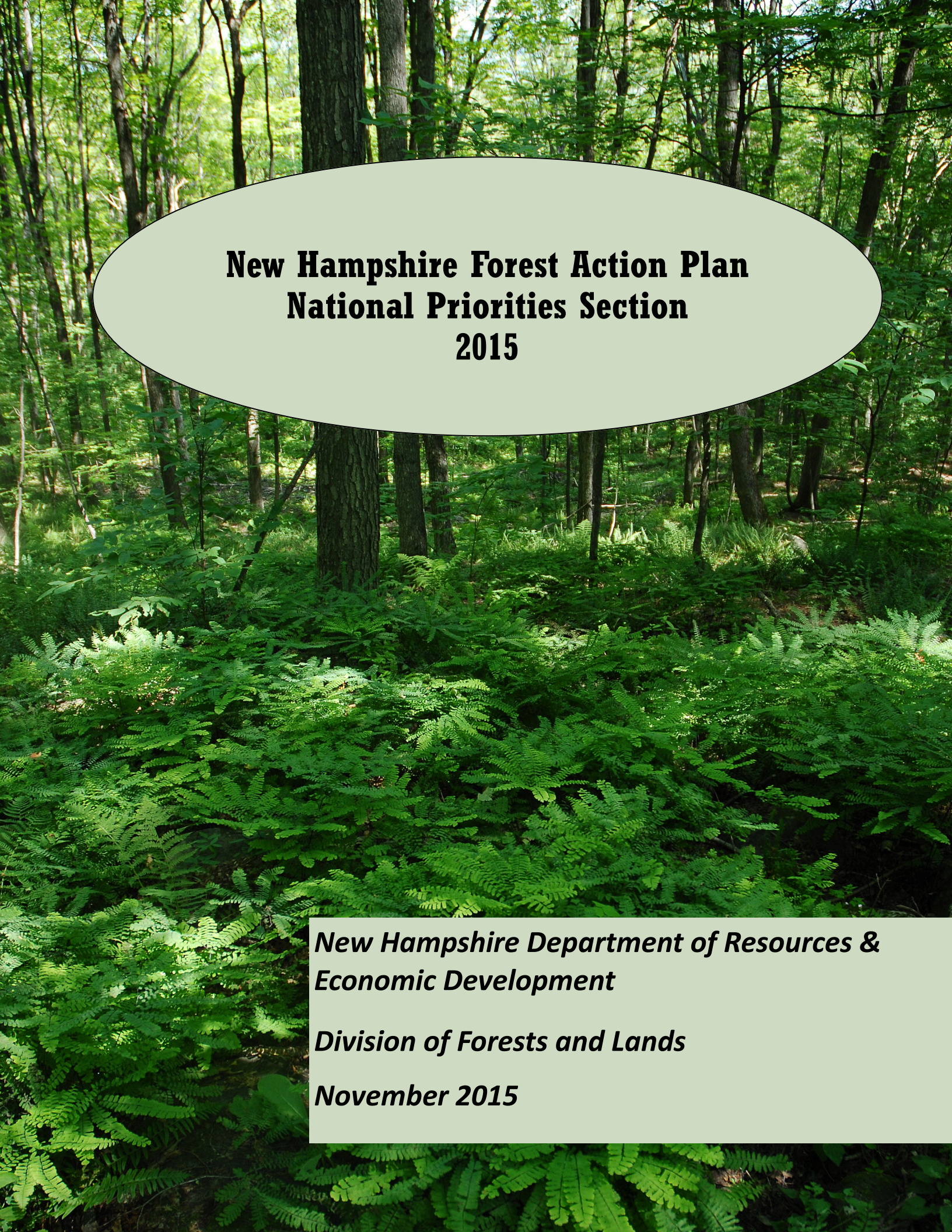


New Hampshire Forest Action Plan
National Priorities Section
2015

New Hampshire Department of Resources & Economic Development

Division of Forests and Lands

November 2015

The New Hampshire Division of Forests & Lands is an equal opportunity employer and provider.

Introduction

New Hampshire has a 60-year history of evaluating and assessing the needs of the state's forests. The first New Hampshire Forest Plan was written by a committee appointed by Gov. Sherman Adams in 1952. In 1981 the state codified this tradition by passing the "Forest Resources Planning Act," requiring a comprehensive statewide plan to be prepared every ten years.

In the 2008 Farm Bill, under Title VIII – Forestry, (reauthorized in the 2014 Farm Bill) the Cooperative Forestry Assistance Act of 1978 was amended to include the requirement that each state develop a long-term, statewide assessment and strategies for forest resources. These assessments and strategies focused on three national priorities:

- Conserve and Manage Working Forest Landscapes for Multiple Values and Uses
- Protect Forests from Threats
- Enhance Public Benefits from Trees and Forests

The 2010 Forest Resources Plan (renamed Forest Action Plan or FAP) is New Hampshire's fifth statewide forest assessment and plan. The plan reflects the input provided by individuals and groups within the NH natural resource community and from the public, and review of existing plans and assessments. The result is a comprehensive document organized by National Priorities that includes 8 focus areas, 40 issues, and 145 distinct strategies. As with previous plans, the 2010 FAP addresses the needs of all forest land in the state, whether public or privately owned.

Recognizing the value of documenting the impact of successful implementation of plan strategies, the US Forest Service, National Association of State Foresters, and the State & Private Forestry Board determined that states should conduct a 5-year review of plan implementation progress and develop a new FAP section entitled "National Priorities." This new section links plan success to the 3 national priorities. National Priorities section requirements are:

1. The National Priorities section will include three subsections based on the national priorities identified by Congress in the 2008 Farm Bill:
   - Conserve and Manage Working Forest Landscapes for Multiple Values and Uses
   - Protect Forests from Threats
   - Enhance Public Benefits from Trees and Forests
2. Each state, territory, and the District of Columbia have the flexibility to describe actions and success stories contributing to each national priority. This can be a text-only narrative or also include photos, graphics, and numeric measures.
3. The National Priorities section will be added to each FAP no later than November 20, 2015 and then updated with each FAP update.

This new National Priorities section of the *2010 New Hampshire Forest Action Plan* includes a representative sample of projects, both completed and ongoing, that demonstrate how state and federal investments have resulted in successful, measurable outcomes. It is not intended as a comprehensive list of New Hampshire FAP-related projects, but rather a sampling of accomplishments and highlights at the mid-point of the plan's life.

National Priority 1.

Conserve and Manage Working Forest Landscapes for Multiple Values and Uses

State Focus Addressed: Enhancing Urban and Community Forestry

State Issue Area(s) Addressed: Managing community forests & ecosystems sustainably; Supporting NH's urban and community forests through outreach and education.	
Project Title	**Measure of Success**
Stormwater Treatment with Trees: Evaluation and Outreach	Installation of Tree Box Filters; collection and analysis of storm runoff; preparation of outreach material; replication of project in other communities

Project Description:

Funded through a USDA Forest Service competitive grant, the purpose of this project was to demonstrate, assess, and document the use of tree box filters in an urban landscape to reduce the threats from stormwater runoff. The project took advantage of a planned streetscape redevelopment in the coastal city of Portsmouth, NH. The NH Division of Forests and Lands partnered with the University of New Hampshire Cooperative Extension to assist the city with tree selection and planting of the trees in box filters, provide technical assistance regarding tree care and maintenance to ensure successful growth, and conduct stormwater monitoring and assessment for thirteen storms during the summer of 2011. Additional project partners included the UNH Stormwater Center and the City of Portsmouth – Public Works Department.

Completed tree box installation and planting.

Accomplishments:

By monitoring the economic and ecological effectiveness of tree box filters and by targeting related outreach activities toward municipalities, the project helped the community upgrade urban infrastructure, improve water quality and foster a culture of environmental stewardship. The UNH Stormwater Center staff analyzed the data collected and prepared a summary report. The report indicated that the tree box filtered showed strong water quality treatment performance for the monitoring period (Summer 2011). An on-site educational program was conducted for members of the NH Landscape Association to encourage installation of tree box filters and rain gardens to mitigate urban stormwater run-off. Another program was presented to local community members and included information on future infrastructure development of the area. Experience gained from this project will be used to develop a series of new education displays for use at the Division of Forests and Lands, Urban Forestry Center. Publications developed include: Performance Evaluation Report of the Portsmouth Tree Box Filter Unit; Treating Stormwater with a Tree Box Filter in a Coastal New England City – A Field Study of Effectiveness and Community Guidance for Installation.

Tree box installation

National Priority 1.

Conserve and Manage Working Forest Landscapes for Multiple Values and Uses

State Focus Addressed: Good Forest Stewardship of New Hampshire's Forests

State Issue Area(s) Addressed: Sustaining forest management on private lands; Supporting NH's private and public forests through outreach and education	
Project Title	**Measure of Success**
New Hampshire's Forest Stewardship Program	Landowners influenced, acres influenced, acres referred to foresters for management; numbers and acres of forest stewardship plans written

Project Description:

The Forest Stewardship Program promotes long-term stewardship of private forest lands, particularly in priority landscape areas. Eighty-three percent of New Hampshire is forested with the majority of the state's forest land in private ownership. The actions of private landowners affect the quality of life for New Hampshire residents and effect wildlife habitat, the economy, the scenic backdrop for the tourism industry and the environment. These benefits depend on the informed decisions of landowners and the resource professionals who work with them. The Forest Stewardship Program provides: one-on-one technical assistance on the woodlot; information and education through workshops and social and traditional media; stewardship planning and implementation assistance; training for natural resource professionals; and comprehensive training for Coverts Cooperator volunteers.

Accomplishments:

As a result of individual contacts and workshop-based activity, the Forest Stewardship Program referred 254 landowners owning 14,249 acres to licensed foresters who wrote forest stewardship plans on over 56,000 acres. Plan development by foresters represents approximately $1.12 million of direct economic activity as well as improved management and timber harvesting. 21% of New Hampshire's private forest land is managed according to an integrated forest stewardship plan.

Hillsborough County Forester, Jon Nute, shows a landowner how to us a tree-measuring a stick.

National Priority 1.

Conserve and Manage Working Forest Landscapes for Multiple Values and Uses

State Focus Addressed: Good Forest Stewardship of New Hampshire's Forests

State Issue Area(s) Addressed: Sustaining a forest land base; Sustaining forest management on private lands; Loss of open space	
Project Title	**Measure of Success**
Forest Legacy Program—Androscoggin Headwaters Conservation Project	Acres protected through acquisition in fee and conservation easements

Project Description:

The economy of Northern New Hampshire was anchored for generations by the pulp and paper industry until 2006 when the historic mill in Berlin closed permanently. As part of the decline of the pulp mill, hundreds of thousands of acres were divested and parceled out to new owners creating instability for the region's forest products economy, outdoor recreation economy and for members of the community. These new timberland owners were looking for a return on their investment, which meant that some of the most attractive development parcels around ponds and mountain views were newly threatened. It also meant that there were new opportunities for conservation, where land trusts and public agencies identified thousands of acres that were desirable for protection due to their recreation value, wildlife habitat, and scenic beauty.

At Lake Umbagog, 30 miles upstream from Berlin at the headwaters of the Androscoggin River, the US Fish and Wildlife Service established a national wildlife refuge in recognition of the important wildlife habitat for waterfowl, cold water fish species, and a variety of upland species. This refuge went through a significant boundary expansion in 2009 and as part of the public process there was significant community debate about finding the right balance between conserving wildlife habitat and maintaining the timber base for commercial forestry.

The Trust for Public Land, a national non-profit land trust, worked with the Plum Creek Timber Company, one of the nation's largest private landowners, to develop a comprehensive conservation strategy for the 31,300 acres Plum Creek owned next to the Umbagog National Wildlife Refuge and the Androscoggin River. The Androscoggin Headwaters Project aimed to conserve the most important wildlife habitat through fee purchase and conveyance to the US Fish and Wildlife Service or New Hampshire Department of Fish and Game. The balance of the lands would be conserved with a working forest conservation easement held by the New Hampshire Department of Resources and Economic Development and funded by the USDA Forest Service Forest Legacy Program (FLP).

Big Greenough Pond, Wentworth Location

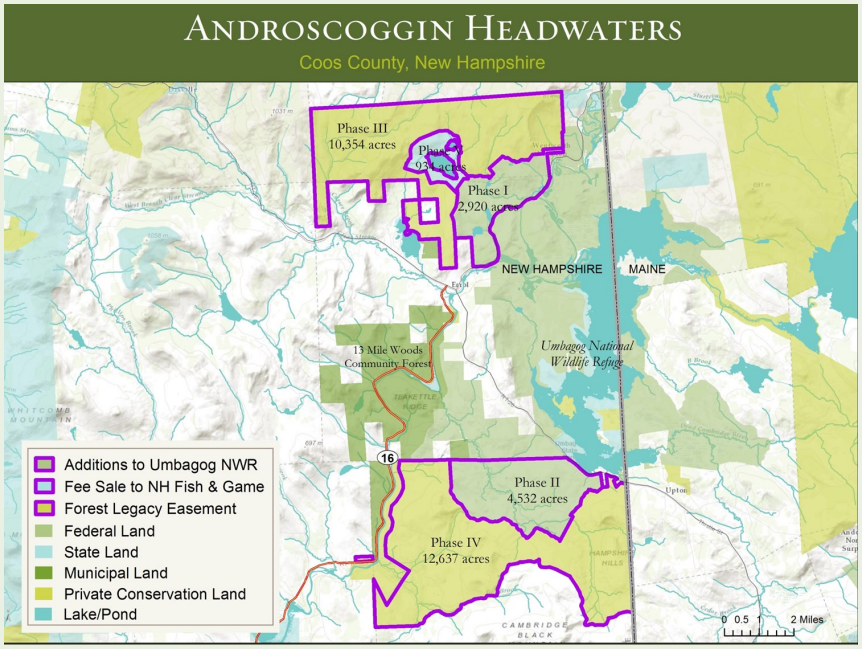
Project Description, continued:

This ambitious project required buy in from numerous agencies, stakeholders and the political leadership of the state. The way the project was structured, there was less federal land acquisition than the Umbagog Refuge management plan contemplated, but much more than there had ever been before. And the State of New Hampshire's working forest conservation easement crossed over into lands that had originally been proposed for federal acquisition, which required agreement among several public agencies. At over 31,000 acres, this was the third largest conservation project in the State's history and it required a multi-year conservation investment from over a dozen funders to secure over $17 million.

Accomplishments:

Photo by Jerry Monkman

This Androscoggin Headwaters Project was consummated in a 5-phase project structure that unfolded between 2010 and 2014. In Phases I and II, the Umbagog Refuge acquired 7,455 acres in fee. Phases III and IV had the State of New Hampshire acquire 22,957 acres in Forest Legacy working forest conservation easements. Finally, in Phase V, the New Hampshire Department of Fish and Game acquired 934 acres around the Greenough Ponds, two of only three of New Hampshire's self-sustaining wild brook trout ponds. At the end of the project, 27% of the property was purchased in fee and wildlife conservation will be the dominant value. The remaining 73% will stay a private commercial forest and the conservation easement guarantees that harvesting will be done sustainably and take into account recreational and wildlife values. All of the property will stay open to public access for hiking, hunting, fishing and snowmobiling.



National Priority 2.

Protect Forests from Threats

State Focus Addressed: **Protect Forests from Threats; Maintain Ecosystem Health**

State Issue Area(s) Addressed: Threats to forests from invasive plants, insects, and diseases; Supporting NH's ecosystem health through research, outreach & education	
Project Title	**Measure of Success**
Partnering with The American Chestnut Foundation to establish breeding orchards and seed orchards on State Reservations	Orchards established, seedlings surviving after inoculation

Project Description:

In 2008, The American Chestnut Foundation (TACF), in partnership with the Division of Forests and Lands, established New Hampshire's first American chestnut breeding orchard at Shieling State Forest in Peterborough. Over 100 B3F2 nuts (2nd intercross between chestnuts that are genetically 15/16th American) were planted from a mother tree in Farmington, NH pollinated with backcross pollen from TACF's Meadowview Research Farm.

In spring 2015 TACF and the Division expanded the project by establishing a test planting of resistant B3F3 chestnut at Vincent State Forest in Weare. B3F3 nuts are those tested for release in wildland settings. In spring of 2016 an additional breeding orchard will be established at Fox Forest in Hillsborough, NH

Accomplishments:

Shieling orchard—In spring 2016 the surviving saplings will be inoculated with a virulent form of the chestnut blight fungus. Those seedlings showing the greatest resistance will be used for further backcrossing to an American parent.

Vincent State Forest—The test plantings at Vincent consisted of planting 500 nuts in clusters of 50 to 100 nuts at varying distances from the edge of an eight acre clear cut. Approximately 50% of the nuts were planted in tube shelters. This combination of planting distances and shelters will help to establish the level of predation on nuts and germinating seedlings and help to determine if distance from cover will provide adequate protection to establish chestnut trees.

Fox Forest—Planting of B3F2 plots at Fox Forest will begin in spring 2016. Like the Shieling orchard, established saplings will be inoculated after 6 years of growth.

Establishing the chestnut orchard at Shieling State Forest, Peterborough, NH

National Priority 2.

Protect Forests from Threats

State Focus Addressed: **Protect Forests from Threats; Maintain Ecosystem Health**

State Issue Area(s) Addressed: Threats to forests from invasive plants, insects, and diseases; Supporting NH's ecosystem health through research, outreach & education	
Project Title	**Measure of Success**
Preventing Spread of Dangerous Insects through Targeted Enforcement of Firewood Movement	Reduction in number of offenders in successive enforcement details; reduction in volume of firewood entering the state illegally

Project Description:

Working with partners, including the NH Department of Agriculture, Markets and Food, and the USDA APHIS, the NH Division of Forests and Lands Forest Protection Bureau has conducted five firewood quarantine enforcement details at the New Hampshire Motor Speedway (NHMS) since 2013. This NASCAR racetrack, located in a forested setting of rural New Hampshire, contains several thousand campsites and is a prime vector for firewood entering into the state from all over the country. One of the largest Emerald Ash Borer outbreaks in the state is across the road from the racetrack, and another recently-discovered invasive pest, Red Pine Scale, is located along the main State road leading to the racetrack. NHMS officials were eager and willing to work with the division in preventing further spread of damaging forest pests through illegal firewood movement. Through such actions as pre-event advertising to their campers about the dangers of moving firewood, providing an on-site vendor for firewood, and allowing division enforcement personnel to set up a checkpoint and firewood disposal area, the NHMS and the division have worked together to slow and hopefully prevent the spread of dangerous forest pests.

Accomplishments:

The first enforcement details, conducted in July and September, 2013, netted over 200 violators and approximately 4-8 cords of illegal firewood over a multi-day period. Firewood was found from approximately 30 states, including from as far away as California. During the 2013 and 2014 checkpoints, each vehicle entering the campground had contact with a Division of Forests and Lands Forest Ranger, which provided an excellent educational opportunity. Two subsequent enforcement details in 2015 netted 43 violators for approximately four cords. Numerous campers commented that they knew from previous times not to bring firewood. Targeted enforcement details have therefore resulted in a steady decline in the number of violators as well as the volume of illegal wood.

Firewood confiscated at 2014 NHMS checkpoint

National Priority 2.

Protect Forests from Threats

State Focus Addressed: **Protect Forests from Threats; Response to Forest Damage**

State Issue Area(s) Addressed: Threats to forests from invasive plants, insects and diseases	
Project Title	**Measure of Success**
Establishing Laricobius beetle insectaries in southern New Hampshire.	Successful establishment of insectaries, successful distribution of Laricobius beetles in HWA infested areas

Project Description:

Hemlock Woolly Adelgid (HWA) is an invasive insect causing widespread mortality of eastern hemlock across the eastern United States. One strategy to manage the adelgid population in New Hampshire is to introduce bio-control predators capable of surviving, reproducing, and synchronizing their life stages with woolly adelgid in eastern climates. *Laricobius nigrinus* is the preferred predator beetle as it is native to North America and feeds exclusively on hemlock woolly adelgid. To produce enough Laricobius beetles to spread throughout the range of HWA in New Hampshire and the Northeastern States two insectaries were established in southern New Hampshire. These insectaries will be managed for the production of Laricobius beetles and a collection from each new generation will be distributed to HWA infestations throughout NH.

Accomplishments:

The Division of Forests and Lands in cooperation with the University of New Hampshire, US Forest Service State and Private Forestry, and Bronnenberg Logging, has begun the creation of two insectaries. The first is a small stand of native sapling hemlocks growing under a thinned white pine forest in Durham, NH. This site is designed to shelter the host hemlocks as the adelgid population flourishes. Laricobius beetles will be transplanted to the site in 2016 when adelgid populations are dense enough to support them. The second insectary is a plantation of hemlock with no overstory at the Urban Forestry Center in Portsmouth, NH. This insectary will raise Laricobius populations on nursery planted hemlocks in the coastal eco-zone.

Laricobius nigrinus beetles are shipped in small containers and are released on host trees in the fall of each year.

National Priority 3.

Enhance Public Benefits from Trees and Forests

State Focus Addressed: Sustaining Economic Benefits from NH's forests.

State Issue Area(s) Addressed: Encouraging new economic opportunities to support forestry in New Hampshire	
Project Title	**Measure of Success**
New Hampshire Wood Energy Council	Number of Ambassador visits, # communities assisted, # feasibility studies, # installations

Project Description:

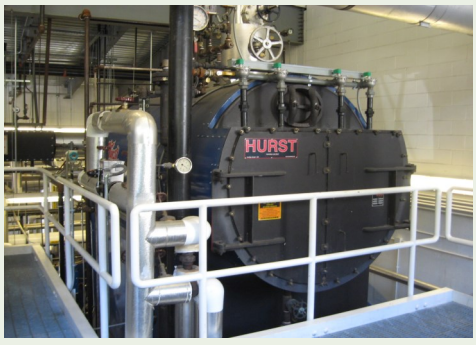
The use of wood biomass for heating, cooling, process energy and electricity production has increased in New Hampshire for several years. Expanding the use of this renewable source of energy in NH is not only possible but beneficial when done within the capacity of the State's forest resources. Continued expansion of the use of wood for energy requires increased education about forest resource availability and the use of the most efficient wood to energy technologies.

In 2013, the New Hampshire Wood Energy Council (NHWEC) was formed. NHWEC is a not-for-profit partnership that provides professional guidance to support growth in commercial and institutional heating with wood. NHWEC brings together individuals, organizations, businesses, industry associations, and government agencies interested in the sustainable use of our renewable forests to help bring energy independence and economic prosperity to the Granite State.

This project is coordinated by North Country Resource Conservation & Development and funded through a grant from the USDA Forest Service. Components of the program include assistance of trained experts to aid community or business leaders in evaluating options and determining whether heating with wood is smart choice for their buildings, and providing coaches to help project leaders connect with qualified vendors and engineers.

Accomplishments:

Since initial organizational meetings in late 2013 and early 2014, the New Hampshire Wood Energy Council (NH's SWET- State Wood Energy Team) has undertaken aggressive outreach and education activities throughout NH and provided technical assistance to 49 communities, institutions and commercial entities across the state in the form of Ambassador visits and Pre-Feasibility Analyses.



Newly installed boiler at Glencliff Nursing Home.

The NHWEC has four operational components. The NHWEC Advisory Team numbers around 40 volunteer individuals and is a public/private mix of agency, non-profit, and industry representatives. It meets quarterly to set policy and direction. The Outreach and Education Team is a subset of the Advisory Team and develops and monitors all outreach and education activities. The Project Support Team, which is also a subset of the Advisory Team creates process for the provision of technical support, reviews and acts on applications for assistance and monitors progress of applications. The fourth operational component is administrative.

Accomplishments, continued:

The North Country Resource Conservation and Development Council is the SWET Grant recipient and as such is the coordinator of all NHWEC activities and responsible for coordination with the USFS. North Country RC&D develops and administers all contracts for educational programming and technical assistance and support.

Outreach and Educational highlights include:

- Creation and maintenance of website (nhwoodenergycouncil.org) which explains services, contains resources, database of installations, case studies, expert contacts, vendor list and more.
- Traveling display to numerous conferences and meetings.
- E-newsletter (3/year) with a distribution of over 2500.
- 10 targeted presentations to interest groups.
- Direct mail to targeted audiences (schools, municipalities, DPW directors etc.).
- Video on website and via U-Tube.
- Use of Social media (Facebook, Twitter and use of Google Ads).
- 26 Ambassador visits made by NHWEC representatives to introduce prospect recipients of services. To date, Ambassador visits have resulted in 11 Applications for Assistance.
- 16 Tours and 4 Open houses.
- To date, 4 highly popular “boiler operators” workshops.
- 2 webinars one with the NH Sustainable Energy Association and Local Energy Work group on Modern Wood Heating 101 and Financing Modern Wood Heating Projects 101.
- Creation and maintenance of a database of modern wood heating installations in NH with contact information.

Project Technical Support highlights include:

- Creation of a team of 4 “Coaches” who perform Pre-Feasibility and Feasibility Analyses.
- Creation of a Pre-Feasibility Template which is used by all Coaches.
- 22 Pre-Feasibility and 1 Feasibility Analyses approved and completed. 4 underway.
- 3 installations in process.

Bulk chip delivery at Mascenic Regional School

National Priority 3.

Enhance Public Benefits from Trees and Forests

State Focus Addressed: Sustaining Environmental Benefits from NH's Forests

State Issue Area(s) Addressed: Sustaining environmental benefits through research, education and outreach; Sustaining environmental benefits by sustaining well-managed forests	
Project Title	**Measure of Success**
Northern long eared bat monitoring	Percentage of timber sale areas monitored, positive results resulting in management modification.

Project Description:

Several genera of native bats in North America have been severely impacted by White Nose Syndrome which is caused by an introduced fungus (Pseudogymnoascus destructans) from Europe that is found on the noses, wings and other hairless body parts of bats. As a result, the populations of several native bat species have precipitously declined in recent years. Although forestry operations are generally considered to improve bat habitat conditions, there are concerns about the incidental take during tree felling activities on timber harvesting operations. The Northern long eared bat has been federally listed as 'threatened" by the US Fish and Wildlife Service.

During the winter months bats hibernate in caves and are not prone to take from logging operations so long as logging is not being done near the winter hibernacula. Summer season timber harvests are particularly dangerous because young bats are not able to fly until mid-summer and are found in trees during day time hours throughout the summer.

Accomplishments:

The Division of Forests and Lands in conjunction with the Fish and Game Department and the White Mountain National Forest has begun an acoustical monitoring program on state reservations and wildlife management areas scheduled for forest management operations outside of the winter season. Forest operations are primarily timber harvests but can include other activities such as prescribed burning. The monitoring is done using the protocol for Indiana bat as specified by the US Fish and Wildlife Service. If Northern long eared bats are detected, the timber sale is restricted to times of the year when bats are not roosting in trees.

The results of the monitoring are shared with the US Forest Service and the US Fish and Wildlife Service to better compile state-wide bat data for several species. Currently there is little known about many species of native bats.

High frequency microphone set up in the forest to detect bat echolocations

National Priority 3.

Enhance Public Benefits from Trees and Forests

State Focus Addressed: Sustaining Environmental Benefits from NH's Forests

State Issue Area(s) Addressed: Sustaining environmental benefits through research, education and outreach	
Project Title	**Measure of Success**
Wetland Assessment Training	Participants will understand principles of ecological condition assessment using existing information and by collecting field data.

Project Description:

Ecological integrity can be defined as an assessment of the structure, composition, and function of a wetland system as compared to reference. Utilization of the wetland system classification is critical for comparison to reference examples and for enhancing a surveyor's ability to assess condition through an improved understanding of the wetland's ecology. The Ecological Integrity Assessment (EIA) is a method for evaluating wetland systems based on major ecological attributes of landscape context; size; and the condition of the vegetation, soils, and hydrology. EIA informs conservation planning through more objective site comparisons by using conservation ranks and ecological integrity scores. By conserving an adequate number of viable examples of each system type, we protect the majority of NH's species.

The New Hampshire Division of Forests and Lands Natural Heritage Bureau developed and provided EIA training to natural resource professionals, Conservation Commission members and other municipal officials and land trust staff. The goal of the training was to provide a simplified approach to wetland assessment to increase its use. The training sessions were supported by a Wetlands Program Development Grant from the U.S. EPA.

Accomplishments:

Two 2-day trainings were held in July 2015. Each training included both indoor and outdoor sessions. The indoor session included discussions about wetland condition evaluation, wetland system classification, and evaluating landscape context, size and stressors. The field session included classifying wetland systems using keys and evaluating their condition using EIA forms. Approximately 60 people attended the trainings.