

2006 Forest Health Highlights

Vermont

Sugar
Maple



January 2007

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.

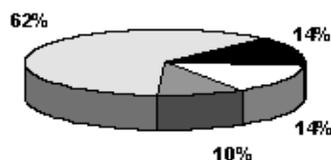
A Forest Resource Plan was developed to sustain the many values and meet the various demands on the forest resource. The vision states that, *In the future, the forests of Vermont will consist of healthy and sustainable ecosystems, with a prosperous and sustainable forest products industry, abundant 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% noncommercial

Major Forest Types



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

Special Issues

Tree health and forest ecology has been affected by a major outbreak of the **forest tent caterpillar**. This native insect is in its 4th year of high populations in Vermont. Defoliation of sugar maple, ash, oak and other hardwood tree species increased substantially in 2006, affecting 343,000 acres compared to 230,000 acres in 2005. While defoliation is a natural process in forests, and most trees are able to recover from 1-3 years of defoliation, defoliation coupled with additional stress can lead to tree decline. Tree mortality is visible in some areas that have been repeatedly defoliated, especially in recently thinned sugarbushes or on ridges, dry slopes or wet areas. Additional defoliation is likely in 2006 but egg mass surveys used to predict defoliation are just beginning. Our Department has been coordinating an aerial spray program for sugarbush landowners that want to protect their maples from defoliation. This year, 5,488 acres, in 168 blocks, were aerially treated with the biological insecticide *Bacillus thuringiensis*. More details and management recommendations can be found at: www.vtfpr.org/protection/ftcfrontpage.cfm.

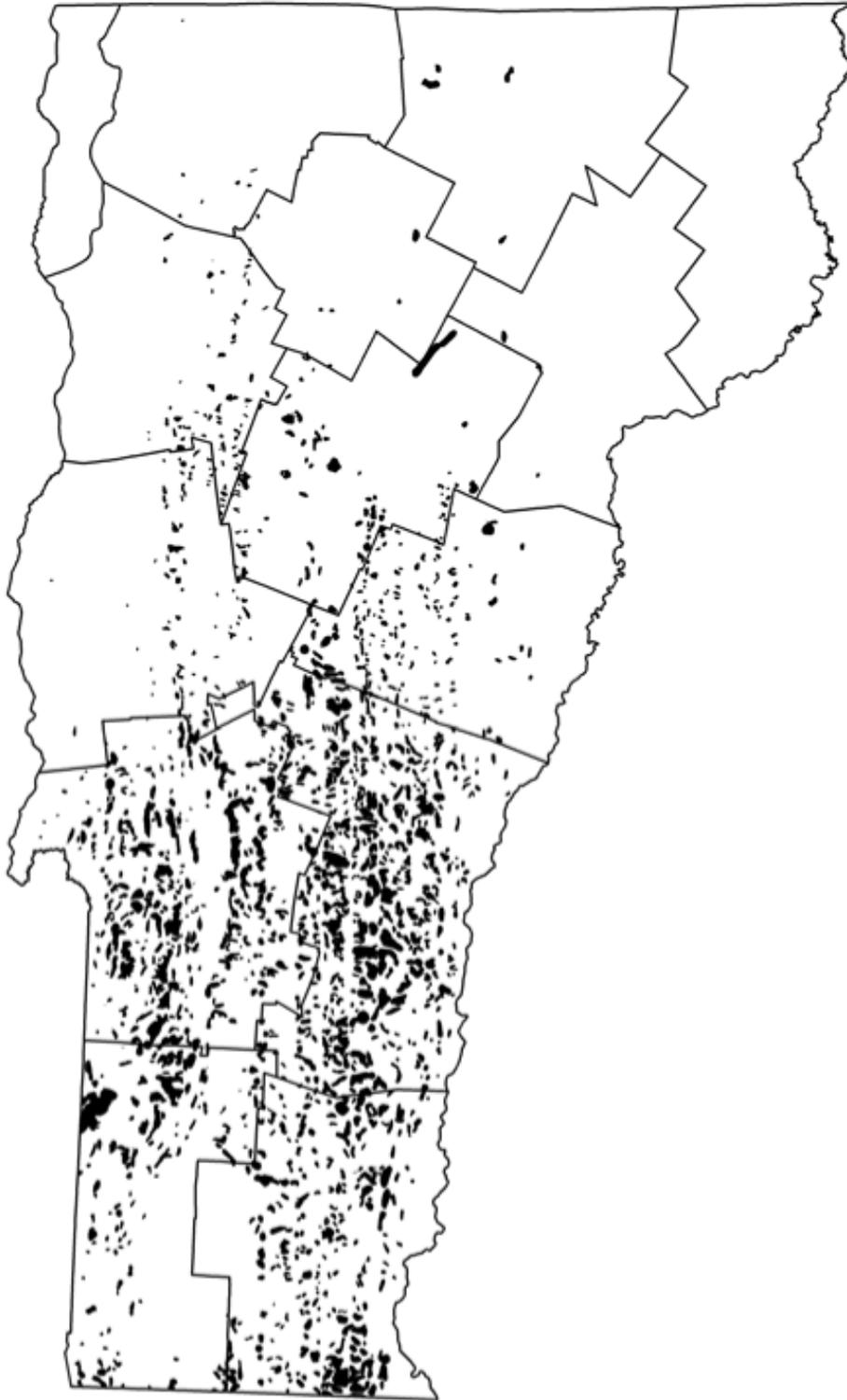
Sugar maple and other hardwood trees have recently been affected by a little known sapsucking insect called **lecanium scale (European fruit lecanium)**, but populations crashed in most areas this year. Sugar maple tree recovery appears

to be good in most areas.

Populations of **saddled prominent**, another defoliator of sugar maple and other hardwoods, increased noticeably in the northern Vermont region. Defoliation was mapped on 1,340 acres on Essex, Orleans, and Caledonia Counties. This is an insect of concern because the defoliation occurs later in the season and has sometimes led to sugar maple dieback and mortality after just one or two years of heavy defoliation. Other defoliators, especially the **green-striped mapleworm**, were often seen in association with saddled prominent and contributed to the amount of defoliation.

Paper birch decline and mortality occurs on over 16,000 acres at upper elevations. A wet growing season resulted in numerous foliar diseases: **Septoria leaf spot** on birch (46,000 acres); **Brown spot needle blight** on pine; **Anthracnose** on sugar maple; **Large tar spot** on Norway maple.

2006 Defoliation by Forest Tent Caterpillar



Damaged areas detected and mapped by aerial sketch map survey.
Map indicates approximate location of damage.

Exotic Pests

The introduction of **nonnative insects, diseases, and plants** can lead to significant changes in Vermont forests. The natural controls that keep species in balance are not present, so these organisms out-compete native species for resources and space. Some potentially damaging exotics have not reached Vermont and are the subject of detection surveys. Other species are already in Vermont and are monitored for population changes and tree damage.

Vermont is actively surveying high risk forest areas for several new U.S. or North American introductions of serious forest pests. No evidence was found of the **emerald ash borer**, **Asian longhorned beetle**, ***Phytophthora ramorum* (sudden oak death)**, **brown spruce longhorned beetle**, **oak splendor beetle**, **Siberian moth**, or the **European wood wasp** during surveys in 2006. **Hemlock woolly adelgid** is not yet known to be established in Vermont. Occasionally, infested nursery stock from other states enters the state but it is destroyed whenever it is found. Infested hemlocks imported from a New Jersey nursery in May were eradicated from four sites this year. But surveys for this insect on native hemlocks growing near areas where infested nursery trees have been removed or in other high risk locations have all been negative to date for the presence of this insect. The **emerald ash borer** is considered the most serious exotic pest threat, as it is killing millions of ash trees in the Midwest and continues to be found further east of the original infestation in Michigan. It is now present in central Ohio and western Ontario. More information on exotic pests of interest can be found at: www.vermontagriculture.com/CAPS/invasive/forestpests.htm.

Beech bark disease continues to cause tree decline on severely infested trees. The area of damage aerially mapped this year was 12,200 acres.

Gypsy moth larvae were occasionally observed in stands being defoliated by forest tent caterpillar but egg mass surveys indicate that populations of this defoliator of oak and associated species should remain low for the coming year.

The **common pine shoot beetle** was first detected in Vermont in 1999 in northern Vermont. Since then surveys have found the beetles in many counties, including new detections in Rutland County in 2005. Observations in Vermont have been that tree damage is difficult to find and is limited to new shoot injury. A federal quarantine is in place to limit the spread of this exotic insect into non-affected states. Pine material is free to move inside Vermont. Quarantine details can be found at: www.vtfrpr.org/protection/for_protect_forhealth.cfm.

Monitoring Forest Health

Although forest health is much more than tree health, trees represent a major component of forests and tree health will ultimately affect all the other forest components. In Vermont we have a variety of surveys that are done annually or periodically that contribute to our understanding of trends in forest health. Ongoing monitoring of sugar maple forests showed that for the first time in a decade, fewer than 90% of sugar maple trees on our plots were healthy in 2006. This survey of North American Maple Project plots in Vermont indicated that defoliation by the forest tent caterpillar has adversely affected tree health in some locations. Crown condition deteriorated this year for sites that had been defoliated for the past 3 to 4 years.

Vermont continues to participate in monitoring the health of our forests in collaboration with the US Forest Service Forest Health Monitoring Program. Results from surveys conducted since 1990 in Vermont are available through the Forest Health Monitoring web site: <http://fhm.fs.fed.us>.

For More Information

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