

Massachusetts' Forest Resources, 2009

Research Note NRS-97

This publication provides an overview of forest resource attributes for Massachusetts based on an annual inventory conducted by the Forest Inventory and Analysis (FIA) program at the Northern Research Station of the U.S. Forest Service. These estimates, along with web-posted core tables, will be updated annually. For more information please refer to page 4 of this report.

Table 1. – Annual estimates, uncertainty, and change

	Estimate 2009	Sampling error (%)	Change since 2005 (%)
Forest Land Estimates			
Area (1,000 acres)	3,002	1.7	-5.4
Number of live trees 1-inch diameter or larger (million trees)	1,519	3.0	-9.5
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	204,292	2.4	-3.4
Net volume in live trees (1,000,000 ft ³)	7,854	2.6	-3.6
Annual net growth of live trees (1,000 ft ³ /year)	160,219	11.5	NA
Annual mortality of live trees (1,000 ft ³ /year)	59,945	14.4	NA
Annual harvest removals of live trees (1,000 ft ³ /year)	32,549	40.4	NA
Annual other removals of live trees (1,000 ft ³ /year)	13,858	45.6	NA
Timberland Estimates			
Area (1,000 acres)	2,903	1.9	-1.9
Number of live trees 1-inch diameter or larger (million trees)	1,477	3.1	-7.0
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	201,196	2.5	-1.8
Net volume in live trees (1,000,000 ft ³)	7,746	2.7	-2.1
Net volume of growing-stock trees (1,000,000 ft ³)	7,032	2.8	-3.8
Annual net growth of growing-stock trees (1,000 ft ³ /year)	172,820	12.0	NA
Annual mortality of growing-stock trees (1,000 ft ³ /year)	41,790	15.8	NA
Annual harvest removals of growing-stock trees (1,000 ft ³ /year)	26,838	38.4	NA
Annual other removals of growing-stock trees (1,000 ft ³ /year)	11,687	47.0	NA

Note: When available, sampling errors/bars provided in figures and tables represent 68 percent confidence intervals.

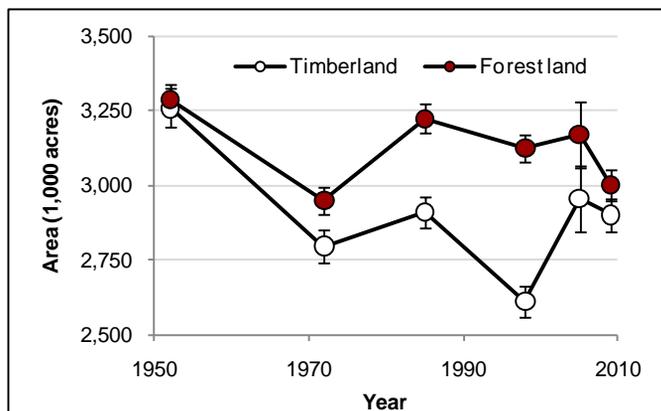


Figure 1. – Area of timberland and forest land by year.

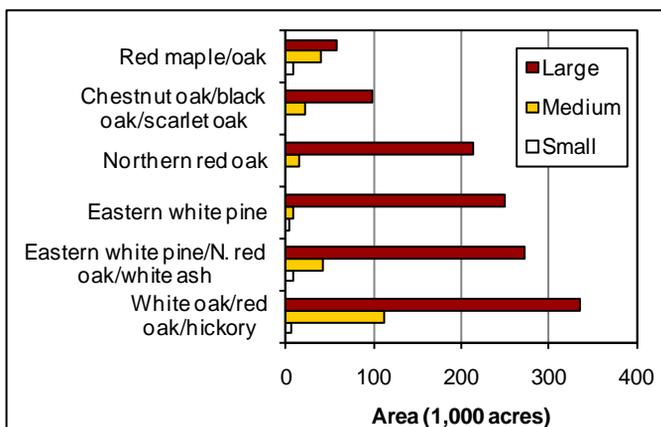


Figure 2. – Area of forest land by top six forest types and stand-size class, 2005-2009.

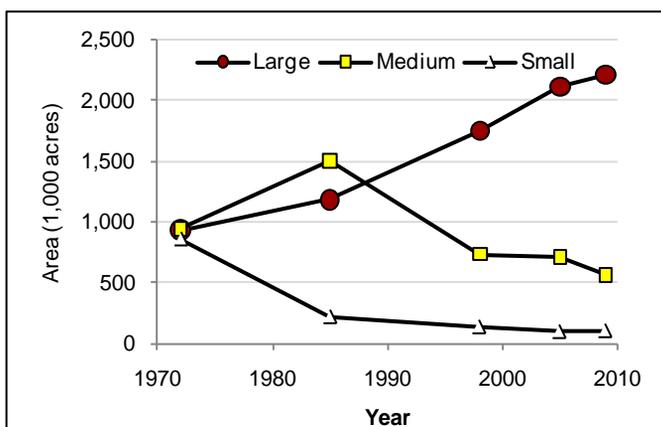


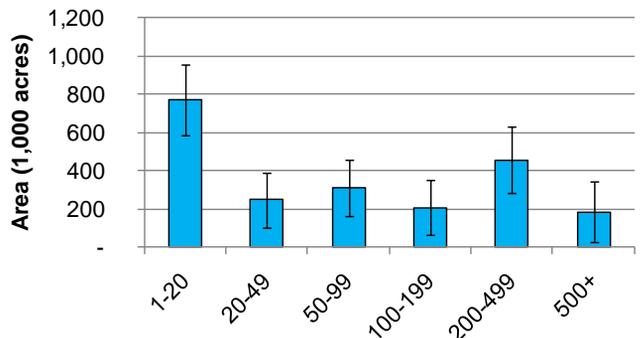
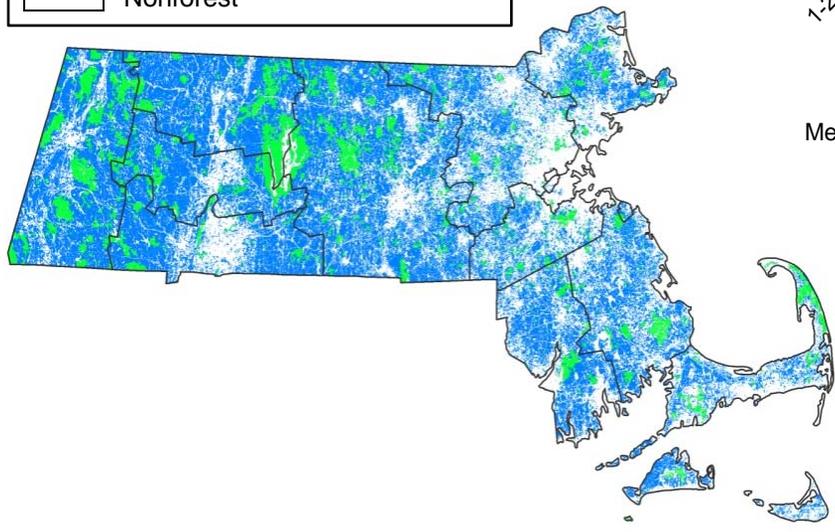
Figure 3. – Area of timberland by stand-size class and year.

Table 2. – Top 10 tree species by statewide volume estimates, 2005-2009

Rank	Species	Volume of live trees on forest land			Volume of sawtimber trees on timberland		
		(1,000,000 ft ³)	Sampling error (%)	Change since 2005 (%)	(1,000,000 bdf)	Sampling error (%)	Change since 2005 (%)
1	Eastern white pine	1,855	8.1	-9.1	7,994	8.9	-6.9
2	Red maple	1,380	6.1	2.8	2,892	8.9	12.7
3	Northern red oak	904	8.4	-9.8	3,366	9.2	-5.9
4	Eastern hemlock	799	10.6	-2.3	2,224	12.3	-2.3
5	Sugar maple	332	13.0	7.3	911	15.3	-0.5
6	Black oak	325	10.8	13.5	997	13.9	18.1
7	White ash	308	13.7	11.3	1,020	16.8	29.0
8	Sweet birch	240	12.0	4.2	504	17.3	18.2
9	Scarlet oak	220	13.9	-2.1	639	16.6	9.3
10	Black cherry	218	14.9	-14.0	706	19.6	-14.8
	Other softwoods	205	16.7	-10.6	498	21.7	-3.7
	Other hardwoods	1,067	5.7	-5.9	2,662	8.9	4.6
	All Species	7,854	2.6	-3.6	24,414	3.6	-0.2

Forest Land Ownership

- Private forest land (67 percent of all forest land)
- Public, including federal, state, and local, forest land (33 percent of all forest land)
- Nonforest



Size of private forest holdings (acres)
Mean size of private forest holdings = 7 acres

Figure 4. – Area of forest land by major owner group and size of private forest landholding (2002-2006).



Woody Biomass across Southern New England

Harvesting woody biomass for energy production is a topic of lively discussion across the region (Manomet 2010). As part of the FIA inventory, estimates of the amount of woody biomass can be calculated (Table 1). Across Connecticut, Massachusetts, and Rhode Island there are 347 million dry tons of woody biomass (Fig. 5). This estimate includes the boles, stumps, tops, and limbs of all trees with a diameter at breast height of one inch or greater (Fig. 6); it does not include foliage, seedlings, downed woody material, belowground material, or any nontree species. Just because the biomass is on the landscape does not mean that it is available for energy production. We know that some of the trees are already used for solid wood products, such as boards, and some of the residual materials, such as wood chips generated as a by-product of sawmills, are fully utilized. Of the remaining biomass, it is important to consider the social and biophysical availability of the resource. The biophysical characteristics describe the quantity, quality, and composition of the resource and the natural setting in which it exists. The social factors determine the desirability of the potential goods and services and the propensity for those who control a resource, such as wood, to utilize it themselves, allow others to do so, or do nothing with it. Examining just the family forest lands, the biophysical constraints reduce the availability by 6 to 9 percent while the social availability, particularly owner attitudes, reduce the availability by 68 to 79 percent (Butler et al. 2010). Then additional factors, such as harvesting costs, haul distances, and other economics factors must also be considered. Knowing the total amount of biomass across the landscape is useful, but it is only part of a complex set of factors to be considered when making decisions regarding woody biomass use.

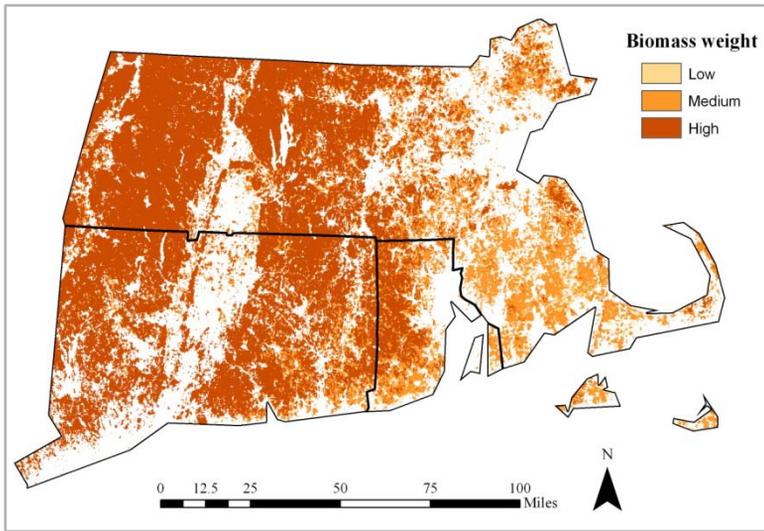
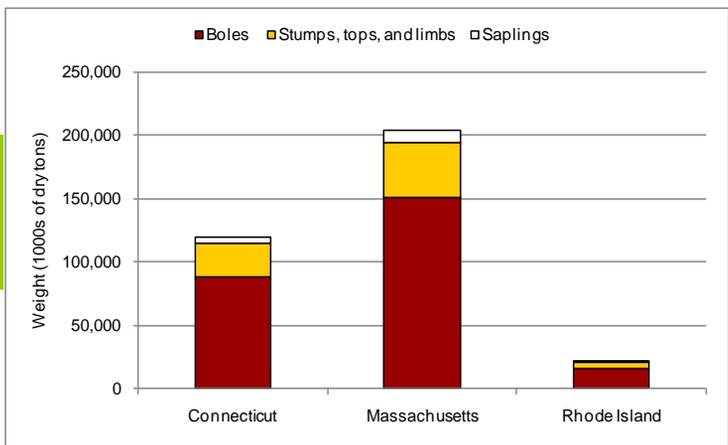


Figure 5. – Distribution of woody biomass across southern New England (Blackard et al. 2008).

Figure 6. – Distribution of woody biomass by tree component and state.





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FIA Program Information

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Special Issue Citation

Blackard, J.A.; Finco, M.V.; Helmer, E.H.; et al. 2008. **Mapping U.S. forest biomass using nationwide forest inventory data and moderate resolution information**. Remote Sensing of Environment. 112: 1658-1677.

Butler, Brett J.; Ma, Zhao; Kittredge, David B.; Catanzaro, Paul. 2010. **Social versus biological availability of woody biomass in the northern United States**. Northern Journal of Applied Forestry. 27(4): 151-159.

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