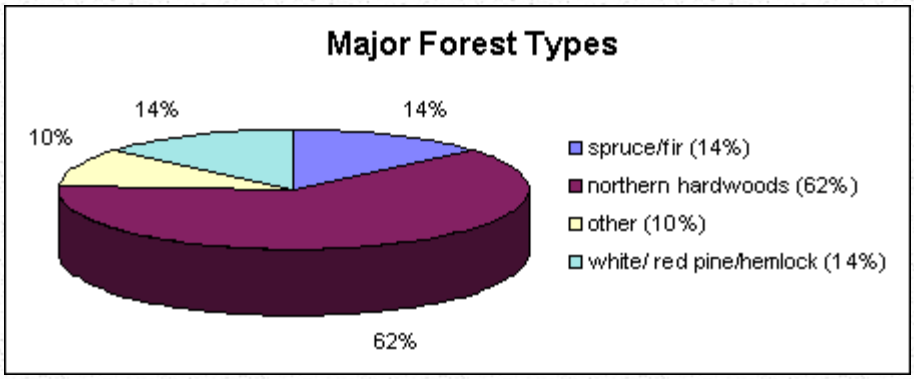
1996 Forest Health Highlights

Vermont

The Resource

The landscape of Vermont is dominated by its forests. They form the basis for its culture and economy. Through its beauty, a sense of place is created. Covering nearly 80 percent of the state, forests provide stability to its landscape, wildlife habitat, clear water to its mountain streams, and diverse recreational opportunities. Forests draw tourists to view scenic vistas and support an important wood products industry. Vermonters are concerned about the health and availability of the forest resource.

The health of forests is dependent on many factors, including how they are managed. Since 90 percent of Vermont's forests are privately owned, promoting better land stewardship can help sustain our forest resources.



- 77% of the state is forested (4,544,400 acres)

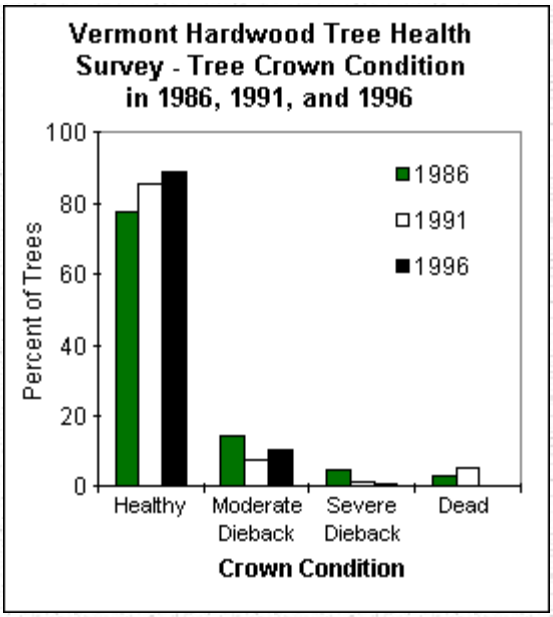
Out of the forested area:

- 97.3% timberland
- 2.7% non commercial

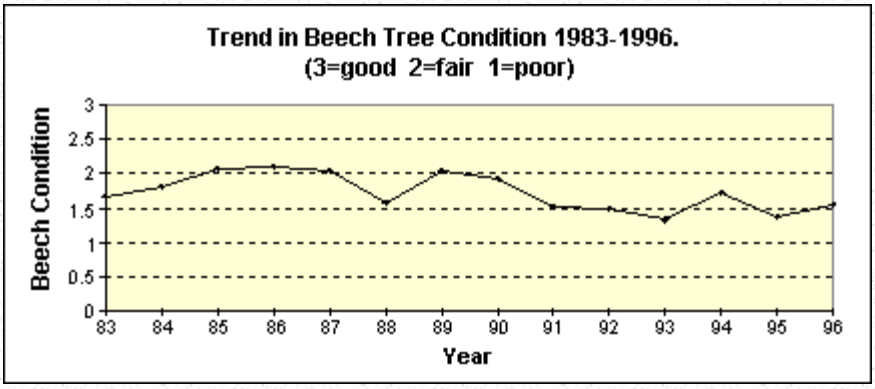
Special Issues

Tree health has continued to improve over the last 10 years. The preliminary results from a statewide hardwood tree health survey show 89 percent of canopy trees are healthy, as compared to 86 percent in 1991 and 78 percent in 1986.

Sugar maple health has been stable over the last 8 years. Nearly 93 percent of Vermont trees surveyed in the North American Maple project were healthy in 1996. Trees were stressed by an unusually dry spring in 1995, but good growing conditions in 1996 helped them recover. Other species also improved since 1995. Over 90 percent of the ash, red maple and yellow birch had healthy crowns. However, nearly one-quarter of the beech trees remained unhealthy, mostly due to beech bark disease. In 1996 oystershell scale, a small twig sucking insect, was also an



important cause of beech dieback, causing damage on 16,000 acres.



Birch trees are affected by many insects and diseases. This year's culprits were mainly birch leaf miner, *Fenusa pusilla* and *Messa nana*, and anthracnose, caused by *Marsonnina betulae* and *Septoria* sp. Damage was widespread at upper elevations, with 47,500 acres of defoliation.

Other Issues

Since **gypsy moths** moved into Vermont in the early 1900s, outbreaks have occurred on roughly 10 year cycles. In 1996, populations began building, but no defoliation was detected. Two natural enemies, a virus and *Entomophaga maimaiga*, an introduced fungus, reduced the population to the 1995 levels. No significant defoliation is expected in 1997.

Leaf diseases are common during years with wet growing seasons and 1996 was no exception. Maple anthracnose, caused by *Gloeosporium* and *Apiognomonia* sp., was reported on 25,000 acres and led to early leaf drop of roadside trees and scattered regeneration. In most cases damage was not severe enough to cause tree health concerns. Ash, butternut, and oak were also affected by anthracnose disease.

Poplar leaf blight, caused by *Marssonina* sp., was widespread on quaking aspen and balsam poplar. Many roadside trees had leaf browning and defoliation. Damage occurred on 850 acres in riparian areas.

Drought conditions in 1995 led to scattered problems observed in 1996. Drought stress contributed to cupped leaves of hardwoods, and over wintering mortality of recent transplants and red spruce on ledgy sites. It also contributed to increased dieback on stressed trees, bole and twig diseases, salt damage on white pines, winter injury on red spruce, and spring chlorosis of Christmas trees. Conversely, the wet spring and summer of 1996 led to dense crowns and healthier looking trees. There was a substantial decrease in hardwood decline and mortality, occurring on about 10,500 acres. This was one-quarter of the acreage affected in 1995.

Red spruce periodically exhibits red needles in the early spring because they do not tolerate the extreme cold temperatures at high elevations. Within monitoring plots, established in 1993 to follow the impacts of winter injury, crown dieback increased in areas with the most winter injury. In 1996, 9,500 acres of winter injury occurred, mostly in southern Vermont.

Fir ornamentals and **Christmas trees** were damaged by the balsam twig aphid, *Mindarus abietinus*. This insect causes needle curling, which decreases the aesthetic value of the trees. Damage was detected in all Christmas tree plantations surveyed. Lady beetle larvae were common, indicating that natural control agents are responding to this outbreak.

Ground level **ozone** exposure can reduce tree growth, although the overall effects on forest health are not fully understood. In 1996, ozone symptoms were observed on sensitive plant species at 75 percent of the locations surveyed.

Although **timber harvesting** guided by forest management can improve tree health, crowns can appear thin following heavy cutting or careless logging. In 1996, 680 acres of unthrifty crowns associated with logging were observed.

Extensive surveys
More extensive information on forest health will soon be available from recent surveys conducted in the state. The Vermont Hardwood Tree Health Survey has documented changes in hardwood condition since 1985, based on aerial photography and ground surveys. The Forest Inventory and Analysis survey, initiated in 1996 and to be completed in 1997, collects forest information from 1000 locations about every 10 years in the state. Forest health measurements were added to this project to augment the information collected yearly from the regional Forest Health Monitoring Program. Vermont has been a part of this program since it was initiated in New England in 1990.

Sustainability
Vermont's Forest Resource Advisory Council (FRAC) has prioritized the benchmarks for monitoring forest sustainablility. A draft report was released in January 1997. While the report documents a wide variety of parameters, the following were considered high priority:

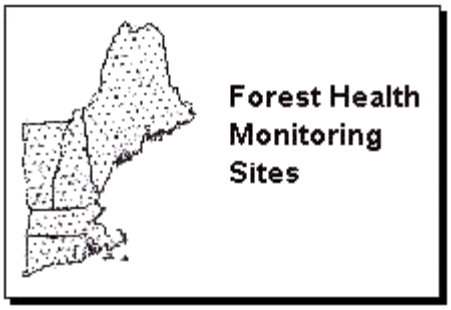
- Condition of forest soils
- Forest size class distribution by cover type
- Acres of forest land by management status
- Volume of growth compared to harvest, by type of forest product
- Economic value of growth, harvest, import, and export volumes
- Volume of growth compared to harvest, by wood quality grade
- Abundance and conservation status of natural communities
- Abundance, location, and condition of special habitat features

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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