

## **Supplement to testimony to Senate Committee on Natural Resources and Energy**

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### **Update on Vermont Forest Health, Extent, and Conditions**

#### **Taken from: USDA Forest Service, Northern Research Station, Forest Inventory and Analysis**

Morin, Randall S.; Butler, Brett J.; Crocker, Susan J.; Halman, Joshua; Kurtz, Cassandra M.; Lister, Tonya W.; McWilliams, William H.; Nelson, Mark D.; Riemann, Rachel I.; Walters, Brian F.; Woodall, Christopher W. 2020. Vermont Forests 2017. Resource Bulletin NRS-120. Madison, WI: U.S. Department of Agriculture, Forest Service, Northern Research Station. 100 p. <https://doi.org/10.2737/NRS-RB-120>.

#### **Highlights**

##### **On the Plus Side**

- Vermont is proportionally the fourth most forested state in the United States.
- Participation in Vermont's use value appraisal program has increased, which may help reduce the amount of forest land converted to other uses.
- Changes in stocking of forest land area toward more moderately and fully stocked stands suggest that forest management practices over the past three decades have improved the general stocking condition across Vermont.
- Most forest carbon in the region is found in moderately aged stands dominated by relatively long-lived species, suggesting that forest carbon stocks will continue to increase as stands mature and accumulate carbon in aboveground and belowground components.
- Timber resources in Vermont are at near record levels since the first inventory in 1948.
- The 0.9 percent tree mortality rate for the 2017 inventory is similar to what was reported for the 2012 inventory and slightly lower than what was reported for the 2007 inventory.
- Tree crowns are generally healthy and stable across Vermont.
- The ratio of growth to removals of 2.1:1.0 in Vermont indicates that growth is

adding twice as much volume as is getting removed by harvesting each year.

### **Areas of Concern**

- Commercial and residential development of forest land, particularly in the Champlain Valley, has resulted in reductions in forest land use. Vermont has lost forest land at rate of about 0.5 percent per year over the last 5 years.
- The predicted transfer of 1.5 million acres of family forest land foreshadowed by the age (65+) of many owners is an important trend to monitor as the fate of forests may change when forest land is passed to the next generation of owners.
- The total volume of sawtimber in Vermont has decreased slightly since 2012, mostly due to the decrease in forest land.
- Timber volume peaked in 2012 and the rate of growth has leveled off as the forest matures, a trend that is likely to continue into the future.
- The dominance of beech and noncommercial tree species in the sapling size class raises concerns about the future species composition in Vermont
- The proportion of ash basal area with poor crowns has more than doubled since 2012, but the relative amount is still low at 6 percent.
- The presence of nonnative invasive plant species sampled on FIA Phase 2+ plots has remained stable since the 2012 inventory and appears to be correlated with reduced densities of tree seedlings.

### **Issues to Watch**

- The continuing trend toward more landowners with smaller parcels complicate the economics of forest management and the delivery of government programs.
- The trend toward more area of large diameter and less area of small and medium diameter trees in Vermont needs continued monitoring.
- Although wood volume continues to accumulate as the forests mature, less than one-third is low-grade material that is suitable and available for use as whole tree chips for large wood fuel users for which there is increasing demand.
- The volume of timber resources in Vermont has started to decrease for the first time since USDA Forest Service's Forest Inventory and Analysis (FIA) program began

forest inventories in Vermont in 1948. The slight decrease in timberland acres, along with slowing rate of increase in growing-stock volumes, has resulted in this reduction in total timber volume; growth rates may decrease further as the forest ages.

- If the current species composition remains constant as saplings mature, the future forest overstory will likely have more red maple and balsam fir trees and less eastern white pine, eastern hemlock, and northern red oak than today.
- Although the proportion of high grade volume has remained stable, changes in species composition point toward potential reductions in overall sawtimber quality into the future.
- An important consideration for those landowners actively managing their land is the ability of the primary wood products industry to retain pulp mills, sawmills, and veneer mills within a distance that allows for a sustainable market for the harvested material.
- Invasive insect pests that are likely to impact abundant tree species in Vermont in the future include hemlock woolly adelgid and emerald ash borer.
- The risk of catastrophic economic and ecological loss of forest resources could increase because of forest maturity and more extreme weather-related events, including hurricanes, droughts, and floods caused by a changing climatic regime.
- Two highly valuable commercial species, eastern white pine and red oak, are nearly absent in the smaller size classes in Vermont.
- The lack of natural or manmade disturbance continues to limit pioneer and other shade intolerant species that thrive in sunnier forested conditions.
- Tree damage was observed on 32 percent of trees and internal decay on 12 percent of trees in Vermont. This may indicate reduced tree health and timber quality.
- Urbanization is affecting an increasing amount of forest area in Vermont. A total of 0.9 million acres (21 percent forest land) was in wildland-urban interface (WUI) conditions by 1990, and between 1990 and 2010 forest land was being converted to WUI conditions in most counties at rates greater than 5 percent per decade.