

# Maine's Forest Resources, 2011

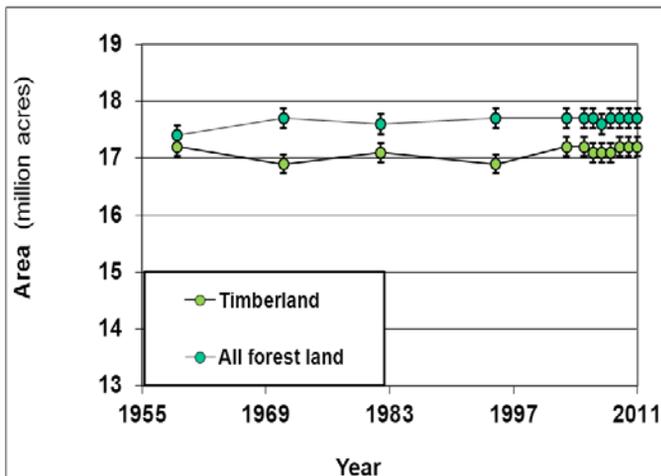
Research Note NRS-143

This publication provides an overview of forest resource attributes for Maine 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.

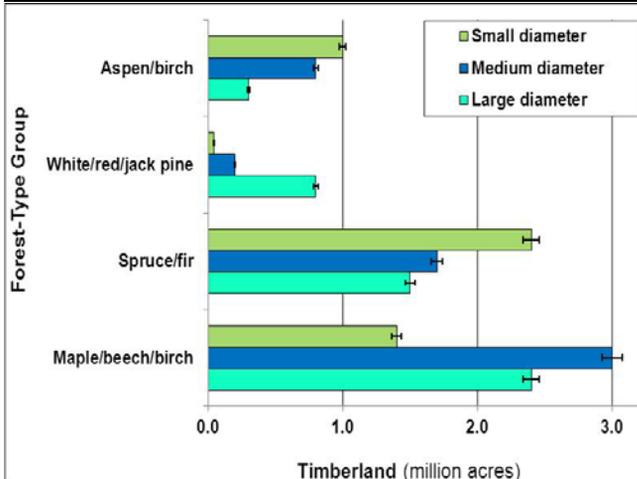
**Table 1. – Annual estimates, uncertainty, and change**

	Estimate (2011)	Sampling error (%)	Change (%) since 2006
<b>Forest Land Estimates</b>			
Area (1,000 acres)	17,660	0.4	-0.2
Number of live trees > 1-inch diameter (million trees)	24,115	1.5	6.3
Dry biomass of live trees > 1-inch diameter (1,000 tons)	676,314	1.0	2.3
Net volume in live trees > 5-inch diameter (1,000,000 ft <sup>3</sup> )	25,757	1.2	0.7
Annual net growth of live trees > 5-inch diameter (1,000 ft <sup>3</sup> /year)	699,630	2.3	28.5
Annual mortality of live trees > 5-inch diameter (1,000 ft <sup>3</sup> /year)	314,775	3.0	-16.1
Annual harvest removals of live trees > 5-inch diameter (1,000 ft <sup>3</sup> /year)	646,164	5.0	6.8
Annual other removals of live trees > 5-inch diameter (1,000 ft <sup>3</sup> /year)	6,359	52.2	177.4
<b>Timberland Estimates</b>			
Area (1,000 acres)	17,192	0.5	0.3
Number of live trees > 1-inch diameter (million trees)	23,542	1.6	6.7
Biomass of live trees > 1-inch diameter (1,000 tons)	661,090	1.0	3.0
Net volume of live trees > 5-inch diameter (1,000,000 ft <sup>3</sup> )	25,152	1.2	1.4
Net volume of growing-stock trees (1,000,000 ft <sup>3</sup> )	23,631	1.3	2.0
Annual net growth of growing-stock trees (1,000 ft <sup>3</sup> /year)	699,334	2.5	34.7
Annual mortality of growing-stock trees (1,000 ft <sup>3</sup> /year)	236,630	3.3	-18.0
Annual harvest removals of growing-stock trees (1,000 ft <sup>3</sup> /year)	571,514	5.1	8.2
Annual other removals of growing-stock trees (1,000 ft <sup>3</sup> /year)	13,944	39.4	-55.3

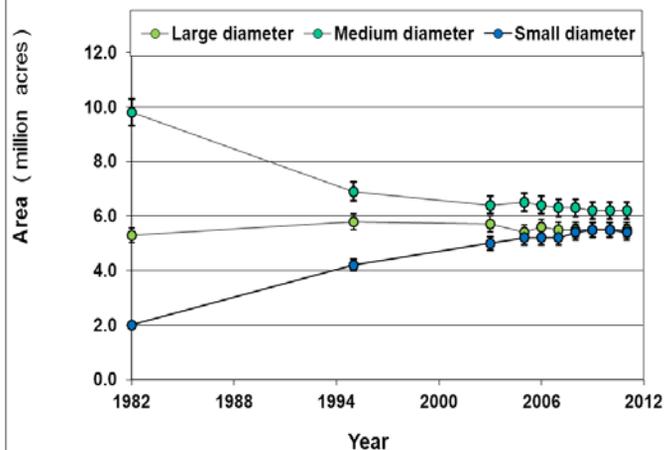
Note: When available, sampling errors/bars provided in figures and tables represent 68 percent confidence interval. Change in growth estimates are compared to 2004-2006 cycle.



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



**Figure 2. – Area of forest land area by top four forest types and stand size class, 2007-2011.**



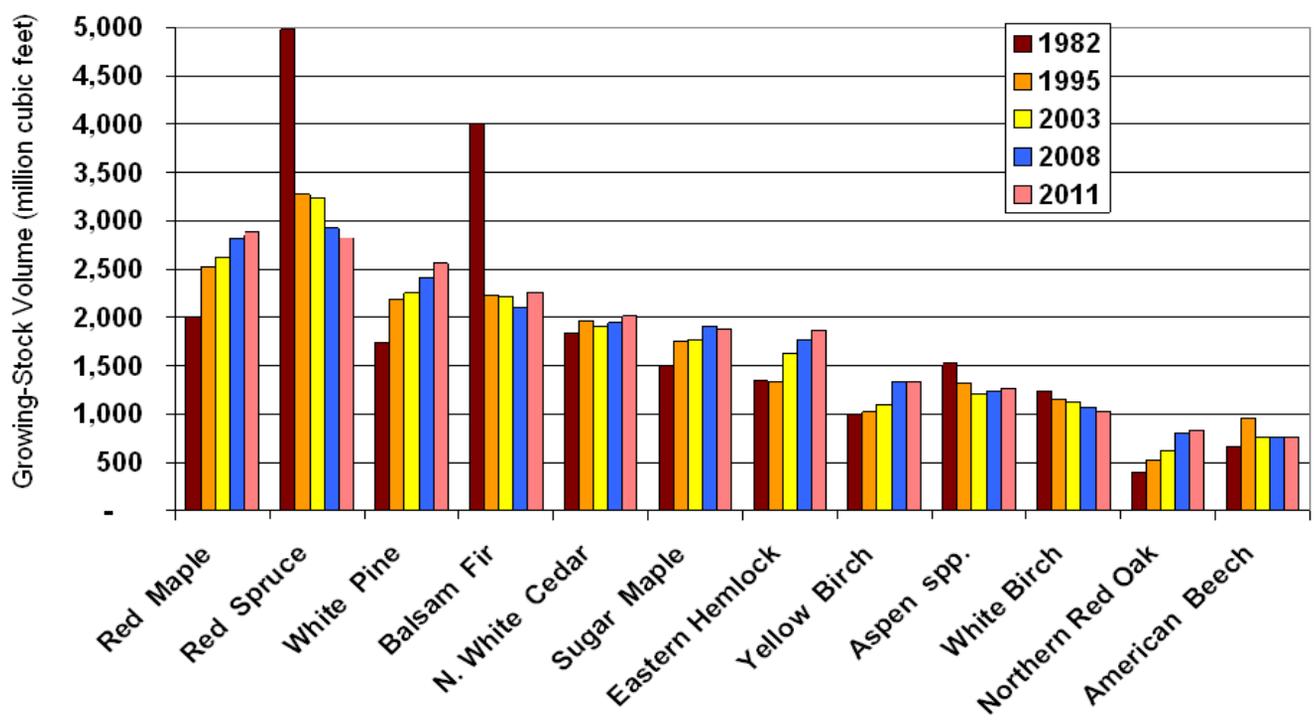
**Figure 3. – Area of timberland by stand size class and year.**

**Table 2. – Top 10 tree species by statewide volume estimates, Maine 2007-2011**

Rank	Species	Volume of live trees on forest land (1,000,000 ft <sup>3</sup> )	Sampling error (%)	Change since 2006 (%)	Volume of sawtimber trees on timberland (1,000,000 bdf <sup>t</sup> )	Sampling error (%)	Change since 2006 (%)
1	Red maple	3,222	2.8	3.4	4,902	4.9	5.5
2	Red spruce	3,047	3.7	-6.3	7,837	4.7	-4.4
3	Eastern white pine	2,807	5.2	6.1	10,556	5.8	9.1
4	Balsam fir	2,308	2.9	5.6	2,637	5.1	-3.6
5	Northern white-cedar	2,236	4.8	2.9	4,825	5.7	8.5
6	Sugar maple	2,036	5.4	-6.9	5,640	7.1	-6.1
7	Eastern hemlock	1,987	5.0	7.9	5,731	5.8	13.6
8	Yellow birch	1,622	3.9	-1.0	3,757	6.1	-3.6
9	Paper birch	1,134	4.2	-6.7	1,157	7.6	-10.3
10	American beech	886	5.6	-8.5	1,066	9.8	-18.0
	<b>Other softwoods</b>	<b>1,452</b>	<b>5.6</b>	<b>1.4</b>	<b>3,320</b>	<b>7.2</b>	<b>5.2</b>
	<b>Other hardwoods</b>	<b>3,019</b>	<b>3.5</b>	<b>3.9</b>	<b>6,684</b>	<b>5.2</b>	<b>11.4</b>
	<b>All species</b>	<b>25,757</b>	<b>1.2</b>	<b>0.7</b>	<b>58,112</b>	<b>1.9</b>	<b>3.0</b>

## Maine Issues Update - Trends

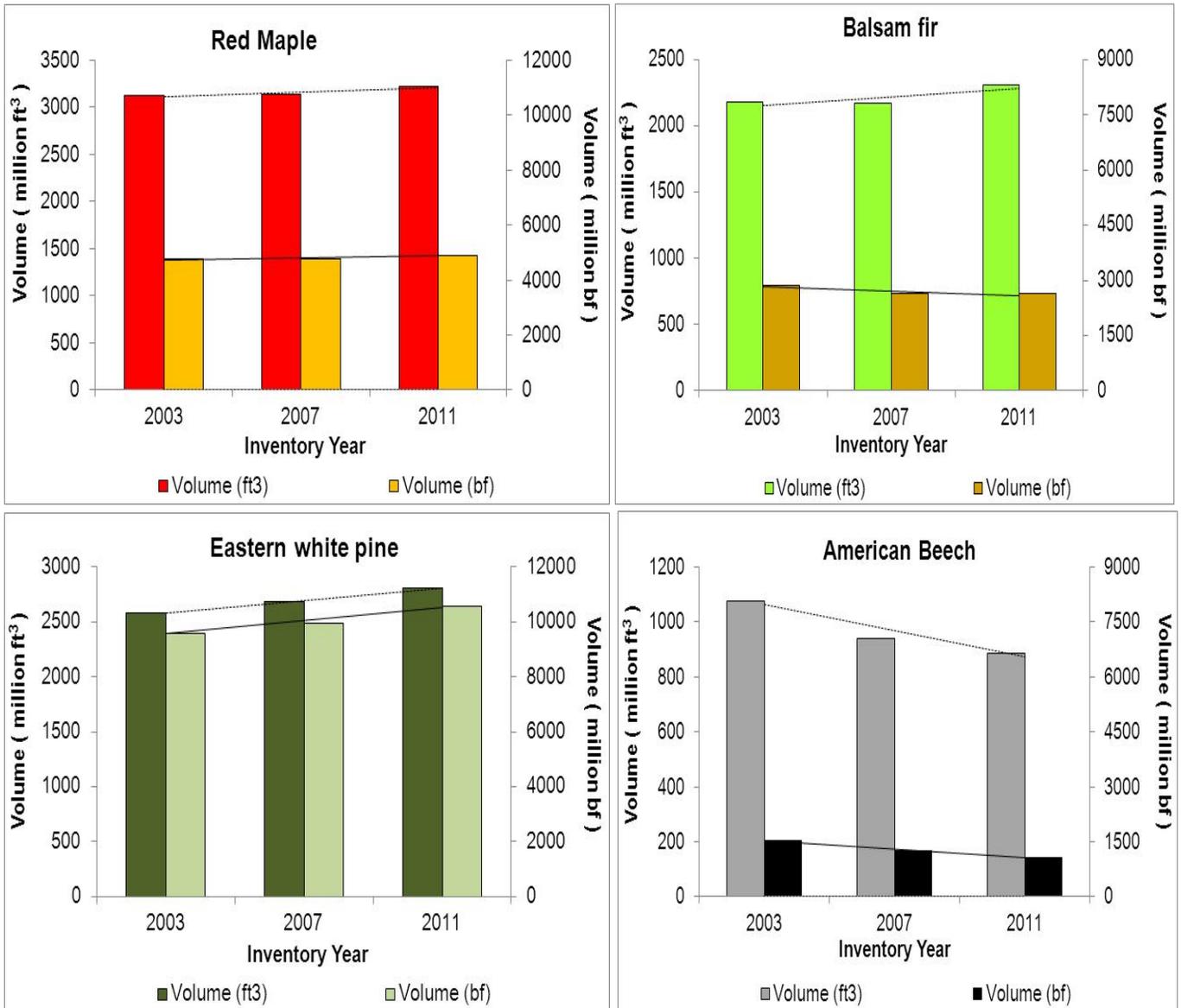
Maine's forests have evolved over the last 30 years since the last spruce budworm epidemic. During that time period (1982 to 2011) red spruce volumes have continued to decrease while balsam fir volumes have stabilized. Red maple, white pine, northern white-cedar, and eastern hemlock volumes have increased from their 1982 lows, while aspen and paper (white) birch have declined.



**Figure 4. – Top 12 species by growing-stock volume (million ft<sup>3</sup>) 1982 – 2011 (Laustsen 2012).**

Continued from Page 2

To have a complete picture of change, it is beneficial to compare “all live” volumes with board-foot (sawtimber) estimates. All live volume represents the net merchantable volume of all trees, 5.0+ inches d.b.h., while sawtimber volume has a minimum d.b.h. of 9.0 or 11.0 respectively for softwood and hardwood species and tougher quality standards. Red maple volumes have increased slightly in both all live and sawtimber since 2003. In contrast, balsam fir live volume has increased by 6 percent or 129 million ft<sup>3</sup> during the same period, but not in the sawtimber-sized trees (- 9 percent). The hemlock woolly adelgid is projected to decrease the basal area of hemlock forests as much as 45 percent in southern Maine (Maine Forest Service 2012). But between 2003 and 2011, statewide hemlock volumes have increased almost 190 million ft<sup>3</sup> or 10 percent, including a 20 percent gain in sawtimber. Finally, beech trees have lost 20 percent of their cubic foot volume for the 2003-2011 time period, including a 45 percent loss in board-foot volumes (Morin et al. 2007).



**Figure 5. – Species by all live (million ft<sup>3</sup>) and sawtimber (million b.f.) volumes 2003-2011. Comparison is between the level of increase or decrease between all live and sawtimber (bf) volumes.**



**Citation for this Publication**

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**FIA Program Information**

Bechtold, W.A.; Patterson, P.L., eds. 2005. **The enhanced forest inventory and analysis program: national sampling design and estimation procedures**. Gen. Tech. Rep. SRS-80. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 85 p.

Smith, W.B. 2002. **Forest inventory and analysis: a national inventory and monitoring program**. Environmental Pollution. 116: 233-242.

U.S. Department of Agriculture, Forest Service. 2010. **Forest Inventory and Analysis national core field guide: field data collection procedures for phase 2 plots. Version 5.0**. Unpublished information on file at <http://www.fia.fs.fed.us/fia/data-collection/> (verified May 21, 2012).

**Additional Information**

Morin, R.S.; Liebhold, A.M.; Tobin, P.C.; Gottschalk, K.W.; Luzader, E. 2007. **Spread of beech bark disease in the eastern United States and its relationship to regional forest composition**. Newtown Square, PA. Canadian Journal of Forest Research. 37: 726-736.

Maine Forest Service. 2012. **Forest and shade tree insect & disease conditions for Maine: A summary of the 2011 situation**. 65 p. <http://www.maine.gov/doc/mfs/documents/SummaryReport2011.pdf>

**Additional Maine Inventory Information**

McCaskill, G.L.; McWilliams, W.H.; Butler, B.J.; Morin, R.S.; Moser, W.K.; et al. 2011. **Maine's Forests 2008**. Res. Bull. NRS-48 Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 62 p.

Laustsen, K.M. 2012. **Personal communication**. Maine Forest Service, 22 State House Station, Augusta, ME.

Laustsen, K.M. 2009. **The 2006 mid-cycle report on inventory and growth of Maine's forests**. Orono, ME: Forest Health & Monitoring Division, Department of Conservation, Maine Forest Service. 30 p.

McWilliams, W.H.; Butler, B.J.; Griffith, D.M.; Laustsen, K.M.; Caldwell, L.E.; et al. 2005. **The Forests of Maine: 2003**. Res. Bull. NE-164. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 188 p.

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