



FORESTS OF Alabama, 2015

This resource update provides an overview of forest resources in Alabama based on an inventory conducted by the U.S. Forest Service, Forest Inventory and Analysis (FIA) program at the Southern Research Station in cooperation with the Alabama Forestry Commission. Estimates are based on field data collected using the FIA annualized sample design and are updated yearly. The estimates presented in this update are for the measurement year 2015 and are compared to data reported in 2014. The sample plot population in Alabama consists of 5,658 plots, collected across a period of about 8 years (approximately 707 plots, or 12.5 percent of the data per year).

Growth, removals, and mortality estimates are based on 95 percent of the total sample or 5,389 plots, and should be viewed accordingly. The data used in this publication were accessed from the FIA database on June 2, 2016.

Early FIA publications concentrated primarily on growing

stock trees on timberlands, i.e., commercially important tree species and sizes on forests that could sustain harvest operations. Current FIA reports focus on all forest resources, i.e., live trees on forest land.

Overview

Alabama is home to 23.1 million acres of forest land. Forested area has decreased by <1 percent since 2014 (table 1). The number of live trees on Alabama’s forest land in 2015 is estimated at 16.9 billion trees, almost the same as last year’s number. Net volume, live tree aboveground biomass, average annual net growth, and average net annual removals all increased 2-4 percent since 2014. Average annual mortality of live trees dropped 5 percent. Estimates of average annual growth of all live species on forests (2.0 million cubic feet) exceed average annual removals (1.3 million cubic feet). These estimates reveal a positive growth-to-removals ratio for the State (table 1).

Table 1—Alabama forest statistics, change between 2014 and 2015^a

Forest statistics	2014 estimate	Sampling error (percent)	2015 estimate	Sampling error (percent)	Change since 2014
Forest land					
Area (<i>thousand acres</i>)	23,126.9	0.48	23,126.6	0.48	-0.30
Number of live trees ≥1.0 inch d.b.h. (<i>million trees</i>)	16,977.5	1.22	16,946.1	1.22	-31.40
Net volume of live trees ≥5.0 inches d.b.h. (<i>million cubic feet</i>)	37,659.0	1.17	38,498.5	1.17	839.50
Live tree aboveground biomass (<i>thousand oven dry tons</i>)	1,017,194.5	1.04	1,036,258.5	1.04	19,064.00
Net growth live trees ≥5.0 inches (<i>million cubic feet per year</i>)	1,951.9	1.64	2,032.5	1.64	80.60
Annual removals of live trees ≥5.0 inches (<i>million cubic feet per year</i>)	1,247.7	3.64	1,271.8	3.64	24.10
Annual mortality of live trees ≥5.0 inches (<i>million cubic feet per year</i>)	424.8	3.37	403.4	3.37	-21.40
Timberland					
Area (<i>thousand acres</i>)	23,029.2	0.49	23,028.7	0.49	-0.50
Number of live trees ≥1.0 inch d.b.h. (<i>million trees</i>)	16,918.9	1.23	16,885.5	1.23	-33.40
Net volume of live trees ≥5.0 inches d.b.h. (<i>million cubic feet</i>)	37,415.3	1.18	38,246.6	1.18	831.30
Live tree aboveground biomass (<i>thousand oven dry tons</i>)	1,011,010.8	1.04	1,029,890.3	1.04	18,879.50
Net growth live trees ≥5.0 inches (<i>million cubic feet per year</i>)	1,947.0	1.65	2,027.5	1.65	80.50
Annual removals of live trees ≥5.0 inches (<i>million cubic feet per year</i>)	1,247.7	3.64	1,271.8	3.64	24.10
Annual mortality of live trees ≥5.0 inches (<i>million cubic feet per year</i>)	421.5	2.99	399.6	2.99	-21.90

^a Estimates for 2015 comprise 10 panels of data (2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015).



Forest Area

Alabama is divided into six survey units (fig. 1). The total of forested land in all of the survey units is 23.1 ± 0.11 million acres, and forests occupy 69 percent of the land area in the State. The Southeast survey unit supports more forest acres than any other unit (6.4 million acres) and is 71 percent forested (fig. 2). The North Central unit is ranked second, with 4.4 million acres of forests occupying 69 percent of the region’s land area. The Southwest North and West Central units are more densely forested, with 86 percent and 80 percent of their total land area in forest, respectively, but with fewer total forest acres (3.7 million and 3.5 million acres). The North unit has the least amount of forest area and lowest forest density, as its 2.2 million acres of forests occupy less than one-half (49 percent) of the region’s land area.

The variation in Alabama’s forest types is shown in figure 3. Loblolly-shortleaf pine is the predominant type in the State, accounting for over one-third of all forests. Oak-hickory is the second most recorded forest type in 2015, representing almost 31 percent of the forest base. Oak-pine and oak-gum-cypress account for 12.9 percent and 9.3 percent, respectively. Longleaf-slash, elm-ash-cottonwood, and other hardwoods and softwoods each represent < 5 percent of the total forest land base.

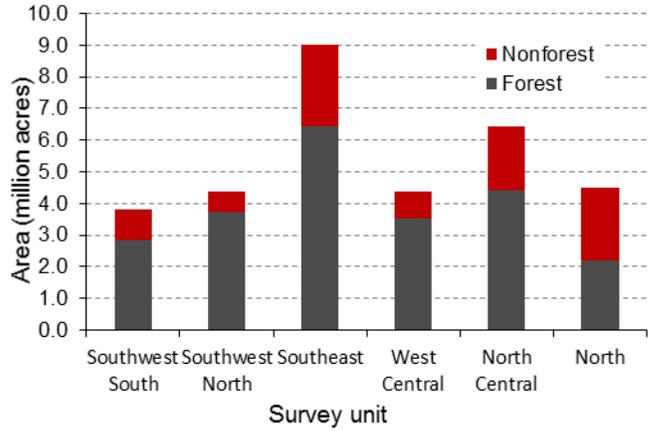


Figure 2—Total land area (minus census water) in Alabama, by land class and survey unit, 2015.

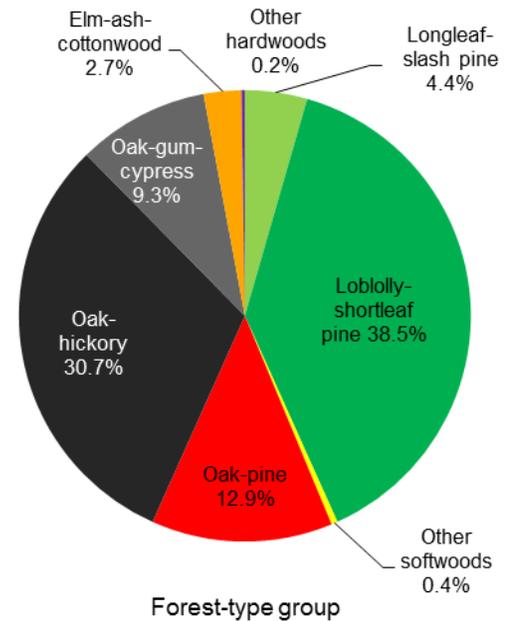


Figure 3—Distribution of forest-type groups in Alabama's forests, 2015.

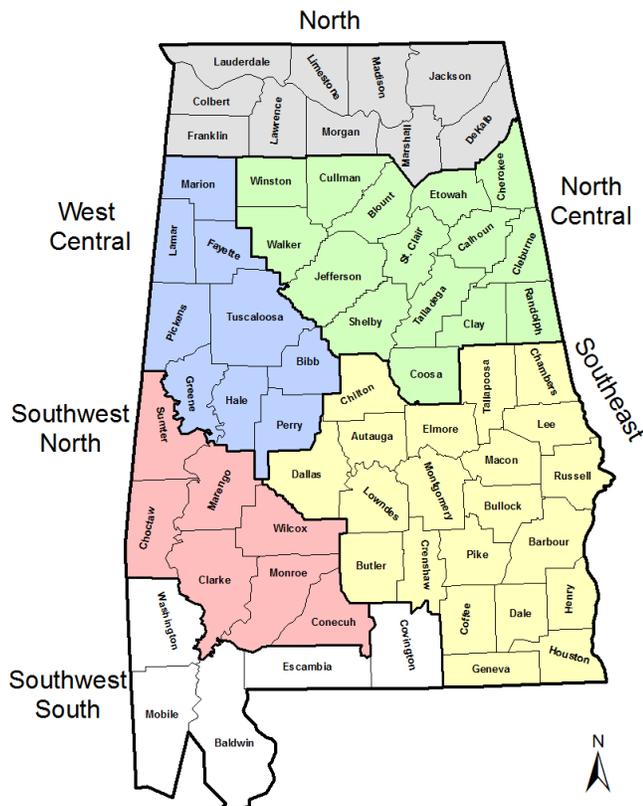


Figure 1—Forest survey units in Alabama by county.



North Alabama in the fall. (photo by Andrew J. Hartsell)

Volume, Biomass, and Trends

Crews recorded 116 species (including unknowns collected to the genus level) on Alabama forest land in the measurement years included in the 2015 dataset. Loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), water oak (*Quercus nigra*), red maple (*Acer rubrum*), and yellow-poplar (*Liriodendron tulipifera*) are the most numerous species in Alabama (table 2).

Though the loblolly-shortleaf pine forest-type group accounts for 38.5 percent of Alabama’s live tree volume, hardwoods are still dominant overall. Fifty-five percent of Alabama’s 38.5 million cubic feet of live tree volume is in hardwood species.

Except for annual softwood growth, which has steadily increased, all measures of annual growth, removals, and mortality of both softwoods and hardwoods have remained stable since 2010 (fig. 4). Average annual estimates of hardwood growth, removals, and mortality have all slightly increased but the degree of these changes are not out of line with natural variation. These trends may become significant if they continue into the future. Mortality of softwoods has been on a steady decline since 2010.

Focusing on planted southern yellow pine volume, here defined as volume of shortleaf (*P. echinata*), slash (*P. elliottii*), longleaf (*P. palustris*), loblolly, and Virginia pine (*P. virginiana*) trees, net volume on forest land continues to increase, up from 4.5 billion cubic feet in 2000 to 8.9 billion in 2015 (fig. 5). With the exception of the 6-10 year class, all age classes generally have more volume in them than in

Table 2—Number and volume of all-live trees (top 15 species), Alabama 2015

Species (common name)	Number (million trees)	Volume (million ft ³)
Loblolly pine	3,697.4	14,460.7
Sweetgum	2,304.4	2,984.1
Water oak	1,253.8	2,132.1
Red maple	1,069.0	672.0
Yellow-poplar	545.5	2,064.0
Blackgum	493.9	627.4
Flowering dogwood	419.5	35.8
Laurel oak	403.6	590.7
Sweetbay	388.7	507.8
Black cherry	368.8	200.6
American hornbeam, musclewood	360.9	76.9
White oak	343.4	1,527.6
Winged elm	329.8	155.4
Mockernut hickory	291.0	515.4
Virginia pine	264.4	518.6

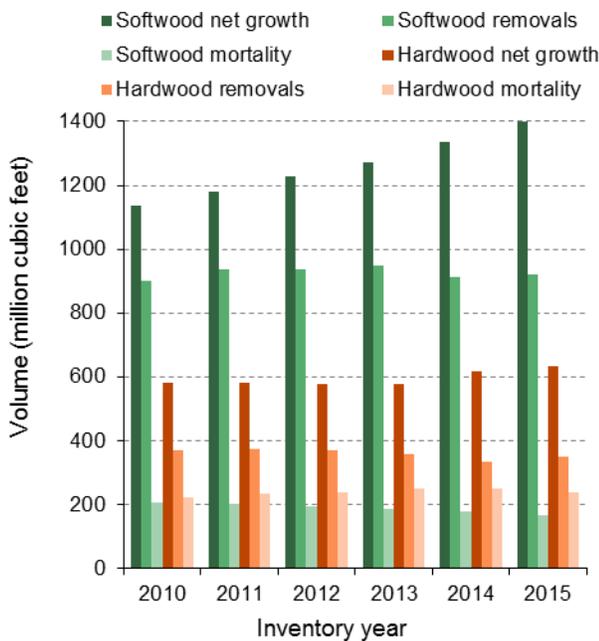


Figure 4—Net annual growth, removals, and mortality for softwood and hardwood species in Alabama, 2010-2015.

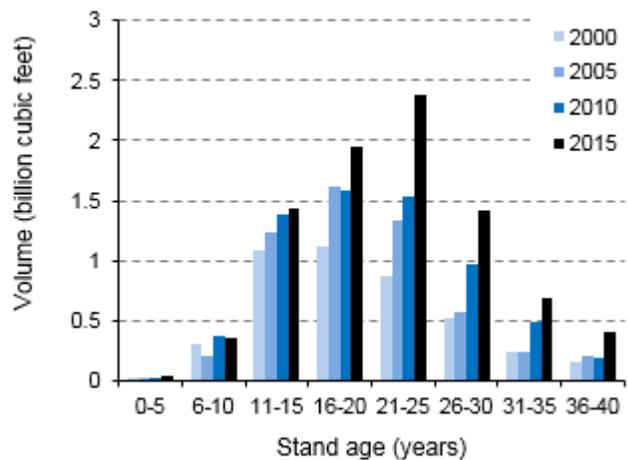


Figure 5—Distribution of planted southern yellow pine cubic foot volume on Alabama’s forest lands, 2000, 2005, 2010, and 2015.

previous inventories. The difference in the 6-10 year age class is negligible and statistically insignificant.

Comparisons to Neighboring States

FIA is a national program that allows users to compare estimates of forest statistics among States. Alabama has more area in both hardwood and softwood forest types than Florida, Louisiana, Mississippi, and Tennessee. Only Georgia has more forest land than the yellow-hammer State (fig. 6). All States in the region have positive growth-to-removals ratios due to the fact that average annual growth is higher than average annual removals in all surrounding States (fig. 7). As one would expect, the same pattern seems to hold for estimates of average annual growth and removals. However, the lone exception is growth of all-live tree species on forest lands, where Alabama is the top ranked State. Forests of Alabama grow more volume every year than neighboring States.

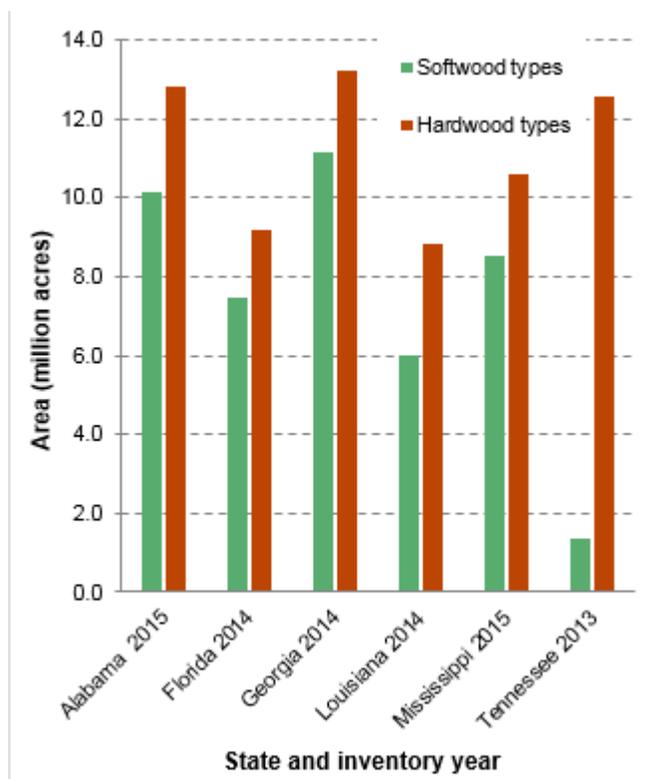


Figure 6—Area of forest land by major forest type group and State, Alabama 2015, Florida 2014, Georgia 2014, Louisiana 2014, Mississippi 2015, and Tennessee 2013.

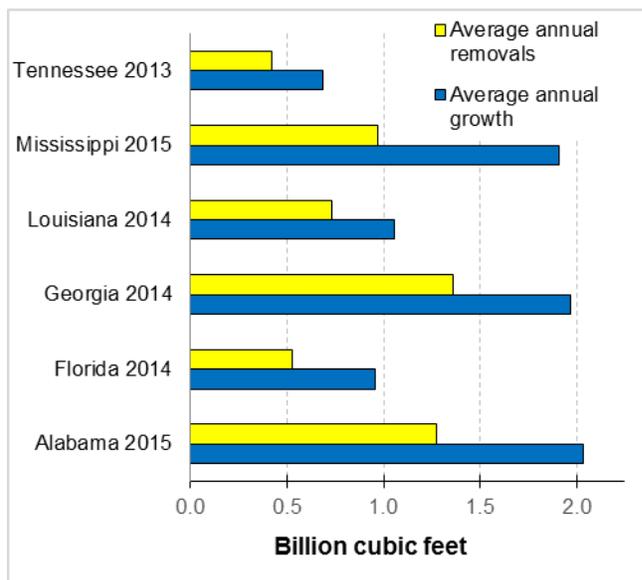


Figure 7—Net annual growth and removals of softwood and hardwood species by State, Alabama 2015, Florida 2014, Georgia 2014, Louisiana 2014, Mississippi 2015, and Tennessee 2013.

References

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.

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