

New York's Forest Resources, 2011

Research Note NRS-147

This publication provides an overview of forest resource attributes for New York 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 2007(%)
Forest Land Estimates			
Area (1,000 acres)	18,966	0.7	0.0
Number of live trees 1-inch diameter or larger (million trees)	12,096	1.3	-1.3
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	1,111,388	1.0	3.2
Net volume in live trees (1,000,000 ft ³)	40,713	1.1	3.3
Annual net growth of live trees (1,000 ft ³ /year)	730,970	3.4	NA
Annual mortality of live trees (1,000 ft ³ /year)	479,500	3.3	NA
Annual harvest removals of live trees (1,000 ft ³ /year)	307,472	7.9	NA
Annual other removals of live trees (1,000 ft ³ /year)	26,176	37.0	NA
Timberland Estimates			
Area (1,000 acres)	15,920	0.8	-0.3
Number of live trees 1-inch diameter or larger (million trees)	9,710	1.5	-2.4
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	903,720	1.2	3.5
Net volume in live trees (1,000,000 ft ³)	33,006	1.3	3.6
Net volume of growing-stock trees (1,000,000 ft ³)	29,816	1.3	2.1
Annual net growth of growing-stock trees (1,000 ft ³ /year)	627,125	3.0	NA
Annual mortality of growing-stock trees (1,000 ft ³ /year)	259,295	4.2	NA
Annual harvest removals of growing-stock trees (1,000	254,795	8.1	NA
Annual other removals of growing-stock trees (1,000 ft ³ /year)	30,995	32.1	NA

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

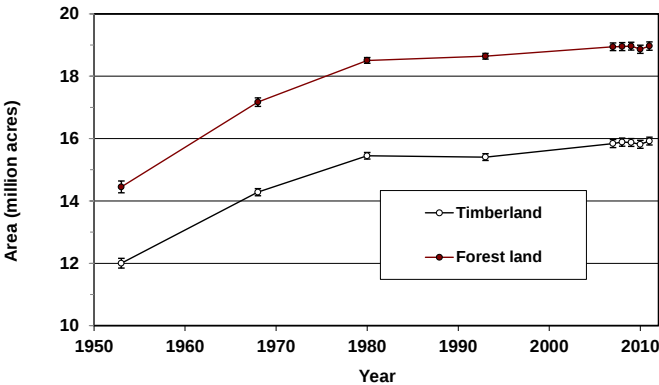


Figure 1. – Area of timberland and forest land by year.

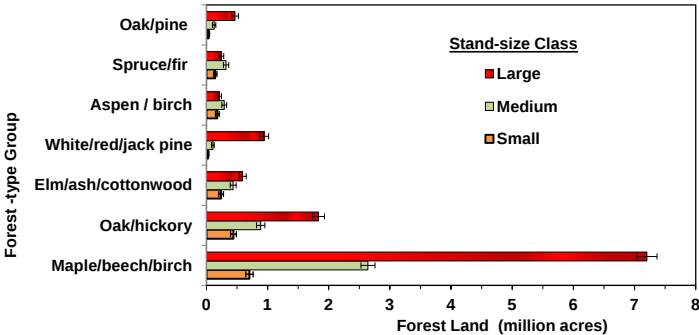


Figure 2. – Forest land area by stand-size class* for most common forest -type groups, 2011.

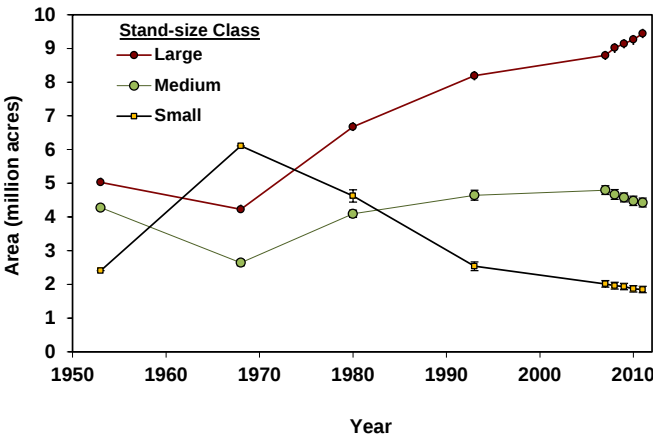
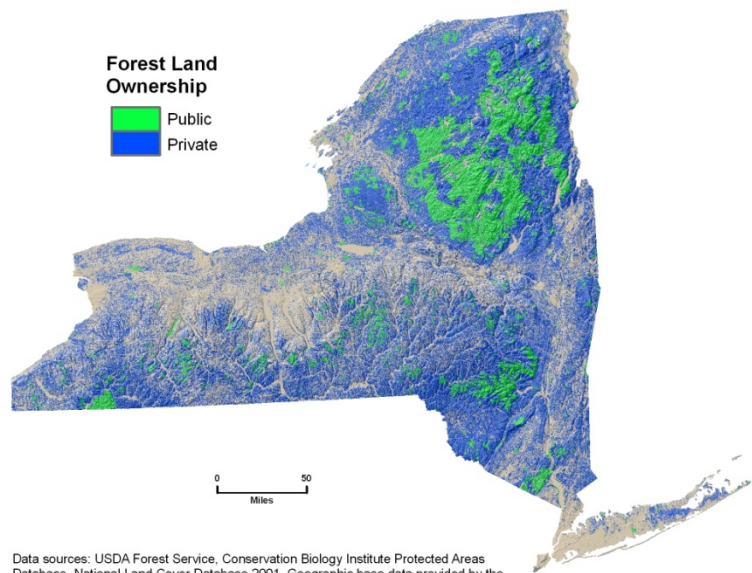


Figure 3. – Area of timberland by stand-size class* and year.

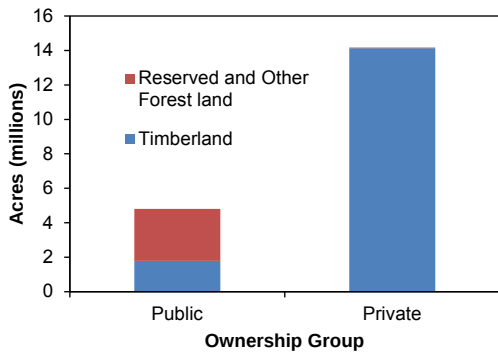
* Small: dominated by trees less than 5.0 inches d.b.h.; Medium: 5.0 to 8.9 inches d.b.h. for softwoods and 5.0 to 10.9 inches d.b.h. for hardwoods; Large: ≥ 9.0 inches for softwoods and 11.0 d.b.h. for hardwoods.

Table 2. – Top 10 tree species by statewide volume estimates, 2008-2011.

Rank	Species	Volume of live trees on forest land (million ft ³)	Sampling error (%)	Percent change since 2007	Volume of sawtimber trees on timberland (million bdf)	Sampling error (%)	Percent change since 2007
1	Red maple	6,434	2.7	3.6	12,118	4.1	4.9
2	Sugar maple	6,263	3.1	0.4	12,913	4.6	0.1
3	Eastern white pine	3,120	5.7	2.6	11,008	6.5	5.2
4	Eastern hemlock	3,077	4.9	4.5	6,885	6.1	3.4
5	White ash	2,466	4.2	6.8	5,950	5.9	15.2
6	American beech	2,405	3.9	3.8	3,615	6.8	5.1
7	Northern red oak	2,161	5.5	8.9	7,862	6.5	17.6
8	Black cherry	2,139	5.1	4.3	5,799	6.9	6.1
9	Yellow birch	1,978	4.6	0.4	2,050	8.5	-2.3
10	Red spruce	1,059	6.8	0.4	1,040	11.7	5.3
	Other softwoods	2,302	6.0	5.8	4,995	8.9	13.3
	Other hardwoods	7,311	2.7	2.6	19,043	4.2	10.2
	All Species	40,713	1.1	3.3	93,276	1.8	7.1



Data sources: USDA Forest Service, Conservation Biology Institute Protected Areas Database, National Land Cover Database 2001. Geographic base data provided by the National Atlas of the USA.



Public forest land – 25.3 percent of all forest land

Private forest land – 74.7 percent of all forest land

Figure 4. – Area of forest land by major owner group, New York, 2011.

Tree Mortality in New York

The volume of trees that die from natural causes such as insects, diseases, fire, wind, and suppression from other trees is reported as mortality; harvested trees are not included (harvested trees and trees lost due to land use change are included in removals). Tree mortality is a natural process that occurs in a functioning ecosystem although dramatic increases in mortality can indicate problems in forest health. In New York, annual mortality of growing-stock trees has averaged 259 million cubic feet since 2007, a rate of 0.9 percent of inventory volume (Fig. 5). This is the same rate as during the period 1993-2007, and higher than the 0.5 average rate between 1980-1993. By FIA unit, mortality rates were highest across the three Adirondack units of the State (Fig. 6). Species of aspen represent the largest portion of total mortality followed by red and sugar maple (Fig. 7). Eight species had mortality rates higher than the State average, with elm, paper birch, balsam fir, and aspen having the highest annual rates--7.3, 4.6, 3.3, and 2.4 percent respectively (Fig. 8).

Much of the mortality can be explained by insects and diseases that target specific species and by stand dynamics. The high rate of mortality for elm can be attributed to Dutch elm disease and a large portion of beech mortality can likely be attributed to beech bark disease. Some of the other species with high mortality rates are early successional species, such as aspen that is intolerant of the shaded conditions that are becoming more prevalent as New York’s forest matures. Other species with high rates of mortality are less tolerant of shade than species with which they are commonly associated. Paper and yellow birch typically associate with sugar maple, a very shade tolerant species (Burns 1990). Spruce and balsam fir, though tolerant of shade, commonly grow in dense stands where competition between trees is sever and individual trees can suffer. However, reasons for high mortality in these species could benefit from further investigation. Higher mortality rates in the Adirondack units are due to higher concentrations of balsam fir, red spruce, beech, and yellow and paper birch in these areas.

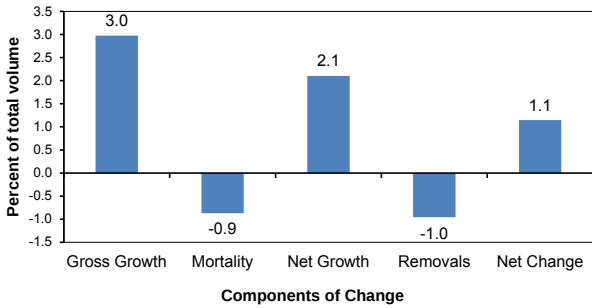


Figure 5. – Components of average annual change as a percentage of total growing-stock volume on timberland, New York, 2008-2011.

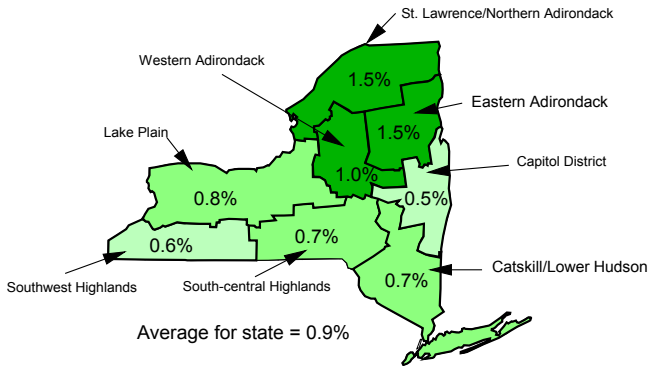


Figure 6. – Average annual mortality rate (in percent of unit total growing-stock volume) on timberland, by FIA unit, New York, 2008-2011.

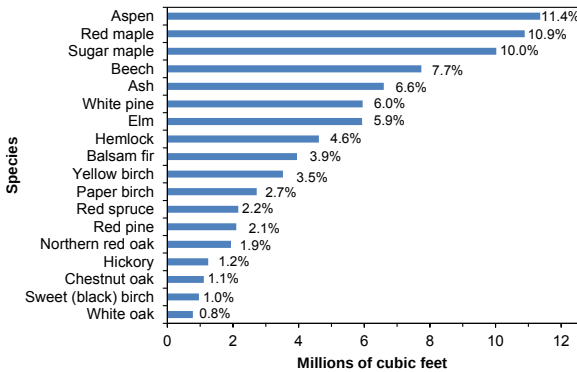


Figure 7. – Average annual mortality by major species and percent of total mortality, New York, 2011.

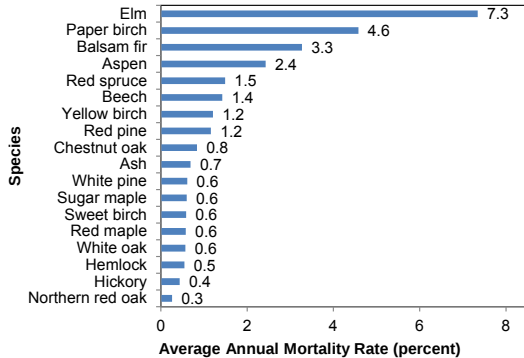


Figure 8. – Average annual mortality rate (percent of species total growing-stock volume) for major species on timberland, New York, 2008-2011.

Citation for this Publication

Widmann, R.H. 2012. **New York's forest resources, 2011**. Res. Note NRS-147. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p.

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.

USDA Forest Service. 2011. **Forest inventory and analysis national core field guide, Vol. 1, field data collection procedures for phase 2 plots, Ver. 5.1**. Washington, DC: U.S. department of Agriculture, Forest Service. Available at <http://www.fia.fs.fed.us/library/field-guides-methods-proc/> (verified June. 1, 2012).

Additional New York Inventory Information

Armstrong, G.R.; Bjorkbom, J.C. 1956. **The timber resources of New York**. Upper Darby, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 37 p.

Ferguson, R.H.; Mayer, C.E. 1970. **The timber resources of New York**. Resour. Bull. NE-20. Upper Darby, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 193 p.

Considine, T.J., Jr.; Frieswyk, T.S. 1982. **Forest statistics for New York—1980**. Resour. Bull. NE-71. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 118 p.

Considine, T.J., Jr.; 1984. **An analysis of New York's timber resources**. Resour. Bull. NE-80. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 70 p.

Alerich, C.L.; Drake, D.A. 1995. **Forest statistics for New York 1980 and 1993**. Resour. Bull. NE-132. Radnor PA: U.S. Department of Agriculture, Forest Service Northeastern Experiment Station. 249 p.

Literature Cited

Burns, R.M.; Honkala, B.H., tech. coords. 1990. **Silvics of North America: 1. Conifers; 2. Hardwoods**. Agriculture Handbook 654, U.S. Dept. of Agriculture, Forest Service, Washington, D.C. vol.1, 875 p.;vol.2, 877 p.

Contact Information

Lead Analyst: Richard Widmann, (610) 557-4051, rwidmann@fs.fed.us
Data processing/access: Charles Barnett, (610) 557-4031, cjbarnett@fs.fed.us
Field data collection: Richard Grassetti (315) 448-3202, rgrassetti@fs.fed.us
Estimates, tabular data, and maps from report may be generated at: www.fia.fs.fed.us/tools-data

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternate means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, DC 20250-9410, or call (800)795-3272 (voice) or (202)720-6382 (TDD). USDA is an equal opportunity provider and employer.