

Forest Health Highlights

Vermont



September 1999

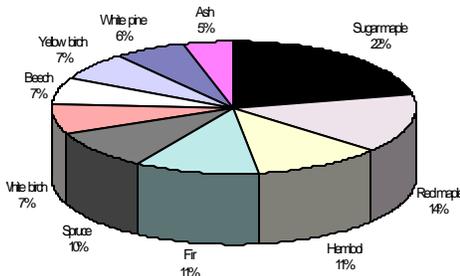
The Resource

Vermont's forests are valuable ecologically, economically, and socially. Covering nearly 80 percent of the state, forests provide jobs, stability to the landscape, wildlife habitats, biological diversity, clear water, scenic vistas, and diverse recreational opportunities. While changes are always occurring to the forests, there are values that Vermonters want to maintain.

A Forest Resource Plan was developed to sustain the many values and meet the various demands on the forest resource. The vision states that: *In the future, the forests of Vermont will consist of healthy and sustainable ecosystems, with a prosperous and sustainable forest products industry, abundant recreational opportunities, and a combination of ownership patterns supporting a working forest landscape and undeveloped forest land.*

78% of the state is forested, covering 4,544,000 acres, with 97% timberland and 3% non-commercial forest.

Most Common Tree Species in Vermont Forests



Special Issues

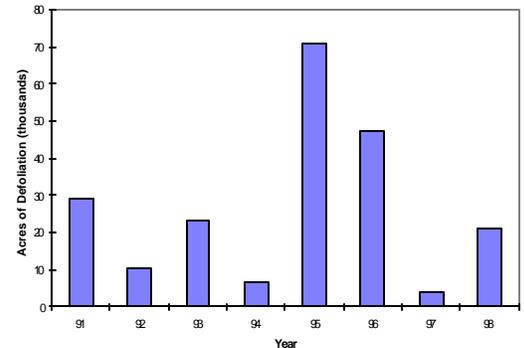
The **January 1998 ice storm** impacted 951,589 acres, one-fifth of the forest land in Vermont (*See map on back page*). The heavy ice loads that weighted trees and caused serious branch and stem breakage affected low elevations in the Champlain Valley (up to 1000 feet) and higher elevations in central and eastern Vermont. Sugar maples were most commonly injured, but damage was more serious on beech and birch trees. Sugarmakers affected by the storm are estimated to have reduced the number of taps by 75,000. Individual tree recovery or decline is expected to occur over the next 3 to 5 years. Several monitoring projects are underway to assess the long-term impact of the storm to the State's forest resource.

On a statewide basis, trends in **sugar maple condition** varied little from previous years, with 93% of sugar maples in the North American Maple Project in a healthy condition, with less than 15 percent crown dieback. The only tree health indicator that showed significant change was mortality as a result of the ice storm. Average annual mortality of overstory trees from 1989 to 1997 was between 0.1 and 0.9%, but rose to 1.7 % in 1998, due to heavy ice damage.

The summer of 1998 was the second wettest and the fifth warmest, as opposed to the drought conditions that occurred during the summer of 1999. In 1998, the warm humid air created conditions that favored development of **leaf diseases**, especially on hardwoods. Anthracnose, a disease which causes dead patches on leaves, was recorded on 243,730 acres of forest. Damage was heaviest on sugar maple, paper birch, and yellow birch. While this foliage disease can reduce the vigor of affected trees, most are expected to recover.

Birch defoliation by birch leaf miners and anthracnose was observed on 21,283 acres of forest in 1998, an increase from 3,842 acres in 1997. Tree recovery is expected, except in locations where defoliation has occurred several years in succession, causing reduced tree vigor, or in areas where trees were already stressed from ice storm injury.

Trend in Acres of Birch Defoliation in Vermont



Pear thrips, a recent pest on sugar maple, defoliated 36,081 acres of forest in 1998. Damage was especially severe in the southern part of the state. In some stands, defoliation was combined with anthracnose disease and trees were left with small ineffective leaves throughout the growing season. High populations of the **maple trumpet skeletonizer** also combined with leaf diseases and left some woods looking brown, with dead and dying leaves.

Hardwood decline and dieback, prevalent in 1997, decreased to 5,675 acres in 1998. **Spruce mortality** was reduced to 784 acres, mostly at high elevations. Tree recovery may have been related to abundant precipitation which occurred in 1998. Historically, wet years have been associated with lower acreages of declining trees.

Special Issues cont.

An unusual **white pine malady** was observed in scattered locations throughout the state in 1998, especially in southeastern Vermont. No single causal agent was consistently associated with the unthrifty crowns. Also, many species had **heavy seed crops**. Spruce, fir, pine, red maple, oak and beech are some of the species observed with heavy seed production, which impacts crown appearance and affects tree health.

Christmas Tree Problems

Two insect pests that cause serious damage in Christmas tree plantations were found at higher than normal levels in 1998. **Balsam shootboring sawfly** populations increased dramatically, affecting about 260 acres. This insect attacks the buds as shoots are emerging and can cause mortality of the new shoots. The **balsam gall midge** causes deformities to new shoots. Galls were found in nearly every balsam fir Christmas tree plantation visited in northern Vermont.

Exotic Insects

Two regionally significant exotic insects, the hemlock woolly adelgid and the Asian longhorned beetle, are not currently found in Vermont. The **hemlock woolly adelgid** is attacking and in some cases causing serious decline of hemlock as near as northern Massachusetts. An external quarantine is in effect to reduce the chances of introduction of the adelgid from infested areas into Vermont.

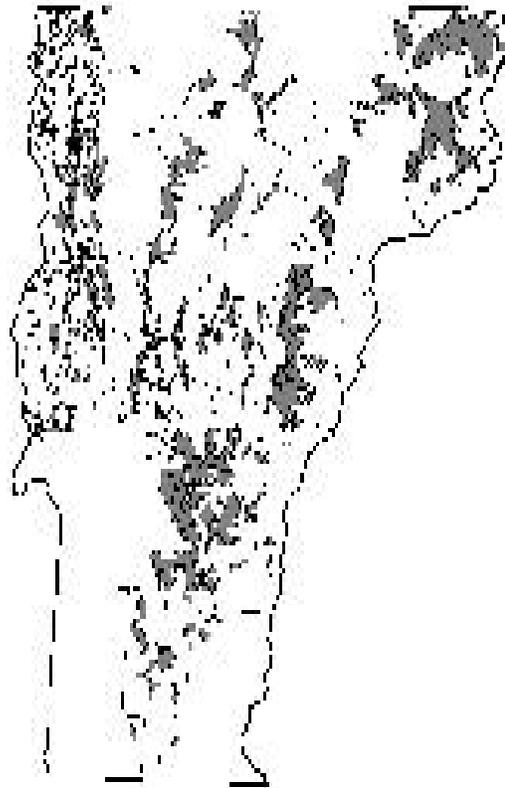
Attempts are underway to eradicate the **Asian longhorned beetle** from parts of Long Island, New York City, and Chicago, Illinois. This large wood boring insect often prefers maples to other tree species. An action plan is under development by State organizations to provide for a quick response if the insect is found in Vermont. The Department of Forests, Parks and Recreation is cooperating with the University of Vermont on a State and regional public awareness program concerning the beetle.

Air quality and Forests

Ground level **ozone** injury to forests is being monitored annually at specific sites statewide as part of the National Forest Health Monitoring program. While ozone exposure can reduce tree growth and tree resiliency, low level leaf damage has been detected on monitored sites in Vermont. Sensitive plant species at 60% of the locations surveyed in 1998 had symptoms of ozone injury.

The New England Governors and Eastern Canadian Premiers have given priority to addressing **acid deposition** impacts on forests through the implementation of their Acid Rain Action Plan of 1998. The action plan identifies mapping forest sensitivity to acid deposition as one of its priorities. Forest resilience to acid deposition depends largely on the ability of soils to buffer the acid inputs, thereby keeping soil nutrition stable for tree growth. The mapping project in Vermont will be completed in 2001.

(Continued from front page) **Areas of moderate and heavy tree damage in Vermont from the January 1998 Ice Storm, based on aerial sketch mapping:**



For More Information

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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 5 years. In 1994, 99 percent of trees greater than 5 inches diameter had normal crown fullness. About 96 percent of the trees had little or no crown dieback, and 78 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.



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.

For More Information

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