USDA United States Department of Agriculture
Forest Service
Northern Research Station

Minnesota's Forest Resources, 2006

Research Note NRS-7

This publication provides an overview of forest resource attributes for Minnesota based on an annual inventory conducted by the Forest Inventory and Analysis program at the Northern Research Station of the U.S. Forest Service. These annual estimates, along with web-posted core tables, will be updated annually. For more information regarding past inventory reports for this state, inventory program information, and sampling/estimation procedures, please refer to the citations at the end of this report or visit our web page: www.fia.fs.fed.us.

Table 1.—Annual estimates, uncertainty, and change

	Estimate	Sampling error %	Change since 2005%
Forest Land Estimates			
Area (1,000 acres)	16,391.5	0.6	0.6
Number of live trees 1-inch diameter or larger (million trees)	12,525.3	1.2	0.9
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	470,359.1	1.1	0.4
Net volume in live trees (1,000,000 ft^3)	17,734.6	1.2	0.3
Net volume of growing-stock trees (1,000,000 ft^3)	16,014.1	1.2	-1.3
Annual net growth of live trees (1,000 ft^3/year)	428,024.1	4.7	9.1
Annual mortality of live trees (1,000 ft^3/year)	337,905.0	3.4	-2.0
Annual removals of live trees (1,000 ft^3/year)	285,722.5	8.0	-2.9
Timberland Estimates			
Area (1,000 acres)	15,112.7	0.6	0.8
Number of live trees 1-inch diameter or larger (million trees)	11,668.6	1.3	1.1
Biomass of live trees 1-inch diameter or larger (1,000 tons)	441,702.1	1.1	0.6
Net volume in live trees (1,000,000 ft^3)	16,580.9	1.3	0.4
Net volume of growing-stock trees (1,000,000 ft^3)	14,930.4	1.3	-1.3
Annual net growth of growing-stock trees (1,000 ft3/year)	469,711.7	4.2	-2.8
Annual mortality of growing stock trees (1,000 ft^3/year)	237,536.2	3.7	-1.3
Annual removals of growing stock trees (1,000 ft^3/year)	293,554.4	8.0	-7.4

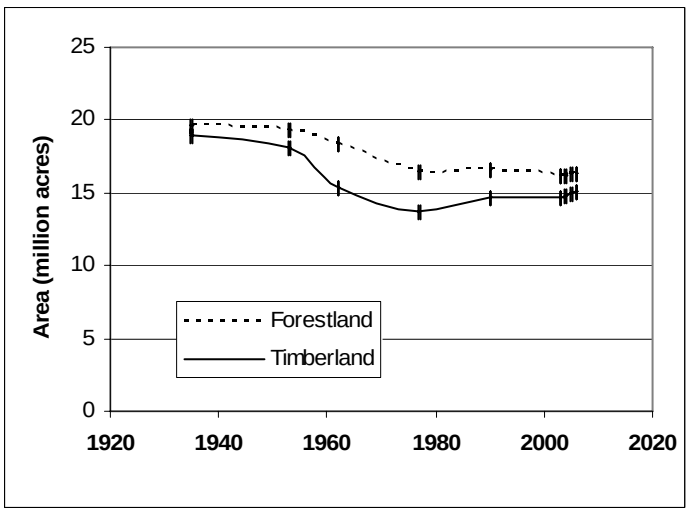

Figure 1.—Area of timberland and forest land by year

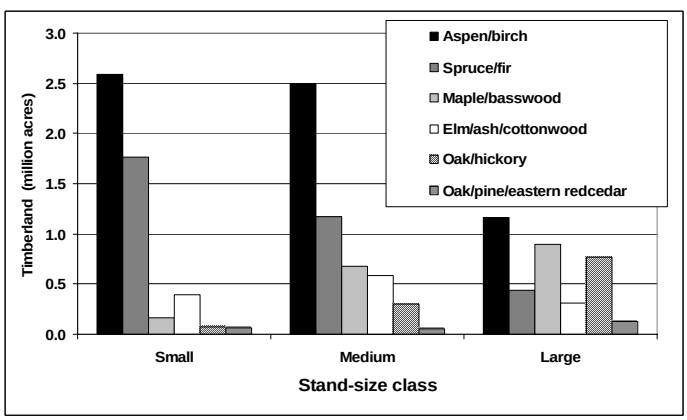

Figure 2.—Area of timberland of top six forest types by stand-size class

Table 2.—Top 10 species by volume estimates

Rank	Species	Volume of live trees on timberland	Sampling Error (%)	Change since 2005 (%)	Volume of sawtimber trees on timberland (1,000,000 bdft)	Sampling error (%)	Change since 2005 (%)
1	Quaking aspen	3,374.2	2.7	-2	7,368.4	3.7	-3.6
2	Paper birch	1,148.0	3.5	-2.5	1,531.1	5.5	-3.3
3	Northern white-cedar	997.9	6.2	2.8	2,958.3	7.1	1.0
4	Black ash	905.1	4.7	2	1,340.7	7.1	1.3
5	Northern red oak	901.3	5.3	2.4	2,785.1	6.5	-2.6
6	Bur oak	900.6	5.1	3.4	2,032.8	6.8	-3.3
7	American basswood	885.9	5.2	-0.1	2,163.8	6.6	-3.3
8	Red pine	874.7	7.2	2.5	3,491.4	8.0	2.4
9	Black spruce	762.1	5	1.7	825.7	7.4	0.5
10	Tamarack (native)	673.6	5.6	2.1	1,406.7	7.0	1.5
	Other softwood species	1,712.5	3.4	-0.3	5,398.3	4.6	0.0
	Other hardwood species	3,445.0	2.8	1	6,092.7	4.6	-4.7
	All species	16,580.9	1.3	0.4	37,394.9	1.9	-1.8

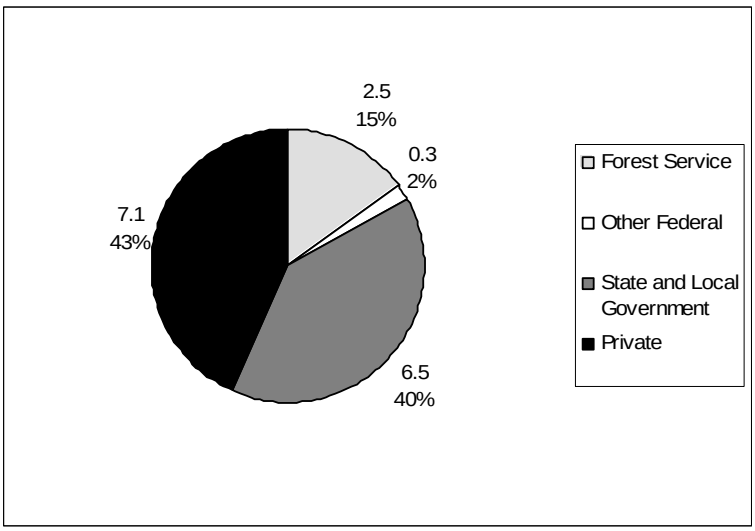

Figure 3.—Forest land area (million acres and percent) by ownership group

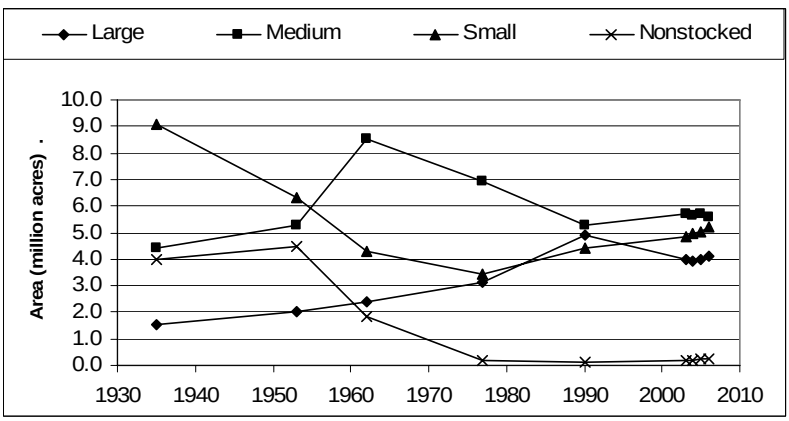

Figure 4.—Area of timberland by stand-size class and year

Minnesota Issue Update – Changes in species composition

Sixty-nine tree species were measured on field plots during the 2006 inventory of Minnesota. Eighty percent of the live-tree volume was in just 13 of these species. The volume of the two most abundant species, quaking aspen and paper birch, has declined over the past 30 years (Fig. 5) due to increased utilization in the case of quaking aspen and increased utilization and mortality in the case of paper birch. The volume of northern white-cedar, the third most abundant species, has increased by 57 percent over the past 30 years.

Quaking aspen volume is expected to increase due primarily to regeneration on areas harvested over the past three decades. A large number of saplings are approaching the 5-inch diameter threshold at which point they will contribute to growing-stock volume. The number of paper birch trees less than 5 inches in diameter has declined over the past 30 years.

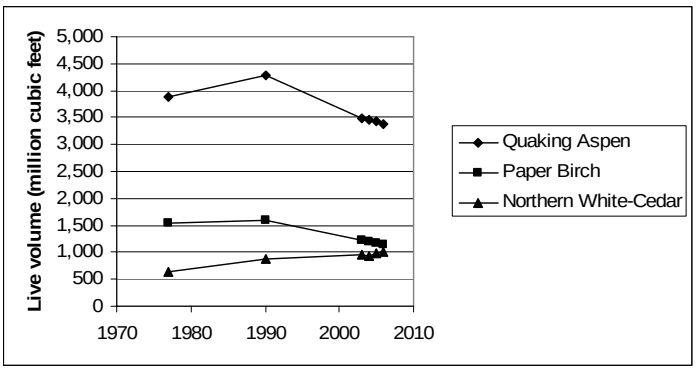

Figure 5.—Live-tree volume of the three most prevalent tree species by year, Minnesota

Balsam fir was the fourth most abundant tree species in 1977 but is now 12th due to high mortality rates (Fig. 6). All of the other nine tree species in Figure 6 have increased significantly over the past 30 years. However, since 1990, the volume of northern red oak has declined and the volume of black spruce has remained virtually unchanged.

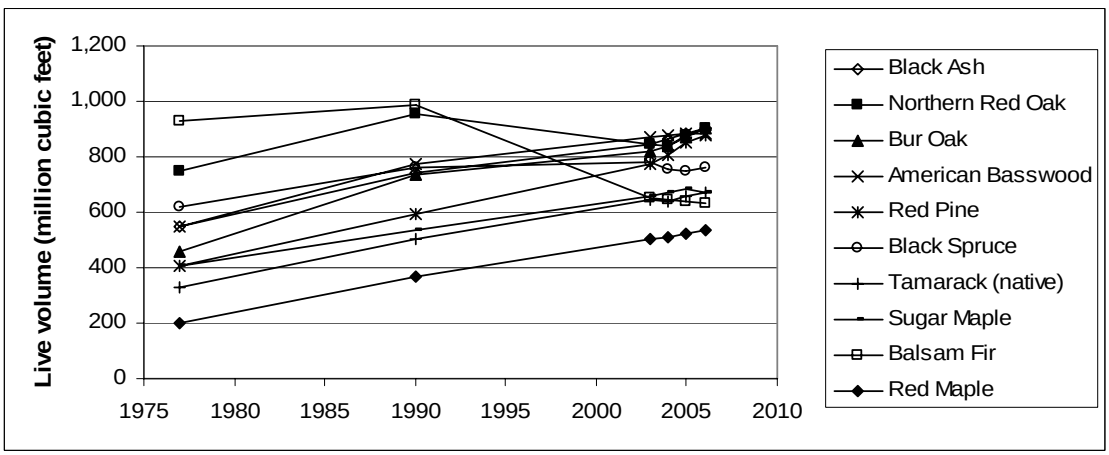

Figure 6.—Live-tree volume of the fourth through 13th most prevalent tree species by year, Minnesota.

Citation for this Publication

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FIA Program Information

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