Alabama, 2010

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Forest Inventory & Analysis Factsheet

FIA
The Nation's Forest Census

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Loblolly pine, Randolph County, Alabama. (photo by David Stephens, Bugwood.org)

Introduction

This science update summarizes the key findings of the ninth forest survey of Alabama representing the period of 2006 to 2010. The survey was conducted by the Forest Inventory and Analysis (FIA) Program at the Southern Research Station of the U.S. Department of Agriculture Forest Service in cooperation with the Alabama Forestry Commission (AFC). Periodic surveys have been performed in the State by FIA since 1936. Annual inventories began in 2000 as a joint effort between FIA and AFC. The following results are based on data collected on 71 percent of the annual plots. The complete cycle of data will not be available until after 2012, as Alabama is currently on a 7-year inventory cycle. Therefore, 29 percent of the plots used to create 2010 estimates are from the prior (2001–05) annual survey. Caution should be used when comparing these results to previous reports and estimates that are based on complete inventories. For past FIA inventory reports on Alabama's forests as well as information regarding the FIA program, methodologies, and procedures, please refer to the references at the end of this science update.

Trend Analysis

FIA was initially established to monitor the Nation's timber supply and the amount of commercially available resources. These early surveys were not concerned with the forests, species, and tree sizes that were not considered commercially viable. Early FIA reported only on growing-stock trees on timberlands, i.e., commercially important tree species and sizes on forests that could sustain harvest operations. Current FIA reports analyze all of the forest resources. However, this science update will focus on long-term trend, and thus will use the traditional measures of growing stock and timberland. A more detailed publication focusing on all forests, species, and sizes will follow this science update and include all-live trees on all forest land analysis.

Statistical Reliability

FIA inventories employ sampling methods designed to achieve reliable statistics at the State level. A measure of reliability of inventory statistics is provided by sampling errors. These sampling errors mean that the chances are two out of three that the true population value is within the limits indicated by a confidence interval. Sampling errors (in percent), associated confidence intervals for timberland area, growing-stock volume, and components of change are presented in table 1.

Table 1—Forest statistics, Alabama, 2006–10

Timberland estimates	2006–10	Sampling error	Confidence interval
		percent	
Timberland area (*acres*)	22,738,088	0.52	118,238
Number of growing-stock trees ≥5" d.b.h.	2,632,328,042	1.37	36,062,894
Volume of growing-stock trees ≥5" d.b.h. (ft^3/yr)	29,771,264,835	1.39	413,820,581
Average net annual growth of growing-stock trees ≥5" d.b.h. (ft^3/yr)	1,580,658,746	2.06	32,561,570
Average net annual removals of growing-stock trees ≥5"d.b.h. (ft^3/yr)	1,179,045,086	4.12	48,576,658
Average net annual mortality of growing-stock trees ≥5" d.b.h. (ft^3/yr)	337,915,670	5.20	17,571,615

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

Forest Characteristics

Current timberlands account for 22.7 million acres in 2010 (fig. 1). While this is an all-time high for the State, total timberland area has remained fairly constant since 2000, and has not changed by >5 percent since 1963. While total timberland area has not changed substantially, the area of planted stands within the State has. Planted stands were first recorded during the 1973 survey. Since then they have increased by >300 percent and now account for almost 7 million acres statewide.

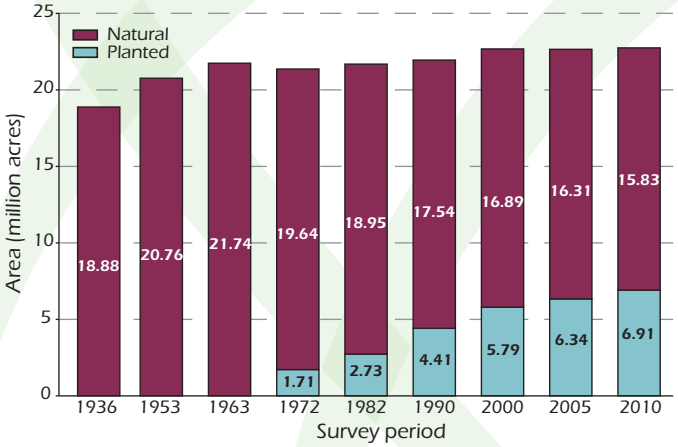


Figure 1—Area of timberland by stand origin and survey period, Alabama.

Volume of both hardwood and softwood species have steadily increased each survey (fig. 2). Softwood volume has increased 163 percent since 1953, while hardwood volume gained 146 percent over the same period. The total volume of all growing-stock trees rose 154 percent between 1953 and 2010. Softwood and hardwood growing stock have increased >9 and 3 percent respectively since the 2005 survey.

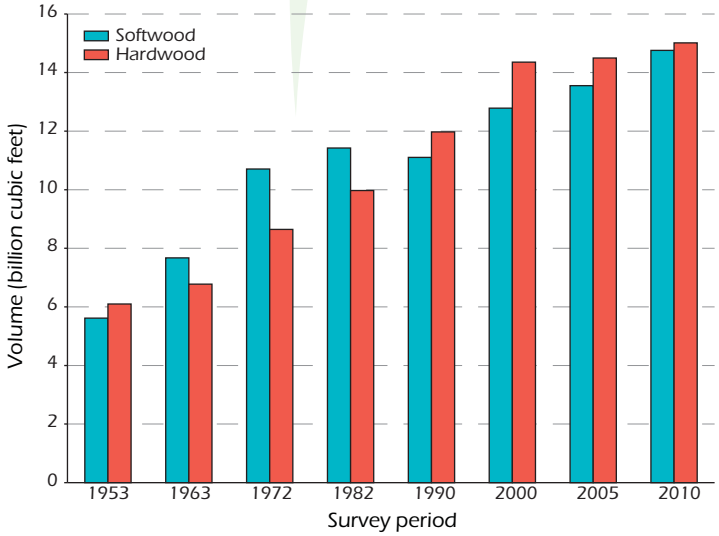


Figure 2—Volume of growing stock on timberland by species group and survey period, Alabama.

Hardwood and softwood species are distributed differently across the State. Softwood concentrations are highest in the southwestern part of the State, and lowest in the northeast (fig. 3). Meanwhile, hardwoods are the opposite, being most prominent in the northeast, and lower in the southwest (fig. 4).

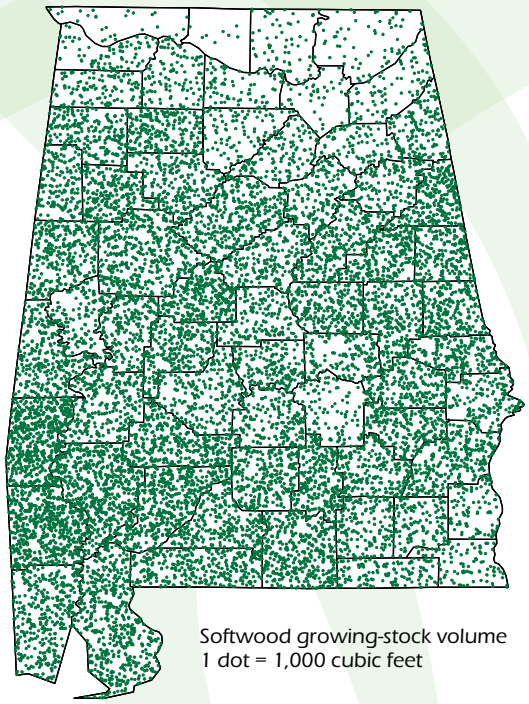


Figure 3—Volume of softwood growing stock on timberland, Alabama, 2010.

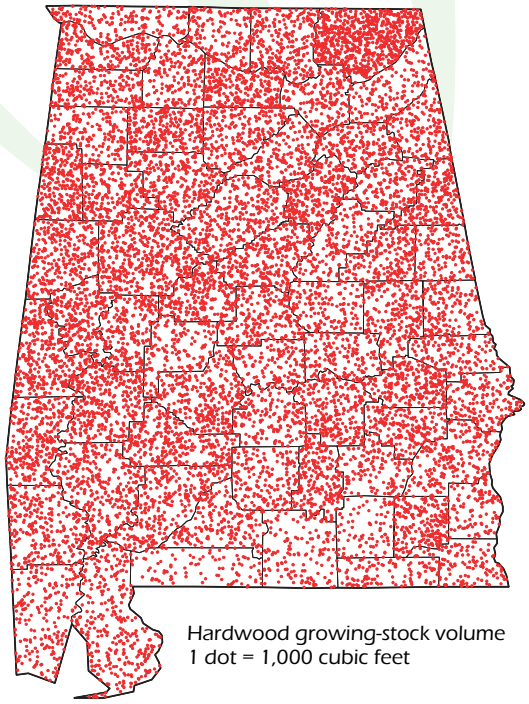


Figure 4—Volume of hardwood growing stock on timberland, Alabama, 2010.

Loblolly pine is the most prevalent species in the State. Alabama's population of loblolly pine is >1.3 billion trees (table 2). In fact, one out of every two growing-stock trees in Alabama is a loblolly pine. Sweetgum is the second most numerous species, followed by water oak, yellow-poplar, and white oak.

Table 2—The 25 most common growing-stock trees species (≥5.0 inches d.b.h.) in Alabama, 2010

Species	Number	Species	Number
	million trees		*million trees*
Loblolly pine	1,310.69	Mockernut hickory	37.26
Sweetgum	236.52	Red maple	34.84
Water oak	101.33	Post oak	29.42
Yellow-poplar	93.85	Laurel oak	26.95
White oak	73.11	Swamp tupelo	26.23
Slash pine	64.96	Green ash	19.37
Shortleaf pine	57.72	Eastern redcedar	17.04
Longleaf pine	56.68	Black oak	15.25
Virginia pine	47.72	Black cherry	14.36
Blackgum	46.15	Winged elm	13.99
Southern red oak	44.89	Water tupelo	12.88
Chestnut oak	41.31	Northern red oak	12.16
Pignut hickory	38.68		

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

Average annual growth and removals of hardwood species in Alabama peaked in 2000 (fig. 6). Hardwood removals (318.6 million cubic feet per year) are as low as they have been in one-quarter of a century. Current hardwood growth estimates (485.7 million cubic feet per year) have changed little over the last decade. Conversely, hardwood mortality is at its highest recorded level.

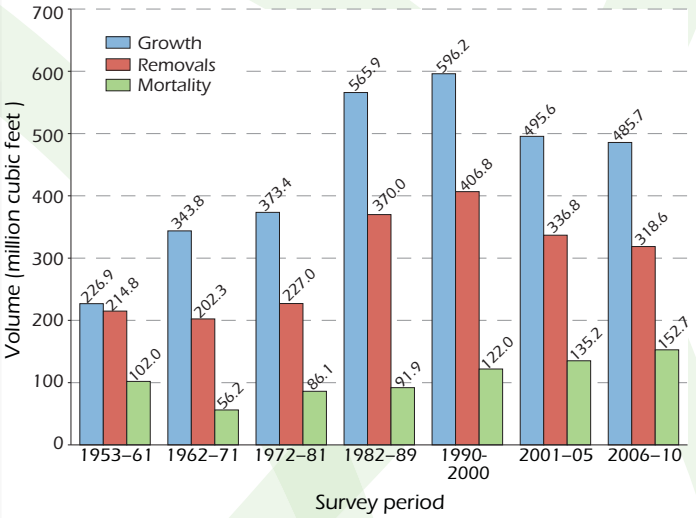


Figure 6—Average annual estimates of growth, removals, and mortality of hardwood growing stock by survey period, Alabama.

Average annual softwood growth has steadily increased since 1953, while average annual removals reached a plateau during the 1990–2000 inventory. Alabama softwoods are growing at a rate of 1,580.6 million cubic feet per year, while 860.4 million cubic feet are removed. The current growth-to-removals ratio of softwoods in Alabama is 1.8, meaning that for every 1.0 cubic foot harvested, 1.8 cubic feet are being grown (fig. 5). Average annual softwood mortality experienced a decline for the first time in over 50 years.

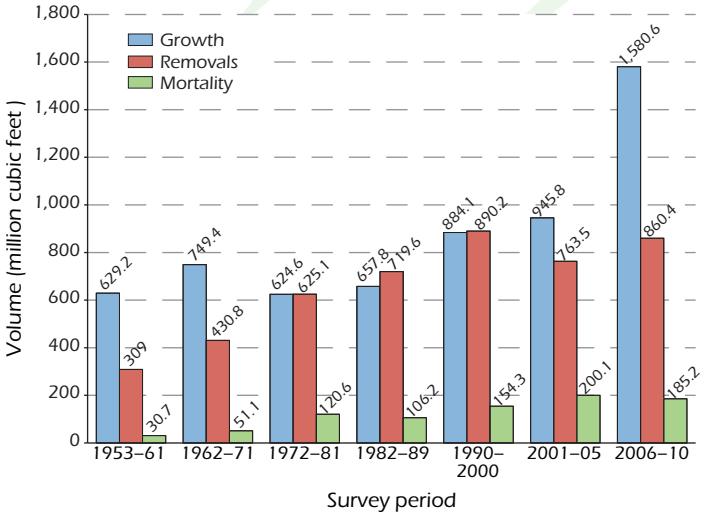


Figure 5—Average annual estimates of growth, removals, and mortality of softwood growing stock by survey period, Alabama.

Southwide Comparisons

Alabama has more timberland than any Southern State except Georgia (fig. 7). In total the Southern United States timberlands constitute 204.2 million acres, and Alabama accounts for >11 percent of this estimate.

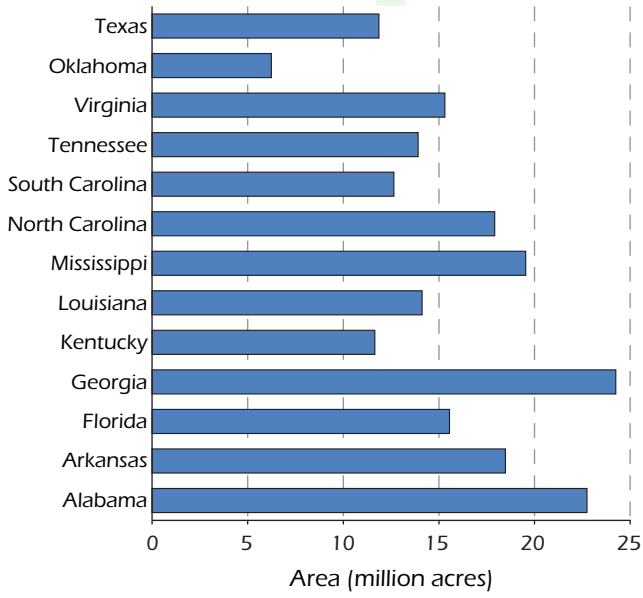
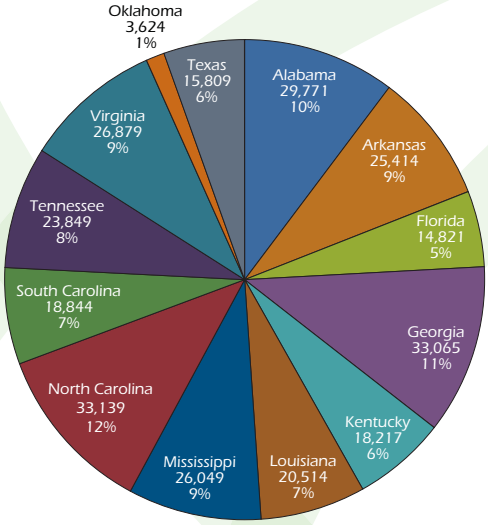


Figure 7—Area of timberland by State, based on 2007 Resource Planning Act estimates and current inventory, Alabama, 2010.

The current estimate of growing-stock volume on southern timberlands is 289,995 million cubic feet (fig. 8). Alabama's forests contain 10 percent of this total. Alabama is the third highest ranked State after North Carolina and Georgia.



Total 289,995 million cubic feet

Figure 8—Growing-stock volume on timberland by State based on 2007 Resource Planning Act estimates and current inventory, 2010.

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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U.S. Department of Agriculture Forest Service. 2005. Forest inventory and analysis national core field guide: field data collection procedures for phase 2 plots, Version 3.0. Vol. 1. Arlington, VA; U.S. Department of Agriculture Forest Service, Forest Inventory and Anlaysis Program. www.fia.fs.fed.us/library/field-guides-methods proc/.

Additional Alabama Inventory Information

Hartsell, A.J.; Johnson, T.G. 2009. Alabama's forests, 2000. Resour. Bull. SRS–143. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 49 p.

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Grey squirrel. (photo by Andrew J. Hartsell)

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