

# Ohio's Forest Resources, 2010

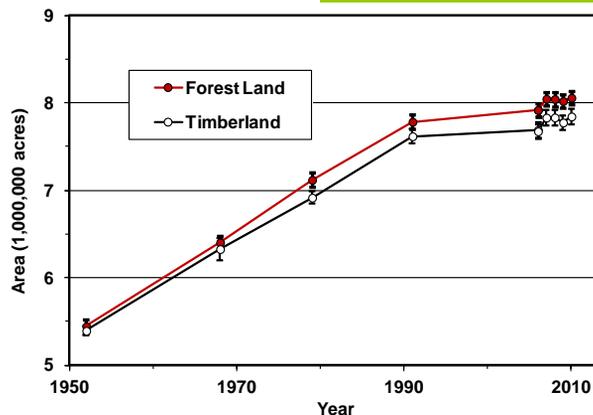
Research Note NRS-128

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

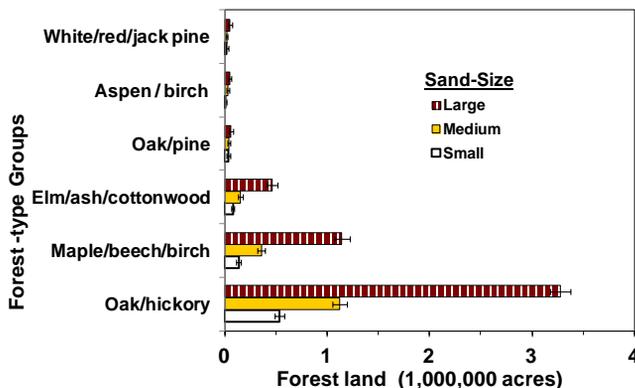
**Table 1. – Annual estimates, uncertainty, and change.**

	Estimate 2010	Sampling error (%)	Change since 2006 (%)
<b>Forest Land Estimates</b>			
Area (1,000 acres)	8,059	1.0	1.8
Number of live trees 1-inch diameter or larger (million trees)	4,155	2.1	2.3
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	472,281	1.6	5.9
Net volume in live trees (1,000,000 ft <sup>3</sup> )	16,253	1.7	5.8
Annual net growth of live trees (1,000 ft <sup>3</sup> /year)	496,647	4.3	NA
Annual mortality of live trees (1,000 ft <sup>3</sup> /year)	176,572	6	NA
Annual harvest removals of live trees (1,000 ft <sup>3</sup> /year)	202,978	10.8	NA
Annual other removals of live trees (1,000 ft <sup>3</sup> /year)	9,919	49.2	NA
<b>Timberland Estimates</b>			
Area (1,000 acres)	7,845	1.1	2.0
Number of live trees 1-inch diameter or larger (million trees)	4,066	2.2	2.4
Dry biomass of live trees 1-inch diameter or larger (1,000 tons)	460,356	1.7	5.8
Net volume in live trees (1,000,000 ft <sup>3</sup> )	15,844	1.8	5.7
Net volume of growing-stock trees (1,000,000 ft <sup>3</sup> )	13,943	2.0	1.8
Annual net growth of growing-stock trees (1,000 ft <sup>3</sup> /year)	393,676	4.0	NA
Annual mortality of growing-stock trees (1,000 ft <sup>3</sup> /year)	114,272	6.7	NA
Annual harvest removals of growing-stock trees (1,000 ft <sup>3</sup> /year)	164,403	11.0	NA
Annual other removals of growing-stock trees (1,000 ft <sup>3</sup> /year)	20,312	34.1	NA

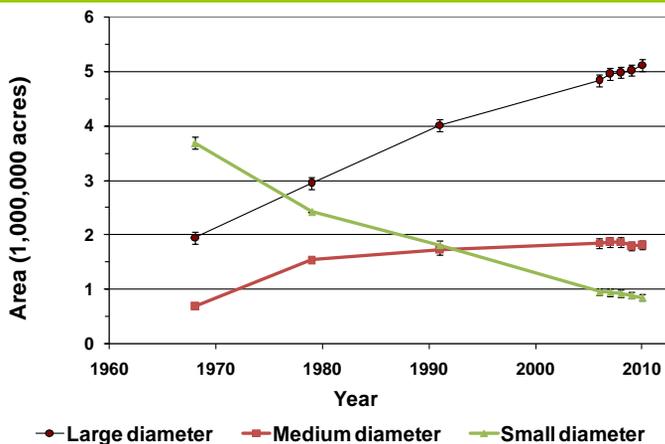
Note: When available, sampling errors/bars provided in figures and tables represent 68 percent confidence intervals.



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



**Figure 2. – Forest land area by stand-size class\* for top six forest-type groups, 2010.**



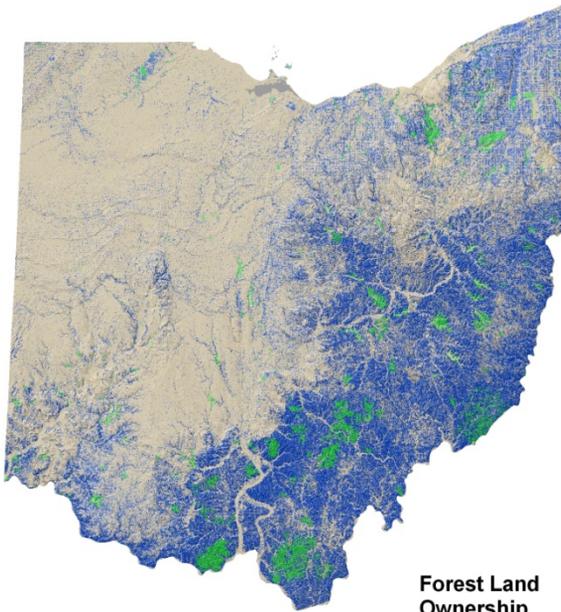
**Figure 3. – Area of timberland by stand-size class\* and year.**

\* 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, 2006-2010.

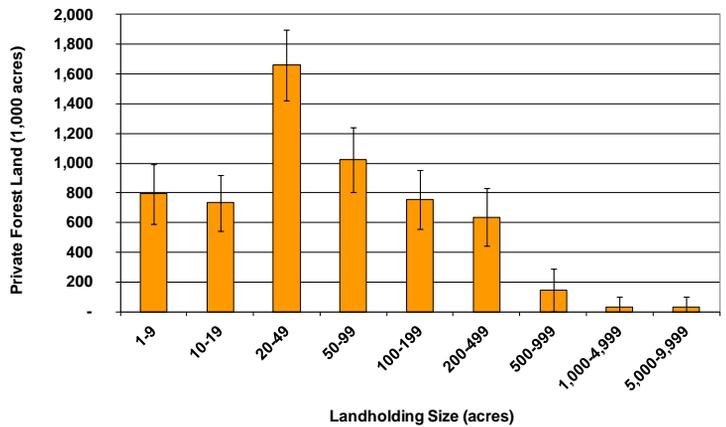
Rank	Species	Volume of live trees on forest land (million ft <sup>3</sup> )	Sampling Error (%)	Change since 2006 (%)	Volume of sawtimber trees on timberland (million bdf)	Sampling error (%)	Change since 2006 (%)
1	Red maple	1,660	5.2	9.5	3,951	7.3	8.8
2	Yellow-poplar	1,579	7.0	7.5	6,226	8.5	9.6
3	Sugar maple	1,369	5.5	7.7	3,714	7.4	7.1
4	Black cherry	1,149	5.9	6.2	2,805	8.9	0.5
5	White ash	976	6.1	0.6	3,116	8.4	0.4
6	White oak	955	7.0	-0.4	3,876	8.3	2.2
7	Northern red oak	872	7.8	13.4	3,641	9.6	11.7
8	American beech	523	9.8	-2.2	1,835	12.8	-6.1
9	Shagbark hickory	499	7.7	8.9	1,483	9.9	11.8
10	Black oak	482	9.8	2.0	1,886	11.7	-0.6
	Softwood species	599	12.0	-1.2	1,794	15.1	-0.1
	Other hardwood species	5,592	2.9	6.3	16,668	4.2	8.5
	<b>All species</b>	<b>16,253</b>	<b>1.7</b>	<b>5.8</b>	<b>50,995</b>	<b>2.6</b>	<b>6.1</b>



**Forest Land Ownership**  
■ Public  
■ Private

Private forest land – 86.3 percent of all forest land

Public forest land – 13.6 percent of all forest land



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.

Figure 4. – Area of forest land by major owner group (2010) and size of private family forest landholding (2006). Error bars represent 68 percent confidence intervals.

# Are Ohio's forests being managed sustainably?

Changes in timber volume (growing stock) can be explained by examining growth, removals and mortality of trees. Comparing net growth to removals addresses one aspect of forest sustainability; when net growth exceeds removals, total growing stock volume increases. Removals include trees harvested on land that remains in timberland, trees on timberland that has been reclassified to reserved forest land, and trees lost because the forest was developed for a nonforest use. The volume of trees that die from natural causes such as insects, diseases, wind, and suppression from other trees is reported as mortality. The data presented in Figures 5-7 are estimates of annual change in growing-stock volume on private land and unreserved public timberland in Ohio. These data are based on the remeasurement of plots first measured in 2001-2005 and represent of 80 percent of a full measurement cycle. Analysis of these individual components can help us better understand what is influencing net change in volume.

The growth of trees has greatly outpaced their mortality and removals. The most recent inventory revealed that as a percentage of the current total inventory, gross growth was 3.6 percent; mortality: -0.8 percent, net growth: +2.8 percent; and removals: -1.3 percent. This results in an overall net change of 1.5 percent annually.

Total growth outpaced removals by a ratio of 2.1:1. Individually growth for all major species except American beech exceeded removals. Yellow-poplar had the largest amount of growth followed by red, and sugar maple. Yellow-poplar also had the largest amount of removals. Red maple is increasing at an annual rate of 2.4 percent, exceeding the State average for all species.

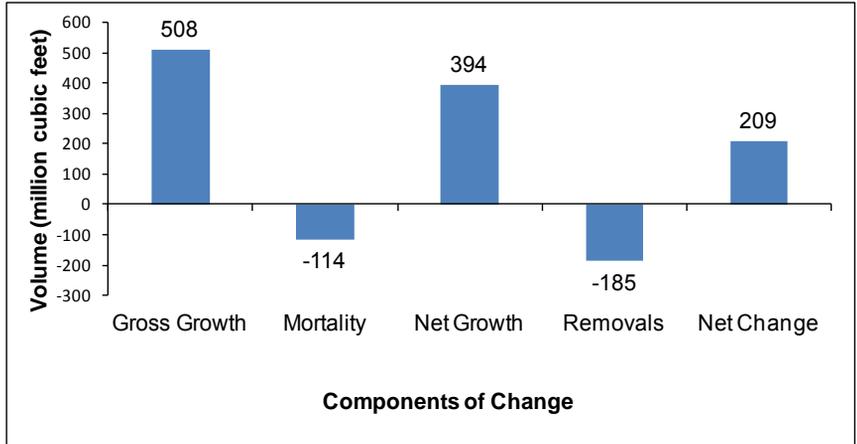


Figure 5. – Average annual components of change in growing-stock volume on timberland, Ohio, 2010.

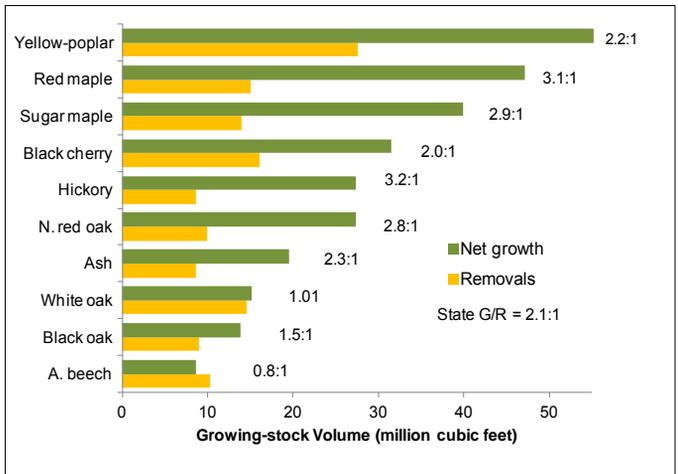


Figure 6. – Average annual net growth and removals of growing-stock, and growth-to-removals (G/R) ratio for major species on timberland, Ohio, 2010.

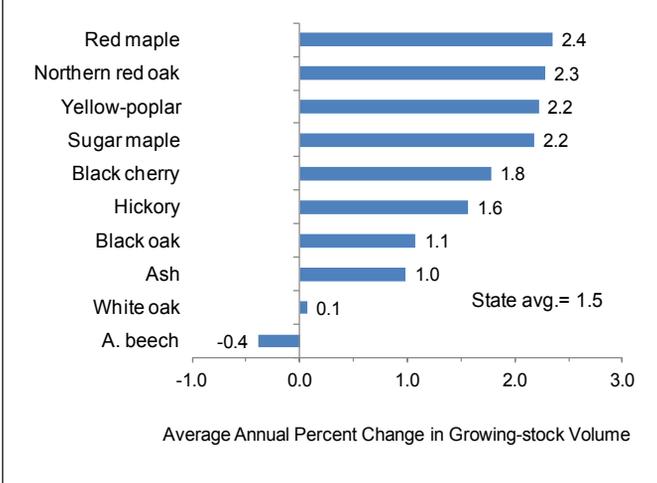


Figure 7. – Average annual net change, in growing-stock volume, as a percent of current inventory, by major species on timberland, Ohio, 2010.



### Citation for this Publication

Widmann, R.H. 2011. **Ohio's forest resources, 2010**. Res. Note NRS-128. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p.

### FIA Program Information

Bechtold, W.A.; Patterson, P.L. 2005.,eds. **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. 2005. **Forest inventory and analysis national core field guide, Vol. 1, field data collection procedures for phase 2 plots, Ver. 3.0**. Washington, DC: U.S. department of Agriculture, Forest Service. Available at <http://www.fia.fs.fed.us/library/field-guides-methods-proc/> (verified Aug. 1, 2008).

### Additional Ohio Inventory Information

Dennis, D.F.; Birch, T.W. 1981. **Forest statistics for Ohio-1979**. Resour. Bull. NE-68. Broomall, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 79 p.

Griffith, D.M.; DiGiovanni, D.; Witzel, T.; Wharton, E.H. 1993. **Forest statistics for Ohio, 1991**. Resour. Bull. NE 128. Radnor, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 169 p.

Hutchison, K.O.; Morgan, J.T. 1956. **Ohio's forests and wood using industries**. Forest Survey Release 19. Columbus, OH: U.S. Department of Agriculture, Forest Service, Central States Forest Experiment Station. 40 p.

Kingsley, N.P.; Mayer, C.E. 1970. **The timber resources of Ohio**. Resour. Bull. NE-19. Upper Darby, PA: US. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 137 p.

Widmann, R.H.; Balsler, D.; Barnet, C.; Butler, B.J.; Griffith, D.M.; Lister, T.W.; Moser, W. K.; Perry, C.H.; Riemann, R.; Woodall, C.W. 2009. **Ohio's forests: 2006**. Resour. Bull. NRS-36. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 119 p.

### Contact Information

Lead Analyst: Richard Widmann, (610) 557-4051, [rwidmann@fs.fed.us](mailto:rwidmann@fs.fed.us)

Data processing/access: Charles Barnett, (610) 557-4031, [cjbarnett@fs.fed.us](mailto:cjbarnett@fs.fed.us)

Field data collection: Mike Effinger (304) 285-1593, [meffinger@fs.fed.us](mailto:meffinger@fs.fed.us)

Estimates, tabular data, and maps from report may be generated at: [fiatools.fs.fed.us](http://fiatools.fs.fed.us)

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, audiotope, 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.