

# Virginia, 2012

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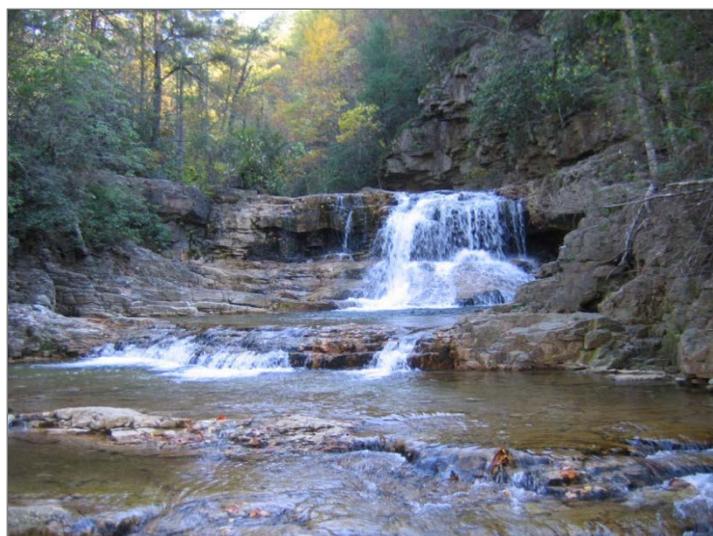


## FOREST INVENTORY & ANALYSIS FACTSHEET

This science update is a brief look at some of the basic metrics that describe the status of and changes in forest resources in Virginia. Estimates presented here are for the measurement year 2012. Information for the factsheets is updated by means of the Forest Inventory and Analysis (FIA) annualized sample design. Each year 20 percent of the sample plots (one panel) in Virginia are visited and measured by field crews, the data compiled, and new estimates produced. It is important that users keep in mind that in each year of new estimates, only 20 percent of the data are new, with the older data making up the remaining 80 percent of the sample. This may result in some spikes in estimates when comparing successive survey years but in most instances the annualized design should give a reasonable indication of directional trends in the resource. After 5 years of measurements, the full sample complement (a cycle) is complete and a new survey cycle begins. The most reliable trend information (especially that concerning magnitude of change) comes from comparing two full cycles of data.

This factsheet is based on data processed and posted on the FIA database (FIADB) on July 19, 2013 (<http://fia.fs.fed.us/tools-data/>). Definitions can be found in the FIADB user's manual at (<http://fia.fs.fed.us/tools-data/docs/default.asp>). Additional information concerning definitions and descriptive statistics can be found in the report *Virginia's Forests, 2011* (RB-SRS-197) (<http://treesearch.fs.fed.us/pubs/45260>).

**Overview**—In 2012, there were 15.9 million acres of forest land in Virginia (table 1). There were 11.4 billion live trees  $\geq 1.0$  inch diameter at breast height (d.b.h.). Net volume of live trees increased by 1.2 percent from 35.2 to 35.6 billion cubic feet between 2011 and 2012. Net annual growth of live trees increased from 1,037.1 to 1,063.9 million cubic feet per year.



St. Mary's Wilderness Falls, Augusta County, VA.  
(photo by Shirlea Pemberton)

Table 1—Virginia forest statistics, 2011 and 2012

	2011 estimate	Sampling error <i>percent</i>	2012 estimate	Sampling error <i>percent</i>	Change since 2011 <i>percent</i>
<b>Forest land</b>					
Area ( <i>thousand acres</i> )	15,907.0	0.65	15,883.2	0.63	-0.15
Number of live trees $\geq 1.0$ inch d.b.h. ( <i>million trees</i> )	11,483.5	1.62	11,440.0	1.58	-0.38
Net volume of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet</i> )	35,167.5	1.29	35,575.5	1.28	1.16
Aboveground dry weight of live trees $\geq 1.0$ inch d.b.h. ( <i>million short tons</i> )	897.3	1.15	905.1	1.14	0.87
Net annual growth of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet per year</i> )	1,037.1	2.49	1,063.9	2.41	2.58
Annual removals of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet per year</i> )	544.9	7.12	538.5	7.09	-1.17
Annual mortality of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet per year</i> )	302.1	4.16	298.2	4.12	-1.29
<b>Timberland</b>					
Area ( <i>thousand acres</i> )	15,315.8	0.75	15,285.5	0.73	-0.20
Number of live trees $\geq 1.0$ inch d.b.h. ( <i>million trees</i> )	11,190.2	1.29	11,134.2	1.28	-0.50
Net volume of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet</i> )	33,702.6	1.36	34,086.4	1.36	1.14
Aboveground dry weight of live trees $\geq 1.0$ inch d.b.h. ( <i>million short tons</i> )	860.3	1.23	867.3	1.23	0.81
Net annual growth of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet per year</i> )	1,042.0	2.54	1,063.6	2.47	2.07
Annual removals of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet per year</i> )	561.9	7.04	561.0	6.98	-0.15
Annual mortality of live trees $\geq 5.0$ inches d.b.h. ( <i>million cubic feet per year</i> )	281.2	4.21	280.6	4.17	-0.22



**Forest Area**—Virginia is divided into five survey units (fig. 1). Forest land in all of the survey units totaled 15.9 million acres and occupied 63 percent of the land area in the State. The Northern Piedmont was the least forested (57.5 percent) and the Southern Piedmont the most forested (67.8 percent). The Coastal Plain saw the largest decrease in forest land (0.7 percent) and the Northern Mountains saw the largest increase in forest land (0.3 percent) (table 2).

The predominant forest-type group in Virginia was oak-hickory (fig. 2). It occupied about 61 percent of the forest land area. The loblolly-shortleaf pine group and the oak-pine group ranked second and third. Since 2011, area of the oak-hickory group decreased by 0.6 percent, area of the loblolly-shortleaf group increased by 0.6 percent, and that of the oak-pine group increased by 1.1 percent. Eighty-four percent of the forest land in Virginia was naturally regenerated and 16 percent was artificially regenerated. The loblolly-shortleaf pine group had the highest percentage of artificially regenerated stands (70 percent) (fig. 2). Between 2011 and 2012 total area of artificially regenerated stands increased by 2.0 percent.

**Table 2—Area of forest land by survey unit and year, Virginia**

Survey unit	2007	2011	2012	Change since 2011	
	----- thousand acres -----			percent	
Coastal Plain	3,784.1	3,704.0	3,678.5	-25.6	-0.69
Southern Piedmont	3,759.7	3,791.3	3,783.7	-7.6	-0.20
Northern Piedmont	2,518.9	2,518.0	2,520.5	2.5	0.10
Northern Mountains	2,729.2	2,778.4	2,787.7	9.2	0.33
Southern Mountains	3,076.6	3,115.3	3,112.9	-2.4	-0.08
All units	15,868.5	15,907.0	15,883.2	-23.8	-0.15



Pitch pine cones, Augusta County, VA. (photo by Shirlea Pemberton)

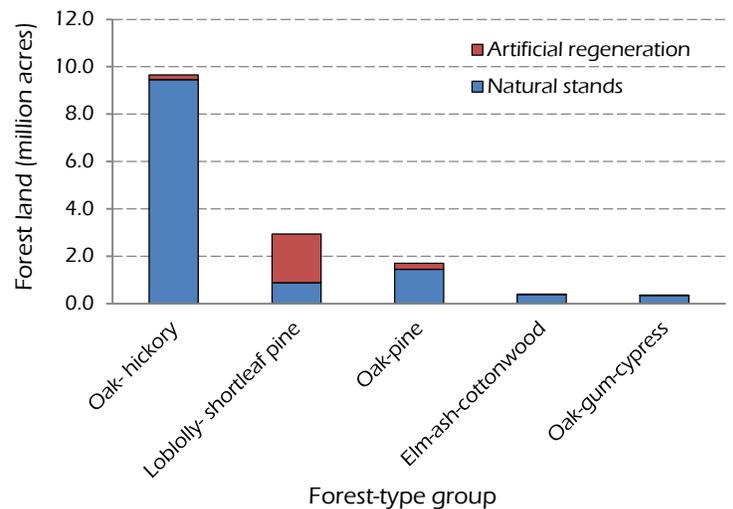


Figure 2—Area of forest land for the top five forest-type groups by stand origin, Virginia, 2012.



Figure 1—Counties and forest survey units in Virginia.



**Volume, Biomass, and Components of Change**—Volume of live trees  $\geq 5.0$  inches d.b.h. increased from 35.2 to 35.6 billion cubic feet, a 1.2 percent change since 2011 (table 1). Softwoods made up 23 percent of the live volume and hardwoods 77 percent. Hardwoods saw a 0.8 percent increase in volume (27.1 to 27.3 billion cubic feet), and softwoods saw a 2.5 percent increase (8.1 to 8.3 billion cubic feet).

Yellow-poplar continued to rank first for live-tree volume with 5.7 billion cubic feet in 2012 (table 3), an increase of 1.8 percent from 2011. This species contained 15.9 percent of the live-tree volume for all trees  $\geq 5.0$  inches d.b.h. Loblolly pine was the second most dominant species, and increased by 4.0 percent to 5.0 billion cubic feet. It was the predominant softwood species, accounting for 60 percent of the softwood live-tree volume. Chestnut oak, white oak, and red maple continued to rank next in live-tree volume. Virginia pine and eastern white pine were still the second and third ranked softwoods for volume.

Aboveground dry weight of live trees  $\geq 1.0$  inch d.b.h was 905.1 million tons, an increase of 0.9 percent since 2011 (table 1). The oak-hickory forest-type group accounted for 603.1 million tons, and the loblolly-shortleaf group accounted for 142.8 million tons.

Net growth for all live trees on forest land averaged 1,064.2 million cubic feet per year (table 4). This was an increase of 2.6 percent from the 2011 survey. Live-tree removals on forest land averaged 538.5 million cubic feet per year. This was a decrease of 1.2 percent from the 2011 survey. Mortality averaged 298.2 million cubic feet per year. This was a 1.3 percent decrease since the 2011 survey.

Growth increased the most in the Southern Piedmont (13.3 percent) and decreased the most in the Northern Mountains (-11.8 percent). Growth-to-removal ratios were highest in the Northern Mountains (3.9:1.0) and lowest in the Southern Piedmont (1.3:1.0).

Crescent rocks, view toward Shenandoah Valley, Shenandoah National Park, Page County, VA. (photo © Gary P. Fleming)



**Table 3—Number of live trees  $\geq 1.0$  inch d.b.h. and volume of live trees  $\geq 5.0$  inches d.b.h. for top 30 species for volume, Virginia, 2012**

Species	Number	Volume
	<i>million trees</i>	<i>million cubic feet</i>
Yellow-poplar	891.97	5,672.36
Loblolly pine	1,253.10	5,001.90
Chestnut oak	340.21	3,295.39
White oak	416.00	3,155.91
Red maple	1,406.91	2,366.26
Northern red oak	149.65	1,781.25
Virginia pine	463.89	1,301.42
Sweetgum	766.76	1,190.03
Scarlet oak	158.70	1,096.06
Black oak	118.36	1,022.91
Eastern white pine	174.30	902.35
Pignut hickory	183.66	698.60
Mockernut hickory	200.41	643.49
American beech	250.08	616.50
Southern red oak	132.08	593.86
White ash	105.32	421.39
Sugar maple	154.16	419.64
Blackgum	633.66	404.37
Sweet birch	106.06	309.32
Black cherry	198.67	305.69
American sycamore	25.60	280.12
Shortleaf pine	27.68	264.03
Pitch pine	23.19	219.48
Eastern redcedar	261.28	215.13
American basswood	26.64	209.98
Green ash	80.30	209.47
Black locust	105.82	203.37
Sourwood	313.42	193.35
Swamp tupelo	33.11	171.77
Black walnut	23.52	170.58
Total (top 30)	9,024.52	33,336.00
Total all species	11,439.97	35,575.51

d.b.h. = diameter at breast height.

**Table 4—Average annual net growth, removals, and mortality by survey unit, Virginia, 2012**

Survey unit	Growth	Removals	Mortality
	<i>million cubic feet per year</i>		
Coastal Plain	311.0	179.3	83.9
Southern Piedmont	281.3	208.6	56.9
Northern Piedmont	165.2	69.5	55.0
Northern Mountains	119.3	30.2	47.4
Southern Mountains	187.4	50.9	55.1
All units	1,064.2	538.5	298.2

**Tract size**—An analysis of volume per acre on privately owned timberland by survey unit and tract size showed that for the Coastal Plain, the Southern Piedmont, and the Northern Piedmont there was more volume per acre in tracts <11 acres in size than in larger tracts (fig. 3). In addition, tracts between 21 and 30 acres in size had the lowest volume per acre for the Coastal Plain and the Northern Mountains.

Average diameter of live trees  $\geq 5.0$  inches showed a very similar pattern to the volume per acre pattern and may at least partially explain the pattern in fig. 3 (fig. 4). Trees on tracts <11 acres in size tended to be larger than those on larger tracts in three of the five survey units. In addition, trees on tracts 21 to 30 acres in size tended to be smaller than trees on other tract sizes for three of the five units. One possible explanation, at least for the larger trees being on smaller tracts, is that these tracts are typically not harvested due to their small overall size and total volume.

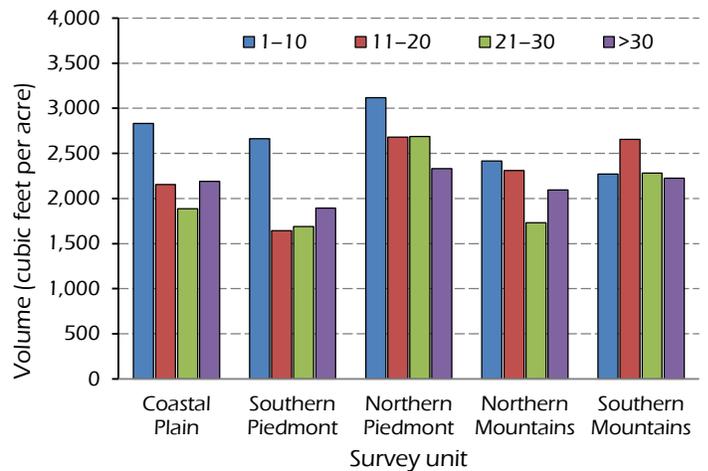


Figure 3—Volume per acre of live trees ( $\geq 5.0$  inches d.b.h.) on privately owned timberland by survey unit and tract size, Virginia, 2012.

## How to Cite This Publication

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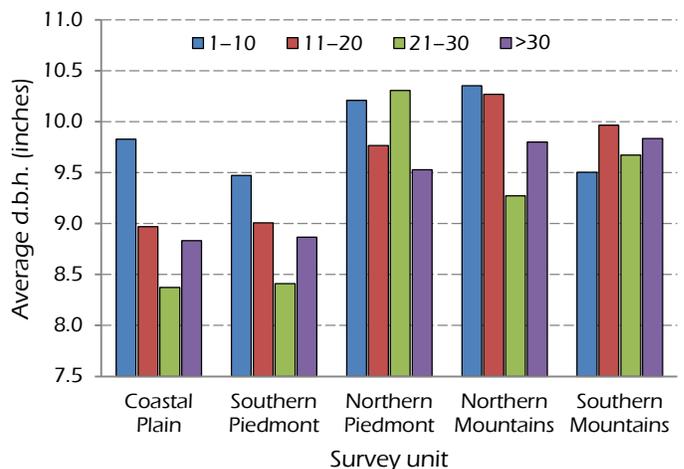


Figure 4—Average d.b.h. of live trees ( $\geq 5.0$  inches d.b.h.) on privately owned timberland by survey unit and tract size, Virginia, 2012.

Spider webs in fog in a loblolly plantation.  
(photo by John Pemberton)

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