

Highstead

Working to conserve the forested landscape of New England through science, sound stewardship, and collaborative conservation

To the Members and Friends of Highstead



Recent news coverage and a forthcoming study supported by Highstead reveal that the New England landscape is in good shape but needs our support to continue to yield its full benefits to society. The *Boston Globe* began the discussion with a front-page article describing the recovery of New England forests and wildlife following centuries of deforestation. On its own front page, the *Hartford Courant* painted a more complex and realistic scene. New England has more forests than any time since 1800 but they contrast with the colonial forest: more red maple and birch, less hemlock, beech and oak, smaller trees, and no old growth. And our forest is vulnerable to insects, climate change, and human impacts that fragment it.



Highstead Barn in late fall.

The *Hartford Courant* looked forward and articulated a future—the Wildlands and Woodlands (W&W) vision—of conserved forests, concentrated development, improved mass transit, and revitalized cities. It recognized Highstead as a leader championing W&W with many organizations across the region. Both articles may be found at highstead.net.

A new study by Highstead Senior Fellow Kathy Lambert and colleagues at the Smithsonian and Harvard assesses the W&W vision and other possible regional futures, asking what difference conserving our forested landscape will make. The report will be widely released and sent to readers of this newsletter in December. It models the future accounting for climate change and four contrasting approaches to conservation, development, and forest harvesting. It reveals striking differences in the beneficial services that our forests provide—clean water, natural areas for humans and wildlife, timber, and the landscape’s ability to cope with climate change. The more well-managed forest we retain, the greater the benefit.

The accompanying good news: forest conservation is increasing and a Wildlands and Woodlands future is achievable.

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

New England’s forests have come back. We have a second chance to conserve them. By actively conserving this landscape, each of us—landowners, active citizens, land trusts, and Highstead members—can address the major environmental challenges that lay ahead. Achieving that goal is a mission of Highstead.



Conservation in a Changing World

The dual threats of climate change and development confront us daily as we scramble to conserve our natural habitats and special places. Although these challenges can be daunting, New Englanders are a hardy lot and continue to forge ahead with significant conservation gains.

But with limited resources, it is vital to conserve areas that will best protect the irreplaceable benefits of our natural world, including clean water, biodiversity, community vitality, climate mitigation, and flood resilience. In addition to the Future Scenarios Initiative that David Foster describes on page one, Highstead is currently involved in a second project bringing new science to practitioners to help prioritize conservation in a warming and increasingly crowded world.

This pilot project will help determine how to disseminate The Nature Conservancy's (TNC) approach to biodiversity protection in a time of climate change to land trust collaboratives called regional conservation partnerships (RCPs).

Although RCPs generally do operate under conservation plans that balance multiple conservation priorities including protection of current biodiversity and associated habitats, what will happen as species and their habitat needs *change* in a future, warmer world?

TNC modeling suggests that species' distributions are tightly correlated with physical characteristics of the land, especially geology and elevation. By mapping the 30 geophysical settings in our region (such as limestone valleys), combined with landscape complexity (microclimates so species have local flexibility) and habitat connectivity (so species can move as the planet warms), TNC's goal is to identify climate resilient sites where biodiversity has the best chance to evolve and flourish over time.

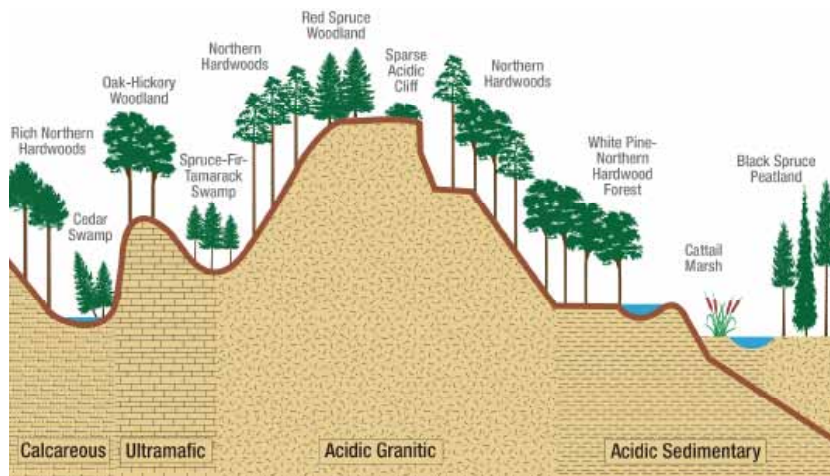
Highstead is working in partnership with the North Quabbin Regional Landscape Partnership in Massachusetts to develop a case study demonstrating how an RCP can apply TNC's

new climate model to its conservation plan in balance with traditional considerations. Other RCPs will provide feedback on methodology and practicality—and insights on how to disseminate the strategy to all 38 RCPs in New England. This project was supported through the Open Space Conservancy's Resilient Landscapes Initiative, which is made possible with a lead grant from the Doris Duke Charitable Foundation.

Ecological change is accelerating, but a combination of nimble thinking, sound science, and practical application will help us weather yet another New England storm.



The Nature Conservancy recommends focusing on conserving a diversity of geophysical settings as the climate warms, and has compared this approach to conserving a series of ballparks even as the players change over time.



Geophysical settings are unique combinations of geology, elevations, and landforms.

Image adapted from Mark Anderson, The Nature Conservancy.

Choosing Our Battles: Invasive Plant Management at Highstead

Highstead has had numerous approaches to invasive plants over the years and, with nearly 550 exotic plant species in Fairfield County, the problem can seem overwhelming. In order to help focus our efforts to control these invaders, we are developing new management principles.

Under these new strategies, invasive plant management will be proactive, rather than reactive. Efforts will focus on preventing new invasive plants from establishing themselves and also on removing small populations before they become widespread.



Highstead stilt grass in the early fall before the management efforts began.

Background: Illustration of Microstegium vimineum, Tracey Saxby IAN Image Library.

In keeping with Highstead's dedication to ecological stewardship, removal techniques will be by hand or machine, rather than with chemicals, whenever possible. If chemicals are required to treat the invasion, organic products will receive first consideration. Invasive plants that have spread as a direct result of foot or vehicle traffic, such as along the loop road,

are of particular concern and efforts will be made to prevent further spread into uninfected areas. Highstead will also embrace projects with opportunities to develop case studies to share with the public. One example is the recent attempt to manage Japanese stilt grass, *Microstegium vimineum*.

One section of Highstead's property contains large stands of this invasive Asian transplant; however, the majority of our woodlands are free of stilt grass. Applying our new invasive principles to this case, we decided to try to contain this invasive. We cut the stilt grass along our roads to the ground just before it went to seed. The goal was to reduce its spread by foot and vehicle traffic. We documented this process by creating a baseline map of populations in the treatment areas. Next year we will re-measure the stilt grass to evaluate the effectiveness of management techniques.

We will be sure to share our findings with our members. Invasive management, while often an uphill battle, will be easier and more effective when we focus our limited resources on the fights we are sure to win.



Tracking Redding's Forests

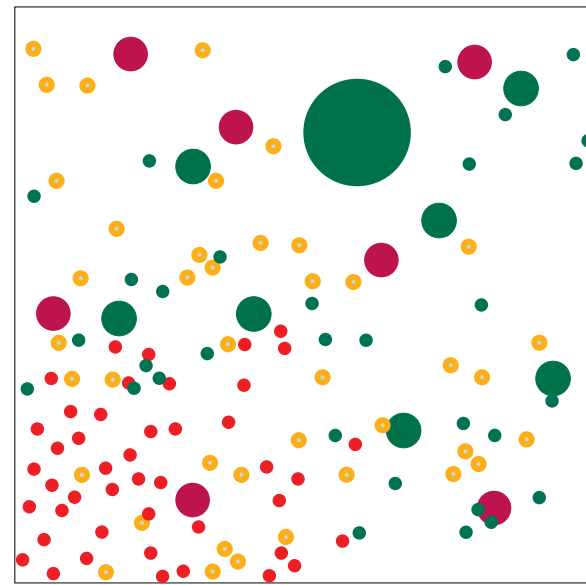
How have our forests changed over the past decade? Ask this question to five different people and you may get five different answers. Rarely does a town have a chance to evaluate the changing nature of its landscape with real data, but a collaborative forest monitoring project between Highstead and the Town of Redding this summer allowed just that.

The project continued work on forest plots established in Redding by Ecologist Ed Faison in 2006. Faison, Redding Open Space Manager John McLeran, and Highstead Intern Alex Petzke returned to 16 plots on four town preserves and re-measured their vegetation. Establishing and periodically sampling permanent plots is a simple but powerful way to document forest change, connect people to their own woods, and provide data to help guide management decisions.

Results showed that plant diversity per plot increased on average by about four species. This increasing pool of species included both native and invasive plants, particularly a greater presence of garlic mustard, burning bush, narrow-leaved bittercress, and Japanese stilt grass.

The data also revealed that Redding's forests have grown more massive, despite recent wind and snow storms, with almost twice as many trees at least 20 inches in diameter. This is good news for mitigating climate change—bigger trees store more carbon than smaller trees—and for wildlife, like pileated and red-bellied woodpeckers, barred owl, and fisher, that rely on older trees for nest cavities.

The protocol used to measure the plots comes from a new regional project developed by Highstead and the Harvard Forest: Wildlands and Woodlands Stewardship Science. The project encourages landowners across New England to establish and monitor permanent forest plots. These plots allow towns and citizens to get more involved in understanding and making more informed decisions about their land. Additional biodiversity monitoring (i.e., small mammals, amphibians, insects) can occur in the plots and take advantage of the existing vegetation data.



●	trees	<i>tulip poplar</i>
●		<i>red maple</i>
●	shrubs	<i>winterberry (native)</i>
●	herbs	<i>cinnamon fern (native)</i>
●		<i>Japanese stilt grass (exotic)</i>

Alex Petzke, John McLeran, and Ed Faison measure the diameter of a tree found in one of their research plots, recording its growth since 2006.



Importantly, one need not be a scientist to collect basic forest measurements. With a little guidance, interested citizens can track changes in their own forests over time and contribute to an important body of regional information.

Highstead Interns Make their Mark

2013 ushered in four impressive Highstead interns in conservation, ecology, and communications who led the way on a number of important local and regional initiatives and added tremendous vitality to Highstead's work and staff. Thank you!

Ecology

Highstead Ecologist Ed Faison has frequently noticed that saplings on the property seem to snap where male deer have rubbed their antlers in previous years to mark territory. Working with Faison, summer Ecology Intern Alex Petzke set up a long-term experiment examining if rubbed trees have lower rates of survival than non-rubbed trees. This research is a component of Faison's work on the role of large herbivores in a changing New England landscape. Petzke said, "Not everyone commits to performing important ecological research over a long time scale. I like that I've been part of something that will continue."

Communications

Sarah Ganong came to Highstead in June as an intern, and has subsequently been hired as a communications associate to take a lead role in promoting W&W through social media and to contribute to other major projects including a W&W website redesign. According to Ganong, "Highstead plays such an important conservation role in both Redding's local landscape and across New England with the W&W initiative. It's been a terrific opportunity to communicate successes and upcoming projects in a wide range of media."

Above, from left to right: Maria Loughran, Jeb Stevens, Sarah Ganong, and Alex Petzke.



Conservation Interns Jeb Stevens and Maria Loughran review ArcGIS maps of southwestern Connecticut.

Conservation

Highstead's two fall conservation internships are a vital component of our work to advance priority research and policy initiatives. Maria Loughran played a lead role in organizing November's Regional Conservation Partnership (RCP) Network Gathering, an annual conference that brings together partners across New England and eastern New York to learn about innovative and effective tools to advance conservation through effective collaboration. Jeb Stevens worked to advance New England forest policy and implement key GIS mapping projects. Both interns helped the Fairfield County RCP move forward in important ways.

"It has been a very rewarding experience," Loughran noted. "Working at Highstead has redoubled my commitment to an environmental career."



The Four Pillars of Conservation

Highstead Senior Fellow Jim Levitt has pursued a number of regional, national, and international projects this year focused on innovative large landscape conservation. Closest to home has been a new collaborative report on the Greater Quabbin Conservation Investment Zone, a pilot initiative focused on advancing recommendations from Levitt's earlier work on the Massachusetts Commission on Financing Forest Conservation.

Funded through a Jessie B. Cox Charitable Trust grant, the 2013 report is the result of research and dialogue among a diverse group of local conservationists, business owners, community leaders, and state and local officials on application of the four pillars of conservation identified by the Commission:



Farmers display organic vegetables from Red Fire Farm in Massachusetts, a potential stop on the proposed Quabbin Byway Trail.

Photo Credit: Sarah Voiland.

resource-based development that takes advantage of the area's agricultural and forestry heritage and natural splendor.

The report suggests that creation of a Quabbin Byway Trail in this central Massachusetts area is but one example of a project that would highlight regional attractions, including inns, wildlife refuges, museums, and renewable energy facilities. Such projects benefit the rural economy while also increasing interest in land conservation.

According to Jim Levitt, "This broad approach to conservation brings in a wide spectrum of stakeholders and has the potential to build greater support for land protection efforts and help strengthen the future of this region overall."

1 Aggregation: Move beyond landowner-by-landowner conservation to multi-parcel, multi-landowner deals to protect land at a much larger scale.

2 Mitigation: Attract funds available from forest carbon credits, wetland mitigation, hydropower compensation, and more to achieve accelerated conservation.

3 Compact Development: Conserve the rural environment through smart growth and other advanced zoning principles.

4 Rural Economic Development: Promote innovative natural

Reaching Landowners Today about Tomorrow

A remarkable 86% of New England's forested landscape is privately owned, much of it in very small parcels. The future of our region thus depends on reaching myriad landowners on the importance of conservation and sound stewardship. How to do so successfully is the focus of an innovative three-year project overseen by Highstead since 2011.

The pilot project helps land trusts and foresters work together to develop more effective strategies for engaging and educating landowners on how to manage and conserve their lands. Funded with a grant from the U.S. Forest Service to the North East State Foresters Association, four interstate regional conservation partnerships are now implementing and evaluating multiple landowner outreach approaches.

Mary Tyrrell, Executive Director of the Global Institute of Sustainable Forestry at Yale, trains project participants on landowner outreach methodologies developed by the Sustainable Family Forests Initiative.



Project participants have already identified several local programs and event strategies that are increasing landowners' knowledge and interest in the future of their land. Highstead is now working with the State Foresters to develop a second phase project that will extend this work to the Connecticut River watershed and the border between New Hampshire and Maine.

The expanded initiative will focus on successful programs such as "Foresters for the Birds" (see below) and provide two more years of landowner outreach and evaluation. The pilot project is being closely watched because existing outreach programs have a mixed record, even though the future of our regional landscape depends on committed landowners who choose to conserve and manage their lands wisely. Highstead is pleased to be part of a major, collaborative initiative providing effective new models for landowner education and outreach.

Blackburnian warblers are one of many woodland songbird species that can benefit from improved timber harvesting methods.

Photo credit: Patrick Comins.

Foresters for the Birds



Foresters for the Birds trains consulting foresters to assess and protect songbird habitat while managing for timber. Developed by Audubon Vermont and Vermont Forests, Parks & Recreation, this four-year program is already making a notable difference on the landscape. "I've shown landowners the Foresters for the Birds toolkit and I say, 'this is what you can do and this is how it's going to improve bird habitat.' You can see the lightbulb go off," says Scott Sylvester, a consulting forester in Massachusetts.



Highstead: Nature+Art

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Highstead celebrated its 15th anniversary art exhibit with the Greater New York Chapter of the Guild of Natural Science Illustrators this fall.



Celebrating

15
years