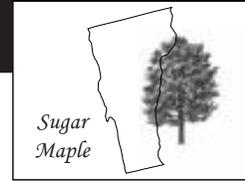


2001 Forest Health Highlights

Vermont



August 2002

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, these are values that Vermonters want to maintain.

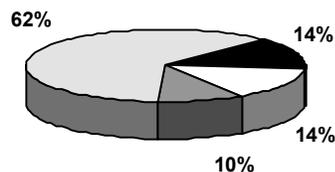
A Forest Resource Plan was developed to sustain the many values and meet the various demands on the forest resource. The vision states that *In the future, the forests of Vermont will consist of healthy and sustainable ecosystems, with a prosperous and sustainable forest products industry, abundant recreational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

Today 78% of the state is forested (4,544,400 acres) compared to 63% in 1948.

Out of the forested area:

- 97.3% timberland
- 2.7% non commercial

Major Forest Types



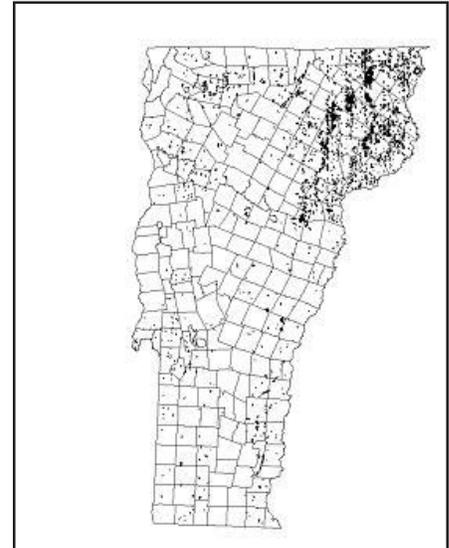
- spruce/fir (14%)
- white/red pine/hemlock (14%)
- other (10%)
- northern hardwoods (62%)

Special Issues

Widespread **drought** was a major forest health concern in 2001. Precipitation was below normal beginning in March and extending throughout the growing season. Dry conditions were more severe in northern Vermont. Effects on trees varied from off-color foliage, to early fall color, premature leaf drop and in some cases bud mortality. While much of the tree damage occurred on drought susceptible sites (ridge tops and shallow soils), less susceptible sites were also affected. During aerial surveys to detect forest health problems, 170,400 acres of drought affected forests were observed. Long-term tree health effects are expected from the drought, especially since precipitation levels continued below normal into 2002.

Tree declines were observed on over 23,400 acres of deciduous forests and 2,600 acres of spruce and fir forests. Hardwood decline increased over 2001 due to drought stress. In addition, 9,600 acres of forests were dead or dying as a result of increased water tables, usually associated with beaver ponds or wetlands. Larch decline, initiated by drought, which are usually followed by infestations of eastern larch beetle, increased noticeably, especially in the Northeast Kingdom.

Drought affected forests



White pine trees throughout Vermont have shown symptoms of stress and decline from known and unknown causes for several years. In 2001, a statewide assessment of white pine trees was conducted which included 21 forests. Nine percent of canopy white pine trees and 5% of young pines were found to be declining. Damage by the white pine weevil, an insect that feeds on the apical shoots, was observed on one third of all canopy trees. Trees that were declining had a variety of symptoms and damage agents, with the most common damages being Caliciopsis disease (20% of declining trees) and pine bark adelgids (18% of declining trees); and the most common foliage symptom being chlorosis (15% of declining trees). A full report from this survey will be published in 2002.

Special Issues cont.

Fluctuations in **insect activity** were varied in 2001. Increased populations of balsam gall midge, balsam poplar leafblotch miner, birch defoliators, and pear thrips were sufficient to cause defoliation problems this year. Maple leaf cutter populations were significant enough to cause widespread damage, but were not as heavy as expected. Forest tent caterpillar, saddled prominent, and spruce budworm populations were not significant forest health problems this year.

Tree disease problems evident in 2001 included beech bark disease, causing extensive chlorosis to affected beech, with damage mapped on 57,914 acres of forest. Butternut canker disease remains widespread, with few living butternuts remaining in some locations of the state.

Continuing evaluations of trees affected by the **1998 ice storm** show recovery by many trees. Foliage is filling in where the storm created gaps in tree crowns, especially in forests where heavy ice damage occurred. One forest that had been thinned soon after the ice damage occurred showed little recovery in the first 2 years following the damage, but in 2001 showed tremendous recovery. This suggests that while forest thinning may delay tree growth initially, normal recovery can be reached after several seasons.

Forest Health Web Sites :

* Vermont Department of Forests, Parks & Recreation: <http://www.state.vt.us/anr/fpr/forestry/protect/frpdir.htm>

* Vermont Monitoring Cooperative: <http://vmc.snr.uvm.edu>

* USDA Forest Service, Northeastern Area Forest Health Protection: <http://www.fs.fed.us/na/durham/>

Exotics

The Common Pine Shoot Beetle is a newly introduced insect that was found in northeastern Vermont in 1999. This insect kills pine shoots during the summer by boring into them. In 2000, the beetle was confirmed to be present in two new Orleans County locations and one location in Caledonia County. A Vermont survey of 56 sites in 7 counties was conducted in 2001 to determine the extent of resident populations. Only 2 adults were trapped, both from one Caledonia County site. No visible damage to pine was present. Currently, a quarantine is being developed to restrict the movement of pine logs, pine bark, Christmas trees and wreath making materials from the affected counties.

The **Hemlock Woolly Adelgid** and the **Asian Longhorned Beetle** were not detected anywhere in Vermont in 2001, despite the presence of these insects in other regional states. The hemlock woolly adelgid is attacking and in some cases causing serious decline to hemlock as near as northern Massachusetts. The Asian longhorned beetle is a large wood-boring insect that often prefers maples to other tree species, and can kill healthy trees in less than three years. The Department of Forests, Parks & Recreation is cooperating with the University of Vermont on a regional public awareness program concerning these two insects.

Gypsy moth populations increased in Addison County this year, and some defoliation occurred on ornamental oaks. Other areas in the state continue at low population levels. No noticeable defoliation is expected in 2002.

Monitoring of Forest Health

Ongoing monitoring of **sugar maple tree health** showed that over 93 percent of trees evaluated were healthy in 2001. The North American Maple Project includes 38 forests in Vermont that have been monitored since 1988. Results over this 14 year period show fluctuations in sugar maple health in response to growing conditions and tree stress events. In 2001, foliage was less abundant than normal. Where foliage problems occurred, there were various causes: defoliation by pear thrips, maple leaf cutter and/or forest tent caterpillar, in addition to summer drought conditions. The incidence of new dead trees, however, improved to 0.75% this year, as trees in forests affected by the 1998 ice storm continue to recover.

A fourth resurvey of the 1985 **Hardwood Tree Health Survey** was completed in 2001 and included acquisition of aerial photography to assess the hardwood resource in Vermont and ground surveys to measure trends in tree condition. A comprehensive report is expected in 2002. In addition, 12 years of data related to the **Forest Health Monitoring Program** have been collected in the state.

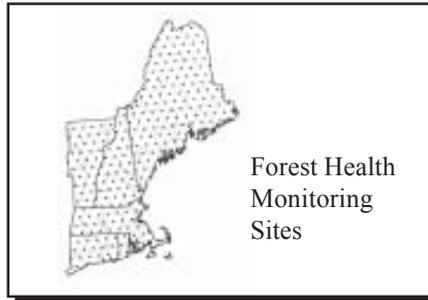
A **forest ecosystem management demonstration project** will be implemented in 2003 to test new forest management techniques that promote old growth forest characteristics. This project is part of the Vermont Monitoring Cooperative's work on Mount Mansfield, and will include new and existing silvicultural treatments, coupled with research on forest ecosystem effects and economic tradeoffs.

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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