



Forests of Massachusetts, 2017

This publication provides an overview of the forest resources in Massachusetts based upon inventories conducted by the USDA Forest Service, Forest Inventory and Analysis (FIA) program of the Northern Research Station. Information about the national and regional FIA program is available online at www.fia.fs.fed.us.

Since 2003, FIA has implemented an annual inventory in the State and currently measures 14 percent of the sample plots each year. For the 2017 inventory, estimates for current variables, such as area, volume, and biomass, are based on 790 plots inventoried from 2011-2017. Change variables, such as net growth, removals, and mortality, are based on 753 plots inventoried in 2008-2012 and resampled in 2011-2017. Estimates from earlier annual and periodic inventories are included for comparison.

See Bechtold and Patterson (2005) and O'Connell et al. (2017) for definitions and technical details.

Additional data and reports are available online

(www.nrs.fs.fed.us/fia/data-tools/state-reports/MA). A complete set of inventory tables is available at <https://doi.org/10.2737/FS-RU-161>.

Overview

Massachusetts contains an estimated 3.0 million acres of forest land (Table 1) and covers 60.4 percent of the land area in the State. Most of the forest land, 95.3 percent, is classified as timberland, meaning that it exceeds a minimum level of productivity and is not legislatively reserved from timber harvesting.

On the forest land in Massachusetts, there are an estimated 1.6 billion live trees ≥ 1 in d.b.h. (Table 1). These trees have a total above ground biomass of 222.1 million tons and, looking at trees ≥ 5 in d.b.h., a total net volume of 8.6 billion ft^3 . The ratio of net growth to removals is 4.8:1. Selected statistics are also provided in Table 1 for growing-stock trees, which are a subset of all live trees ≥ 5 in d.b.h. and meet specific merchantability requirements.

Table 1.—Massachusetts forest statistics, 2017 and 2012. Volume estimates are for trees ≥ 5 in diameter at breast height (d.b.h.). Number of trees and biomass estimates are for trees ≥ 1 in d.b.h. Sampling errors and error bars shown in tables and figures in this report represent 68-percent confidence intervals.

	2017 estimate	Sampling error (%)	2012 estimate	Sampling error (%)	Change since 2012 (%)
Forest Land					
Area (thousand acres)	3,017	1.5	3,028	1.8	-0.4
Number of live trees ≥ 1 in d.b.h. (million trees)	1,555	3.2	1,585	3.1	-1.9
Live tree aboveground biomass (thousand oven-dry tons)	222,083	2.1	211,047	2.4	5.2
Net volume of live trees ≥ 5 in d.b.h. (million ft^3)	8,585	2.3	8,138	2.6	5.5
Annual net growth of live trees ≥ 5 in d.b.h. (thousand ft^3/yr)	140,540	7.3	164,584	7.2	-14.6
Annual mortality of live trees ≥ 5 in d.b.h. (thousand ft^3/yr)	76,628	8.5	66,510	9.0	15.2
Annual harvest removals of live trees ≥ 5 in d.b.h. (thousand ft^3/yr)	26,282	23.4	33,880	24.6	-22.4
Annual other removals of live trees ≥ 5 in d.b.h. (thousand ft^3/yr)	3,024	47.4	11,195	30.5	-73.0
Timberland					
Area of timberland (thousand acres)	2,874	1.8	2,880	2.0	-0.2
Number of live trees ≥ 1 in d.b.h. (million trees)	1,500	3.4	1,527	3.3	-1.8
Live tree aboveground biomass (thousand oven-dry tons)	213,576	2.3	203,360	2.5	5.0
Net volume of live trees ≥ 5 in d.b.h. (million ft^3)	8,282	2.5	7,864	2.7	5.3
Net volume of growing-stock trees ≥ 5 in d.b.h. (million ft^3)	7,444	2.7	7,111	2.9	4.7
Annual net growth of growing-stock trees ≥ 5 in d.b.h. (thousand ft^3/yr)	121,349	6.6	144,014	6.4	-15.7
Annual mortality of growing-stock trees ≥ 5 in d.b.h. (thousand ft^3/yr)	51,946	9.4	44,923	9.7	15.6
Annual harvest removals of growing-stock trees ≥ 5 in d.b.h. (thousand ft^3/yr)	21,407	24.8	27,833	25.0	-23.1
Annual other removals of growing-stock trees ≥ 5 in d.b.h. (thousand ft^3/yr)	4,878	75.1	7,126	35.5	-31.5



Forest Area

Massachusetts's forest land area has not substantially changed since 2012 (Fig. 1). An estimated 62.9 percent of the forest land is privately owned and 37.1 percent is publicly owned (Fig. 2).

Currently, 81.2, 14.4, and 3.9 percent of the timberland in Massachusetts is in large, medium, and small stand sizes,

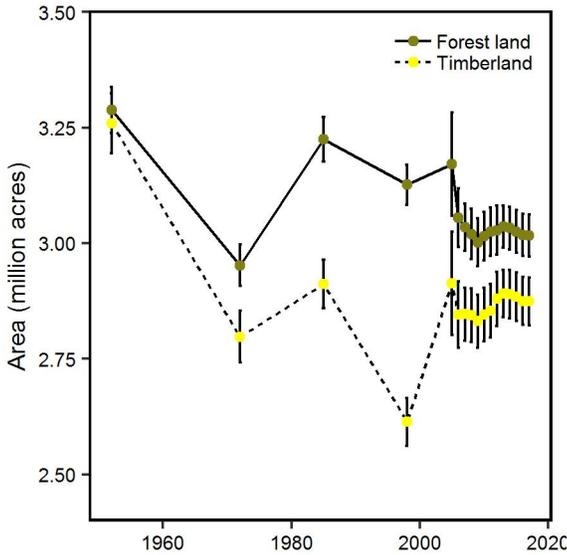


Figure 1.—Area of forest land and timberland, Massachusetts.

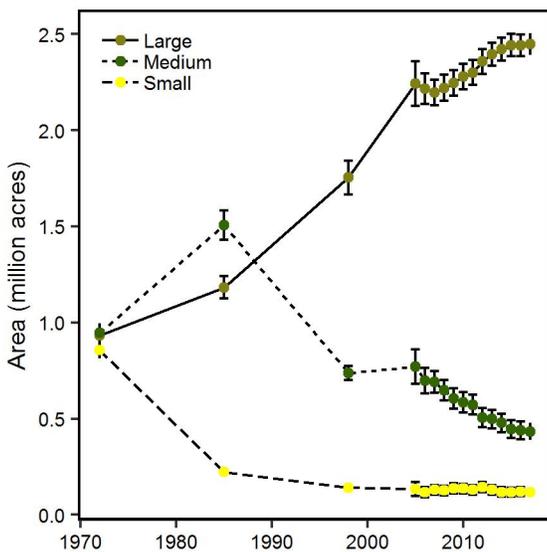


Figure 3.—Area of timberland by stand-size class, Massachusetts.

respectively (Fig. 3).

The most common forest-type group is oak/hickory, representing 34.6 percent of Massachusetts's forest land area (Fig. 4). The next most common forest-type groups are maple/beech/birch, white/red/jack pine, and oak/pine.

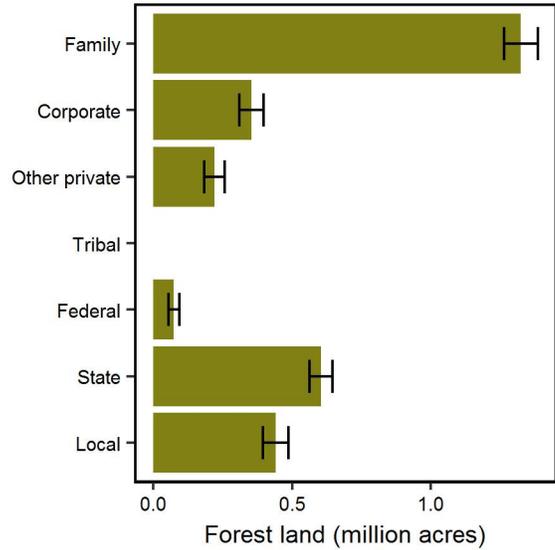


Figure 2.—Area of forest land by ownership group, Massachusetts, 2017.

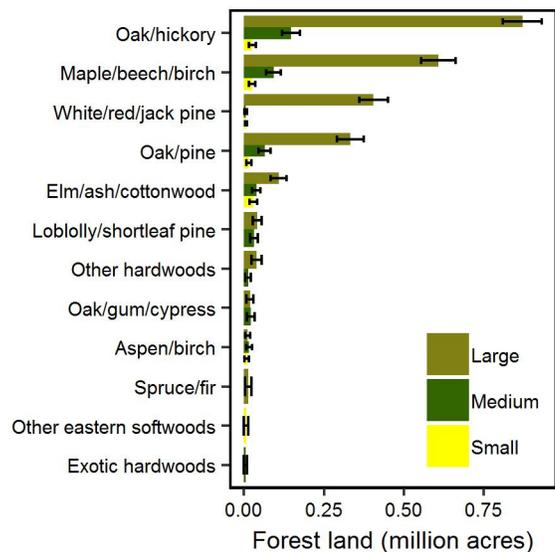


Figure 4.—Area of forest land by forest-type group and stand-size class, Massachusetts, 2017. Stand-size classes: Small-dominated by trees <5.0 in d.b.h.; Medium-dominated by trees 5.0 to 8.9 in d.b.h. for softwoods and 5.0 to 10.9 inches d.b.h. for hardwoods; Large-dominated by trees \geq 9.0 in for softwoods and 11.0 in d.b.h. for hardwoods.

Forest Composition

Massachusetts’s forests contain a wide variety of tree species with over 67 species sampled in 2017. This composition looks different depending on whether the number or volume of trees are examined.

In terms of volume, eastern white pine is the most common tree in Massachusetts followed by red maple and northern red oak (Table 2). Collectively, the 10 most voluminous tree species account for 84.5 percent of the total volume of live trees on forest land in Massachusetts. Of these species, sweet birch, northern red oak, and scarlet oak showed the most substantial increases in volume since 2012.

In terms of number of trees, red maple is the most numerous species in Massachusetts with 20.6 percent of the tree stems in the State (Fig. 5). Other common species include eastern white pine, eastern hemlock, American beech, and sweet birch. The ten most common species, in terms of numbers of stems, account for 78.3 percent of the trees in the State.

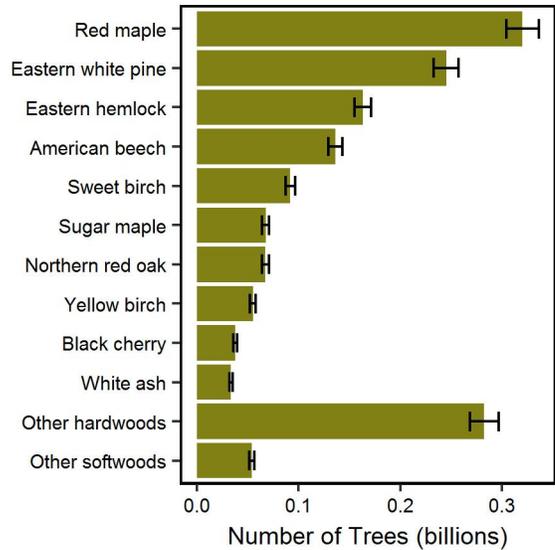


Figure 5.—Number of trees ≥ 1 in d.b.h. by species, Massachusetts, 2017.

Table 2.—Net volume and percent change in net volume on forest land; sawtimber volume and percent change on timberland, Massachusetts, 2017 (top 10 species by net volume).

Rank	Species	Volume of live trees on forest land (million ft ³)	Sampling error (%)	Change since 2012 (%)	Volume of sawtimber trees on timberland (million board ft)	Sampling error (%)	Change since 2012 (%)
1	Eastern white pine	2,136.4	7.6	9.0	9,506.7	8.2	11.9
2	Red maple	1,429.2	5.8	2.1	2,989.5	8.6	2.1
3	Northern red oak	1,046.8	8.1	12.3	3,921.0	9.0	14.4
4	Eastern hemlock	862.1	11.1	1.2	2,287.1	12.9	-1.5
5	Black oak	367.9	10.3	6.6	1,180.8	13.4	8.7
6	Sugar maple	327.1	13.8	-2.6	815.1	16.0	-5.6
7	White ash	311.8	14.4	2.9	1,040.6	18.0	7.5
8	Sweet birch	281.0	11.7	13.2	598.2	17.7	12.0
9	White oak	249.7	10.5	9.6	819.8	14.9	20.4
10	Scarlet oak	242.6	13.5	9.9	723.7	16.1	10.1
	Other softwood	226.2	15.9	4.0	557.0	19.6	8.1
	Other hardwood	1,104.3	6.8	0.7	2,950.2	10.4	5.4
	All species	8,585.1	3.0	5.5	27,389.7	3.9	8.4

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How to Cite This Publication

Butler, Brett J. 2018. **Forests of Massachusetts, 2017**. Resource Update FS-161. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 3 p. <https://doi.org/10.2737/FS-RU-161>.

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Contact Information

Brett J. Butler, Research Forester
 USDA Forest Service, Northern Research Station
 160 Holdsworth Way
 Amherst, MA 01003
 Phone: 413-545-1387 | Email: bbutler01@fs.fed.us

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 The published report is available online at <https://doi.org/10.2737/FS-RU-161>