USDA
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RESOURCE UPDATE FS-38

FORESTS OF Georgia, 2013

This resource update provides an overview of forest resources in Georgia 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 Georgia 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 2013 with comparisons made to data reported in 2012 and prior years.

In 2013, 917 forested plots were measured by field technicians of the Georgia Forestry Commission. This sample represents about 20 percent of the over 4,600 forested plots that will be measured during the course of this tenth forest inventory of the State of Georgia conducted by the FIA program. The data used in this publication were accessed from the FIA database on January 12, 2014.

Overview

Forest land covered 65 percent of the State of Georgia in 2013, totaling 24.7 million acres, plus or minus 136 acres (table 1). Most of this forest land, 24.2 million acres, is not specifically reserved by law and therefore potentially available for timber production. Forest land area has remained stable since 2012, in continuation of the longer-term trends described in Harper (2012) and Harper and others (2009) which stated that the forest land base had been relatively stable since the 1950s.

Table 1—Georgia forest statistics, change between 2012 and 2013

Forest statistics	2012 estimate	Sampling error (percent)	2013 estimate	Sampling error (percent)	Change since 2012
Forest land					
Area (*thousand acres*)	24,751.6	0.56	24,744.7	0.55	-6.86
Number of live trees ≥1 inch diameter (*million trees*)	15,463.9	1.39	15,355.7	1.41	-108.12
Net volume live trees ≥5 inches diameter (*million cubic feet*)	42,350.1	1.25	43,142.5	1.24	792.46
Live trees aboveground biomass (*thousand oven-dry tons*)	1,059,654.5	1.13	1,076,461.1	1.12	16,806.59
Net growth live trees ≥5 inches diameter (*million cubic feet*)	1,915.2	1.79	1,940.5	1.78	25.39
Annual removals of live trees ≥5 inches diameter (*million cubic feet*)	1,373.6	3.97	1,354.7	3.95	-18.84
Annual mortality of live trees ≥5 inches diameter (*million cubic feet*)	455.0	4.23	456.3	4.13	1.23
Timberland					
Area (*thousand acres*)	24,189.6	0.59	24,164.2	0.59	-25.36
Number of live trees ≥1 inch diameter (*million trees*)	15,190.1	1.40	15,086.6	1.42	-103.45
Net volume live trees ≥5 inches diameter (*million cubic feet*)	41,381.8	1.28	42,125.5	1.27	743.64
Live trees aboveground biomass (*thousand oven-dry tons*)	1,035,449.1	1.16	1,051,034.6	1.16	15,585.55
Net growth live trees ≥5 inches diameter (*million cubic feet*)	1,952.1	1.67	1,964.9	1.67	12.75
Annual removals of live trees ≥5 inches diameter (*million cubic feet*)	1,367.9	3.98	1,351.4	3.95	-16.51
Annual mortality of live trees ≥5 inches diameter (*million cubic feet*)	390.0	3.94	400.8	3.82	10.77

Forest Area

This current stability in the forest resource can also be seen in the number of live trees, the amount of volume and biomass they contain, and their growth, removals and mortality on both forest land and timberland (table 1). Of the five survey units of Georgia (subdivisions of the State based on a combination of ecological regions and political boundaries shown in figure 1), the Southeast and Central units hold the most forest land (fig. 2). The Central survey unit has the highest percent forest cover (72 percent) while the Southwest and North Central survey units have the lowest (both 51 percent).

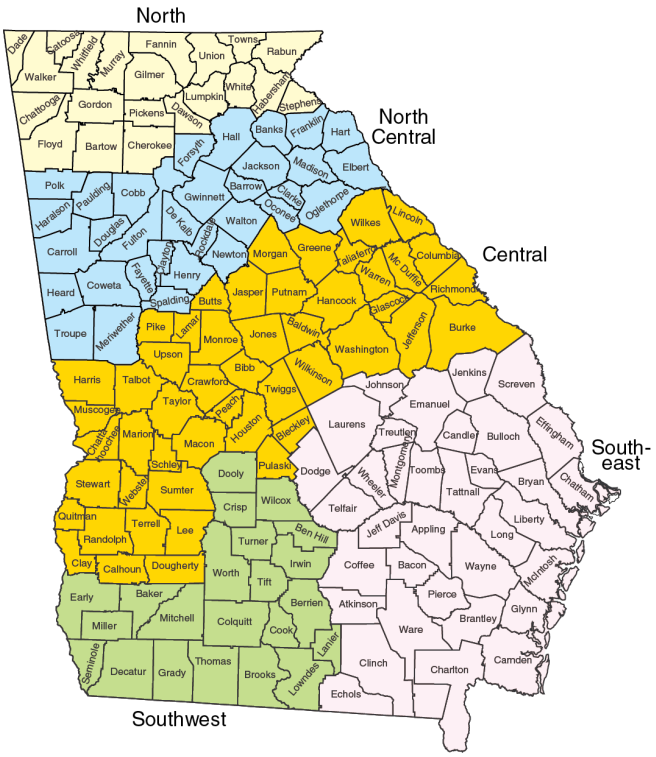

Figure 1—Counties and forest survey units in Georgia.

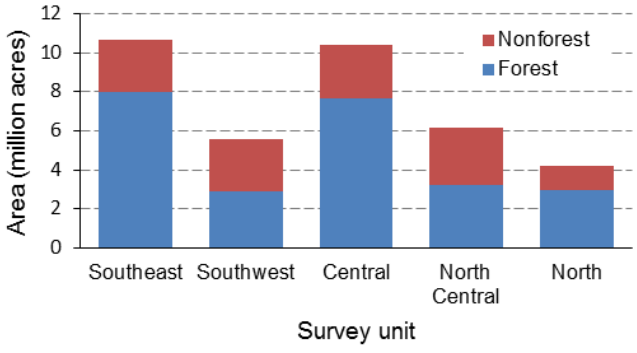

Figure 2—Total land area (minus census water) in Georgia, by land class and survey unit, 2013.

The extent of Georgia's productive pine forests as a percentage of all forest types found in the State is shown in figure 3. Forty-five percent of Georgia's forests were either loblolly-shortleaf pine stands or longleaf-slash pine stands. An additional 11 percent were a mix of oak and pine. The remaining 44 percent of the forest was a diverse mix of hardwood and softwood forest types.

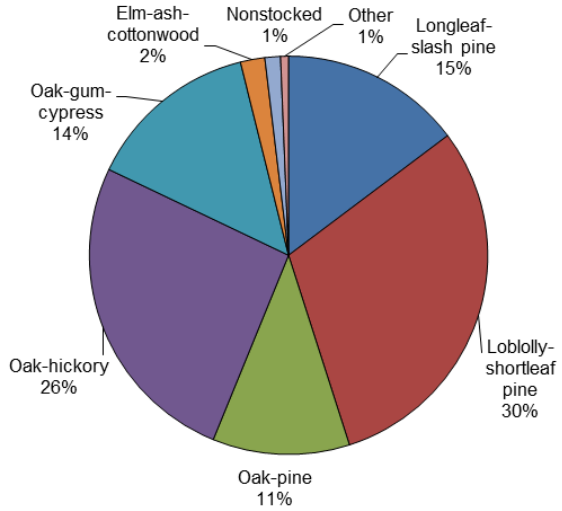

Figure 3—Distribution of forest-type groups in Georgia's forests, 2013.

A noteworthy trend has been the continued changes in ownership in Georgia and across the southern states. Forest industry continues to divest itself of forest land and nonindustrial corporate entities, primarily Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs), acquire these acres (fig. 4). The forest acreage held by public land management agencies and noncorporate, nonindustrial landowners remains relatively stable.

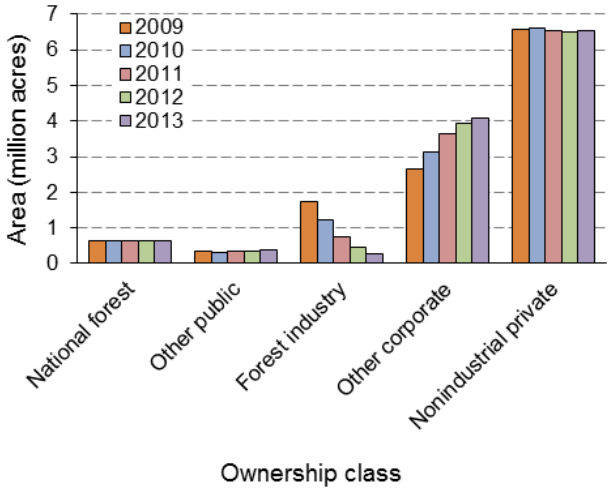

Figure 4—Forest land area by landowner class in Georgia, 2009–13.

Volume, Biomass, and Trends

We estimated that the forest lands of Georgia held 15.4 billion trees with a diameter at breast height (d.b.h.) of >1.0 inch in 2013, over 98 percent of which were found on timberland (table 2). In trees with d.b.h. of >5.0 inches, there were 19.2 million cubic feet of wood volume in softwoods and 24.0 billion cubic feet in hardwoods, for a total of 43.1 billion cubic feet after adding the minor amount of volume (16.1 million) found on unclassified, nonstocked stands. Total volume on timberland was only slightly lower at 42.1 billion cubic feet.

The forest-type group with nearly one-third the total volume was loblolly-shortleaf pine, followed by oak-hickory, oak-gum-cypress, longleaf-slash pine, mixed oak-pine, elm-ash-cottonwood and then other minor forest types and nonstocked stands.

Table 2—Number and volume of all-live trees, Georgia, 2013

Species	Number	Volume
	million trees	*million cubic feet*
Loblolly pine	2,829	13,208
Slash pine	1,012	4,664
Sweetgum	2,038	2,697
Yellow-poplar	422	2,625
White oak	230	1,838
Water oak	1,116	1,832
Swamp tupelo	758	1,665
Red maple	1,411	1,412
Laurel oak	458	1,167
Chestnut oak	96	1,031
Southern red oak	185	840
Shortleaf pine	100	799
Scarlet oak	52	679
Longleaf pine	138	668
Other	4,509	8,019

The most commonly encountered tree species in the 2013 forest inventory of Georgia was loblolly pine (*Pinus taeda*), which also had the greatest volume of any species. The second-most common tree species was sweetgum (*Liquidambar styraciflua*), but in terms of volume the second place position was held by slash pine (*Pinus elliotii*).

We see stable softwood growth, removals and mortality from 2009 to 2013 (fig. 5) that reflects the relative lack of change seen in timberland area. While there are some indications of change in the hardwood resource during this time, (growth down almost 6 percent, mortality up 18 percent and removals down 21 percent), the magnitude of these changes fall within the limits of our sampling error. It is clear, however, that volume growth has exceeded volume removal since 2009 (Harper 2012) and continues to do so. Total

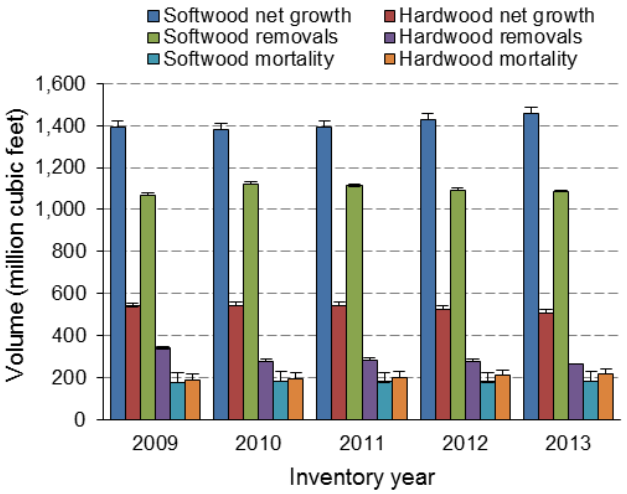

Figure 5—Net annual growth, removals and mortality in millions of cubic feet of volume, with 67 percent sampling error bars, for softwoods and hardwoods in Georgia, 2009–13.

volume growth was 1.5 times greater than volume removal in 2013, with softwood growth being 1.3 times greater and hardwood growth 1.9 times greater.

Focusing on planted southern yellow pine volume, here defined as volume in shortleaf (*P. echinata*), slash, longleaf (*P. palustris*), loblolly and Virginia pine (P. *virginiana*) trees, net volume on timberland continues to increase, up from 8.4 billion cubic feet in 2009 to 9.3 billion cubic feet in 2013, continuing the trends observed by Harper and others (2009). Over time, we also see a shift to having a greater percent of volume concentrated in older stands of larger diameter trees (fig. 6). Fewer smaller diameter trees in the overall population mean less smaller-diameter material available for forest products now and less plantation renewal for the future.

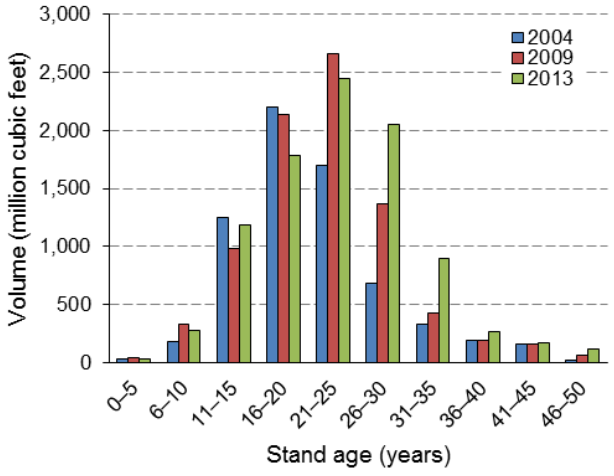

Figure 6—Distribution of southern yellow pine cubic foot volume on timberland by stand age in Georgia, 2004, 2009, and 2013.

Southern Yellow Pine Plantation Demographics

As noted previously, overall timberland volume has increased and acreage has remained stable. There has been little change in the total number of planted acres in recent years. From 1972 to 2013, figure 7 shows the transition from natural southern yellow pine stands to planted ones. (Note that southern yellow pine is defined here as stands that were predominately longleaf-slash pine or loblolly-shortleaf pine.) The current plantation acreage largely originated in the 1980s and 1990s when natural pine stands were converted to managed, more highly productive plantations, often with the assistance of financial incentives from Conservation Reserve Programs (Harper and others 2009).

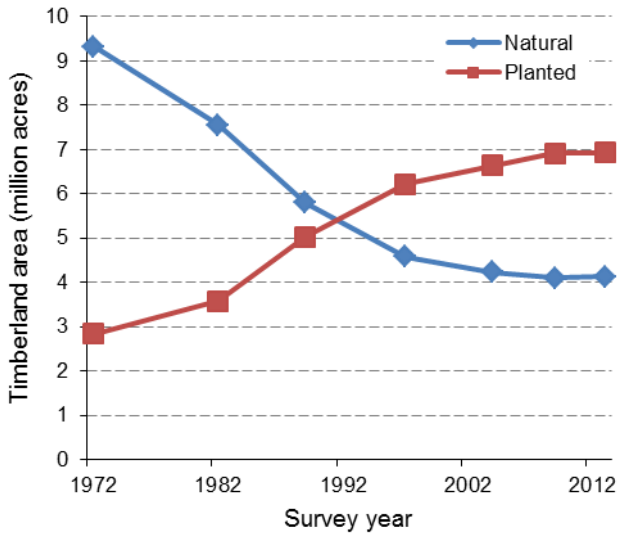

Figure 7—Area of southern yellow pine forest type timberland by stand origin, Georgia, 1972 to 2013.

While total planted acreage has remained stable, acres that were clearcut and presumably replanted have decreased in recent years (fig. 8). We continue to see the shift from final harvest to stand tending treatments that was noted by Harper (2012).

All these factors (increasing timberland volumes, stable pine plantation area, less final harvest and replantation) indicate the gradual shift toward older, higher volume per acre southern yellow pine plantation stands in the State of Georgia.

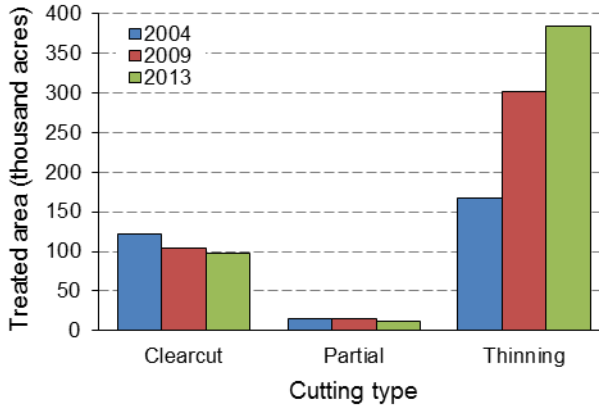

Figure 8—Area of planted southern yellow pine forest type timberland by cutting type, Georgia, 2004, 2009, and 2013.

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