the long term history of southern New England provide insight into current and future environmental conditions of the region. One of the techniques highlighted was the gathering of "witness tree" data (trees marked and recorded by original land surveyors in the 18th century as property boundaries) from early town land deeds to determine the species composition of our early forests.

This past summer we sampled our current forests in an analogous fashion to determine how the Redding landscape has changed over the past 250 to 300 years.

The results are striking: a major decline in oak, particularly white oak, a corresponding increase in maple and birch, and, of course, the elimination of the American chestnut from the chestnut blight (Figure 2). If we refer to our prior study of fossil pollen from sediment cores in Umpawaug Pond in West Redding, we find that oak is currently at its lowest point in 3500 years (with the exception of European land clearance 150 years ago) and that birch and maple are at their highest level in the past 10,000 years. When John Read arrived to Redding in 1714 he would have seen roughly twice the proportion of oaks and only one-tenth the proportion of maples that we see today.

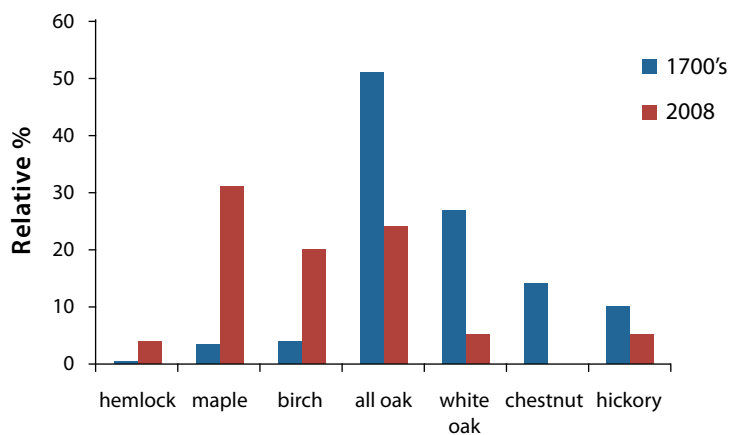


Figure 2
Comparison between tree species abundance in Redding at the time of European settlement and today.

Why should we care about these changes? Oak acorns are the most important food source for animals of the Eastern deciduous forest. If the decline of oak continues, wildlife populations including those of white-tailed deer, black bear, wild turkey and others may suffer, and animal behavioral patterns may change. Black bear, for

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example, have fewer young and wander more during poor acorn years. Greater movement leads to more collisions with cars and increased bird feeder and garbage can incidents in people's yards. But the news is not all bad. Interestingly, researchers from the Cary Institute of Ecosystem Studies in New York have discovered that lyme disease rates in Eastern New York are related to acorn production, which influences the abundance of the white-footed deermouse. White-footed mice are the most effective vertebrate transmitter of the lyme disease bacterium to deer tick larvae, infecting about 92% of the tick larvae that feed on these mice. Deer, in contrast, infect only about 4% of tick larvae. (The role of deer in the disease is acting as the primary host of the adult deer tick after it has been infected with the bacterium.) If oaks continue to decline and reduce the white-footed deer mice populations, this could lead to a reduced infection rate of tick larvae and reduced rates of lyme disease.

Harvard Forest: Moose-Forest Research

Inside a newly constructed deer and moose enclosure in a harvested pine stand at Harvard Forest.



Beyond Deer to Moose

Residents of southern New England are well aware of browsing impacts by deer; however, it comes as a surprise to many people that over 100 moose inhabit Connecticut. Both deer and moose have a focused impact on the regeneration stage

of seedlings and sprouts, especially in areas that have been recently logged, and in parts of the region where moose are most abundant (i.e. north-central Massachusetts and the foothills of the Berkshire Mountains), they have replaced deer as the dominant browser. To assess these impacts we collaborated with scientists at Harvard and the University of Massachusetts by building a series of exclosures in recently harvested pine forests in Massachusetts and began sampling the vegetation inside and outside of these structures. This work both extends our studies at Highstead and prepares us to understand the emerging role of moose in Connecticut. The recent sighting of a

moose in Redding and the death of another on the Merritt Parkway underscores their expanding presence in the region. Like the Highstead deer exclosures, the enclosure experiment at Harvard Forest is designed to be a long-term project; so we will periodically include updates on results in future newsletters.

Highstead

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