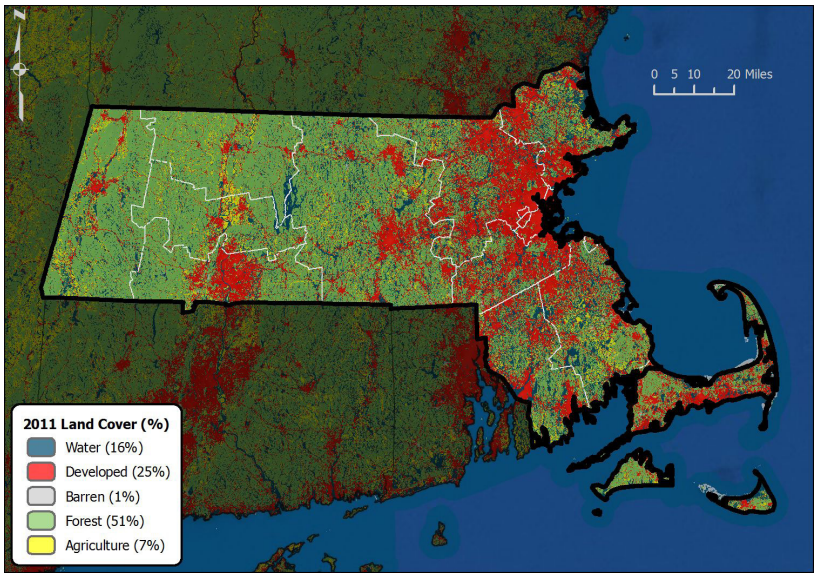
USDA

United States Department of Agriculture

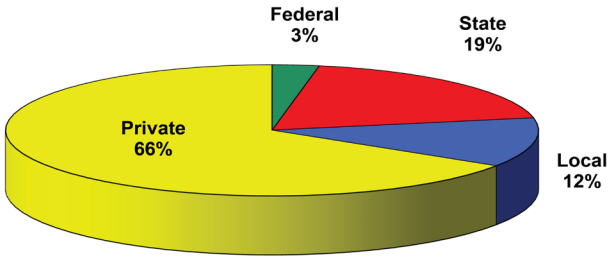
2015 Forest Health MASSACHUSETTS *highlights*

Forest Resource Summary

The forest resource of Massachusetts has great demands placed on it. Although Massachusetts is thought of as an urban State, about half of the land area is forested. This forested area is managed for a multitude of purposes, including recreation, water quality, wildlife habitat, and a forest product industry. About two-thirds (66 percent) of the forest land in Massachusetts is privately owned, with only 3 percent in Federal ownership; however, 31 percent is in State and local town ownership, which is unique in the region. The 2014 Massachusetts forest inventory estimated that there are over 3 million forested acres in the State. The forest resource is made up of a variety of forest species—mostly pine, maple, oak, other hardwoods, and eastern hemlock. The predominant forest type is oak/hickory with maple/beech/birch a close second.



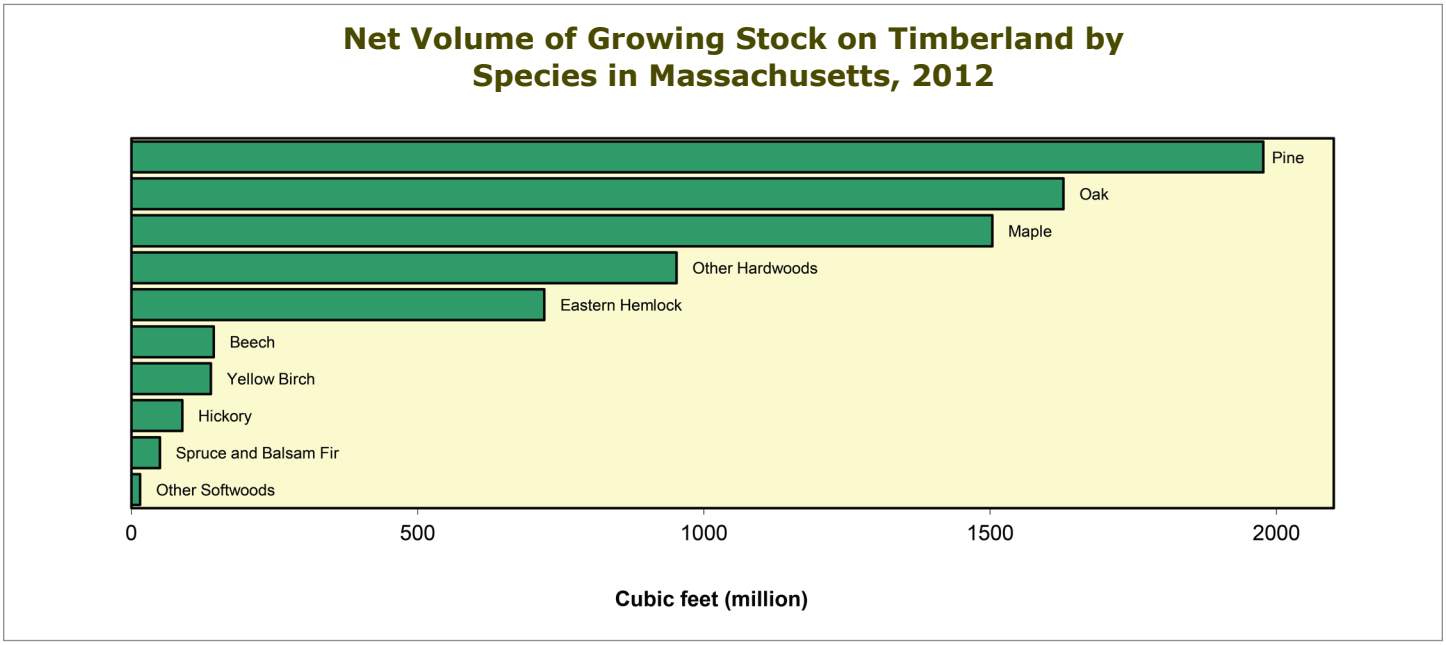
Forest Land Ownership in Massachusetts, 2012



Forest Service
Northeastern Area
State and Private Forestry

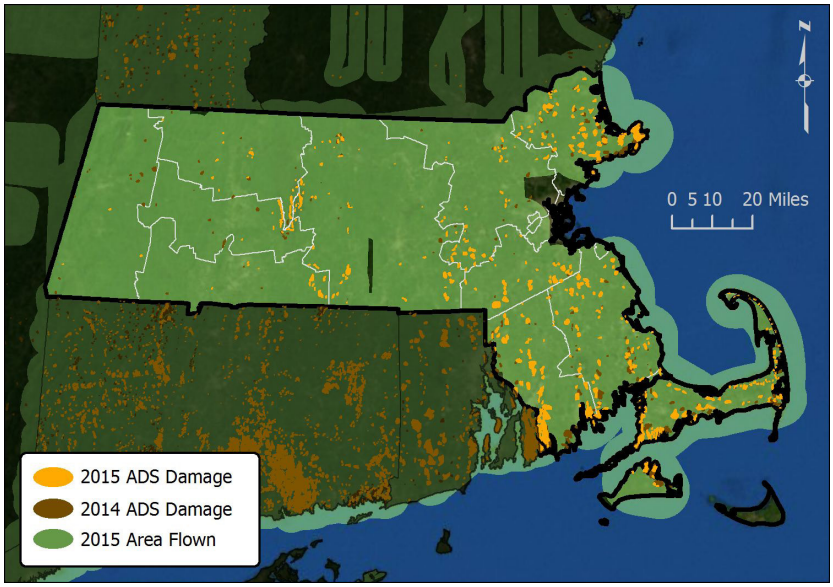
Massachusetts Department of Conservation and Recreation
Division of Forests and Parks

April 2016

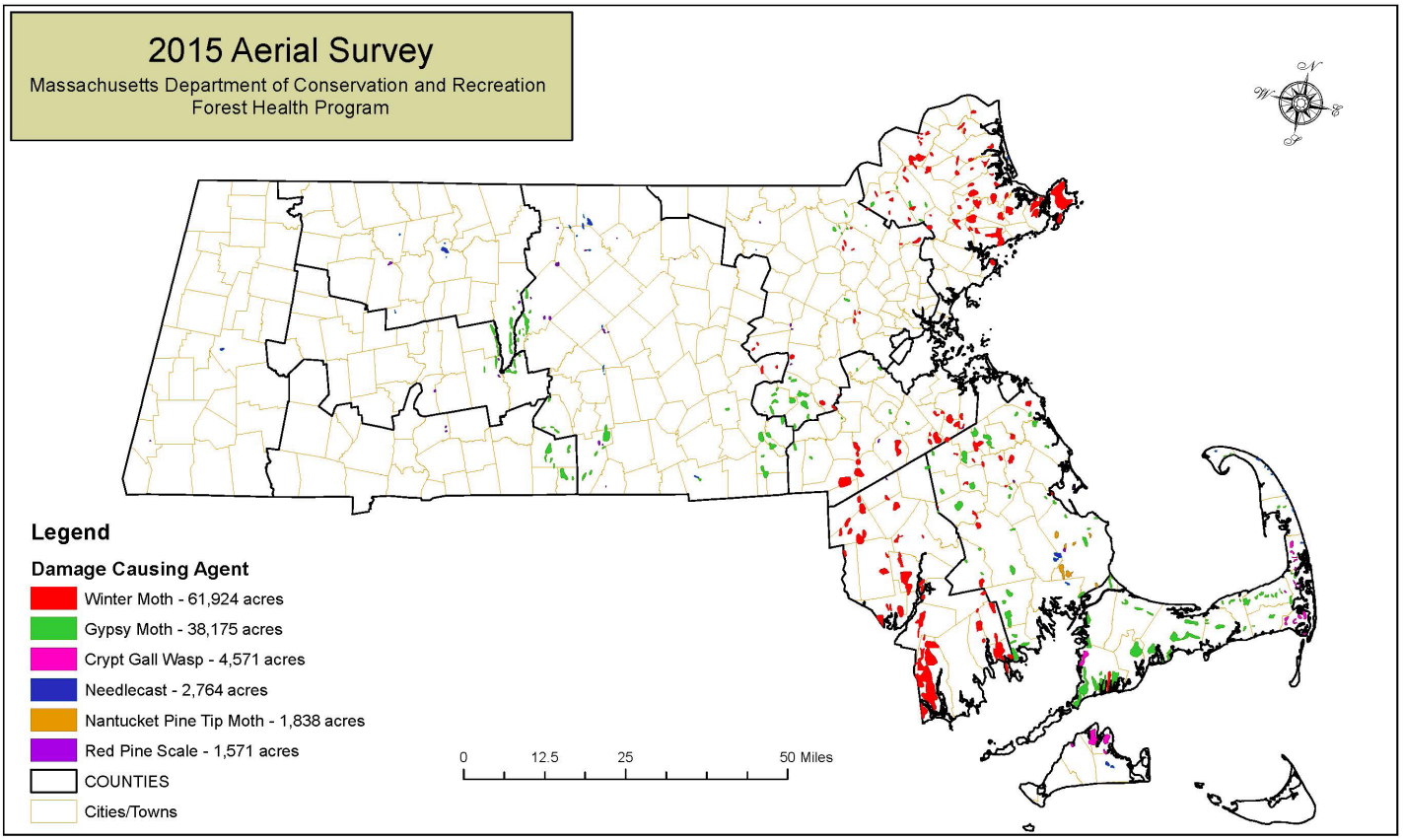


Aerial Survey

The annual aerial survey in Massachusetts documented 112,108 acres of defoliation or mortality Statewide. About half the damage came from winter moth defoliation on maple and oak (61,924 acres), and another quarter of the damage was defoliation from gypsy moth (38,175 acres). There was also defoliation of black oak on Cape Cod and Martha's Vineyard (4,571 acres) from the cynipid gall wasp, scattered defoliation and mortality from red pine scale (1,571 acres), needlecast damage on pitch pine and white pine across the State (2,764 acres), and damage to pitch pine from Nantucket pine tip moth mostly in Plymouth County (1,838 acres).



Comparison of aerial detection survey (ADS) results for Massachusetts in 2014 and 2015 (Map: U.S. Forest Service)



Aerial detection survey (ADS) data for Massachusetts, 2015

Special Pest Surveys

Massachusetts Department of Conservation and Recreation (DCR) Forest Health Program personnel deployed and monitored 20 green funnel traps used to monitor **emerald ash borer** (*Agrilus planipennis*) throughout Massachusetts. Traps were concentrated in areas of high risk including campgrounds and highway rest areas. Traps located new infestations in Berkshire County.

White ash trees were girdled at 10 locations statewide to monitor for emerald ash borer. Girdled trees were cut down in October 2015 and bark peeled to determine the extent of the spread of emerald ash borer in the State.

Annual **gypsy moth** surveys were conducted in preestablished plots Statewide, to monitor for future population trends. Plots near the Quabbin Reservoir and on Cape Cod showed an increase in gypsy moth egg masses.

DCR also assisted the University of Massachusetts entomology program with monitoring **winter moth** populations using both aerial and ground surveys. Winter moth larval monitoring is used to determine release locations for the predatory fly *Cyzenis albicans*.

Other Forest Health Projects

The DCR Forest Health Program continued to supply the USDA Animal and Plant Health Inspection Service's Otis Laboratory with wood for the rearing of and research on Asian longhorned beetle and emerald ash borer.

The DCR conducted biosurveillance for emerald ash borer across the State by locating and monitoring areas with the predatory wasp *Cerceris fumipennis*.

The DCR Forest Health Program continues to be the lead State agency in charge of the Asian longhorned beetle eradication efforts in Worcester County. Using a U.S. Forest Service grant, DCR personnel also deployed and monitored 1,000 Asian longhorned beetle pheromone traps in the Worcester County infestation. Traps helped to locate one area of infestation within the quarantine zone.

The DCR continued monitoring release sites where two biological controls, *Oobius agrili* and *Tetrastichus planipennisi*, were placed for emerald ash borer control in Berkshire and Essex Counties.

Also, 20 southern pine beetle traps were deployed in areas across the State, concentrating on stands of two- and three-needle pines. Traps located southern pine beetle for the first time in Massachusetts in Plymouth, Barnstable, and Dukes Counties.

Forest Health Highlights

Hardwood Defoliators

In the eastern part of the State on the North and South Shores, and Cape Cod, approximately 61,924 acres of defoliation caused by **winter moth** were mapped during the annual aerial survey. Efforts by the U.S. Forest Service and the University of Massachusetts, using the biological control fly *Cyzenis albicans* are making slow but steady progress. Populations of the predatory fly are now being established in 11 locations.

Cynipid gall wasp damage was mapped on 4,571 acres on Cape Cod and Martha's Vineyard. Defoliation from this insect pest continues, and now some major tree mortality is noticeable. In some areas with high densities of gypsy moth defoliation this past growing season, combined with the cynipid gall wasp injury, there are thousands of dead black oak trees. With continued levels of gypsy moth defoliation in these areas on already stressed black oaks there could be more high oak mortality next growing season.

Areas of **gypsy moth** defoliation (38,175 acres) were mapped Statewide during the annual aerial survey. Most of the acreage was mapped in eastern Massachusetts on the South Shore with some additional heavy defoliation mapped near the Quabbin Reservoir in the central part of the State. Signs of the fungus *Entomophaga maimaiga* were minimal on caterpillars, which may be the reason for the dramatic increase in gypsy moth populations compared with 2014. This difference may be due to the recent drought conditions, which may have inhibited the fungal growth during the past two growing seasons.

Gypsy moth caterpillars and forest tent caterpillars defoliating a small tree (Photo: Ken Gooch, Massachusetts Department of Conservation and Recreation)

Conifer Insects

Statewide we continue to observe the spread of **red pine scale**. Large areas of mortality and rapid defoliation are now being mapped aerially with 1,571 total acres of red pine damage documented this past growing season.

The **hemlock woolly adelgid** populations decreased considerably this year due to colder than normal temperatures during the 2014–2015 winter season. Surveys done Statewide in hemlock stands showed a 75–80 percent dieback of adelgid populations. DCR continues to monitor for the previously released biological control agent *Laricobius nigrinus*.

Elongated hemlock scale has been noticed causing more stress on hemlocks Statewide.

Nantucket pine tip moth caused 1,838 acres of damage on pitch pine this past growing season.

Southern pine beetle was found in 8 of 20 pheromone traps deployed by DCR and 5 of 10 traps deployed by the Massachusetts Fish and Wildlife Service.

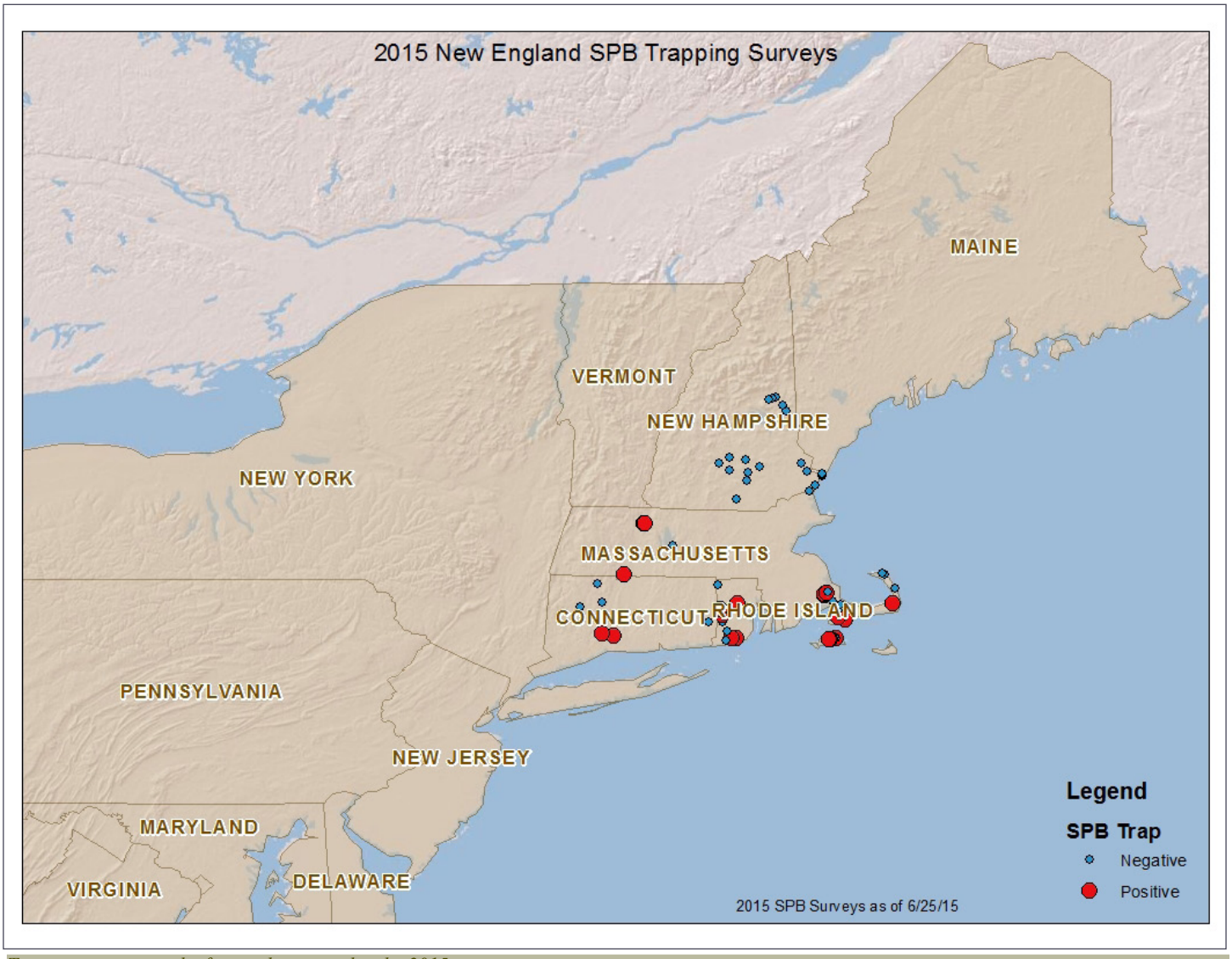
Conifer and Hardwood Diseases

White pine and pitch pine needlecast diseases caused 2,764 acres of damage during the 2015 growing season.

Sirococcus tip blight was mapped on hemlock in Berkshire, Franklin, and Hampshire Counties, with a total of 233 acres of damage reported.

Abiotic Concerns

With the drier than normal growing conditions in 2015, several areas of forest fire damage were mapped. A total of 69 acres of human-caused forest fire damage was seen during the annual aerial survey.



Trapping survey results for southern pine beetle, 2015

References

Land Cover Map

Jin, S.; Yang, L.; Danielson, P.; Homer, C.; Fry, J.; Xian, G. 2013. A comprehensive change detection method for updating the National Land Cover Database to circa 2011. Remote Sensing of Environment, 132: 159 – 175. http://www.sciencedirect.com/science/article/pii/S0034425713000242. (1 March 2016).

Forest Land Ownership

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Net Volume of Growing Stock on Timberland by Species

Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; Pugh, Scott A. 2014. Forest resources of the United States, 2012: a technical document supporting the Forest Service update of the 2010 RPA Assessment. Gen. Tech. Rep. WO-91. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. Tables 23 & 24. http://www.fs.fed.us/sites/default/files/media/types/publication/field_pdf/GTR-WO-91.pdf. (1 March 2016).

Massachusetts Forest Inventory

Butler, Brett J.; Crocker, Susan J. 2015. Forests of Massachusetts, 2014. Resource Update FS-57. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p. http://www.nrs.fs.fed.us/pubs/49109. (1 March 2016)

Forest Health Programs

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.

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