Forest Health Highlights

New Hampshire

February 2000

The Resource

New Hampshire's forests provide a wide variety of goods and services to an ever-increasing number of residents and visitors to our state. These forests provide pleasant surroundings for outdoor recreational pursuits; critical habitat for fish, birds, and wild animals; a giant sponge to absorb and cleanse our water supply; and countless goods to serve our daily needs as paper products and shelter. We could not survive without them.

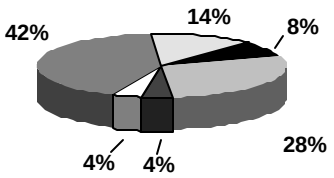
Maintaining healthy forests in New Hampshire is important. A healthy forest provides a positive quality of life that is important to those who live, work, and recreate in the state of New Hampshire.

- **87 % of the state is forested (4,987,200 acres)**

Out of the forested area:

- **96.5 % timberland**
- **3.5 % non commercial or reserved forestland**

Major Forest Types:



- oak/hickory (8%)
- white/red pine/hemlock (28%)
- aspen/birch (4%)
- other (4%)
- northern hardwoods (42%)
- spruce/fir (14%)

Special Issues

There were no widespread forest pest outbreaks in New Hampshire in 1999. The most noticeable damage across the landscape is still the residual tree and branch breakage from the 1998 **ice-glazing storm**. The ice-damaged trees have now had two seasons to recover and rebuild. During the 1999 aerial survey, 112,000 acres of ice damage were mapped on State and private lands. The ice damaged acreage mapped over this same area during the 1998 aerial survey was 286,000 acres.

For the first time in the state, **Hemlock woolly adelgid** was found on one small ornamental hemlock in Hillsborough Country. It appears that the hemlock sapling contained the adelgid infestation when purchased and no other hemlocks in the area are infested. The infested hemlock was removed and destroyed. Hemlock woolly adelgid is not established in New Hampshire. This has been the only confirmed sighting of hemlock woolly adelgid in the state. Hemlock woolly adelgid was introduced to the United States in 1924. The closest current infestation is in Massachusetts, near the New Hampshire border.

In the northern part of the state, another exotic pest was found for the first time. A beetle called the **common pine shoot beetle** was collected in an insect pheromone trap about four miles south of the Canadian border, in Coos County. This insect kills pine shoots and reduces tree growth. It's preferred host is scotch pine, but it will attack several species of pine, including white pine. Insect trapping will be expanded in 2000 to determine the extent of this beetle's range.

Early spring **drought** appears to have been the cause of undersized red maple leaves in localized areas. Many of the red maple had a heavy seed crop in 1999 and this, combined with the small leaves, made the trees look tufted and brown. These trees normalized over the growing season. Drought was also the cause of hemlock browning scattered along shorelines in the lower two-thirds of New Hampshire. Officially, all counties south of Coos were in a drought condition during the spring and summer of 1999. Also, a **tornado** that hit Plainfield and Enfield knocked down approximately 200 acres of mixed wood across an eight-mile long swath.

Browned foliage in the seacoast in the spring and early summer was attributed to **ash rust**. Ash rust is a disease that is most severe in coastal regions because it requires the alternate host, marsh grass, to complete it's infection life cycle. The disease overwinters on marsh grass and infects the ash in the spring. This problem has occurred periodically in the seacoast area and is highly weather dependent.

Discoloration on white pine was mapped during the annual aerial survey. In the early spring, white pine pollen was heavy in the crowns and made the white pine appear discolored from the air. After the pollen dissipated, an area of discolored pines persisted, encompassing a large area in central New Hampshire. These pines had an orange-brown tint and the amount of discoloration varied from light to heavy. The discoloration was short-lived and was no longer visible by August. A fungus, air pollution, or weather could have caused the discoloration. White pine discoloration, from various causes, has been reported in New Hampshire fairly regularly over the past 40 years.

Special Issues cont.

The **Gypsy moth** caterpillar did not cause any noticeable defoliation in 1999. *Entomophaga maimaiga*, a fungus that kills the caterpillar, is credited with keeping the gypsy moth population low. However, heavy defoliation by **maple leaf cutter** on sugar maple was common in many areas throughout central and southwestern New Hampshire. Also, **American dagger moth** defoliated a few acres of red and sugar maple in Milan, Coos County.

Large aspen tortrix cause scattered light defoliation on aspen in Coos County, but the population was down dramatically from the previous two years. There was no defoliation by **saddled prominent** or **forest tent caterpillar** and no moths were caught in pheromone traps. In addition, there was no defoliation by **spruce budworm** and the trap catches were very low.

Although no hemlock defoliation was noticed in 1999, **hemlock looper** moths were sighted statewide, possibly signaling the beginning of an outbreak of this insect. Hemlock looper moths were caught in every different type of pheromone trap used in 1999.

Since 1995, butternut trees have been surveyed for **butternut canker**, a disease that has killed butternuts from Wisconsin to Maine. More than 90% of the butternuts found in New Hampshire are infected with the canker causing fungus *Sirococcus clavigignenti-juglandacearum.* This tree is important for forest biodiversity and the Division of Forests and Lands initiated a grafting project to produce a disease resistant seed orchard. In 1999, the effort to help butternut recover continued. Each year brings us closer to our goal of nut production and a healthy scion source that will be used to grow butternuts with high resistance to the disease.

A pilot **evaluation study** was initiated to investigate tree decline associated with timber harvests. The tree decline was detected during general pest detection aerial surveys.

Surveys and public awareness programs concerning **Asian longhorned beetle**, an exotic insect killing trees, including maples, in New York and Chicago, have been ongoing. Fortunately, all reports of insects looking suspiciously like Asian longhorned have been either **white spotted sawyer beetle** (common on white pine) or **western conifer seed bug**.

The entire state was flown for leaf-on photography in 1999. The Color-Infrared aerial photography, at a scale of 1:15,840, is being used for various forestry and planning applications.

Regional Surveys

Interest in regional forest condition prompted the implementation of the National Forest Health Monitoring Program and the North American Maple Project.

FOREST HEALTH MONITORING PROGRAM

The objective is to assess trend in tree condition and forest stressors. All of the New England States have been involved since the program was initiated in 1990. Results indicate that there has been minimal change in crown condition in the last 10 years. In 1999, 98 percent of trees greater than 5 inches diameter had normal crown fullness. About 98 percent of the trees had little or no crown dieback, and 76 percent showed no measurable signs of damage. The most common damage was decay indicators, which were more evident on hardwoods than softwoods. Additional surveys indicate there are concerns for individual species such as ash, butternut, and hemlock due to various damage agents.

Forest Health Monitoring Sites

NORTH AMERICAN MAPLE PROJECT

This cooperative project with Canada was initiated in 1988 to look at change in sugar maple tree condition. There are several states in the Northeast involved including New York, New Hampshire, Vermont, Maine, and Massachusetts. Overall, sugar maple located within the sample sites are in good condition. Periodically, insect defoliation has affected crown condition in some areas. There was little difference found between sugarbush and non sugarbush stands.

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