USDA
United States Department of Agriculture

Mississippi's Forests, 2017

Sonja N. Oswalt

Forest Service

Southern Research Station

Resource Bulletin SRS–226

About the Authors

Sonja N. Oswalt is a Forester with the Forest Inventory and Analysis Research Work Unit, Southern Research Station, U.S. Department of Agriculture Forest Service, Knoxville, TN 37919.

Front cover: top left, southern bottomland hardwood forest. (photo by Ramdev Kunnappally); top right, Pony Ranch Pond in Mississippi is a new home for the dusky gopher frog. (photo courtesy of John A. Tupy, Western Carolina University); bottom, Farm Bill programs like the Wetlands Reserve Program have helped populations of the Louisiana black bear increase in Mississippi. (photo courtesy of Brad Young, Mississippi Department of Wildlife, Fisheries, and Parks). Back cover: top left, a private landowner in Hancock County, Mississippi is restoring a longleaf pine forest on his land. (U.S. Department of Agriculture photo); top right, southern bottomland hardwood forest. (photo by Ramdev Kunnappally); bottom, pitcher plants are among the unique flora found in longleaf pine forests. (U.S. Department of Agriculture photo).

Blackgum leaves in the forest. (U.S. Forest Service photo)

www.srs.fs.usda.gov

Mississippi's Forests, 2017

Sonja N. Oswalt,

Children enjoy our national forests. (photo by Lawson Hopper)

FOREWORD

The U.S. Department of Agriculture, Forest Service, Southern Research Station's (SRS) Forest Inventory and Analysis (FIA) research work unit and cooperating State forestry agencies conduct annual forest inventories of resources in the 13 southern States (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia), the Commonwealth of Puerto Rico, and the U.S. Virgin Islands. In order to provide more frequent and nationally consistent information on America's forest resources, all research stations and their respective FIA work units conduct annual surveys with a common sample design. These surveys are mandated by law through the Agricultural Research Extension and Education Reform Act of 1998 (Farm Bill).

The primary objective in conducting these inventories is to gather the multi-resource information needed to formulate sound forest policies, provide information for economic development, develop forest programs, and provide a scientific basis to monitor forest ecosystems. These data are used to provide an overview of forest resources that may include, but not limited to, forest area, forest ownership, forest type, stand structure, timber volume, growth, removals, mortality, management activity, down woody material, and invasive species. The information presented is applicable at the State and survey unit level; although it provides the background for more intensive studies of critical situations, it is not designed to reflect resource conditions at small scales.

More information about Forest Service resource inventories is available in "Forest Resource Inventories: An Overview" (U.S. Department of Agriculture Forest Service 1992). More detailed information about sampling methodologies used in the annual FIA inventories can be found in "The Enhanced Forest Inventory and Analysis Program-National Sampling Design and Estimation Procedures" (Bechtold and Patterson 2005).

Data tables included in FIA reports are designed to provide an array of forest resource estimates, but additional tables can be obtained at http://fia.fs.fed.us/tools-data/default.asp. Additional information about the FIA program can be obtained at http://fia.fs.fed.us/.

Additional information about any aspect of this or other FIA surveys may be obtained from:

Forest Inventory and Analysis
Research Work Unit
U.S. Department of Agriculture
Forest Service
Southern Research Station
4700 Old Kingston Pike
Knoxville, TN 37919
Telephone: 865-862-2000
William G. Burkman
Program Manager

ACKNOWLEDGMENTS

The author gratefully acknowledges the individuals who graciously provided reviews and comments on an earlier draft of this report. In addition, FIA thanks the Mississippi Forestry Commission for partnering with our program for the survey that the author reports here. FIA also thanks other public agencies and the many private landowners who provided access to measurement plots.

The following people made field measurements for this survey. FIA appreciates their hard work and their consistent efforts to obtain high-quality data:

Michael Borden, Jerry Boyd, Kevin Coffman, Joni Creel, Kellie Eldridge, Katherine Forsmark, Holden Gable, Joshua Hillmer, Chris Hinton, Kevin Keys, John King, Tyler Lewis, Brady Miller, Tegan Pettis, Thomas Rowe, Walter Shanks, Matthew Ward, Butch Copeland, Rodney Crimm, Scott Jackson, Brian Neely, Andy Redwood, Matthew Reed, Christen Simmons, Brian Wharton, Ben Bingham, Ryan David, Andy Edwards, Lee McCord, David Wall.

Contents

List of Figures

Page

Figures

List of Tables

Page

Text Tables

Appendix Tables

(continued)

List of Tables

Pitcher plants are among the unique flora found in longleaf pine forests. (U.S. Department of Agriculture photo)

List of Tables

HIGHLIGHTS

- Forest land area in Mississippi totals 19.3 million acres, a decline of 1.4 percent since 2006.

- Forest land use change is due primarily to diversions to urban or developed land uses and agriculture.

- Eighty-four percent of Mississippi forest land is owned by nonindustrial private landowners. Family forest owners in the State are an aging demographic.

- Fifty-three percent of forest land in the State falls within a hardwood forest-type group. However, loblolly-shortleaf pine occupies the most area of any individual forest-type group.

- Mississippi's trees ≥ 5 inches d.b.h. contain 37 billion cubic feet of wood volume and 2 billion tons of biomass.

- Mortality averaged 21 cubic feet per acre on forest land statewide, annually.

- Mississippi grew more than twice what it removed on average, annually. Harvest removals averaged 865 million cubic feet per year, while net growth (growth minus mortality) averaged 2 billion cubic feet per year.

- From 2012 to 2017, fire impacted more area than any other primary disturbance.

- On average, the forests of Mississippi contain 8 tons per acre of down woody material and slash.

- The estimated total number of Chinese tallowtree stems >1 inch on Mississippi forest land has increased by 40 percent since 2006.

- Mississippi has very little remote forest area. Ninety-nine percent of forest land in Mississippi is within 1 mile of a road.

INTRODUCTION

This report summarizes the findings of data collected as part of the Forest Inventory and Analysis (FIA) program in the State of Mississippi with data collection points from 2008 to 2017 with an average plot remeasurement interval of 6.6 years. The data come from 7,839 sampling plots across the State of Mississippi, 5,180 (66 percent) of which were forested.

Mississippi's forest area remains stable, with a small decline due to diversions to urban and agriculture land uses and away from forestry. Most forest land falls under nonindustrial private ownership and most forest land in the State is easily accessible via road networks.

While Mississippi is best known for its yellow pine production and its bottomland hardwood forests, the composition of the forests in the State is evenly split between hardwoods and softwoods, with hardwood acreage slightly outnumbering softwood acreage. Softwoods are an important part of the economy of the State, and current growth is outpacing removals. The most damaging agents on Mississippi forest land are fires, grazing animals, and severe weather events (e.g., hurricanes, tornados, and ice storms).

Pony Ranch Pond in Mississippi is a new home for the dusky gopher frog. (photo courtesy of John A. Tupy, Western Carolina University)

FOREST AREA

Trends in Timberland Area

Mississippi occupies 31.0 million acres in the Southern United States, with the Mississippi River delineating its western border and the Gulf of Mexico its southern border (fig. 1). Forest land totals 19.3 million acres, 99 percent of which is available for timber production (hereafter, timberland; table 1). Timberland area, for which we have the longest record, experienced an increase between 1977 and 2006 as some agricultural area was allowed to revert to forest (fig. 2). Since 2006, all forest land area has experienced a 1.4 percent decline while nonforest has increased by 2.7 percent (fig. 3).

The small change in forest land in the State can be attributed to both agriculture and to development (fig. 4). Based on a remeasurement of 92 percent of Mississippi's plots (measured at both time 1 and time 2), 260,300 acres of forest land was diverted to agricultural land use, while 266,600 acres of forest land were diverted to urban or developed land use (table 2). Once forest land has been converted to developed land, studies suggest that it

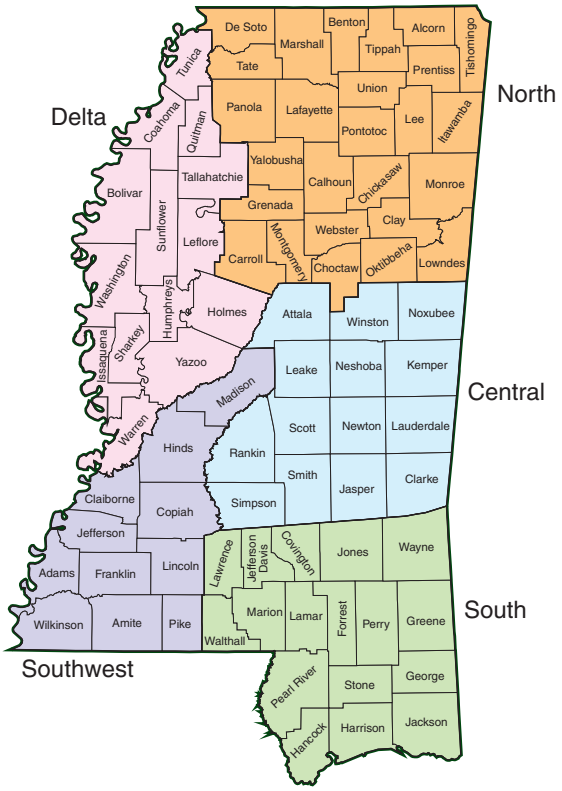

Figure 1—Forest survey regions in Mississippi.

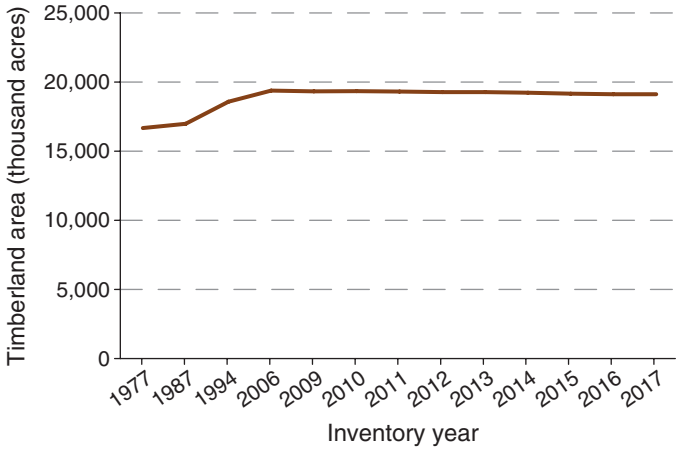

Figure 2—Timberland area by inventory year, Mississippi, 1977–2017.

Table 1—Area by survey unit and land status, Mississippi, 2017

Unit	Total area	All forest	Unreserved			Reserved			Nonforest land	Census water
			Total	Timber-land	Unpro-ductive	Total	Pro-ductive	Unpro-ductive		
			thousand acres							
Delta	5,590.5	1,830.3	1,736.9	1,736.9	0.0	93.4	93.4	0.0	3,620.0	140.1
North	8,407.0	5,190.1	5,171.7	5,165.4	6.3	18.4	18.4	0.0	3,053.6	163.3
Central	5,926.0	4,504.6	4,485.2	4,485.2	0.0	19.5	19.5	0.0	1,357.6	63.8
South	6,670.3	4,560.7	4,537.4	4,537.4	0.0	23.3	23.3	0.0	1,540.5	569.1
Southwest	4,408.0	3,245.8	3,213.8	3,213.8	0.0	32.0	32.0	0.0	1,113.5	48.7
All survey units	31,001.8	19,331.5	19,144.9	19,138.6	6.3	186.6	186.6	0.0	10,685.2	985.1

Numbers in rows and columns may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

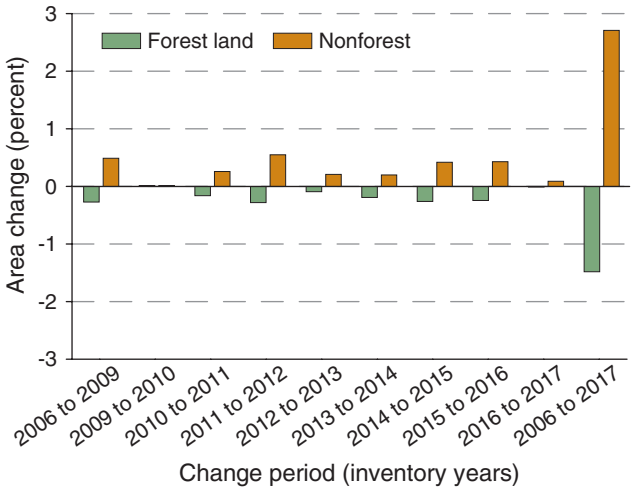

Figure 3—Percent change in timberland area by change period, 2006–2017.

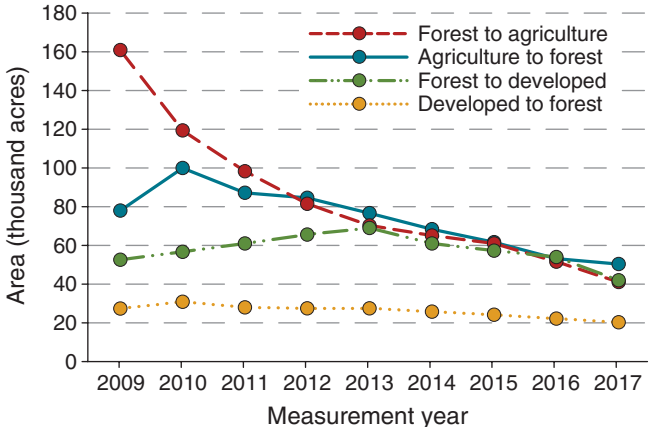

Figure 4—Trajectory of land use change by year, Mississippi, 2009–2017.

is unlikely to ever return to a forested condition. In contrast, agricultural land does revert to forest land if economic conditions change. In Mississippi, 300,000 acres reverted from agriculture to forest, whereas only 124,000 acres of urban/developed land reverted to forest. The largest diversions to agriculture occurred in the North survey unit, while the largest diversions to developed land occurred in the South (table 2). Overall, however, the Central unit experienced the largest negative change and the Delta was the only unit to experience positive change as a result of revisions from agriculture to forest land use.

Ownership

Forest land in Mississippi is owned primarily by nonindustrial private landowners, which comprise 84 percent of the area (table 3). Forest industry land only comprises 5 percent of forest land in the State. National forests in the State comprise a little over 1 million acres of forest land.

According to the National Woodland Owner Survey (NWOS) data collected from 2011 to 2013, the majority of privately owned nonindustrial forest land over 10 acres in size (a total of

Table 2—Changes in forest land by survey unit, Mississippi, 2017

Unit	Change[a]	Additions			Diversions		
		Total additions	Agriculture[b]	Other[c]	Total diversions	Agriculture[b]	Other[c]
		thousand acres					
Delta	52.6	80.0	75.3	4.7	-27.3	-15.0	-12.3
North	-21.9	120.8	80.3	40.6	-142.7	-79.3	-63.4
Central	-67.2	75.3	49.6	25.7	-142.5	-66.6	-75.9
South	-59.3	94.4	56.0	38.4	-153.7	-75.4	-78.3
Southwest	-7.1	53.6	38.9	14.8	-60.7	-24.0	-36.7
All survey units	-102.9	424.1	300.1	124.2	-526.9	-260.3	-266.6

Numbers in rows and columns may not sum to totals due to rounding.
The EXPCHNG evalid is 92.1 percent remeasured.
[a] Change is the difference between diversions (a loss) and additions (a gain) of forest land.
[b] Agriculture includes cropland, pasture, idle farmland, orchards, Christmas tree plantations, maintained wildlife openings, and rangeland.
[c] Other includes business, manufacturing, residential, rights-of-way (roads, railways, power/oil/gas lines, and canals), recreation areas (parks, skiing, golf courses, etc.), mining, and water.

Table 3—Area of forest land by forest-type group and ownership group, Mississippi, 2017

Forest-type group	All ownerships	U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
			thousand acres			
Softwood types						
Spruce-fir	0.0	0.0	0.0	0.0	0.0	0.0
Longleaf-slash pine	831.2	327.8	12.0	53.6	18.2	419.6
Loblolly-shortleaf pine	7,910.7	410.1	65.6	186.8	447.7	6,800.5
Other eastern softwoods	54.0	1.9	0.0	0.0	0.0	52.1
Total softwoods	8,795.9	739.8	77.6	240.4	465.9	7,272.2
Hardwood types						
Oak-pine	1,965.3	133.2	37.3	48.2	94.0	1,652.6
Oak-hickory	4,524.5	163.7	74.2	67.0	134.9	4,084.7
Oak-gum-cypress	2,526.6	111.5	229.5	99.7	67.7	2,018.3
Elm-ash-cottonwood	1,194.3	18.7	73.4	34.0	88.7	979.4
Other hardwoods	14.0	0.0	0.0	0.0	1.6	12.5
Exotic hardwoods	66.9	0.0	0.0	1.6	0.0	65.3
Total hardwoods	10,291.6	427.1	414.4	250.5	386.9	8,812.7
Nonstocked	244.0	2.5	13.9	6.0	18.2	203.4
All groups	19,331.5	1,169.4	505.9	496.8	871.0	16,288.3

Numbers in rows and columns may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

11.6 million acres) are considered "family forests" owned by individuals. Family forest landowners comprise an aging demographic, with 52 percent of acres under the tenure of landowners age 65 and up, and only 2 percent of acres owned by individuals younger than 44 (fig. 5). Respondents to the NWOS survey indicated that their most important reasons for owning forest land included passing the land to their heirs, protection of wildlife, and the enjoyment of beauty or scenery (Butler 2016).

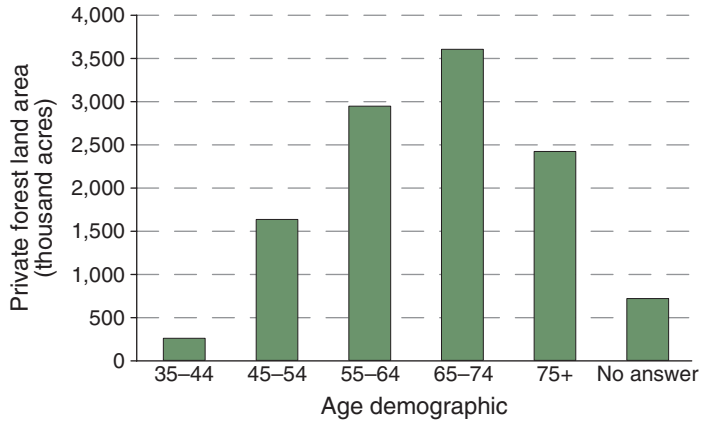

Figure 5—Area of family forests (with minimum of 10 acres) by age demographic, Mississippi, 2017.

Forest-Type Groups, Stand Origin, and Stand Size

Hardwood forest-type groups combined make up the plurality of forest land in Mississippi, at 10.3 million acres (53 percent). Oak-hickory accounts for 44 percent of hardwood forest land, most of which is naturally regenerated (fig. 6).

Although hardwood forest-types are a plurality of forest land acres when considered together, loblolly-shortleaf pine covers more acres as a solitary forest-type group (fig. 6). Loblolly-shortleaf comprises 41 percent of all forest acres in the State. In contrast with the hardwood forest-type groups, 64 percent of loblolly-shortleaf pine acres originated from planting (fig. 6). In fact, that forest type accounts for 82 percent of all planted acres in the State.

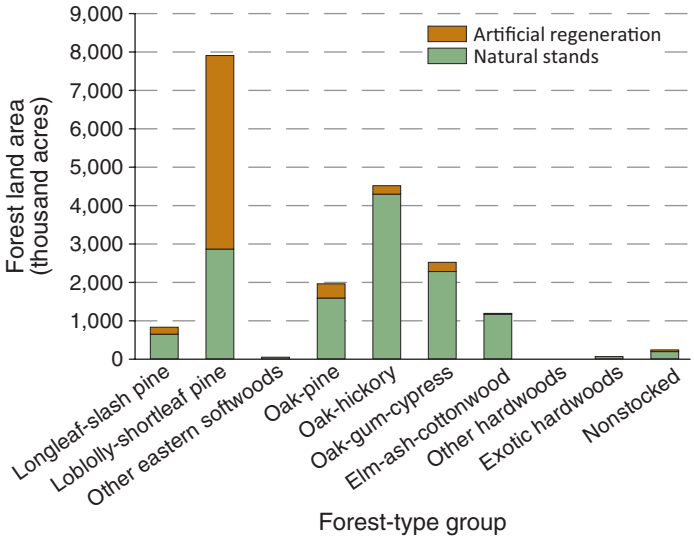

Figure 6—Area of forest land by forest-type group and stand origin, Mississippi, 2017.

Changes in the composition of Mississippi's forests can be understood, in part, by looking at changes in the area of forest in each forest-type group on re-measured inventory plots from one visit to the next. Figure 7 shows the dominant forest-type groups in the State, and what each group transitioned from and to between the 7-year revisit period. In the larger forest-type groups, change typically involved transitions to similar groups. For example, 11 percent of loblolly-shortleaf pine acres transitioned to oak-pine, and 5 percent transitioned to oak-hickory. Conversely, 16 percent of oak-pine acres transitioned to loblolly shortleaf pine, while 26 percent transitioned to oak-hickory. Longleaf-slash, oak-hickory and loblolly-shortleaf forest-type groups experienced the least transition to other forest types, while over half of oak-pine acres transitioned to a different (but often very similar) forest type, and nearly all remeasured "other hardwoods" and "nonstocked" acreage transitioned into a discernable forest-type group (fig. 7).

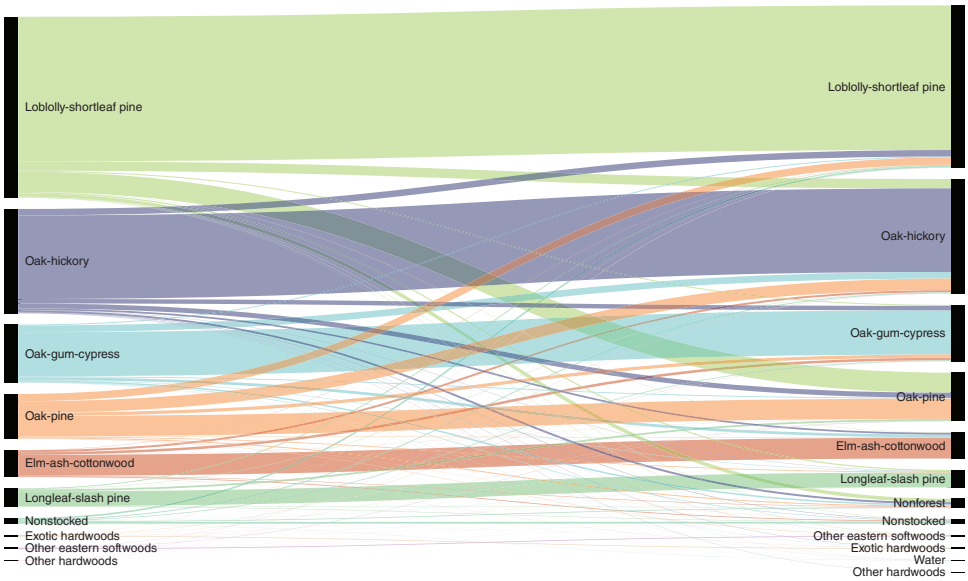

Figure 7—Area change from previous forest-type groups (left) to current forest-type groups (right), Mississippi, 2017.

Over half (58 percent) of the forest area in Mississippi consists of large-diameter stands. That proportion is even higher in many forest-type groups, especially longleaf-slash pine where large-diameter stands comprise 71 percent of the total area (fig. 8). Oak-gum-cypress and elm-ash-cottonwood stands also have high proportions of forest area in large-diameter stands (63 and 62 percent, respectively). Conversely, most exotic hardwood area (68 percent) falls into the smaller diameter class. The proportion of forest area in large diameter stands has increased by 11 percent since 2006, while the proportion of small diameter stands has decreased by 9 percent (fig. 9).

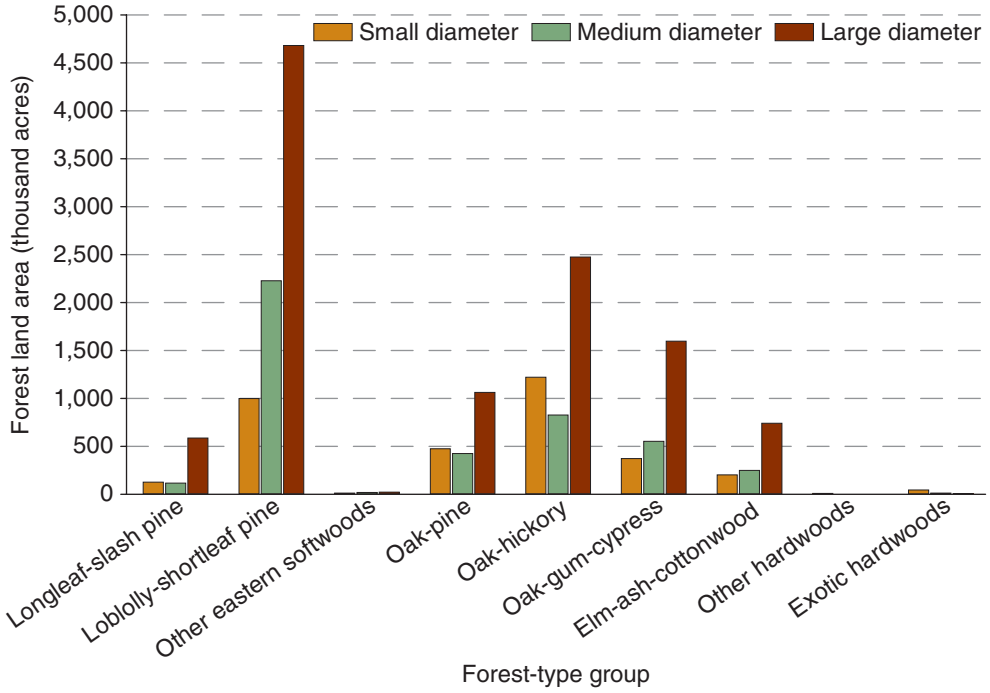

Figure 8—Area of forest land by forest-type group and stand-size class, Mississippi, 2017.

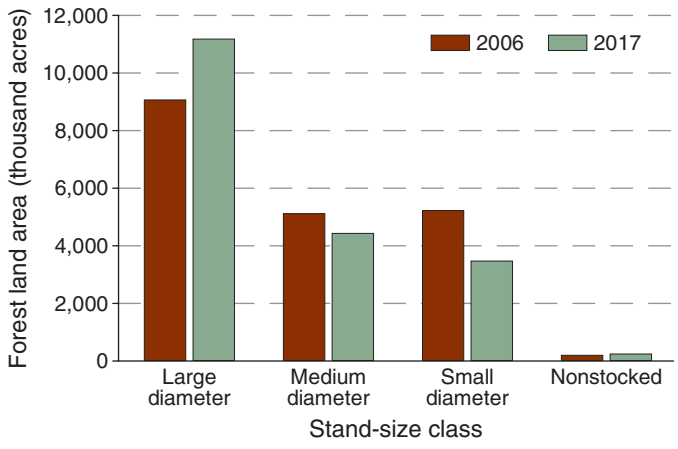

Figure 9—Area of forest land by stand-size class and year, Mississippi.

NUMBER OF TREES, VOLUME, AND BIOMASS

There are 13.4 billion trees representing a wide diversity of species on forest land in Mississippi. Hardwood trees are most numerous, collectively, comprising 75 percent of the population. While hardwood trees outnumber softwood trees by 3 to 1, loblolly pine is the most frequently observed individual species in the State (table 4). Individual species in the loblolly and shortleaf pine group comprise 87 percent of all softwood trees on forest land. In planted forest stands, approximately 153 million loblolly pine trees were planted per year, out of an average of 160 million trees of all species measured (table 5).

Mississippi's trees ≥ 5 inches d.b.h. contain 37 billion cubic feet of wood volume and 2 billion tons of biomass. Loblolly and

Table 4—Number, volume, and biomass of live trees by species group, Mississippi, 2017

Species group	Number of live trees	Net volume	Aboveground green weight*
	million trees	*million cubic feet*	*thousand tons*
Softwood			
Longleaf and slash pines	210.2	1,543.7	75,265.8
Loblolly and shortleaf pines	2,886.9	17,145.7	793,927.5
Other yellow pines	14.5	145.5	6,209.1
Cypress	47.2	313.6	16,325.3
Other eastern softwoods	158.2	255.2	14,083.9
Total softwoods	3,317.0	19,403.7	905,811.6
Hardwoods			
Select white oaks	304.0	1,373.7	83,766.1
Select red oaks	135.2	1,274.5	79,368.0
Other white oaks	133.2	711.7	44,798.9
Other red oaks	1,520.7	4,267.2	271,409.6
Hickory	476.9	1,075.2	65,860.2
Hard maple	19.0	25.6	1,656.6
Soft maple	918.6	414.3	33,714.9
Beech	72.2	258.5	17,498.1
Sweetgum	2,090.2	3,107.7	172,938.8
Tupelo and blackgum	546.5	945.0	48,569.1
Ash	366.0	647.1	29,664.4
Cottonwood and aspen	10.3	147.6	7,053.6
Basswood	6.6	26.5	1,252.6
Yellow-poplar	234.2	1,109.7	51,342.5
Black walnut	2.4	16.9	1,117.8
Other eastern soft hardwoods	1,628.3	2,223.8	123,547.2
Other eastern hard hardwoods	493.5	162.3	16,536.1
Eastern noncommercial hardwoods	1,130.2	639.4	45,168.2
Total hardwoods	10,088.1	18,426.6	1,095,262.5
All species	13,405.1	37,830.3	2,001,074.1

*Based on regional biomass estimators.

Table 5—Number of new saplings and trees on planted forest land (re-measured plots, only), Mississippi, 2017

Scientific Name	Common Name	Number of new trees	Number of new trees planted annually
Pinus echinata Mill.	Shortleaf pine	510,628	71,919
Pinus elliottii Engelm.	Slash pine	19,017,974	2,808,058
Pinus palustris Mill.	Longleaf pine	5,077,980	644,320
Pinus taeda L.	Loblolly pine	1,009,912,144	152,685,346
Fraxinus pennsylvanica Marshall	Green ash	10,705,917	1,265,438
Populus deltoides W. Bartram ex Marshall	Eastern cottonwood	74,528	8,566
Quercus pagoda Raf.	Cherrybark oak	2,210,101	297,967
Quercus nigra L.	Water oak	770,041	96,577
Quercus texana Buckley	Nuttall oak/Texas red oak	16,868,160	2,295,660
Quercos phellos L.	Willow oak	2,054,276	264,480
All species		1,067,201,749	160,438,331

Numbers in rows and columns may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Southern bottomland hardwood forest. (photo by Ramdev Kunnappally)

shortleaf pines account for 45 percent of the wood volume and, though hardwoods are more numerous, softwoods comprise over half the total volume in the State (table 4). Eighty-one percent of wood volume is owned by nonindustrial private landowners, 4 percent by forest industry, and 15 percent is in public ownership (fig. 10).

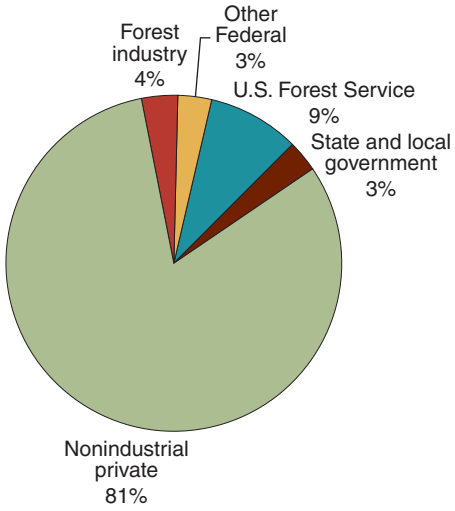

Figure 10—Volume of all-live trees by ownership group, Mississippi, 2017.

Forest volume has increased since 1977, with proportional increases higher in the larger diameter classes (figs. 11 and 12). In softwoods, volume has increased in all diameter classes, but has more than doubled in the 21 to 28.9 inch class, while volume in the 29+ class is almost 5 times what it was in 1977 (fig. 11). Similarly, in hardwoods, volume has increased in every diameter class, but while smaller diameter classes have increased by 26 to 38 percent, the 29+ diameter class has increased in volume by 440 percent (fig. 12).

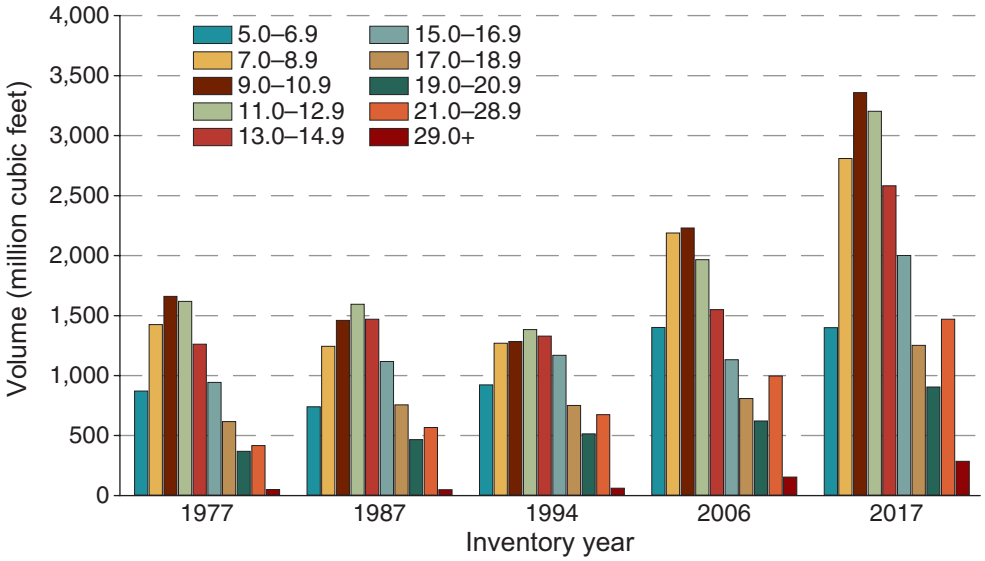

Figure 11—Softwood volume by year and diameter class, Mississippi.

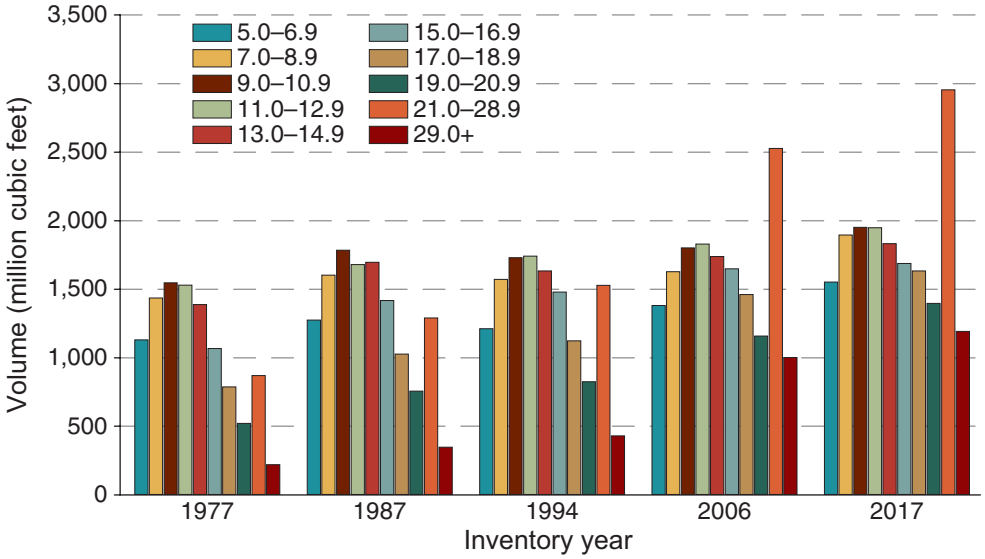

Figure 12—Hardwood volume by year and diameter class, Mississippi.

MORTALITY, GROWTH, AND REMOVALS

Between 2012 and 2017, average annual mortality rates on public forest land were 1.8 times higher per acre than on private forest land (fig. 13). Mortality per acre was 2.8 times higher in natural stands than in stands with evidence of planting, suggesting that management activities have a definitive impact on mortality rates. Mortality averaged 21 cubic feet per acre on forest land statewide, annually, during the measurement period (compared with an average growth rate of 148 cubic feet per acre per year). Annual average mortality was highest on large diameter oak-gum-cypress stands at 66 million cubic feet per year, compared with the statewide total mortality of 334 million cubic feet on average, annually.

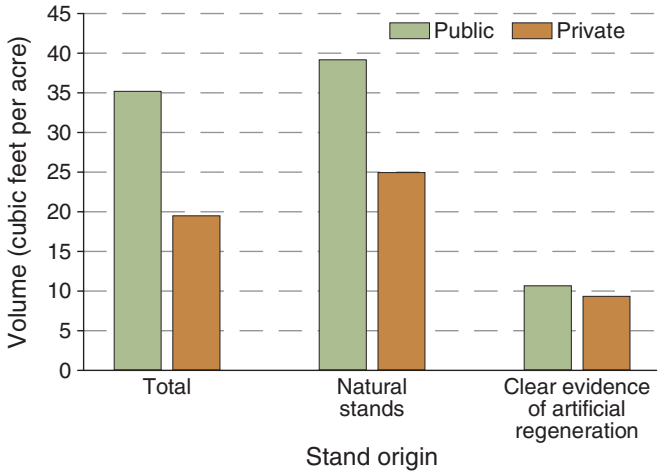

Figure 13—Average annual mortality of sound bole volume of trees (at least 5 inches d.b.h./d.r.c.), in cubic feet per acre, on forest land, by stand origin and ownership group.

Net growth (growth minus mortality) averaged 2 billion cubic feet per year. Sixty-four percent of average annual net growth occurred in softwoods (table 6). More softwood growth accumulated on medium diameter stands than on other size classes, while more hardwood growth accumulated on large diameter stands (table 6). It is unsurprising that softwood growth outpaced hardwood growth, given that softwoods are typically faster-growing and yellow pine is more heavily managed in the State.

Growth per acre on forest land was 148 cubic feet per year, on average. Average annual growth was highest on private land at 133 cubic feet per acre, compared with 78 cubic feet per acre on public land. Additionally, planted stands had an average annual growth rate per acre double that of naturally regenerated stands (fig. 14).

Annual removals (both harvest and removals due to land-use change) averaged 871 million cubic feet per year, with 68 percent of those removals from large diameter stands, and 69 percent of removals on softwood forest types (table 7).

Table 6—Average annual net growth of live trees on forest land by forest-type group and stand-size class, Mississippi, 2017 (2006–2012 to 2009–2017)

Forest-type group[a]	All classes	Stand-size class[a]			
		Large diameter	Medium diameter	Small diameter	Non-stocked
	million cubic feet per year				
Total softwoods	1,316.1	501.2	609.1	205.8	0.0
Total hardwoods	723.6	360.5	184.2	178.9	0.0
Nonstocked	4.9	0.0	0.0	0.0	4.9
All groups	2,044.6	861.6	793.3	384.7	4.9

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on past conditions.

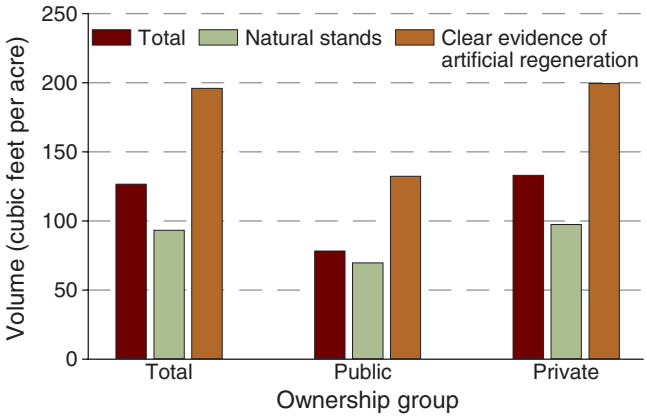

Figure 14—Average annual net growth of sound bole volume of trees (at least 5 inches d.b.h./d.r.c.), in cubic feet per acre, on forest land, by ownership group and stand origin.

Contractors process trees for a timber sale. (USDA photo by Lance Cheung).

Table 7—Average annual removals of live trees on forest land by forest-type group and stand-size class, Mississippi, 2017 (2006–2012 to 2009–2017)

Forest-type group[a]	All classes	Stand-size class[a]			
		Large diameter	Medium diameter	Small diameter	Non-stocked
	million cubic feet per year				
Total softwoods	605.3	387.5	210.9	6.9	0.0
Total hardwoods	265.8	203.5	49.4	12.9	0.0
Nonstocked	0.1	0.0	0.0	0.0	0.1
All groups	871.2	591.0	260.3	19.8	0.1

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on past conditions.

Harvest removals averaged 865 million cubic feet per year. An average of 55 cubic feet per acre of wood volume was harvested on private land, annually; more than 2 times the volume harvested on public land (fig. 14). Harvest volume per acre on planted land was three times that on natural stands, averaged annually.

Mississippi grew more than twice what it removed on average, annually, through the measurement period (growth to removals ratio of 2.3 to 1). Annual removals were 2 percent of total standing wood volume, while annual net growth was 5 percent of standing volume. Taken together, the growth to removals ratio and standing wood volume suggest that Mississippi's timber supply continues to accrue.

DISTURBANCE, INVASIVE PLANTS, AND FRAGMENTATION

Disturbance is a natural and necessary part of forest health. From 2012 to 2017, fire impacted more area than any other primary disturbance, followed by animal impacts (e.g., grazing) and severe weather events (fig. 15). Considered across the overall forest landscape, however, disturbance rates are relatively low; only 8 percent of forest land had disturbances severe enough for crew members to record (discrete acres disturbed, not summing acres disturbed by more than one event).

Standing Dead Trees and Down Woody Material

Dead wood performs many functions within a forest ecosystem. While too much accumulated dead wood can become a fire hazard, dead wood is necessary to replenish soil nutrients (Polit and Brown 1996), provide wildlife food sources and habitat (Ketzler and others 2017), support biodiversity (Jonsson and others 2005), and establish important fungal and mycorrhizal communities (Norden and Paltto 2001).

There is an average of 5 standing dead trees ≥ 5 inches d.b.h. per acre in Mississippi, with slightly higher numbers on public land versus private land (fig. 16). That amounts to approximately 102 million standing dead trees, statewide. Forty-five percent of standing dead trees are < 7 inches in diameter, with rarity increasing as diameter increases (fig. 17). Hardwoods comprise a larger proportion of standing dead trees than softwoods, overall, but particularly in the larger diameter classes (fig. 18).

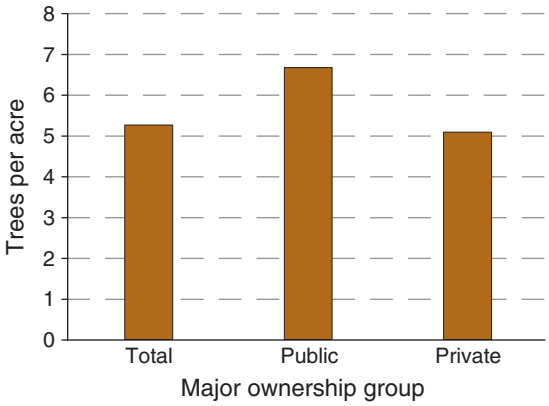

Figure 16—Number of standing dead trees (at least 5 inches d.b.h./d.r.c.) per acre on forest land by ownership group, Mississippi, 2017.

Eventually standing dead trees fall and become part of the forest floor microcosm. Down woody material can be divided into size classes based on fuel timelag classes. One, 10, 100, and 1,000-hour fuel classes indicate the amount of time it would take for two-thirds of a single piece of down woody material in that size class to dry to the ambient air moisture (table 8). All downed dead wood excluding slash, duff, and leaf litter averaged 2.2 tons per acre.

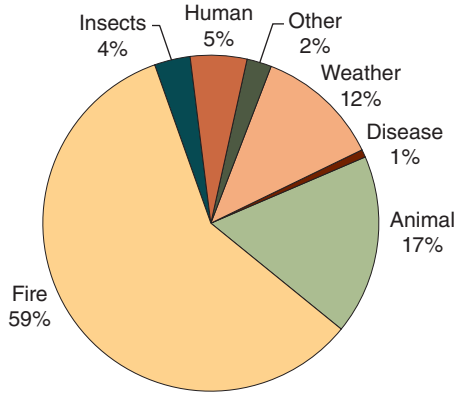

Figure 15—Proportion of disturbed forest land by primary disturbance category, Mississippi, 2017.

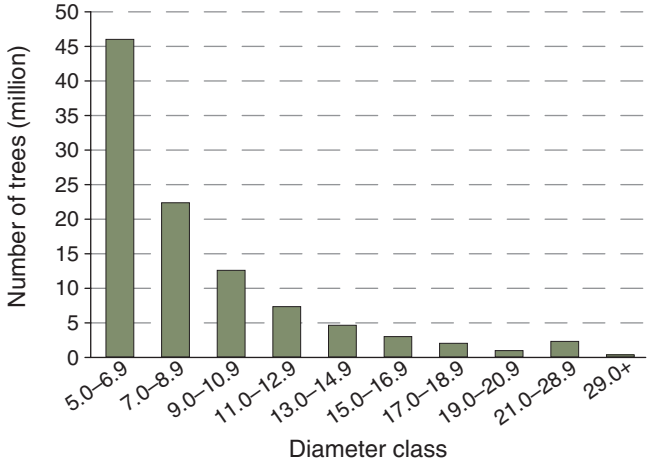

Figure 17—Number of standing dead trees (at least 5 inches d.b.h./d.r.c.) on forest land by diameter class, Mississippi, 2017.

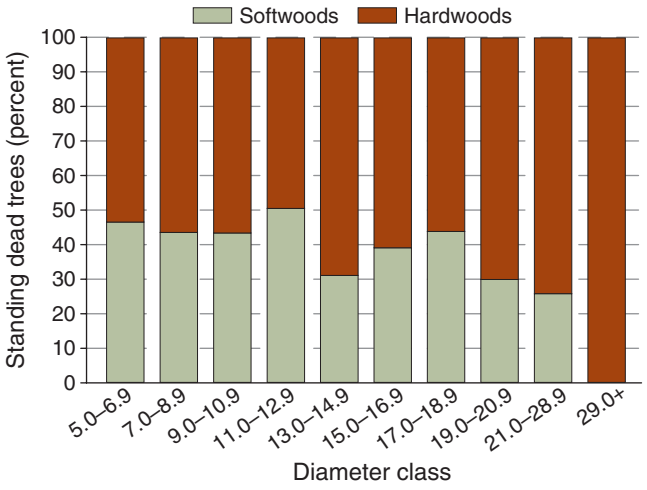

Figure 18—Proportion of standing dead trees (at least 5 inches d.b.h./d.r.c.) in softwood and hardwood by diameter class, Mississippi, 2017.

Table 8—Down woody material (forest fuel) by class, size, and length of measurement transect, Mississippi, 2017

Forest fuel class	Size	Measurement transect length
	diameter in inches	
1-hour	0.01 to 0.24	6 feet
10-hour	0.25 to 0.90	6 feet
100-hour	1.00 to 2.90	10 feet
1,000+-hour	3.00 to 8.00	24 feet

Forest land categorized as "nonstocked" had higher average dead wood values, but that is likely due to the smaller sample on nonstocked land. Compared with fine fuels categorized by timelag, other forest fuels comprise the majority of down woody material (table 9). Duff, litter, and slash all contribute more tons per acre of potential fuel individually than all fine woody material combined (table 9).

Invasive Plant Species

Invasive plants in southern forests can disrupt ecosystem functions by altering soil chemistry (Rudgers and Orr 2009), changing forest development trajectories (Oswalt and others 2007), replacing native ecosystems (Bruce and others 1997), and potentially disrupting wildlife habitat (Pyšek and others 2012). The FIA program monitors select invasive plant species on forests in Mississippi.

Invasive plant presence/absence was monitored on 16,119 subplots (see Methods for plot design). Invasive plants were detected on 58 percent of those subplots. The most common

Table 9—Mean fuel loading on forest land by forest-type group and fuel class, Mississippi, 2017

		Down and dead wood by time-lag fuel hour classes				Slash	Forest floor fuels	
Forest-type group	Area	1 hr.	10 hrs.	100 hrs.	1,000+ hrs.	Slash	Duff	Litter
	acres	*tons per acre*						
Oak-hickory	3,544,453	0.0	0.4	1.4	0.7	0.8	6.2	5.4
Oak-gum-cypress	2,130,951	0.0	0.3	1.0	0.8	1.3	3.3	3.0
Other eastern softwoods	66,437	0.0	0.3	0.8	0.0	0.0	4.6	4.8
Oak-pine	2,619,180	0.0	0.3	0.7	1.0	29.5	8.7	6.7
Elm-ash-cottonwood	1,425,738	0.0	0.4	1.2	1.5	16.4	2.2	1.4
Nonstocked	166,299	0.1	0.7	2.1	4.9	0.0	7.2	3.3
Longleaf-slash pine	1,048,886	0.0	0.1	0.3	0.8	0.0	8.7	8.0
Loblolly-shortleaf pine	8,371,963	0.0	0.3	1.0	0.8	0.4	8.7	7.4
All groups	19,373,912	0.0	0.3	1.0	0.9	5.7	7.1	6.0

Numbers in columns do not sum to totals.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

invasive tree in Mississippi is Chinese tallowtree (*Triadica sebifera*). Chinese tallowtree populations continued along the increasing trajectory in southern Mississippi that was noted in the 2006 inventory (Oswalt 2010). The number of counties where Chinese tallowtrees >1 inch d.b.h were found on FIA plots increased between 2006 and 2017 (fig. 19). The estimated total number of Chinese tallowtree (*T. sebifera*) stems >1 inch on Mississippi forest land has increased by 40 percent since 2006 (fig. 20). Chinese and European privets (*Ligustrum sinense*/*L. vulgare*) are the most problematic invasive shrubs in Mississippi, infesting 3,596 subplots—22 percent of all subplots sampled and 39 percent of subplots with at least 1 invasive species.

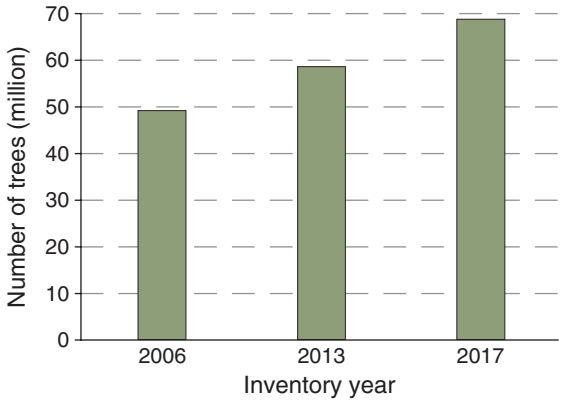

Figure 20—Number of Chinese tallowtrees at least 1-inch d.b.h/d.r.c. by inventory year, Mississippi, 2017.

Japanese honeysuckle (*Lonicera japonica*) is the most frequently detected invasive plant across all life forms in the State. In 2017 it was observed on 7,146 subplots (44 percent of the sample). Studies indicate that the presence of Japanese honeysuckle (*L. japonica*) in forests subject to disturbance can result in lower success of recolonization by tree species, lowering tree density and native plant richness (Dillenburg and others 1993, Nickelson and others 2015).

While Kudzu (*Pueraria montana*) is a very visible and high-profile invasive vine on forest edges, it was observed on <1 percent of forested subplots surveyed. Kudzu (*P. montana*) is able to rapidly colonize disturbed sites, even those with poor soil, but is less persistent in the low light conditions of the forest canopy (Forseth and Innis 2004). Nevertheless, the ability

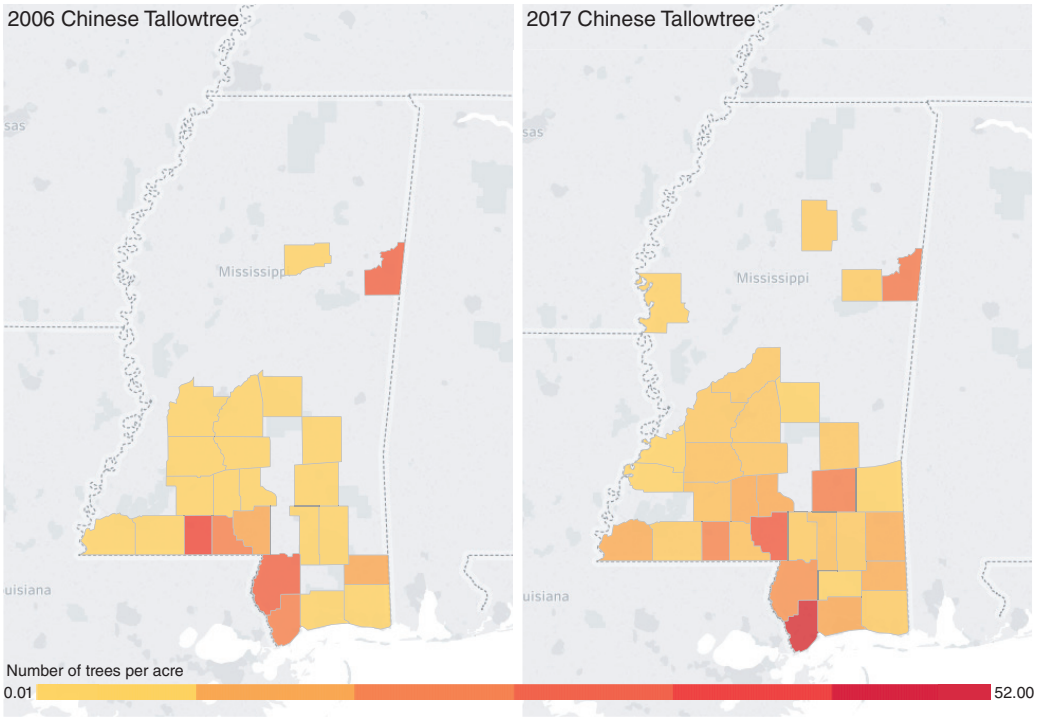

Figure 19—Number of Chinese tallowtree trees per acre by county in 2006 compared to 2017, Mississippi.

of the plant to alter species composition and light environments at the forest edge remain reasons for continued monitoring and control efforts, particularly as urban expansion continues into the future.

Monkeygrass (*Liriope* sp.), Japanese stiltgrass (*Microstegium vimineum*) and Japanese climbing fern (*Lygodium japonicum*) were the most frequently observed grasses and herbs, respectively. Monkeygrass was recorded on 6 percent of subplots, Japanese stiltgrass (*M. vimineum*) on 1 percent of surveyed subplots, and Japanese climbing fern (*L. japonicum*) was detected on 8 percent of subplots.

Fragmentation and Remoteness

Fragmentation in forest ecosystems refers to the breaking apart of contiguous forest area into smaller and smaller parts. Fragmentation may be caused by urbanization, agriculture, or other changes from a forest land use to something else. One way of assessing fragmentation in forested landscapes is to use the concept of remoteness as a surrogate for connectivity (Oswalt and others 2019). Using this method, one assumes that the longer the average distance from a road to a forest plot, the more remoteness exists. Conversely, if average distance from the nearest road to forested plots is short, it stands to reason that the landscape is less remote. Ninety-nine percent of forest land in Mississippi is within 1 mile of a road. Ninety-one percent of forest area in the loblolly/shortleaf pine forest type group is within a half mile of the nearest road, which is unsurprising given its prominence in commercial forestry in the State (fig. 21). Forest area in the oak/gum/cypress and elm/ash/cottonwood forest type groups were the most remote (likely because wet conditions common to bottomland forests prohibit road building in many of these forests), though even in those cases, 99 percent of forest land was within 3 miles of the nearest road (fig. 21).

Changes in the amount of interior forest can signal increasing or decreasing fragmentation, as well. In 2001, 37 percent of Mississippi's forest land was core or interior forest (proportion of forest cover in a 40-acre neighborhood is >0.9), compared to 30 percent in 2011, meaning that the area of forest considered interior or core has declined (fig. 22).

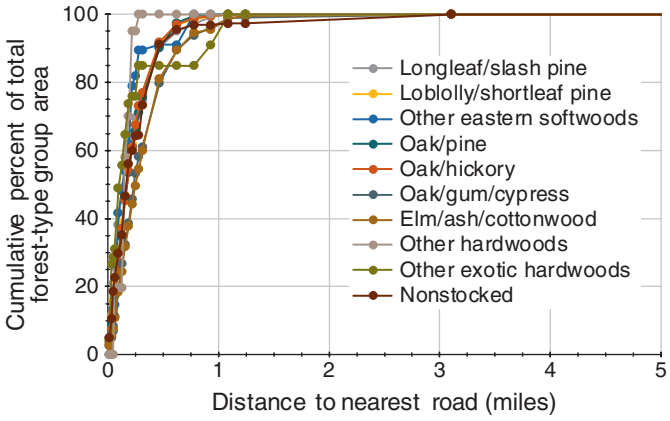

Figure 21—Forest remoteness is indicated by the cumulative percent of total forest-type group area within the indicated distance of the nearest road.

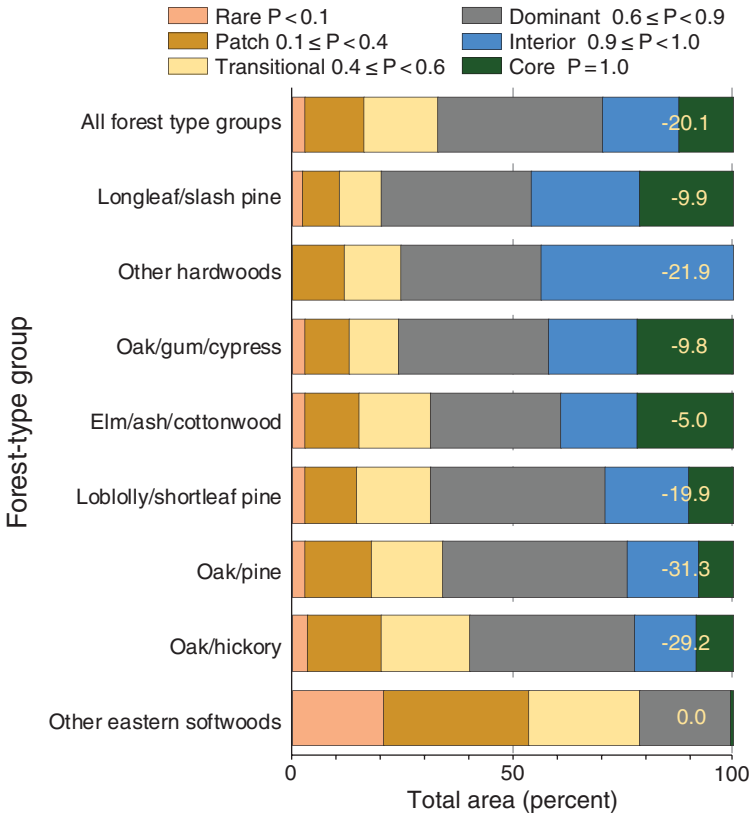

Figure 22—Fragmentation is indicated by the distribution of total forest-type group area among six fragmentation categories. Fragmentation categories are defined by the proportion (P) of the surrounding 40-acre neighborhood that had forest cover in 2011.

LITERATURE CITED

American Society for Quality Control: American National Standards Institute. 1994. American national standard: specifications and guidelines for quality systems for environmental data collection and environmental technology programs. ANSI/ASQC E4:1994. Milwaukee, WI: American Society for Quality Control. http://asq.org/. [Date accessed: October 17, 2019].

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.

Bruce, K.; Cameron, G.; Harcombe, P.; Jubinsky, G. 1997. Introduction, impact on native habitats, and management of a woody invader, the Chinese tallow tree, Sapium sebiferum (L.) Roxb. Natural Areas Journal. 17(3): 255–260. http://www.jstor.org/stable/43911684. [Date accessed: October 17, 2019].

Butler, B. 2016. National Woodland Owner Survey Table Maker 3.0. https://apps.fs.usda.gov/nwos/tablemaker.jsp. [Date accessed: May 1, 2019].

Dillenburg, L.R.; Whigham, D.F.; Teramura, A.H.; Forseth. I.N. 1993. Effects of below- and above-ground competition from the vines *Lonicera japonica* and *Parthenocissus quinquefolia* on the growth of the tree host *Liquidambar styraciflua*. Oecologia. 93: 48–54. https://link.springer.com/article/10.1007%2FBF00321190.

Forseth, I.N.; Innis, A.F. 2004. Kudzu (*Pueraria montana*): History, physiology, and ecology combine to make a major ecosystem threat. Critical Reviews in Plant Sciences. (23:5): 401–413. https://doi.org.10.1080/07352680490505150.

Jonsson, B.G.; Kruys, N.; Ranius, T. 2005. Ecology of species living on dead wood–lessons for dead wood management. Silva Fennica. 39(2): 289–309.

Ketzler, L.P.; Comer, C.E.; Twedt, D.J. 2017. Nocturnal insect availability in bottomland hardwood forests managed for wildlife in the Mississippi Alluvial Valley. Forest Ecology and Management. 391: 127–134. https://doi.org./10.1016/j.foreco.2017.02.009.

Nickelson, J.B.; Holzmueller, E.J.; Groninger, J.W.; Lesmeister, D.B. Previous land use and invasive species impacts on long-term afforestation success. 2015. Forests. 6(9): 3123–3135. https://doi.org./10.3390/f6093123.

Norden, B.; Paltto, H. 2001. Wood-decay fungi in hazel wood: species richness correlated to stand age and dead wood features. Biological Conservation. 101(1): 1–8.

Oswalt, S.N.; Smith, W.B.; Miles, P.D.; Pugh, S.A., coords. 2019. Forest Resources of the United States, 2017: a technical document supporting the Forest Service 2020 RPA Assessment. Gen. Tech. Rep. WO–97. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. 223 p. https://doi.org/10.2737/WO-GTR-97.

Oswalt, S.N. 2010. Chinese tallow (*Triadica sebifera* (L.) Small) population expansion in Louisiana, East Texas, and Mississippi. Research Note SRS–20. Asheville, NC: USDA Forest Service, Southern Research Station. 5 p.

Oswalt, C.M.; Oswalt, S.N. 2007. Winter litter disturbance facilitates the spread of the nonnative invasive grass *Microstegium vimineum* (Trin.) A Camus. Forest Ecology and Management. 249: 199–203.

Gathering and recording detailed observations of fire behavior that are not generally recorded by remote sensing techniques. (photo by Ellen Eberhardt)

Polit, J.I.; Brown, S. 1996. Mass and nutrient content of dead wood in a central Illinois floodplain forest. Wetlands. 16(4): 488–494. https://doi.org./10.1007/BF03161338.

Pyšek, P.; Jarošík, V.; Hulme, P.E. [and others]. 2012. A global assessment of invasive plant impacts on resident species, communities and ecosystems: the interaction of impact measures, invading species' traits and environment. Global Change Biology. 18: 1725–1737. https://doi.org./10.1111/j.1365-2486.2011.02636.x.

Rudgers, J.A.; Orr, S. 2009. Non-native grass alters growth of native tree species via leaf and soil microbes. Journal of Ecology. 97: 247–255. https://doi.org./10.1111/j.1365-2745.2008.01478.x.

U.S. Department of Agriculture Forest Service. 1992. Forest Service resource inventories: An overview. Washington, DC: U.S. Department of Agriculture, Forest Service, Forest Inventory, Economics, and Recreation Research. 39 p.

GLOSSSARY

All-live trees—All living trees. All size classes, all tree classes, and both saw-log and nonsaw-log species are included. See: FIA tree species list in the field manual.

Average annual mortality—Average annual volume of trees ≥ 5.0 inches d.b.h. that died from human and natural causes during the intersurvey period, excluding those removed by harvesting, cultural operations, land clearing or changes in land use.

Average annual removals—Average annual volume of trees ≥ 5.0 inches d.b.h. removed from the inventory by harvesting, cultural operations (such as timber-stand improvement), land clearing, or changes in land use during the intersurvey period.

Average net annual growth—Average annual net change in volume of trees ≥ 5.0 inches d.b.h./d.r.c. without taking into account losses from cutting (gross growth minus mortality) during the intersurvey period.

Basal area—The cross sectional area of a tree at breast height or of all the trees in a stand, usually expressed in square feet or square feet per acre.

Bioindicator species—A tree, woody shrub, or nonwoody herbaceous species that responds to ambient levels of ozone pollution with distinct visible foliar symptoms that are easy to diagnose.

Biomass—For the southern region, total aboveground biomass is estimated using allometric equations and is defined as the aboveground weight of wood and bark in live trees ≥ 1.0 inch d.b.h./d.r.c. from the ground to the tip of the tree, excluding all foliage (leaves, needles, buds, fruit, and limbs < 0.5 inch in diameter). Biomass is expressed as oven-dry weight and the units are tons.

Note: the weight of wood and bark in limbs < 0.5 inch in diameter is included in the biomass of small-diameter trees.

Additionally, biomass in the merchantable stem is estimated regionally, where the main and merchantable stems are defined as follows.

Main stem—The central portion of the tree extending from the ground level to the tip for timber species. Woodland species includes from ground level to the tips of all branches of qualifying stems. For timber species trees that fork, the main stem refers to the fork that would yield the most merchantable volume.

Merchantable stem—That portion of the main stem of a timber species tree from a 1-foot stump to a minimum 4-inch top diameter inside or outside bark depending on species. That portion of a woodland species tree from the d.r.c. measurements to the 1.5-inch diameters of all the qualifying stems.

Nationally aboveground and belowground biomass is estimated from each tree's sound volume using a Component Ratio Method that is consistently applied in all FIA regions.

Gross aboveground biomass—Total tree biomass excluding foliage and roots with no deductions made for rotten, missing, or broken-top cubic-foot cull.

Net aboveground biomass—Gross above-ground biomass minus deductions for missing cull, broken-top, and a reduction for a proportion of rotten cull for live or standing dead trees ≥ 5.0 inches d.b.h (Rotten cull will have a factor to reduce specific gravity separately from sound wood). Live and standing dead trees 1.0 to 4.9 inches only have deductions for broken-top cull. Additional deductions are made for dead trees ≥ 1.0 inch using decay class.

Belowground biomass—Coarse roots only.

Further, the total net aboveground biomass estimated using the Component Ratio Method is divided into the following components:

Top—That portion of the main stem of a timber species tree above the 4-inch top diameter. For woodland species, this component of the biomass is included with branches.

Branches—All the branches of a timber species tree excluding the main stem. That portion of all the branches of qualifying stems of woodland species above the 1.5-inch diameter ends.

Bole—See: Merchantable stem.

Stump—That portion of timber species below 1-foot to ground level. That portion of woodland species from all the d.r.c. measurements to ground level.

Blind check—A reinstallation done by a qualified inspection crew without production crew data on hand; at least two full subplots are completely remeasured along with all the plot level information. The two datasets are maintained separately. Discrepancies between the two sets of data are not reconciled. See: Quality assurance and quality control.

Bole—Trunk or main stem of a tree. (See: Main stem.)

Census water—See: Land use.

Coarse woody debris (CWD)—Downed, dead tree and shrub boles, large limbs, and other woody pieces with a minimum small-end diameter of ≥ 3 inches and a length of ≥ 3 feet not attached to a living or standing dead source.

Cold check—An inspection done either as part of the training process, or as part of the ongoing quality control program. Normally the installation crew is not present at the time of inspection. The inspector has the completed data in-hand at the time of inspection. The inspection can include the whole plot or a subset of the plot. Data errors are corrected. See: Quality assurance and quality control.

Components of change—Volume increment and decrement values that explain the change in inventory between two points in time. Components of change are usually expressed in terms of growing-stock or all-live merchantable volume. These components can be expressed as average annual values by dividing the component by the number of years in the measurement cycle. FIA inventories are designed to measure net change over time, as well as the individual components of change that constitute net change (e.g., growth, removals, mortality). Change estimates are computed for two sequential measurements of each inventory panel. Upon remeasurement, a new initial inventory is established for remeasurement at the next scheduled inventory. As such, computation of change components is not intended to span more than one inventory cycle. Rather, the change estimation process is repeated cycle by cycle. This simplifies field protocols and ensures that change estimation is based on short and relatively constant time intervals (e.g., 5 years). Change estimates for individual panels are combined across multiple panels in the same manner as panels are combined to obtain current inventory parameters such as total standing volume. FIA recognizes the following components of change as prescribed core variables; they usually are expressed in terms of growing-stock or all-live volume, where t is the initial inventory of a measurement cycle, and $t + 1$ is the terminal inventory:

Cut—The volume of trees cut between time t and time $t + 1$. The estimate is based on tree size at the midpoint of the measurement interval (includes cut growth). Tree size at the midpoint is modeled from tree size at time t. Trees felled or killed in conjunction with a harvest or silvicultural operation

(whether they are utilized or not) are included, but trees on land diverted from forest to nonforest (diversions) are excluded.

Cut growth—The growth of cut trees between time *t* and the midpoint of the measurement interval. Tree size at the midpoint is modeled from tree size at time *t*. This term also includes the subsequent growth on ingrowth trees that achieve the minimum diameter threshold prior to being cut.

Diversion—The volume of trees on land diverted from forest to nonforest (or, for some analyses, this may also include land diverted to reserved forest land and other forest land), whether utilized or not, between time *t* and time *t* + 1. The estimate is based on tree size at the midpoint of the measurement interval (includes diversion growth). Tree size at the midpoint is modeled from tree size at time *t*.

Diversion growth—The growth of diversion trees from time *t* to the midpoint of the measurement interval. Tree size at the midpoint is modeled from tree size at time *t*. This term also includes the subsequent growth on ingrowth trees that achieve the minimum diameter threshold prior to diversion.

Growth on ingrowth—The growth on trees between the time they grow across the minimum d.b.h./d.r.c. threshold and time *t* + 1.

Ingrowth—The volume of trees at the time that they grow across the minimum d.b.h./d.r.c. threshold between time *t* and time *t* + 1. The estimate is based on the size of trees at the d.b.h./d.r.c. threshold which is 1.0 inch for all-live trees and 5.0 inches for growing-stock trees. This term also includes trees that subsequently die (i.e., ingrowth mortality), are cut (i.e., ingrowth, cut), or diverted to nonforest (i.e., ingrowth diversion); as well as trees that achieve the minimum threshold after an area reverts to a forest land use (i.e., reversion ingrowth).

Mortality—The volume of trees that die from human or natural causes between time *t* and time *t* + 1. The estimate is based on tree size at the midpoint of the measurement interval (includes mortality growth). Tree size at the midpoint is modeled from tree size at time *t*.

Mortality growth—The growth of trees that died from human or natural causes between time *t* and the midpoint of the measurement interval. Tree size at the midpoint is modeled from tree size at time *t*. This term also includes the subsequent growth on ingrowth trees that achieve the minimum diameter threshold prior to mortality.

Reversion—The volume of trees on land that reverts from a nonforest land use to a forest land use (or, for some analyses, land that reverts from any source to timberland) between time *t* and time *t* + 1. The estimate is based on tree size at the midpoint of the measurement interval. Tree size at the midpoint is modeled from tree size at time *t* + 1.

Reversion growth—The growth of reversion trees from the midpoint of the measurement interval to time *t* + 1. Tree size at the midpoint is modeled from tree size at time *t* + 1. This term also includes the subsequent growth on ingrowth trees that achieve the minimum diameter threshold after reversion.

Survivor growth—The growth on trees tallied at time *t* that survive until time *t* + 1.

The following components of change may be used to further quantify changes in growing-stock (but not all-live) volume:

Cull decrement—The net gain in growing-stock volume due to reclassification of cull trees to growing-stock trees between two surveys. Cull decrement is the volume of trees that were cull at time *t*, but growing stock at time *t* + 1. The estimate is based on tree size at the midpoint of the measurement interval. Tree size at the midpoint can be modeled from tree at time *t*, time *t* + 1, or both.

Cull decrement growth—The growth from the midpoint of the measurement interval to time $t + 1$ on trees that were cull at time t, but growing stock at time $t + 1$. Tree size at the midpoint can be modeled from tree size at time t, time $t + 1$, or both.

Cull increment—The net reduction in growing-stock volume due to reclassification of growing stock trees to cull trees between two surveys. Cull increment is the volume of trees that were growing stock at time t, but cull at time $t + 1$. The estimate is based on tree size at the midpoint of the measurement interval (includes cull increment growth). Tree size at the midpoint can be modeled from tree size at time t, time $t + 1$, or both.

Cull increment growth—The growth to the midpoint of the measurement interval between time t and $t + 1$ of trees that were growing stock at time t, but cull trees at time $t + 1$. Tree size at the midpoint can be modeled from tree size at time t, time $t + 1$, or both.

Condition class—The combination of discrete landscape and forest attributes that identify, define, and stratify the area associated with a plot. Examples of such attributes include condition status, forest type, stand origin, stand size, owner group, reserve status and stand density.

Crown—The part of a tree or woody plant bearing live branches or foliage.

Crown vigor class—A visual assessment of the apparent crown vigor of saplings. The purpose is to separate excellent saplings with superior crowns from stressed individuals with poor crowns.

Crown density—The amount of crown stem, branches, twigs, shoots, buds, foliage, and reproductive structures that block light penetration through the projected crown outline. Measured as a percentage.

Crown dieback—Recent mortality of branches with fine twigs, which begins at the terminal portion of a branch and proceeds toward the trunk. Dieback is only considered when it occurs in the upper and outer portions of the tree. Dead branches in the lower live crown are not considered as part of crown dieback, unless there is continuous dieback from the upper and outer crown down to those branches.

Cull—Portions of a tree that are unusable for industrial wood products because of rot, form, or other defect. Cull is further categorized as the following:

Broken-top cubic-foot cull—The broken-top proportion of a timber species tree's merchantable portion from the break to the actual or projected 4-inch top diameter outside bark, or to where the central stem forks, where all forks are <4.0 inches diameter. For trees 1.0 to 4.9 inches diameter this is the proportion of the main stem missing due to a broken-top.

Form board-foot cull—The part of the tree's saw-log portion that is sound but not usable for sawn wood products due to sweep, crook, forking, or other physical culls.

Percent board-foot cull—Percentage of sound and unsound board-foot volume, to the nearest 1 percent.

Missing cubic-foot cull—The proportion of a tree's merchantable portion that is missing or absent. Does not include any cull deductions above actual length for broken-top timber trees. Does include cull deductions above actual length for broken-top woodland species. Trees with d.b.h./d.r.c. <5.0 inches have a null value in this field.

Percent board-foot cull—Percentage of sound and unsound board-foot volume, to the nearest 1 percent.

Rotten cubic-foot cull—The proportion of a tree's merchantable portion that is in a decayed state. Does not include any cull deductions above actual length for broken-top timber trees. Does include cull deductions above actual length for

broken-top woodland species. Trees <5.0 inches d.b.h. have a null value in this field.

Rotten/missing cull—The part of the tree's merchantable portion that is decayed and/or absent due to other factors.

Total board-foot cull—The proportion of a timber species tree's saw-log portion that is rotten, missing, or sound, but not useable for sawn wood products due to sweep, crook, forking, or other physical defects (form board-foot cull). Nonsaw-log species and softwoods <9.0 inches d.b.h. and hardwoods <11.0 inches d.b.h. have a null value in this field.

Cull tree—Live trees that are unsuitable for the production of some roundwood products, now or prospectively. Cull trees can include those with decay (rotten cull) or poor form, limbiness, or splits (rough cull). Rough cull is suitable for pulpwood and other fiber products.

Cycle—One sequential and complete set of panels.

Diameter at breast height (d.b.h.)—The diameter for tree stem, located at 4.5 feet above the ground (breast height) on the uphill side of a tree. The point of diameter measurement may vary on abnormally formed trees.

Diameter class—A classification of trees based on diameter outside bark, measured at breast height (d.b.h.) above the ground or at root collar (d.r.c.). Note: Diameter classes are commonly in 2-inch increments, beginning with 2-inches. Each class provides a range of values with the class name being the approximate midpoint. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h.

Disturbance—Natural or human-caused disruption that is ≥1.0 acre in size and results in mortality and/or damage to 25 percent of all trees in a stand or 50 percent of an individual species' count or, in the case when the disturbance does not initially affect tree growth or health (e.g. grazing, browsing, flooding, etc.), affects 25 percent of the soil surface or understory vegetation. For initial forest plot establishment the disturbance must be within the last 5 years. For remeasured plots only those disturbances that have occurred since the previous inventory are recognized.

Diversion—See: Components of change.

Down woody material (DWM)—DWM is dead material on the ground in various stages of decay. It includes coarse and fine woody material. Previously named down woody debris (DWD). The depth of duff layer, litter layer, and overall fuelbed; fuel loading on the microplot; and residue piles are also measured as part of the DWM indicator for FIA.

Dry weight—The oven-dry weight of biomass.

Federal land—An ownership class of public lands owned by the U.S. Government. See: Ownership.

Fine woody debris (FWD)—Downed, dead branches, twigs, and small tree or shrub boles <3 inches in diameter not attached to a living or standing dead source.

Fixed-radius plot—A circular sampled area with a specified radius in which all trees of a given size, shrubs, or other items are tallied.

Foliage transparency—The amount of skylight visible through microholes in the live portion of the crown, i.e. where you see foliage, normal or damaged, or remnants of its recent presence. Recently defoliated branches are included in foliage transparency measurements. Macroholes are excluded unless they are the result of recent defoliation. Dieback and dead branches are always excluded from the estimate. Foliage transparency is different from crown density because it emphasizes foliage and ignores stems, branches, fruits, and holes in the crown.

Forest floor—The entire thickness of organic material overlying the mineral soil, consisting of the litter and the duff (humus).

Forest industry land—See: Ownership.

Forest land—Land that is at least 10 percent stocked by forest trees of any size, or land formerly having such tree cover, and is not currently developed for a nonforest use. The minimum area for classification as forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must be at least 120 feet wide to qualify as forest land. Unimproved roads and trails, streams and other bodies of water, or natural clearings in forested areas shall be classified as forest, if <120 feet in width or 1.0 acre in size. Forest land is divided into timberland, reserved forest land, and other forest land (such as woodland).

Forest type—A classification of forest land based upon and named for the tree species that forms the plurality of live-tree stocking. A forest-type classification for a field location indicates the predominant live-tree species cover for the field location; hardwoods and softwoods are first grouped to determine predominant group, and forest type is selected from the predominant group.

Forest-type group—A combination of forest types that share closely associated species or site requirements.

Elm-ash-cottonwood—Forests in which elm, ash, or cottonwood, singly or in combination, constitute a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Loblolly-shortleaf pine—Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, constitute a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Maple-beech-birch—Forests in which maple, beech, or yellow birch, singly or in combination, constitute a plurality of the stocking. (Common associates include hemlock, elm, basswood, and white pine.)

Oak-gum-cypress—Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, constitute a plurality of the stocking, except where pines account for 25 to 50 percent of stocking, in which case the stand is classified as oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Oak-hickory—Forests in which upland oaks or hickory, singly or in combination, constitute a plurality of the stocking, except where pines account for 25 to 50 percent, in which case the stand is classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-pine—Forests in which hardwoods (usually upland oaks) constitute a plurality of the stocking but in which pines account for 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Fuel class—Categories of forest fire fuels defined by the approximate amount of time it takes for moisture conditions to fluctuate. Large coarse woody debris pieces take longer to dry out than smaller fine woody pieces.

1,000-hour fuels—Coarse woody debris with a transect diameter ≥ 3.0 inches in diameter and ≥ 3.0 feet long.

100-hour fuels—Fine woody debris with a transect diameter between 1.0 and 2.9 inches.

10-hour fuels—Fine woody debris with a transect diameter between 0.25 and 0.9 inches.

1-hour fuels—Fine woody debris with a transect diameter ≤ 0.24 inches.

Growing-stock trees—Live large-diameter timber species trees (excludes nonsaw-log species) with one-third or more of the gross board-foot volume in the entire saw-log portion meeting grade, soundness, and size requirements or the potential to do so for medium-diameter and small-diameter trees. A growing-stock tree must have one 12-foot log or two noncontiguous 8-foot merchantable logs, now (large diameter) or prospectively (medium diameter and small diameter), to qualify as growing stock.

Hardwoods—Tree species belonging to the botanical divisions Magnoliophyta, Ginkgophyta, Cycadophyta, or Pteridophyta, usually angiospermic, dicotyledonous, broad-leaved and deciduous.

Soft hardwoods—Hardwood species with an average specific gravity of ≤ 0.50, such as gums, yellow-poplar, cottonwoods, red maple, basswoods, and willows.

Har*d hardwoods*—Hardwood species with an average specific gravity > 0.50, such as oaks, hard maples, hickories, and beech.

Hot check—An inspection normally done as part of the training process. The inspector is present on the plot with the trainee and provides immediate feedback regarding data quality. Data errors are corrected. Hot checks can be done on training plots or production plots. See: Quality assurance and quality control.

Land—The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains.

Land cover—The dominant vegetation or other kind of material that covers the land surface. A given land cover may have many land uses.

Land use—The purpose of human activity on the land; it is usually, but not always, related to land cover.

Southern regional present land use categories are as follows:

Accessible timberland—Land that is within the population of interest, is accessible, is on a subplot that can be occupied at subplot center, can safely be visited, and meets the criteria for forest land (see: forest land).

Accessible other forest land—Land that meets the definition of accessible forest land, but is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions because of adverse site conditions. Adverse conditions include

The Longleaf Pine Ecosystem Restoration and Hazardous Fuels Reduction Project in the De Soto National Forest, Mississippi. Photo near Choctaw Lake. (Forest Service photo by De Soto National Forest)

sterile soils, dry climate, poor drainage, high elevation, steepness and soil rockiness.

Agricultural land—Land managed for crops, pasture, or other agricultural use. The area must be at least 1.0 acre in size and 120 feet wide (with the exception of windbreak/shelterbelt, which has no minimum width). This land use includes cropland, pasture (improved through cultural practices), idle farmland, orchard, Christmas tree plantation, maintained wildlife opening, and windbreak/shelterbelt.

Rangeland—Land primarily composed of grasses, forbs, or shrubs. This includes lands vegetated naturally or artificially to provide a plant cover managed like native vegetation and does not meet the definition of pasture. The area must be at least ≥1.0 acre in size and ≤120 feet wide.

Developed—Land used primarily by humans for purposes other than forestry or agriculture. This land use includes cultural (business, industrial/commercial, residential, and other places of intense human activity), rights-of-way (improved roads, railway, power lines, maintained canal), recreation (parks, skiing, golf courses), and mining.

Other—Land parcels ≥1.0 acre in size and ≥120 feet wide, which do not fall into one of the uses described above. Examples include undeveloped beaches, barren land (rock, sand), marshes, bogs, ice, and snow. This land use includes nonvegetated, wetland, beach, and nonforest-chaparral.

Census water—Rivers and streams that are >200 feet wide and bodies of water >4.5 acres in size.

Noncensus water—Rivers, streams and other bodies of water that do not meet the requirements for census water.

Nonsampled—Not sampled due to denied access, hazardous conditions, being outside the U.S. or other reasons.

Large-diameter trees—Softwoods ≥9.0 inches d.b.h. and hardwoods ≥11.0 inches d.b.h. These trees were called sawtimber-sized trees in prior surveys. See: Stand-size class.

Litter—Undecomposed or only partially decomposed organic material that can be readily identified (e.g., plant leaves, twigs, etc.).

Main stem—The central portion of the tree extending from the ground level to the tip for timber species. For woodland species the main stem extends from the ground level to the tips of all branches of qualifying stems. For timber species trees that fork, the main stem follows the fork that would yield the most merchantable volume.

Measurement quality objective (MQO)—A data user's estimate of the precision, bias, and completeness of data necessary to satisfy a prescribed application (e.g., Resource Planning Act, assessments by State foresters, forest planning, forest health analyses). Describes the acceptable tolerance for each data element. MQOs consist of two parts: a statement of the tolerance and a percentage of time when the collected data are required to be within tolerance. MQOs can only be assigned where standard methods of sampling or field measurements exist, or where experience has established upper or lower bounds on precision or bias. MQOs can be set for measured data elements, observed data elements, and derived data elements.

Medium-diameter tree—Softwood timber species 5.0 to 8.9 inches d.b.h. and hardwood timber species 5.0 to 10.9 inches d.b.h. These trees were called poletimber-sized trees in prior surveys. See: Stand-size class.

Microplot—A circular, fixed-radius plot with a radius of 6.8 feet (0.003 acre) that is used to sample trees <5.0 inches d.b.h./d.r.c., as well as other vegetation. Point center is 90 degrees and 12 feet offset from point center of each subplot.

Mortality—See: Components of change.

National forest land—See: Ownership.

Noncensus water—See: Land use.

Nonforest land—Land that does not support or has never supported, forests, and lands formerly forested where use for timber management is precluded by development for other uses. Includes areas used for crops, improved pasture, residential areas, city parks, improved roads of any width and adjoining rights-of-way, power line clearings of any width, and noncensus water. If intermingled in forest areas, unimproved roads and nonforest strips must be ≥120 feet wide, and clearings, etc., ≥1.0 acre in size, to qualify as nonforest land.

Nonindustrial private forest land—See: Ownership.

Operability—The viability of operating logging equipment in the vicinity of the condition. Operability classes are as follows:

No problems.

Seasonal access due to water conditions in wet weather.

Mixed wet and dry areas typical of multichanneled streams punctuated with dry islands.

Broken terrain, cliffs, gullies, outcroppings, etc., which would severely limit equipment, access, or use.

Year-round water problems (includes islands).

Slopes 20 to 40 percent.

Slopes >40 percent.

Other forest land—Forest land other than timberland and reserved forest land. It includes available and reserved forest land that is incapable of producing 20 cubic feet per acre per year of wood under natural conditions because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other public land—See: Ownership.

Other removals—The volume of trees removed from the inventory by cultural operations such as timber stand improvement, land clearing, and other changes in land use, resulting in the removal of the trees from timberland.

Ownership—A legal entity having control of a parcel or group of parcels of land. An ownership may be an individual; a combination of persons; a legal entity such as corporation, partnership, club, or trust; or a public agency.

National forest land—Federal land that has been legally designated as national forests or purchase units, and other land under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III land.

Forest industry land—An ownership class of private lands owned by a company or an individual(s) operating a primary wood-processing plant.

Nonindustrial private forest (NIPF) land—Privately owned land excluding forest industry land.

Corporate—Owned by corporations, including incorporated farm ownerships.

Individual—All lands owned by individuals, including farm operators.

Other public—An ownership class that includes all public lands except national forests.

Miscellaneous Federal land—Federal land other than national forests.

State, county, and municipal land—Land owned by States, counties, and local public agencies or municipalities, or land leased to these governmental units for 50 years or more.

Ozone (O_3)—A gaseous air pollutant produced primarily through sunlight-driven chemical reactions of NO_2 and hydrocarbons

in the atmosphere and causing foliar injury to deciduous trees, conifers, shrubs, and herbaceous species.

Ozone bioindicator site—An open area used for ozone injury evaluations on ozone-sensitive species. The area must meet certain site selection guidelines regarding size, condition, and plant counts to be used for ozone injury evaluations in FIA.

Phase 1 (P1)—FIA activities related to remote sensing, the primary purpose of which is to label plots and obtain stratum weights for population estimates.

Phase 2 (P2)—FIA activities conducted on the network of ground plots. The primary purpose is to obtain field data that enable classification and summarization of area, tree, and other attributes associated with forest land uses.

Phase 3 (P3)—A subset of Phase 2 plots where additional attributes related to forest health are measured.

Plantation—Stands that currently show evidence of being planted or artificially seeded.

Poletimber-sized tree—Softwood timber species 5.0 to 8.9 inches d.b.h. and hardwood timber species 5.0 to 10.9 inches d.b.h. Now referred to as medium-diameter trees.

Private land—See: Ownership.

Productivity class—A classification of forest land in terms of potential annual cubic-foot volume growth per acre at culmination of mean annual increment (MAI) in fully stocked natural stands.

Quality assurance (QA)—The total integrated program for ensuring that the uncertainties inherent in FIA data are known and do not exceed acceptable magnitudes, within a stated level of confidence. Quality assurance encompasses the plans, specifications, and policies affecting the collection, processing, and reporting of data. It is the system of activities designed to provide program managers and project leaders with independent assurance that total system quality control is being effectively implemented.

Quality control (QC)—The routine application of prescribed field and laboratory procedures (e.g., random check cruising, periodic calibration, instrument maintenance, use of certified standards, etc.) in order to reduce random and systematic errors and ensure that data are generated within known and acceptable performance limits. Quality control also ensures the use of qualified personnel; reliable equipment and supplies; training of personnel; good field and laboratory practices; and strict adherence to standard operating procedures.

Reserved forest land—Forest land where management for the production of wood products is prohibited through statute or administrative designation. Examples include national forest wilderness areas and national parks and monuments.

Reversion—Land that reverts from a nonforest land use to a forest land use. See: Components of change.

Sapling—Live trees 1.0 to 4.9 inches d.b.h./d.r.c.

Seedling—Live trees <1.0 inch d.b.h./d.r.c. that are ≥ 6.0 inches in height for softwoods and ≥ 12.0 inches in height for hardwoods and >0.5 inch d.b.h./d.r.c. at ground level for longleaf pine.

Site index—The average total height that dominant and codominant trees in fully-stocked, even-aged stands will obtain at key ages (usually 25 or 50 years).

Small-diameter trees—Trees 1.0 to 4.9 inches in d.b.h./d.r.c. These were called sapling-seedling sized trees in prior surveys. See: Stand-size class.

Softwoods—Tree species belonging to the botanical division Coniferophyta, usually evergreen having needles or scale-like leaves.

Species group—A collection of species used for reporting purposes.

Stand—Vegetation or a group of plants occupying a specific area and sufficiently uniform in species composition, age arrangement, structure, and condition as to be distinguished from the vegetation on adjoining areas.

Stand age—A stand descriptor that indicates the average age of the live dominant and codominant trees in the predominant stand-size class of a condition.

Standing dead tree—A dead tree ≥ 5.0 inches d.b.h. that has a bole which has an unbroken actual length of at least 4.5 feet, and lean < 45 degrees from vertical as measured from the base of the tree to 4.5 feet.

Stand origin—A classification of forest stands describing their means of origin.

Planted—Planted or artificially seeded.

Natural—No evidence of artificial regeneration.

Stand-size class—A classification of forest land based on the diameter-class distribution of live trees in the stand. See definitions of large-, medium-, and small-diameter trees.

Large-diameter stands—Stands at least 10 percent stocked with live trees, with one-half or more of total stocking in large- and medium-diameter trees, and with large-diameter tree stocking at least equal to medium-diameter tree stocking.

Medium-diameter stands—Stands at least 10 percent stocked with live trees, with one-half or more of total stocking in medium- and large-diameter trees, and with medium-diameter tree stocking exceeding large-diameter tree stocking.

Small-diameter stands—Stands at least 10 percent stocked with live trees, in which small-diameter trees account for more than one-half of total stocking.

Nonstocked stands—Stands < 10 percent stocked with live trees.

Stand structure—The predominant canopy structure for the condition, only considering the vertical position of the dominant and codominant trees in the stand and not considering trees that are intermediate or overtopped. As a general rule, a different story should comprise 25 percent of the stand.

Nonstocked—The condition is < 10 percent stocked.

Single-storied—Most of the dominant/codominant tree crowns form a single canopy (i.e., most of the trees are approximately the same height).

Multistoried—Two or more recognizable levels characterize the crown canopy. Dominant/codominant trees of many sizes (diameters and heights) for a multilevel canopy.

State, county, and municipal land—See: Ownership.

Stocking—(1) At the tree level, stocking is the density value assigned to a sampled tree (usually in terms of numbers of trees or basal area per acre), expressed as a percent of the total tree density required to fully utilize the growth potential of the land. (2) At the stand level, stocking refers to the sum of the stocking values of all trees sampled.

Subplot—A circular area with a fixed horizontal radius of 24.0 feet (1/24 acre), primarily used to sample trees ≥ 5.0 inches at d.b.h./d.r.c.

Survivor tree—A sample tree alive at both the current and previous inventories.

Timberland—Forest land that is producing or capable of producing 20 cubic feet per acre or more per year of wood at culmination of MAI. Timberland excludes reserved forest lands.

Treatment—Forestry treatments are a form of human disturbance. The term treatment further implies that a silvicultural application has been prescribed. This does not include occasional stumps of unknown origin or sparse removals for firewood, Christmas trees, or other miscellaneous purposes. The area affected by any treatment must be at least 1.0 acre in size.

None—No observable treatment.

Cutting—The removal of one or more trees from a stand. SRS FIA categories are the following:

Clearcut harvest—The removal of the majority of the merchantable trees in a stand; residual stand stocking is under 50 percent.

Partial harvest—Removal primarily consisting of highest quality trees. Residual consists of lower quality trees because of high grading or selection harvest (e.g. uneven aged, group selection, high grading, species selection).

Seed-tree/shelterwood harvest—Crop trees are harvested leaving seed source trees either in a shelterwood or seed tree. Also includes the final harvest of the seed trees.

Commercial thinning—The removal of trees (usually of medium-diameter) from medium-diameter stands leaving sufficient stocking of growing-stock trees to feature in future stand development. Also included are thinning in large-diameter stands where medium-diameter trees have been removed to improve quality of those trees featured in a final harvest.

Timber stand improvement (cut trees only)—The cleaning, release, or other stand improvement involving noncommercial cutting applied to an immature stand that leaves sufficient stocking.

Salvage cutting—The harvesting of dead or damaged trees or of trees in danger of being killed by insects, disease, flooding, or other factors in order to save their economic value.

Site preparation—Clearing, slash burning, chopping, disking, bedding, or other practices clearly intended to prepare a site for either natural or artificial regeneration.

Artificial regeneration—Following a disturbance or treatment (usually cutting), a new stand where at least 50 percent of the live trees present resulted from planting or direct seeding.

Natural regeneration—Following a disturbance or treatment (usually cutting), a new stand where at least 50 percent of the live trees present (of any size) were established through the growth of existing trees and/or natural seeding or sprouting.

Other silvicultural treatment—The use of fertilizers, herbicides, girdling, pruning, or other activities designed to improve the commercial value of the residual stand, or chaining, which is a practice used on woodlands to encourage wildlife forage.

Tree—A woody perennial plant, typically large, with a single well-defined stem carrying a more or less definite crown; sometimes defined as attaining a minimum diameter of 3 inches and a minimum height of 15 feet at maturity. For FIA, any plant on the tree list in the current field manual is measured as a tree.

Tree class—An assessment of the general quality of a tree.

Cull species—Species measured at d.r.c. and timber species (measured at d.b.h.) that would not produce saw-logs. See national list of nonsaw-log species.

Growing stock—Live large-diameter timber species (excludes nonsaw-log species)

trees with one-third or more of the gross board-foot volume in the entire saw-log portion meeting grade, soundness, and size requirements or the potential to do so for medium-diameter trees. A growing-stock tree must have one 12-foot log or two noncontiguous 8-foot merchantable logs, now (large-diameter) or prospectively (medium-diameter), to qualify as growing stock.

Rough cull—Trees that do not contain at least one 12-foot saw log or two 8-foot logs now or prospectively, primarily because of roughness or poor form. Less than ⅓ of its gross board-foot volume meets size, soundness, and grade requirements and < ½ of the cubic-foot cull is rotten or unsound.

Rotten cull—Trees that do not contain at least one 12-foot saw log or two 8-foot logs now or prospectively and/or do not meet grade specifications for percent sound primarily because of rot. All species not having ⅓ or more of its gross board-foot volume meeting size, soundness, and grade requirements, and over ½ of the cubic-foot cull is rotten or unsound.

Tree grade—A classification of the saw-log portion of large-diameter trees based on: (1) the grade of the butt log, or (2) the ability to produce at least one 12-foot or two 8-foot logs in the upper section of the saw-log portion. Tree grade is an indicator of quality; grade 1 is the best quality.

Volume—A measure of the solid content of the tree stem used to measure wood quantity.

Gross board-foot volume—Total board-foot volume of wood inside bark without deductions for total board-foot cull.

Gross cubic-foot volume—Total cubic-foot volume of wood inside bark without deductions for rotten, missing, or broken-top cull.

Net board-foot volume—Gross board-foot volume minus deductions for total board-foot cull.

Net cubic-foot volume—Gross cubic-foot volume minus deductions for rotten, missing, and broken-top cull.

INVENTORY QUALITY ASSURANCE AND QUALITY CONTROL

The goal of the FIA quality assurance (QA) program is to provide a framework that ensures that forest assessments meet given standards for completeness, accuracy, and absence of bias. This program is organized in accordance with the protocols set forth in the American National Standard for Quality of Environmental Data collection (Part B of American Society for Quality Control 1994). One of the goals of the FIA Program is to include data quality documentation in all nationally available reports, including State reports and national summary reports. This report includes a summary of phase 2 variables and measurement quality objective (MQO) analyses from FIA blind check measurements. Quality assessments of the phase 3 data will be addressed in future reports. Quality control procedures include feedback to field staff to provide assessment and improvement of crew performance.

Additionally, data quality is assessed and documented using performance measurements and post survey assessments. These assessments are then used to identify areas of the data collection process that need improvement or refinement in order to meet quality objectives of the program.

Quality Assurance and Quality Control Methods

FIA implements QA methods in several different ways. These methods include nationally standardized field manuals, portable data recorders (PDRs), training and certification of field crews, and field audits. The PDRs help assure that specified procedures are followed. The minimum national standards for annual training of field crews are: (1) a minimum of 40 hours for new employees, and (2) a minimum of 8 hours for return employees. Field crew members are certified via an *in situ* test plot. All crews are required to have at least one certified person present on the plot at all times.

Farm Bill programs like the Wetlands Reserve Program have helped populations of the Louisiana black bear increase in Mississippi. (photo courtesy of Brad Young, Mississippi Department of Wildlife, Fisheries, and Parks)

Field Audits

A hot check is an inspection normally done as part of the training process. The inspector is present with crew to document crew performance as they measure plots. The recommended intensity for hot checks is 2 percent of the plots installed.

Cold checks are done at regular intervals throughout the field season. The crew that installed the plot is not present at the time of inspection and does not know when or which plots will be remeasured. The inspector visits the completed plot, evaluates the crew's data collection, and notes corrections where necessary. The recommended intensity for cold checks is 5 percent of the plots installed.

A blind check is a complete reinstallation measurement of a previously completed plot. However, the QA crew remeasurement is done without the previously recorded data. The first measurement of the plot is referred to as the field measurement and the second measurement as the QA measurement. The field crews do not know in advance when or which of their plots will be measured by a QA crew. This type of blind measurement provides a direct, unbiased observation of measurement precision from two independent crews. Plots selected for blind checks are chosen to be a representative subsample of all plots measured and are randomly selected. Blind checks are planned to be made within 2 weeks following completion of the field measurement. The recommended intensity for blind checks is 3 percent of the plots installed.

Measurement Quality Objectives

Each variable collected by FIA is assigned a measurement quality objective (MQO) with desired levels of tolerance for data analyses. The MQOs are documented in the FIA national field manual (http://www.fia.fs.fed.us/library/field-guides-methods-proc/). In some instances, the MQOs were established as a "best guess" of what experienced field crews should be able to consistently achieve. Tolerances are somewhat arbitrary and were based on the ability of crews to make repeatable measurements or observations within the assigned MQO. Evaluation of field crew performance is accomplished by calculation of the differences between the field crew and QA crew data collected on blind check plots. Results of these calculations are compared to the established MQOs.

In the analysis of blind check data, an observation is within tolerance when the difference between the field crew and QA crew observations does not exceed the assigned tolerance for that variable. For many categorical variables, the tolerance is "no error" allowed, so only observations that are identical are within the tolerance level.

Table B.1—Percentage of area by land status, Mississippi, 2017

Land status	Area
	percent
Accessible forest land	
Unreserved forest land	
Timberland	60.7
Unproductive	0.0
Total	60.7
Reserved forest land	
Productive	0.6
Unproductive	0.0
Total	0.6
Total forest land	61.3
Nonforest and other area	
Nonforest land	33.4
Water	
Noncensus water	0.8
Census water	3.2
Total	37.4
Nonsampled area	
Access denied	0.7
Hazardous conditions	0.5
All area	100.0
Total area (thousands of acres)	31,001.8

Numbers may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.1.1—Area by survey unit and land status, Mississippi, 2017

Unit	Total area	All forest	Unreserved			Reserved			Nonforest land	Census water
			Total	Timberland	Unproductive	Total	Productive	Unproductive		
					thousand acres					
Delta	5,590.5	1,830.3	1,736.9	1,736.9	0.0	93.4	93.4	0.0	3,620.0	140.1
North	8,407.0	5,190.1	5,171.7	5,165.4	6.3	18.4	18.4	0.0	3,053.6	163.3
Central	5,926.0	4,504.6	4,485.2	4,485.2	0.0	19.5	19.5	0.0	1,357.6	63.8
South	6,670.3	4,560.7	4,537.4	4,537.4	0.0	23.3	23.3	0.0	1,540.5	569.1
Southwest	4,408.0	3,245.8	3,213.8	3,213.8	0.0	32.0	32.0	0.0	1,113.5	48.7
All survey units	31,001.8	19,331.5	19,144.9	19,138.6	6.3	186.6	186.6	0.0	10,685.2	985.1

Numbers in rows and columns may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.2—Area of forest land by ownership class and land status, Mississippi, 2017

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timber-land	Unpro-ductive	Total	Produc-tive	Unpro-ductive
	thousand acres						
U.S. Forest Service							
National forest	1,169.4	1,161.5	1,161.5	0.0	7.8	7.8	0.0
Total	1,169.4	1,161.5	1,161.5	0.0	7.8	7.8	0.0
Other Federal							
National Park Service	11.6	0.0	0.0	0.0	11.6	11.6	0.0
U.S. Fish and Wildlife Service	160.8	0.0	0.0	0.0	160.8	160.8	0.0
Dept. of Defense/Dept. of Energy	282.0	282.0	282.0	0.0	0.0	0.0	0.0
Other Federal	51.6	51.6	51.6	0.0	0.0	0.0	0.0
Total	505.9	333.5	333.5	0.0	172.4	172.4	0.0
State and local government							
State	228.3	222.0	222.0	0.0	6.4	6.4	0.0
Local	268.5	268.5	268.5	0.0	0.0	0.0	0.0
Total	496.8	490.5	490.5	0.0	6.4	6.4	0.0
Forest industry							
Corporate	835.0	835.0	835.0	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	5.9	5.9	5.9	0.0	0.0	0.0	0.0
Individual	30.1	30.1	30.1	0.0	0.0	0.0	0.0
Total	871.0	871.0	871.0	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	4,115.3	4,115.3	4,115.3	0.0	0.0	0.0	0.0
Conservation/natural resources organization	39.1	39.1	39.1	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	714.2	714.2	714.2	0.0	0.0	0.0	0.0
Native American	18.0	18.0	18.0	0.0	0.0	0.0	0.0
Individual	11,401.6	11,401.6	11,395.3	6.3	0.0	0.0	0.0
Total	16,288.3	16,288.3	16,282.0	6.3	0.0	0.0	0.0
All classes	19,331.5	19,144.9	19,138.6	6.3	186.6	186.6	0.0

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.3—Area of forest land by forest-type group and site productivity class, Mississippi, 2017

Forest-type group	All classes	Site productivity class (cubic feet/acre/year)						
		0–19	20–49	50–84	85–119	120–164	165–224	225+
	thousand acres							
Softwood types								
Spruce-fir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Longleaf-slash pine	831.2	0.0	110.9	338.7	322.3	51.6	5.9	1.8
Loblolly-shortleaf pine	7,910.7	0.0	127.2	2,070.5	3,329.2	1,918.1	294.8	170.9
Other eastern softwoods	54.0	0.0	5.3	22.0	7.9	2.1	9.0	7.7
Total softwoods	8,795.9	0.0	243.4	2,431.1	3,659.3	1,971.9	309.8	180.4
Hardwood types								
Oak-pine	1,965.3	0.0	65.3	590.3	810.9	399.4	61.1	38.4
Oak-hickory	4,524.5	4.7	98.7	1,566.5	1,763.4	856.8	188.4	45.9
Oak-gum-cypress	2,526.6	1.6	65.7	780.2	1,016.5	458.8	157.6	46.3
Elm-ash-cottonwood	1,194.3	0.0	41.7	437.6	511.1	141.9	26.6	35.4
Other hardwoods	14.0	0.0	0.0	7.9	4.6	1.6	0.0	0.0
Exotic hardwoods	66.9	0.0	0.0	22.8	33.7	0.0	4.5	5.9
Total hardwoods	10,291.6	6.3	271.4	3,405.2	4,140.2	1,858.5	438.1	171.9
Nonstocked	244.0	0.0	13.8	103.4	76.8	43.6	6.4	0.0
All groups	19,331.5	6.3	528.6	5,939.8	7,876.4	3,873.9	754.3	352.3

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.4—Area of forest land by forest-type group and ownership group, Mississippi, 2017

Forest-type group	All ownerships	U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
			thousand acres			
Softwood types						
Spruce-fir	0.0	0.0	0.0	0.0	0.0	0.0
Longleaf-slash pine	831.2	327.8	12.0	53.6	18.2	419.6
Loblolly-shortleaf pine	7,910.7	410.1	65.6	186.8	447.7	6,800.5
Other eastern softwoods	54.0	1.9	0.0	0.0	0.0	52.1
Total softwoods	8,795.9	739.8	77.6	240.4	465.9	7,272.2
Hardwood types						
Oak-pine	1,965.3	133.2	37.3	48.2	94.0	1,652.6
Oak-hickory	4,524.5	163.7	74.2	67.0	134.9	4,084.7
Oak-gum-cypress	2,526.6	111.5	229.5	99.7	67.7	2,018.3
Elm-ash-cottonwood	1,194.3	18.7	73.4	34.0	88.7	979.4
Other hardwoods	14.0	0.0	0.0	0.0	1.6	12.5
Exotic hardwoods	66.9	0.0	0.0	1.6	0.0	65.3
Total hardwoods	10,291.6	427.1	414.4	250.5	386.9	8,812.7
Nonstocked	244.0	2.5	13.9	6.0	18.2	203.4
All groups	19,331.5	1,169.4	505.9	496.8	871.0	16,288.3

Numbers in rows and columns may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.5—Area of forest land by forest-type group and stand-size class, Mississippi, 2017

Forest-type group	All classes	Stand-size class			
		Large diameter	Medium diameter	Small diameter	Non-stocked
	thousand acres				
Softwood types					
Spruce-fir	0.0	0.0	0.0	0.0	0.0
Longleaf-slash pine	831.2	587.2	117.4	126.6	0.0
Loblolly-shortleaf pine	7,910.7	4,683.1	2,227.5	1,000.1	0.0
Other eastern softwoods	54.0	22.5	18.5	13.0	0.0
Total softwoods	8,795.9	5,292.9	2,363.4	1,139.6	0.0
Hardwood types					
Oak-pine	1,965.3	1,064.2	424.8	476.3	0.0
Oak-hickory	4,524.5	2,475.0	828.1	1,221.5	0.0
Oak-gum-cypress	2,526.6	1,598.0	554.4	374.2	0.0
Elm-ash-cottonwood	1,194.3	741.8	249.9	202.6	0.0
Other hardwoods	14.0	3.0	1.6	9.4	0.0
Exotic hardwoods	66.9	7.9	13.7	45.3	0.0
Total hardwoods	10,291.6	5,889.8	2,072.3	2,329.4	0.0
Nonstocked	244.0	0.0	0.0	0.0	244.0
All groups	19,331.5	11,182.7	4,435.8	3,469.0	244.0

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.6—Area of forest land by forest-type group and stand-age class, Mississippi, 2017

Forest-type group	All classes	Stand-age class (years) 1–20	21–40	41–60	61–80	81–100	101–120	121–140	141–160	161–180	181–200	201+	Non-stocked
		thousand acres											
Softwood types													
Spruce-fir	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Longleaf-slash pine	831.2	132.9	260.6	250.1	167.0	20.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loblolly-shortleaf pine	7,910.7	3,519.6	3,395.9	651.1	293.2	51.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other eastern softwoods	54.0	19.8	16.7	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	8,795.9	3,672.3	3,673.2	918.6	460.2	71.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardwood types													
Oak-pine	1,965.3	639.7	598.2	470.8	232.9	20.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0
Oak-hickory	4,524.5	1,132.4	1,122.8	1,102.4	1,032.9	112.9	9.4	0.0	0.0	0.0	0.0	0.0	11.7
Oak-gum-cypress	2,526.6	466.7	532.2	684.6	694.7	143.7	4.7	0.0	0.0	0.0	0.0	0.0	0.0
Elm-ash-cottonwood	1,194.3	240.8	303.1	356.9	262.2	31.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other hardwoods	14.0	7.9	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exotic hardwoods	66.9	34.9	18.1	9.3	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total hardwoods	10,291.6	2,522.4	2,580.6	2,624.0	2,227.3	307.8	17.9	0.0	0.0	0.0	0.0	0.0	11.7
Nonstocked	244.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	244.0
All groups	19,331.5	6,194.6	6,253.7	3,542.6	2,687.5	379.5	17.9	0.0	0.0	0.0	0.0	0.0	255.7

Numbers in rows and columns may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.7—Area of forest land by forest-type group and stand origin, Mississippi, 2017

Forest-type group	Total	Stand origin	
		Natural stands	Artificial regeneration
	thousand acres		
Softwood types			
Spruce-fir	0.0	0.0	0.0
Longleaf-slash pine	831.2	652.6	178.6
Loblolly-shortleaf pine	7,910.7	2,869.5	5,041.2
Other eastern softwoods	54.0	52.5	1.6
Total softwoods	8,795.9	3,574.5	5,221.4
Hardwood types			
Oak-pine	1,965.3	1,594.4	371.0
Oak-hickory	4,524.5	4,301.4	223.1
Oak-gum-cypress	2,526.6	2,285.9	240.6
Elm-ash-cottonwood	1,194.3	1,171.3	22.9
Other hardwoods	14.0	14.0	0.0
Exotic hardwoods	66.9	66.9	0.0
Total hardwoods	10,291.6	9,434.0	857.6
Nonstocked	244.0	198.7	45.3
All groups	19,331.5	13,207.3	6,124.3

Numbers in rows and columns may not sum to totals due to rounding.
0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.8—Area of forest land disturbed annually by forest-type group and disturbance class, Mississippi, 2017

Forest-type group[b]	Disturbance class[a]							
	Insects	Disease	Weather	Fire	Domestic animals	Wild animals	Human	Other natural
	thousand acres							
Softwood types								
Longleaf-slash pine	0.0	0.2	0.6	25.9	0.0	0.0	0.0	0.0
Loblolly-shortleaf pine	11.5	1.0	6.5	68.4	5.3	3.4	3.3	3.8
Other eastern softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	11.5	1.1	7.1	94.3	5.3	3.4	3.3	3.8
Hardwood types								
Oak-pine	0.0	0.0	2.5	17.6	2.9	0.6	1.2	0.0
Oak-hickory	0.0	0.0	3.8	17.2	11.7	6.7	11.7	0.4
Oak-gum-cypress	0.0	0.0	8.6	1.3	2.3	5.0	1.7	0.0
Elm-ash-cottonwood	0.0	0.5	5.5	0.4	0.0	6.3	0.9	0.2
Other hardwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exotic hardwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total hardwoods	0.0	0.5	20.5	36.5	16.9	18.7	15.8	0.6
Nonstocked	0.0	0.0	0.2	0.4	0.0	1.2	0.0	0.0
All groups	11.5	1.6	27.8	131.2	22.2	23.3	19.1	4.4

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

[b] Based on past conditions.

Table B.9—Area of timberland by forest-type group and stand-size class, Mississippi, 2017

Forest-type group	All classes	Stand-size class: Large diameter	Medium diameter	Small diameter	Non-stocked
	thousand acres				
Softwood types					
Spruce-fir	0.0	0.0	0.0	0.0	0.0
Longleaf-slash pine	818.9	581.1	117.4	120.4	0.0
Loblolly-shortleaf pine	7,891.9	4,664.3	2,227.5	1,000.1	0.0
Other eastern softwoods	54.0	22.5	18.5	13.0	0.0
Total softwoods	8,764.8	5,268.0	2,363.4	1,133.4	0.0
Hardwood types					
Oak-pine	1,943.4	1,049.3	417.7	476.3	0.0
Oak-hickory	4,495.8	2,451.0	823.4	1,221.5	0.0
Oak-gum-cypress	2,438.1	1,538.8	533.5	365.7	0.0
Elm-ash-cottonwood	1,177.7	734.0	248.5	195.2	0.0
Other hardwoods	14.0	3.0	1.6	9.4	0.0
Exotic hardwoods	66.9	7.9	13.7	45.3	0.0
Total hardwoods	10,135.8	5,784.0	2,038.4	2,313.5	0.0
Nonstocked	238.0	0.0	0.0	0.0	238.0
All groups	19,138.6	11,052.0	4,401.8	3,446.9	238.0

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.10—Number of live trees on forest land by species group and diameter class, Mississippi, 2017

Species group	All classes	Diameter class (inches) 1.0–2.9	3.0–4.9	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–24.9	25.0–28.9	29.0–32.9	33.0–36.9	37.0+
	million trees															
Softwood																
Longleaf and slash pines	210.2	65.3	48.9	27.3	23.1	17.0	11.5	7.5	5.3	2.6	1.1	0.7	0.0	0.0	0.0	0.0
Loblolly and shortleaf pines	2,886.9	867.2	613.1	480.3	389.0	244.2	139.8	73.7	39.6	18.0	10.2	8.7	2.5	0.6	0.1	0.0
Other yellow pines	14.5	5.9	2.4	2.3	1.1	0.7	0.7	0.4	0.2	0.2	0.1	0.3	0.1	0.0	0.0	0.0
Cypress	47.2	19.7	13.5	4.9	3.1	1.7	1.1	0.8	0.6	0.4	0.3	0.4	0.2	0.3	0.1	0.1
Other eastern softwoods	158.2	88.4	35.3	15.8	7.9	4.9	2.7	1.8	0.7	0.4	0.1	0.1	0.0	0.0	0.0	0.0
Total softwoods	3,317.0	1,046.5	713.2	530.5	424.2	268.6	155.9	84.1	46.4	21.6	11.9	10.2	2.8	0.9	0.2	0.1
Hardwood																
Select white oaks	304.0	184.0	50.9	21.6	14.0	9.4	6.9	5.3	3.8	2.8	1.8	2.0	1.1	0.2	0.1	0.0
Select red oaks	135.2	72.6	23.9	10.0	6.7	4.9	3.7	3.1	2.1	1.9	1.9	2.0	1.5	0.6	0.1	0.3
Other white oaks	133.2	72.2	23.1	9.8	7.5	6.4	4.4	2.9	2.4	1.2	1.4	1.0	0.5	0.2	0.2	0.0
Other red oaks	1,520.7	1,059.5	237.2	81.6	43.7	25.4	20.0	14.6	10.7	8.7	6.6	7.1	2.9	1.4	0.6	0.5
Hickory	476.9	344.7	61.4	23.5	16.0	10.7	6.9	5.0	2.9	2.6	1.3	1.0	0.6	0.2	0.1	0.0
Hard maple	19.0	14.0	2.0	1.4	0.6	0.5	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Soft maple	918.6	726.4	130.5	32.6	15.4	6.8	3.7	1.6	0.8	0.5	0.2	0.1	0.0	0.0	0.0	0.0
Beech	72.2	50.6	9.7	4.0	2.2	1.3	0.9	0.8	0.7	0.5	0.4	0.4	0.3	0.3	0.0	0.0
Sweetgum	2,090.2	1,346.1	439.9	145.9	72.5	36.4	20.8	11.9	6.6	4.5	2.4	2.4	0.6	0.1	0.1	0.0
Tupelo and blackgum	546.5	365.5	89.6	35.5	23.4	12.9	8.5	4.9	2.9	2.0	0.8	0.3	0.1	0.1	0.0	0.0
Ash	366.0	249.3	69.6	20.7	10.3	5.0	3.9	2.1	2.2	0.9	0.6	0.7	0.4	0.1	0.0	0.1
Cottonwood and aspen	10.3	5.1	0.9	0.7	0.8	0.7	0.4	0.4	0.4	0.2	0.2	0.2	0.1	0.2	0.0	0.0
Basswood	6.6	4.0	1.4	0.2	0.4	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Yellow-poplar	234.2	118.5	53.0	20.8	14.3	9.4	5.8	3.5	3.0	2.3	1.5	1.3	0.7	0.1	0.1	0.0
Black walnut	2.4	0.9	0.0	0.4	0.3	0.3	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	1,628.3	1,120.7	279.4	103.0	53.1	29.9	16.1	10.7	6.1	3.9	2.6	1.8	0.9	0.1	0.1	0.0
Other eastern hard hardwoods	493.5	388.3	76.5	17.9	6.2	2.3	1.0	0.8	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0
Eastern noncommercial hardwoods	1,130.2	814.1	200.1	65.9	28.1	12.8	5.0	2.1	1.4	0.6	0.2	0.1	0.0	0.0	0.0	0.0
Total hardwoods	10,088.1	6,936.4	1,749.2	595.6	315.5	175.1	108.7	69.8	46.1	33.0	22.0	20.7	9.8	3.7	1.5	1.1
All species	13,405.1	7,982.9	2,462.4	1,126.1	739.8	443.6	264.6	153.9	92.5	54.6	33.9	30.9	12.6	4.5	1.7	1.2

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.11—Number of growing-stock trees on timberland by species group and diameter class, Mississippi, 2017

Species group	All classes	Diameter class (inches) 5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–24.9	25.0–28.9	29.0–32.9	33.0–36.9	37.0+
							million trees							
Softwood														
Longleaf and slash pines	91.5	25.4	22.0	16.4	11.0	7.2	5.1	2.5	1.1	0.7	0.0	0.0	0.0	0.0
Loblolly and shortleaf pines	1,306.2	442.7	361.7	226.9	131.1	69.4	37.1	16.8	9.6	8.0	2.3	0.5	0.1	0.0
Other yellow pines	4.9	1.6	0.9	0.5	0.6	0.3	0.2	0.2	0.1	0.3	0.1	0.0	0.0	0.0
Cypress	10.8	3.6	2.5	1.1	1.0	0.6	0.5	0.2	0.3	0.4	0.2	0.3	0.0	0.1
Other eastern softwoods	14.4	7.0	3.4	2.1	1.1	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	1,427.8	480.2	390.3	247.1	144.8	78.2	43.2	19.8	11.1	9.4	2.6	0.8	0.2	0.1
Hardwood														
Select white oaks	54.1	14.8	10.9	7.5	6.0	4.5	3.5	2.6	1.6	1.7	0.7	0.1	0.1	0.0
Select red oaks	30.4	7.4	4.7	3.9	2.9	2.7	1.7	1.6	1.7	1.9	1.3	0.6	0.1	0.1
Other white oaks	24.5	5.6	4.7	4.1	3.4	2.0	1.9	0.8	1.0	0.5	0.3	0.1	0.0	0.0
Other red oaks	157.3	53.3	30.4	17.8	14.3	11.5	8.5	6.9	5.6	5.6	2.1	0.9	0.3	0.3
Hickory	45.8	13.5	10.0	7.2	5.3	3.4	2.2	2.0	1.0	0.7	0.4	0.2	0.0	0.0
Hard maple	1.3	0.4	0.4	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Soft maple	19.1	9.8	4.7	2.3	1.0	0.6	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0
Beech	6.6	2.1	1.2	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.0	0.0	0.0
Sweetgum	211.9	96.5	50.3	26.4	16.0	9.4	5.1	3.6	1.9	1.8	0.6	0.1	0.1	0.0
Tupelo and blackgum	53.5	18.4	13.9	7.8	5.5	3.5	2.0	1.6	0.6	0.2	0.1	0.0	0.0	0.0
Ash	27.1	11.4	5.8	3.0	2.3	1.1	1.6	0.6	0.5	0.3	0.4	0.1	0.0	0.0
Cottonwood and aspen	2.5	0.3	0.5	0.4	0.3	0.2	0.2	0.0	0.1	0.2	0.1	0.1	0.0	0.0
Basswood	0.7	0.0	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Yellow-poplar	52.1	16.8	11.7	7.9	5.0	3.1	2.5	2.0	1.3	1.1	0.5	0.1	0.1	0.0
Black walnut	0.6	0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	98.6	38.9	23.6	13.4	7.9	5.8	3.5	2.3	1.6	0.9	0.6	0.0	0.0	0.0
Other eastern hard hardwoods	7.2	3.8	1.6	0.8	0.2	0.4	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Total hardwoods	793.3	293.3	174.6	103.6	70.9	48.8	33.5	25.0	17.5	15.2	7.2	2.3	0.8	0.5
All species	2,221.1	773.4	564.9	350.7	215.7	127.0	76.7	44.8	28.6	24.7	9.8	3.1	1.0	0.6

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

Table B.12—Net[a] volume of live trees on forest land by ownership class and land status, Mississippi, 2017

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timberland	Unproductive	Total	Productive	Unproductive
	million cubic feet						
U.S. Forest Service							
National forest	3,355.1	3,330.5	3,330.5	0.0	24.5	24.5	0.0
Total	3,355.1	3,330.5	3,330.5	0.0	24.5	24.5	0.0
Other Federal							
National Park Service	61.6	0.0	0.0	0.0	61.6	61.6	0.0
U.S. Fish and Wildlife Service	384.8	0.0	0.0	0.0	384.8	384.8	0.0
Dept. of Defense/Dept. of Energy	675.1	675.1	675.1	0.0	0.0	0.0	0.0
Other Federal	107.7	107.7	107.7	0.0	0.0	0.0	0.0
Total	1,229.2	782.7	782.7	0.0	446.5	446.5	0.0
State and local government							
State	577.6	554.0	554.0	0.0	23.6	23.6	0.0
Local	557.8	557.8	557.8	0.0	0.0	0.0	0.0
Total	1,135.3	1,111.7	1,111.7	0.0	23.6	23.6	0.0
Forest industry							
Corporate	1,271.1	1,271.1	1,271.1	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	7.5	7.5	7.5	0.0	0.0	0.0	0.0
Individual	37.6	37.6	37.6	0.0	0.0	0.0	0.0
Total	1,316.2	1,316.2	1,316.2	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	7,656.2	7,656.2	7,656.2	0.0	0.0	0.0	0.0
Conservation/natural resources organization	31.2	31.2	31.2	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	1,298.5	1,298.5	1,298.5	0.0	0.0	0.0	0.0
Native American	46.7	46.7	46.7	0.0	0.0	0.0	0.0
Individual	21,761.9	21,761.9	21,757.6	4.3	0.0	0.0	0.0
Total	30,794.5	30,794.5	30,790.2	4.3	0.0	0.0	0.0
All classes	37,830.3	37,335.7	37,331.4	4.3	494.6	494.6	0.0

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.13—Net[a] volume of live trees on forest land by forest-type group and stand-size class, Mississippi, 2017

Forest-type group	All classes	Stand-size class			
		Large diameter	Medium diameter	Small diameter	Non-stocked
	million cubic feet				
Softwood types					
Longleaf-slash pine	1,574.7	1,402.1	152.2	20.4	0.0
Loblolly-shortleaf pine	17,202.2	13,804.5	3,259.0	138.7	0.0
Other eastern softwoods	66.3	40.5	24.8	0.9	0.0
Total softwoods	18,843.3	15,247.1	3,436.1	160.0	0.0
Hardwood types					
Oak-pine	3,460.9	2,855.6	509.5	95.8	0.0
Oak-hickory	7,854.7	6,566.0	990.2	298.5	0.0
Oak-gum-cypress	5,615.3	4,810.9	727.8	76.6	0.0
Elm-ash-cottonwood	1,985.2	1,676.4	249.1	59.7	0.0
Other hardwoods	7.2	5.3	0.6	1.4	0.0
Exotic hardwoods	38.9	17.1	16.0	5.8	0.0
Total hardwoods	18,962.2	15,931.2	2,493.2	537.8	0.0
Nonstocked	24.8	0.0	0.0	0.0	24.8
All groups	37,830.3	31,178.3	5,929.3	697.9	24.8

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.14—Net[a] volume of live trees on forest land by species group and ownership group, Mississippi, 2017

Species group	All ownerships	Ownership group				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet					
Softwood						
Longleaf and slash pines	1,543.7	675.2	18.6	84.0	19.0	746.9
Loblolly and shortleaf pines	17,145.7	1,488.6	237.4	400.6	708.5	14,310.6
Other yellow pines	145.5	9.3	0.9	0.0	0.2	135.1
Cypress	313.6	1.6	31.0	64.9	3.7	212.4
Other eastern softwoods	255.2	7.0	8.1	11.1	2.6	226.4
Total softwoods	19,403.7	2,181.8	295.9	560.7	734.0	15,631.3
Hardwood						
Select white oaks	1,373.7	176.0	36.1	23.0	49.3	1,089.2
Select red oaks	1,274.5	52.4	97.0	57.0	49.2	1,018.9
Other white oaks	711.7	71.1	93.4	18.1	7.7	521.4
Other red oaks	4,267.2	262.9	184.1	143.4	90.7	3,586.2
Hickory	1,075.2	58.0	42.5	25.8	35.1	913.7
Hard maple	25.6	1.0	0.8	0.0	1.5	22.3
Soft maple	414.3	26.4	40.2	11.8	18.1	317.7
Beech	258.5	19.0	0.2	13.2	7.3	218.8
Sweetgum	3,107.7	153.9	183.7	119.7	69.0	2,581.4
Tupelo and blackgum	945.0	80.2	62.1	22.5	15.0	765.3
Ash	647.1	33.6	37.4	35.0	29.9	511.1
Cottonwood and aspen	147.6	6.6	4.6	0.0	0.5	135.8
Basswood	26.5	0.5	0.0	0.7	8.0	17.4
Yellow-poplar	1,109.7	87.3	16.4	17.2	59.2	929.5
Black walnut	16.9	0.1	0.0	0.0	3.4	13.4
Other eastern soft hardwoods	2,223.8	79.9	108.7	69.2	112.8	1,853.3
Other eastern hard hardwoods	162.3	12.4	9.3	6.0	4.0	130.6
Eastern noncommercial hardwoods	639.4	52.2	16.6	11.9	21.6	537.0
Total hardwoods	18,426.6	1,173.3	933.4	574.6	582.2	15,163.2
All species	37,830.3	3,355.1	1,229.2	1,135.3	1,316.2	30,794.5

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.15—Net[a] volume of live trees on forest land by species group and diameter class, Mississippi, 2017

Species group	All classes	Diameter class (inches) 5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–24.9	25.0–28.9	29.0–32.9	33.0–36.9	37.0+
							million cubic feet							
Softwood														
Longleaf and slash pines	1,543.7	82.4	171.7	228.9	252.4	243.8	238.9	156.5	87.1	74.3	7.9	0.0	0.0	0.0
Loblolly and shortleaf pines	17,145.7	1,260.7	2,574.1	3,064.8	2,886.3	2,279.6	1,734.6	1,065.5	789.0	911.8	398.4	129.0	35.8	16.2
Other yellow pines	145.5	7.9	7.5	9.7	13.8	11.3	10.7	15.5	9.6	29.4	11.4	7.8	10.9	0.0
Cypress	313.6	15.2	20.8	19.6	20.0	17.8	18.3	18.7	22.1	42.6	23.0	44.7	17.2	33.5
Other eastern softwoods	255.2	38.7	43.1	46.5	41.8	39.3	18.8	17.1	4.6	5.3	0.0	0.0	0.0	0.0
Total softwoods	19,403.7	1,405.0	2,817.2	3,369.4	3,214.3	2,591.7	2,021.2	1,273.3	912.3	1,063.5	440.8	181.5	63.8	49.6
Hardwood														
Select white oaks	1,373.7	59.2	91.8	111.7	134.2	148.6	157.1	154.8	127.3	191.1	130.8	28.4	24.1	14.6
Select red oaks	1,274.5	33.3	45.6	60.6	73.9	87.8	86.0	109.6	131.7	198.4	210.9	114.9	24.6	97.0
Other white oaks	711.7	25.4	45.2	66.8	78.3	73.8	82.4	55.0	76.5	74.4	57.1	31.0	31.1	14.7
Other red oaks	4,267.2	230.0	274.3	289.9	362.1	386.3	394.3	432.9	417.0	602.3	352.9	225.3	132.1	167.9
Hickory	1,075.2	54.6	92.2	116.4	126.2	135.3	113.7	131.0	83.5	95.4	74.6	38.5	13.8	0.0
Hard maple	25.6	3.2	3.7	5.8	4.7	2.6	2.2	3.5	0.0	0.0	0.0	0.0	0.0	0.0
Soft maple	414.3	91.8	87.8	70.0	57.2	36.0	22.5	23.2	12.3	10.0	3.5	0.0	0.0	0.0
Beech	258.5	10.4	13.0	14.4	16.0	21.3	21.7	22.7	23.7	32.0	39.7	32.2	2.5	8.9
Sweetgum	3,107.7	361.6	454.2	438.5	416.7	346.5	276.7	249.7	175.1	241.2	90.0	25.7	26.4	5.3
Tupelo and blackgum	945.0	99.6	143.1	146.3	147.1	121.4	100.4	96.8	44.1	22.6	11.5	11.2	1.0	0.0
Ash	647.1	59.5	67.9	61.2	73.0	59.3	80.5	44.6	38.9	58.2	57.6	11.9	7.4	27.0
Cottonwood and aspen	147.6	2.2	6.3	8.5	8.0	10.8	15.4	9.4	9.3	27.8	10.8	29.5	0.0	9.8
Basswood	26.5	0.7	2.6	1.5	2.8	2.5	0.0	6.6	2.9	0.0	7.0	0.0	0.0	0.0
Yellow-poplar	1,109.7	63.2	98.4	119.2	114.9	102.7	125.3	120.7	104.6	125.9	94.1	24.0	16.7	0.0
Black walnut	16.9	1.2	1.7	2.4	3.9	0.8	1.0	1.6	4.3	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	2,223.8	273.8	307.7	314.9	263.6	255.4	199.6	177.7	147.7	141.4	104.2	17.7	20.2	0.0
Other eastern hard hardwoods	162.3	42.9	32.6	24.1	14.9	16.0	6.0	3.0	9.0	13.6	0.0	0.0	0.0	0.0
Eastern noncommercial hardwoods	639.4	160.0	151.7	119.9	77.6	46.3	42.0	24.1	9.6	7.3	1.0	0.0	0.0	0.0
Total hardwoods	18,426.6	1,572.5	1,919.9	1,972.1	1,975.1	1,853.4	1,726.8	1,666.8	1,417.4	1,841.5	1,245.6	590.2	300.0	345.3
All species	37,830.3	2,977.5	4,737.1	5,341.5	5,189.4	4,445.2	3,748.0	2,940.1	2,329.7	2,905.0	1,686.4	771.8	363.8	394.9

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.16—Net[a] volume of live trees on forest land by forest-type group and stand origin, Mississippi, 2017

Forest-type group	Total	Stand origin	
		Natural stands	Artificial regeneration
	million cubic feet		
Softwood types			
Longleaf-slash pine	1,574.7	1,292.6	282.1
Loblolly-shortleaf pine	17,202.2	7,400.7	9,801.6
Other eastern softwoods	66.3	63.6	2.7
Total softwoods	18,843.3	8,756.9	10,086.4
Hardwood types			
Oak-pine	3,460.9	3,171.7	289.2
Oak-hickory	7,854.7	7,764.8	89.9
Oak-gum-cypress	5,615.3	5,522.2	93.1
Elm-ash-cottonwood	1,985.2	1,974.0	11.2
Other hardwoods	7.2	7.2	0.0
Exotic hardwoods	38.9	38.9	0.0
Total hardwoods	18,962.2	18,478.8	483.4
Nonstocked	24.8	23.4	1.4
All groups	37,830.3	27,259.1	10,571.2

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.17—Net[a] volume of growing-stock trees on timberland by species group and diameter class, Mississippi, 2017

Species group	All classes	Diameter class (inches) 5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–24.9	25.0–28.9	29.0–32.9	33.0–36.9	37.0+
							million cubic feet							
Softwood														
Longleaf and slash pines	1,490.4	77.1	164.8	221.5	242.6	236.1	230.8	153.6	84.4	71.7	7.9	0.0	0.0	0.0
Loblolly and shortleaf pines	16,092.8	1,170.1	2,405.0	2,860.1	2,722.0	2,159.9	1,634.1	1,005.1	751.2	846.5	375.9	111.1	35.8	16.2
Other yellow pines	133.5	5.6	5.7	6.7	11.8	10.2	9.0	15.5	9.6	29.4	11.4	7.8	10.9	0.0
Cypress	262.1	11.8	17.3	14.2	17.5	14.9	16.0	11.0	19.0	42.6	23.0	44.7	10.0	20.2
Other eastern softwoods	100.5	18.4	19.5	22.1	16.9	14.4	5.6	0.5	0.8	2.2	0.0	0.0	0.0	0.0
Total softwoods	18,079.2	1,283.0	2,612.3	3,124.6	3,010.8	2,435.3	1,895.5	1,185.7	864.9	992.4	418.2	163.6	56.6	36.4
Hardwood														
Select white oaks	1,151.1	43.5	73.9	91.4	119.7	129.7	145.6	145.0	115.6	164.9	87.2	20.2	14.4	0.0
Select red oaks	1,064.0	25.6	32.2	51.8	57.5	76.9	73.7	90.7	118.9	183.6	185.9	106.4	15.2	45.5
Other white oaks	481.2	15.4	30.0	45.6	59.5	53.6	67.0	41.7	60.7	44.0	37.0	16.2	10.4	0.0
Other red oaks	3,276.6	156.7	198.8	211.5	270.5	313.8	323.3	353.4	363.1	493.0	271.3	149.6	75.2	96.3
Hickory	795.0	33.8	60.9	80.9	99.6	95.4	90.4	103.2	71.7	63.5	53.7	33.1	8.6	0.0
Hard maple	14.8	1.0	2.3	3.4	2.3	0.9	1.4	3.5	0.0	0.0	0.0	0.0	0.0	0.0
Soft maple	153.7	29.5	30.5	25.8	18.0	15.2	9.0	16.9	4.6	4.3	0.0	0.0	0.0	0.0
Beech	165.8	5.8	7.9	8.0	11.1	12.5	13.1	19.7	17.2	27.2	28.9	5.5	0.0	8.9
Sweetgum	2,398.7	249.7	326.5	327.7	327.0	281.0	217.7	207.8	146.4	179.0	88.6	25.7	16.4	5.3
Tupelo and blackgum	637.2	55.2	91.3	91.9	100.1	90.5	70.0	79.8	32.7	14.2	11.5	0.0	0.0	0.0
Ash	411.6	34.7	41.6	39.3	44.2	33.0	60.2	31.9	33.9	25.7	47.7	11.9	7.4	0.0
Cottonwood and aspen	95.2	1.1	3.5	5.4	6.0	6.7	9.9	1.2	4.3	24.4	9.6	23.2	0.0	0.0
Basswood	23.0	0.1	1.9	1.0	2.2	1.5	0.0	6.6	2.9	0.0	7.0	0.0	0.0	0.0
Yellow-poplar	961.4	53.1	82.9	103.5	101.7	92.8	103.8	108.8	96.4	110.8	74.2	16.7	16.7	0.0
Black walnut	5.9	0.6	0.2	1.6	2.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	1,197.7	112.6	150.5	154.0	139.8	148.8	124.5	109.3	97.4	80.1	72.4	1.8	6.5	0.0
Other eastern hard hardwoods	65.7	11.2	9.7	11.4	4.0	8.5	4.7	1.0	7.2	8.1	0.0	0.0	0.0	0.0
Total hardwoods	12,898.5	829.4	1,144.6	1,254.3	1,365.9	1,361.8	1,314.1	1,320.5	1,172.8	1,423.0	975.0	410.3	170.8	155.9
All species	30,977.8	2,112.4	3,756.9	4,378.8	4,376.7	3,797.1	3,209.6	2,506.2	2,037.7	2,415.4	1,393.2	573.9	227.5	192.3

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.18—Net[a] volume of growing-stock trees on timberland by species group and ownership group, Mississippi, 2017

Species group	All ownerships	Ownership group				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet					
Softwood						
Longleaf and slash pines	1,490.4	653.8	7.8	81.2	17.4	730.1
Loblolly and shortleaf pines	16,092.8	1,437.8	145.2	378.0	661.9	13,470.0
Other yellow pines	133.5	8.1	0.9	0.0	0.2	124.4
Cypress	262.1	1.6	17.7	61.2	1.5	180.1
Other eastern softwoods	100.5	3.0	5.0	2.6	0.7	89.1
Total softwoods	18,079.2	2,104.3	176.5	523.0	681.7	14,593.8
Hardwood						
Select white oaks	1,151.1	161.0	15.4	14.4	38.6	921.6
Select red oaks	1,064.0	50.2	43.3	46.9	48.1	875.6
Other white oaks	481.2	59.4	40.1	7.2	4.0	370.6
Other red oaks	3,276.6	220.5	102.3	113.4	59.6	2,780.7
Hickory	795.0	46.9	17.2	19.7	26.8	684.4
Hard maple	14.8	0.4	0.0	0.0	0.9	13.5
Soft maple	153.7	10.3	18.5	4.6	2.5	117.8
Beech	165.8	15.3	0.0	4.9	3.9	141.7
Sweetgum	2,398.7	134.7	92.9	93.6	51.1	2,026.5
Tupelo and blackgum	637.2	50.0	40.9	16.1	10.2	520.0
Ash	411.6	25.2	22.4	25.8	15.7	322.6
Cottonwood and aspen	95.2	5.5	0.4	0.0	0.5	88.8
Basswood	23.0	0.5	0.0	0.0	7.7	14.8
Yellow-poplar	961.4	74.4	13.3	14.6	44.1	815.0
Black walnut	5.9	0.1	0.0	0.0	0.1	5.7
Other eastern soft hardwoods	1,197.7	54.0	40.3	27.3	74.7	1,001.4
Other eastern hard hardwoods	65.7	4.8	0.8	0.8	2.4	56.9
Total hardwoods	12,898.5	913.0	447.7	389.3	391.0	10,757.5
All species	30,977.8	3,017.3	624.2	912.3	1,072.8	25,351.2

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.19—Net[a] volume of sawtimber trees on timberland by species group and diameter class, Mississippi, 2017

Species group	All classes	Diameter class (inches) 9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–24.9	25.0–28.9	29.0–32.9	33.0–36.9	37.0+
		million board feet										
Softwood												
Longleaf and slash pines	6,562.6	842.8	1,133.8	1,251.1	1,326.4	937.9	539.2	475.4	56.0	0.0	0.0	0.0
Loblolly and shortleaf pines	63,386.5	10,331.3	12,317.9	11,174.5	9,242.5	6,069.0	4,759.8	5,638.6	2,640.6	812.1	268.3	131.9
Other yellow pines	718.4	27.3	55.6	52.8	49.3	90.8	57.9	183.4	74.9	52.0	74.5	0.0
Cypress	1,268.1	42.5	66.2	64.6	76.3	56.7	102.3	242.8	138.4	280.1	64.2	134.1
Other eastern softwoods	300.0	90.4	80.4	75.5	31.5	3.2	4.7	14.3	0.0	0.0	0.0	0.0
Total softwoods	72,235.6	11,334.3	13,653.8	12,618.6	10,726.1	7,157.6	5,463.9	6,554.3	2,909.8	1,144.3	407.0	266.0
Hardwood												
Select white oaks	4,462.0	0.0	413.7	520.4	649.3	696.9	590.9	890.2	494.5	119.1	87.1	0.0
Select red oaks	5,373.1	0.0	193.8	318.1	347.7	466.6	654.5	1,072.1	1,176.7	717.4	106.1	320.1
Other white oaks	1,886.4	0.0	215.9	227.0	310.0	207.6	314.4	239.4	214.2	94.8	63.2	0.0
Other red oaks	14,007.3	0.0	1,021.5	1,347.9	1,513.1	1,772.6	1,921.5	2,758.9	1,620.6	939.6	475.0	636.6
Hickory	2,933.2	0.0	346.0	387.3	409.3	505.0	369.2	349.0	311.9	201.6	53.9	0.0
Hard maple	33.6	0.0	8.1	3.5	5.9	16.1	0.0	0.0	0.0	0.0	0.0	0.0
Soft maple	276.0	0.0	59.5	57.7	38.0	77.0	21.7	22.0	0.0	0.0	0.0	0.0
Beech	582.5	0.0	40.6	47.4	51.0	78.2	69.6	111.9	121.8	23.6	0.0	38.3
Sweetgum	7,268.3	0.0	1,169.3	1,201.7	1,048.8	1,090.7	815.6	1,061.5	560.9	170.5	111.6	37.7
Tupelo and blackgum	1,614.2	0.0	313.4	339.0	298.1	366.0	159.8	74.5	63.5	0.0	0.0	0.0
Ash	1,376.0	0.0	143.2	127.9	264.6	150.4	170.0	135.0	269.6	70.4	44.8	0.0
Cottonwood and aspen	469.1	0.0	20.8	28.7	45.7	6.3	22.7	141.0	57.8	146.3	0.0	0.0
Basswood	96.8	0.0	7.2	5.9	0.0	30.9	14.1	0.0	38.6	0.0	0.0	0.0
Yellow-poplar	3,802.0	0.0	363.3	404.4	507.3	586.6	549.3	675.8	484.0	114.4	117.0	0.0
Black walnut	11.9	0.0	9.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	3,530.4	0.0	480.6	593.1	554.0	521.6	493.4	429.0	408.9	10.2	39.4	0.0
Other eastern hard hardwoods	146.3	0.0	14.1	32.9	19.2	4.5	34.9	40.6	0.0	0.0	0.0	0.0
Total hardwoods	47,869.1	0.0	4,819.9	5,645.7	6,062.1	6,576.9	6,201.8	8,001.0	5,823.0	2,607.9	1,098.1	1,032.7
All species	120,104.8	11,334.3	18,473.7	18,264.3	16,788.2	13,734.6	11,665.7	14,555.3	8,732.8	3,752.2	1,505.1	1,298.7

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.20—Net[a] volume of sawtimber trees on timberland by species group and ownership group, Mississippi, 2017

Species group	All ownerships	Ownership group				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million board feet					
Softwood						
Longleaf and slash pines	6,562.6	3,041.4	42.8	352.5	64.3	3,061.5
Loblolly and shortleaf pines	63,386.5	7,556.2	802.9	1,969.4	2,416.7	50,641.3
Other yellow pines	718.4	43.9	4.0	0.0	0.0	670.6
Cypress	1,268.1	5.7	59.9	328.4	4.9	869.2
Other eastern softwoods	300.0	12.3	20.2	0.0	2.8	264.7
Total softwoods	72,235.6	10,659.4	929.9	2,650.3	2,488.8	55,507.3
Hardwood						
Select white oaks	4,462.0	644.8	53.6	56.6	143.8	3,563.2
Select red oaks	5,373.1	245.1	172.2	271.1	269.3	4,415.3
Other white oaks	1,886.4	214.8	206.1	24.3	11.2	1,430.0
Other red oaks	14,007.3	998.3	477.5	561.6	227.4	11,742.4
Hickory	2,933.2	159.7	66.7	81.8	120.7	2,504.4
Hard maple	33.6	0.0	0.0	0.0	0.0	33.6
Soft maple	276.0	11.2	49.2	6.1	0.0	209.6
Beech	582.5	51.4	0.0	16.9	11.3	502.9
Sweetgum	7,268.3	497.2	362.8	338.5	171.1	5,898.8
Tupelo and blackgum	1,614.2	100.6	115.1	25.4	31.6	1,341.5
Ash	1,376.0	99.9	76.6	127.0	77.7	994.7
Cottonwood and aspen	469.1	32.4	0.0	0.0	0.0	436.7
Basswood	96.8	1.9	0.0	0.0	38.6	56.2
Yellow-poplar	3,802.0	309.3	59.0	39.6	185.7	3,208.6
Black walnut	11.9	0.0	0.0	0.0	0.0	11.9
Other eastern soft hardwoods	3,530.4	135.3	138.1	82.1	257.1	2,917.9
Other eastern hard hardwoods	146.3	7.3	3.2	0.0	6.3	129.5
Total hardwoods	47,869.1	3,509.1	1,780.1	1,631.0	1,551.9	39,397.1
All species	120,104.8	14,168.5	2,710.0	4,281.2	4,040.7	94,904.4

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Excludes rotten, missing, and form cull defects volume.

Table B.21—Aboveground dry weight[a] of live trees on forest land by ownership class and land status, Mississippi, 2017

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timberland	Unproductive	Total	Productive	Unproductive
	thousand tons						
U.S. Forest Service							
National forest	83,383.7	82,794.8	82,794.8	0.0	588.9	588.9	0.0
Total	83,383.7	82,794.8	82,794.8	0.0	588.9	588.9	0.0
Other Federal							
National Park Service	1,599.1	0.0	0.0	0.0	1,599.1	1,599.1	0.0
U.S. Fish and Wildlife Service	10,587.6	0.0	0.0	0.0	10,587.6	10,587.6	0.0
Dept. of Defense/Dept. of Energy	17,547.9	17,547.9	17,547.9	0.0	0.0	0.0	0.0
Other Federal	2,886.7	2,886.7	2,886.7	0.0	0.0	0.0	0.0
Total	32,621.4	20,434.7	20,434.7	0.0	12,186.7	12,186.7	0.0
State and local government							
State	15,158.1	14,492.5	14,492.5	0.0	665.6	665.6	0.0
Local	14,925.1	14,925.1	14,925.1	0.0	0.0	0.0	0.0
Total	30,083.2	29,417.6	29,417.6	0.0	665.6	665.6	0.0
Forest industry							
Corporate	33,971.7	33,971.7	33,971.7	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	205.8	205.8	205.8	0.0	0.0	0.0	0.0
Individual	1,134.6	1,134.6	1,134.6	0.0	0.0	0.0	0.0
Total	35,312.1	35,312.1	35,312.1	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	199,675.5	199,675.5	199,675.5	0.0	0.0	0.0	0.0
Conservation/natural resources organization	819.7	819.7	819.7	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	34,390.3	34,390.3	34,390.3	0.0	0.0	0.0	0.0
Native American	1,188.4	1,188.4	1,188.4	0.0	0.0	0.0	0.0
Individual	583,062.9	583,062.9	582,891.1	171.8	0.0	0.0	0.0
Total	819,136.7	819,136.7	818,965.0	171.8	0.0	0.0	0.0
All classes	1,000,537.1	987,095.8	986,924.0	171.8	13,441.2	13,441.2	0.0

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Calculations based on TREE_REGIONAL_BIOMASS.REGIONAL_DRYBIOT.

Table B.21.1—Aboveground green weight[a] of live trees on forest land by ownership class and land status, Mississippi, 2017

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timberland	Unproductive	Total	Productive	Unproductive
	thousand tons						
U.S. Forest Service							
National forest	166,767.3	165,589.5	165,589.5	0.0	1,177.8	1,177.8	0.0
Total	166,767.3	165,589.5	165,589.5	0.0	1,177.8	1,177.8	0.0
Other Federal							
National Park Service	3,198.2	0.0	0.0	0.0	3,198.2	3,198.2	0.0
U.S. Fish and Wildlife Service	21,175.2	0.0	0.0	0.0	21,175.2	21,175.2	0.0
Dept. of Defense/Dept. of Energy	35,095.9	35,095.9	35,095.9	0.0	0.0	0.0	0.0
Other Federal	5,773.5	5,773.5	5,773.5	0.0	0.0	0.0	0.0
Total	65,242.9	40,869.4	40,869.4	0.0	24,373.5	24,373.5	0.0
State and local government							
State	30,316.1	28,985.0	28,985.0	0.0	1,331.1	1,331.1	0.0
Local	29,850.2	29,850.2	29,850.2	0.0	0.0	0.0	0.0
Total	60,166.3	58,835.2	58,835.2	0.0	1,331.1	1,331.1	0.0
Forest industry							
Corporate	67,943.3	67,943.3	67,943.3	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	411.6	411.6	411.6	0.0	0.0	0.0	0.0
Individual	2,269.2	2,269.2	2,269.2	0.0	0.0	0.0	0.0
Total	70,624.1	70,624.1	70,624.1	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	399,351.1	399,351.1	399,351.1	0.0	0.0	0.0	0.0
Conservation/natural resources organization	1,639.3	1,639.3	1,639.3	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	68,780.6	68,780.6	68,780.6	0.0	0.0	0.0	0.0
Native American	2,376.7	2,376.7	2,376.7	0.0	0.0	0.0	0.0
Individual	1,166,125.8	1,166,125.8	1,165,782.2	343.6	0.0	0.0	0.0
Total	1,638,273.5	1,638,273.5	1,637,929.9	343.6	0.0	0.0	0.0
All classes	2,001,074.1	1,974,191.7	1,973,848.1	343.6	26,882.4	26,882.4	0.0

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Calculations based on TREE_REGIONAL_BIOMASS.REGIONAL_DRYBIOT.

Table B.22—Aboveground dry weight[a] of live trees on forest land by species group and diameter class, Mississippi, 2017

Species group	All classes	Diameter class (inches) 1.0–2.9	3.0–4.9	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–24.9	25.0–28.9	29.0–32.9	33.0–36.9	37.0+
								thousand tons								
Softwood																
Longleaf and slash pines	37,632.9	347.4	1,407.3	2,120.7	4,056.3	5,300.7	5,815.9	5,610.7	5,480.3	3,599.6	2,001.7	1,715.6	176.7	0.0	0.0	0.0
Loblolly and shortleaf pines	396,963.8	2,841.7	10,882.6	33,157.7	59,420.1	67,970.1	63,059.6	49,493.5	37,554.8	23,054.3	17,072.7	19,828.3	8,665.4	2,831.9	788.2	342.9
Other yellow pines	3,104.6	23.4	69.4	150.2	148.3	196.2	285.4	235.6	219.9	322.8	198.2	614.7	247.4	168.7	224.4	0.0
Cypress	8,162.6	77.1	346.9	263.8	383.7	377.2	420.0	388.4	434.1	443.9	551.2	1,085.5	609.4	1,197.6	510.4	1,073.5
Other eastern softwoods	7,041.9	334.1	664.2	1,101.5	1,045.1	1,068.6	942.5	880.8	413.9	377.0	99.8	114.4	0.0	0.0	0.0	0.0
Total softwoods	452,905.8	3,623.6	13,370.5	36,793.9	65,053.4	74,912.8	70,523.4	56,608.9	44,103.1	27,797.6	19,923.6	23,358.5	9,699.0	4,198.2	1,523.0	1,416.4
Hardwood																
Select white oaks	41,883.0	795.4	1,252.2	1,615.6	2,443.7	3,000.9	3,664.2	4,154.9	4,487.1	4,505.3	3,750.3	5,818.7	4,107.6	890.3	828.5	568.4
Select red oaks	39,684.0	368.6	650.7	816.9	1,149.3	1,590.8	2,023.5	2,490.0	2,498.3	3,279.4	3,970.3	6,073.2	6,669.7	3,807.7	819.8	3,475.9
Other white oaks	22,399.4	250.2	522.5	723.1	1,244.1	1,875.7	2,230.3	2,167.3	2,451.8	1,691.9	2,354.2	2,370.4	1,839.8	1,051.6	1,071.8	554.9
Other red oaks	135,704.8	4,960.7	5,999.4	6,605.9	7,580.0	7,920.9	10,040.4	10,915.0	11,267.0	12,605.2	12,214.2	18,239.9	10,698.2	7,083.3	4,105.4	5,469.5
Hickory	32,930.1	1,363.7	1,579.6	1,533.6	2,394.4	3,041.2	3,338.6	3,644.9	3,155.1	3,680.9	2,396.4	2,817.1	2,321.0	1,222.8	440.8	0.0
Hard maple	828.3	41.7	45.7	93.0	102.9	165.3	134.6	73.7	68.4	102.9	0.0	0.0	0.0	0.0	0.0	0.0
Soft maple	16,857.4	3,011.2	3,264.3	2,412.0	2,256.8	1,745.8	1,461.8	921.3	580.5	566.1	310.8	241.6	85.1	0.0	0.0	0.0
Beech	8,749.0	191.8	229.5	271.8	335.0	367.4	432.4	603.0	646.9	702.5	766.0	1,009.0	1,413.8	1,246.0	237.9	296.1
Sweetgum	86,469.4	5,072.9	9,220.3	9,323.8	10,270.1	9,658.3	9,218.5	7,832.6	6,309.8	5,819.8	4,136.8	5,903.3	2,204.0	655.1	711.1	133.0
Tupelo and blackgum	24,284.5	1,428.8	1,941.7	2,034.1	2,895.8	3,000.4	3,165.8	2,738.9	2,358.6	2,358.4	1,084.2	618.5	278.3	332.6	48.4	0.0
Ash	14,832.2	921.7	1,465.5	1,482.9	1,477.3	1,225.8	1,407.2	1,101.6	1,474.4	804.5	691.6	1,016.0	935.5	199.5	115.2	513.4
Cottonwood and aspen	3,526.8	21.6	17.6	46.1	129.6	180.0	170.2	231.9	337.0	224.0	221.9	662.7	261.5	741.2	0.0	281.4
Basswood	626.3	18.7	37.6	12.7	52.1	29.9	58.4	54.5	0.0	141.6	62.0	0.0	158.8	0.0	0.0	0.0
Yellow-poplar	25,671.2	543.6	1,269.0	1,377.4	2,028.0	2,410.7	2,338.9	2,151.6	2,683.0	2,673.8	2,296.9	2,804.9	2,131.0	581.0	381.3	0.0
Black walnut	558.9	8.2	0.0	33.4	51.9	80.2	119.7	26.5	34.9	52.4	151.8	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	61,773.6	4,319.1	6,310.9	5,963.5	6,621.7	6,805.6	5,867.3	5,889.7	4,729.4	4,245.6	3,669.6	3,528.9	2,663.0	550.2	609.0	0.0
Other eastern hard hardwoods	8,268.0	1,724.2	1,886.9	1,186.8	888.8	672.7	417.9	478.0	201.2	86.7	276.8	447.9	0.0	0.0	0.0	0.0
Eastern noncommercial hardwoods	22,584.1	3,430.4	4,520.4	4,033.9	3,406.4	2,572.5	1,648.5	1,028.9	942.2	572.8	234.5	169.2	24.4	0.0	0.0	0.0
Total hardwoods	547,631.3	28,472.5	40,213.8	39,566.7	45,328.0	46,344.1	47,738.5	46,504.3	44,225.6	44,113.9	38,588.2	51,721.3	35,791.7	18,361.3	9,369.2	11,292.5
All species	1,000,537.1	32,096.1	53,584.3	76,360.6	110,381.3	121,256.8	118,261.9	103,113.1	88,328.7	71,911.5	58,511.8	75,079.8	45,490.6	22,559.4	10,892.2	12,708.9

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Calculations based on TREE_REGIONAL_BIOMASS.REGIONAL_DRYBIOT.

Table B.23—Total carbon[a] of live trees on forest land by ownership class and land status, Mississippi, 2017

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timber-land	Unpro-ductive	Total	Pro-ductive	Unpro-ductive
	thousand tons						
U.S. Forest Service							
National forest	41,691.8	41,397.4	41,397.4	0.0	294.5	294.5	0.0
Total	41,691.8	41,397.4	41,397.4	0.0	294.5	294.5	0.0
Other Federal							
National Park Service	799.6	0.0	0.0	0.0	799.6	799.6	0.0
U.S. Fish and Wildlife Service	5,293.8	0.0	0.0	0.0	5,293.8	5,293.8	0.0
Dept. of Defense/Dept. of Energy	8,774.0	8,774.0	8,774.0	0.0	0.0	0.0	0.0
Other Federal	1,443.4	1,443.4	1,443.4	0.0	0.0	0.0	0.0
Total	16,310.7	10,217.3	10,217.3	0.0	6,093.4	6,093.4	0.0
State and local government							
State	7,579.0	7,246.3	7,246.3	0.0	332.8	332.8	0.0
Local	7,462.6	7,462.6	7,462.6	0.0	0.0	0.0	0.0
Total	15,041.6	14,708.8	14,708.8	0.0	332.8	332.8	0.0
Forest industry							
Corporate	16,985.8	16,985.8	16,985.8	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	102.9	102.9	102.9	0.0	0.0	0.0	0.0
Individual	567.3	567.3	567.3	0.0	0.0	0.0	0.0
Total	17,656.0	17,656.0	17,656.0	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	99,837.8	99,837.8	99,837.8	0.0	0.0	0.0	0.0
Conservation/natural resources organization	409.8	409.8	409.8	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	17,195.1	17,195.1	17,195.1	0.0	0.0	0.0	0.0
Native American	594.2	594.2	594.2	0.0	0.0	0.0	0.0
Individual	291,531.5	291,531.5	291,445.6	85.9	0.0	0.0	0.0
Total	409,568.4	409,568.4	409,482.5	85.9	0.0	0.0	0.0
All classes	500,268.5	493,547.9	493,462.0	85.9	6,720.6	6,720.6	0.0

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Estimates of carbon calculated by multiplying aboveground dry tree biomass by 0.5. Calculations based on TREE_REGIONAL_BIOMASS.REGIONAL_DRYBIOT.

Table B.24—Average annual net growth of live trees by ownership class and land status, Mississippi, 2017 (2006–2012 to 2009–2017)

Ownership class[a]	Timberland	Forest land
	million cubic feet per year	
U.S. Forest Service		
National forest	78.6	78.9
Total	78.6	78.9
Other Federal		
National Park Service	0.0	0.1
U.S. Fish and Wildlife Service	0.6	9.6
Dept. of Defense/Dept. of Energy	20.6	20.1
Other Federal	1.1	1.1
Total	22.3	31.0
State and local government		
State	12.9	13.6
Local	24.5	24.5
Total	37.4	38.2
Forest industry		
Corporate	89.5	89.5
Unincorporated local partnership/association/club	0.9	0.9
Individual	1.9	1.9
Total	92.3	92.3
Nonindustrial private		
Corporate	492.7	492.7
Conservation/natural resources organization	0.0	0.0
Unincorporated local partnership/association/club	69.8	69.1
Native American	1.1	1.1
Individual	1,241.6	1,241.3
Total	1,805.2	1,804.2
All classes	2,035.8	2,044.6

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table B.25—Average annual net growth of live trees on forest land by forest-type group and stand-size class, Mississippi, 2017 (2006–2012 to 2009–2017)

Forest-type group[a]	All classes	Stand-size class[a]			
		Large diameter	Medium diameter	Small diameter	Non-stocked
	million cubic feet per year				
Softwood types					
Longleaf-slash pine	54.1	32.7	16.3	5.1	0.0
Loblolly-shortleaf pine	1,256.1	466.7	590.8	198.6	0.0
Other eastern softwoods	5.9	1.8	2.1	2.1	0.0
Total softwoods	1,316.1	501.2	609.1	205.8	0.0
Hardwood types					
Oak-pine	199.6	83.0	50.6	66.0	0.0
Oak-hickory	307.7	148.0	82.6	77.1	0.0
Oak-gum-cypress	143.9	93.1	30.0	20.8	0.0
Elm-ash-cottonwood	69.4	36.4	19.9	13.2	0.0
Other hardwoods	0.2	0.0	0.0	0.2	0.0
Exotic hardwoods	2.8	0.0	1.1	1.7	0.0
Total hardwoods	723.6	360.5	184.2	178.9	0.0
Nonstocked	4.9	0.0	0.0	0.0	4.9
All groups	2,044.6	861.6	793.3	384.7	4.9

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on past conditions.

Table B.26—Average annual net growth of live trees on forest land by species group and ownership group, Mississippi, 2017 (2006–2012 to 2009–2017)

Species group	All ownerships	Ownership group[a]				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet per year					
Softwood						
Longleaf and slash pines	58.9	17.1	0.9	3.2	2.0	35.7
Loblolly and shortleaf pines	1,370.5	42.5	9.5	21.2	71.1	1,226.3
Other yellow pines	7.0	0.5	0.1	-0.3	0.0	6.6
Cypress	13.1	0.1	1.0	1.7	0.3	10.0
Other eastern softwoods	10.4	0.3	0.2	0.9	0.0	9.0
Total softwoods	1,459.8	60.5	11.7	26.7	73.3	1,287.6
Hardwood						
Select white oaks	45.4	4.4	1.1	0.9	1.7	37.3
Select red oaks	39.9	0.8	2.6	1.5	1.1	34.0
Other white oaks	13.7	1.0	1.3	0.3	0.3	10.8
Other red oaks	130.6	2.8	5.4	0.5	2.1	119.8
Hickory	22.5	1.1	-0.2	-0.1	1.2	20.5
Hard maple	1.0	0.0	0.0	0.0	0.1	0.9
Soft maple	12.2	-0.3	0.7	0.1	0.7	11.1
Beech	6.4	0.0	0.0	0.3	-0.6	6.7
Sweetgum	120.2	2.4	3.4	4.1	4.3	106.0
Tupelo and blackgum	22.9	1.1	0.9	-0.1	0.2	20.7
Ash	21.2	0.7	0.4	1.0	0.6	18.5
Cottonwood and aspen	7.1	0.0	-0.5	0.0	0.1	7.6
Basswood	0.1	0.0	0.0	0.0	0.3	-0.2
Yellow-poplar	42.5	1.8	0.1	1.1	2.8	36.6
Black walnut	0.6	0.0	0.0	0.0	0.1	0.5
Other eastern soft hardwoods	77.7	2.0	3.2	1.5	3.1	67.8
Other eastern hard hardwoods	1.5	0.1	0.1	0.4	0.0	0.9
Eastern noncommercial hardwoods	19.2	0.4	0.7	0.1	1.0	17.0
Total hardwoods	584.8	18.5	19.3	11.4	19.0	516.6
All species	2,044.6	78.9	31.0	38.2	92.3	1,804.2

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table B.27—Average annual net growth of growing-stock trees on timberland by species group and ownership group, Mississippi, 2017 (2006–2012 to 2009–2017)

Species group	All ownerships	Ownership group[a]				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet per year					
Softwood						
Longleaf and slash pines	56.9	16.7	0.3	3.1	1.9	34.9
Loblolly and shortleaf pines	1,294.1	41.0	6.4	20.6	66.5	1,159.5
Other yellow pines	6.0	0.3	0.1	-0.3	0.0	5.8
Cypress	10.5	0.1	0.6	1.8	0.2	7.9
Other eastern softwoods	4.3	0.1	0.1	0.2	0.0	4.0
Total softwoods	1,371.7	58.2	7.6	25.5	68.5	1,211.9
Hardwood						
Select white oaks	38.0	4.1	0.5	0.7	1.4	31.3
Select red oaks	33.8	0.7	1.7	1.1	1.0	29.3
Other white oaks	10.1	0.6	0.8	-0.2	0.2	8.8
Other red oaks	99.9	4.1	2.6	0.7	1.1	91.5
Hickory	20.6	1.1	0.4	-0.3	0.7	18.8
Hard maple	0.5	0.0	0.0	0.0	0.1	0.4
Soft maple	4.9	-0.4	0.1	0.0	0.1	5.1
Beech	4.5	0.2	0.0	0.1	0.1	4.2
Sweetgum	90.3	1.9	1.8	3.1	3.4	80.1
Tupelo and blackgum	13.8	0.7	0.4	-0.1	0.0	12.8
Ash	12.4	0.6	0.5	0.8	0.2	10.3
Cottonwood and aspen	4.5	0.0	0.1	0.0	0.1	4.4
Basswood	0.3	0.0	0.0	0.0	0.2	0.0
Yellow-poplar	37.2	1.6	0.6	0.9	2.1	32.1
Black walnut	0.3	0.0	0.0	0.0	0.0	0.3
Other eastern soft hardwoods	38.0	1.4	0.8	0.3	1.5	34.0
Other eastern hard hardwoods	0.1	0.1	0.0	0.0	0.0	-0.1
Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
Total hardwoods	409.2	16.5	10.3	7.1	12.1	363.2
All species	1,781.0	74.7	17.9	32.6	80.6	1,575.2

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table B.28—Average annual mortality of live trees by ownership class and land status, Mississippi, 2017 (2006–2012 to 2009–2017)

Ownership class[a]	Timberland	Forest land
	million cubic feet per year	
U.S. Forest Service		
National forest	35.4	35.4
Total	35.4	35.4
Other Federal		
National Park Service	0.0	0.9
U.S. Fish and Wildlife Service	0.4	3.6
Dept. of Defense/Dept. of Energy	6.9	7.0
Other Federal	2.3	2.3
Total	9.7	13.9
State and local government		
State	12.0	12.1
Local	4.2	4.2
Total	16.1	16.2
Forest industry		
Corporate	13.6	13.6
Individual	0.7	0.7
Total	14.3	14.3
Nonindustrial private		
Corporate	54.1	54.1
Conservation/natural resources organization	1.1	1.1
Unincorporated local partnership/association/club	13.9	13.9
Native American	0.9	0.9
Individual	190.0	190.0
Total	260.0	260.1
All classes	335.5	339.8

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table B.29—Average annual mortality of live trees on forest land by forest-type group and stand-size class, Mississippi, 2017 (2006–2012 to 2009–2017)

Forest-type group[a]	All classes	Stand-size class[a]			
		Large diameter	Medium diameter	Small diameter	Non-stocked
	million cubic feet per year				
Softwood types					
Longleaf-slash pine	13.3	10.8	2.4	0.1	0.0
Loblolly-shortleaf pine	94.8	62.6	25.5	6.7	0.0
Other eastern softwoods	0.3	0.2	0.1	0.0	0.0
Total softwoods	108.4	73.5	28.0	6.9	0.0
Hardwood types					
Oak-pine	30.0	20.4	6.1	3.4	0.0
Oak-hickory	84.2	62.8	15.9	5.4	0.0
Oak-gum-cypress	83.8	67.5	12.9	3.3	0.0
Elm-ash-cottonwood	32.9	24.6	5.8	2.6	0.0
Other hardwoods	0.0	0.0	0.0	0.0	0.0
Exotic hardwoods	0.4	0.0	0.2	0.1	0.0
Total hardwoods	231.3	175.3	41.0	15.0	0.0
Nonstocked	0.1	0.0	0.0	0.0	0.1
All groups	339.8	248.9	69.0	21.8	0.1

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on past conditions.

Table B.30—Average annual mortality of live trees on forest land by species group and ownership group, Mississippi, 2017 (2006–2012 to 2009–2017)

Species group	All ownerships	Ownership group[a]				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet per year					
Softwood						
Longleaf and slash pines	12.0	5.1	0.0	0.9	0.0	5.9
Loblolly and shortleaf pines	98.6	10.8	0.8	3.0	5.6	78.5
Other yellow pines	1.0	0.1	0.0	0.2	0.0	0.7
Cypress	0.5	0.0	0.0	0.3	0.0	0.2
Other eastern softwoods	2.9	0.1	0.2	0.1	0.2	2.4
Total softwoods	115.0	16.0	1.1	4.5	5.7	87.7
Hardwood						
Select white oaks	6.9	1.4	0.0	0.0	0.2	5.2
Select red oaks	10.9	1.4	0.5	0.1	0.6	8.2
Other white oaks	6.6	0.6	0.2	0.5	0.0	5.2
Other red oaks	55.0	6.3	0.9	4.5	2.2	41.0
Hickory	13.7	0.7	1.3	1.0	0.0	10.6
Hard maple	0.3	0.0	0.1	0.0	0.0	0.2
Soft maple	8.3	1.5	1.0	0.5	0.3	5.0
Beech	1.1	0.0	0.0	0.0	1.0	0.1
Sweetgum	27.3	1.5	2.7	1.4	0.2	21.5
Tupelo and blackgum	8.0	1.0	0.6	1.0	0.3	5.0
Ash	8.0	0.2	0.9	0.4	0.5	6.0
Cottonwood and aspen	2.6	0.0	0.7	0.0	0.0	2.0
Basswood	1.0	0.0	0.0	0.0	0.0	0.9
Yellow-poplar	16.1	1.3	0.8	0.0	0.1	13.9
Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	39.5	0.6	2.8	1.5	2.7	31.8
Other eastern hard hardwoods	7.3	0.8	0.1	0.2	0.2	6.1
Eastern noncommercial hardwoods	12.4	1.9	0.3	0.5	0.1	9.6
Total hardwoods	224.8	19.3	12.8	11.7	8.6	172.3
All species	339.8	35.4	13.9	16.2	14.3	260.1

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table B.31—Average annual mortality of growing-stock trees on timberland by species group and ownership group, Mississippi, 2017 (2006–2012 to 2009–2017)

Species group	All ownerships	Ownership group[a]				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet per year					
Softwood						
Longleaf and slash pines	11.6	5.0	0.0	0.9	0.0	5.7
Loblolly and shortleaf pines	90.9	10.4	0.4	2.6	5.3	72.2
Other yellow pines	1.0	0.1	0.0	0.2	0.0	0.6
Cypress	0.2	0.0	0.0	0.0	0.0	0.1
Other eastern softwoods	1.2	0.1	0.1	0.0	0.1	0.9
Total softwoods	104.8	15.6	0.5	3.7	5.4	79.5
Hardwood						
Select white oaks	5.5	1.2	0.0	0.0	0.2	4.1
Select red oaks	9.9	1.4	0.3	0.1	0.6	7.4
Other white oaks	4.1	0.5	0.0	0.5	0.0	3.0
Other red oaks	42.7	3.9	0.8	3.9	2.0	32.1
Hickory	7.3	0.3	0.0	1.0	0.0	6.0
Hard maple	0.2	0.0	0.0	0.0	0.0	0.2
Soft maple	3.2	0.7	0.8	0.3	0.0	1.5
Beech	0.1	0.0	0.0	0.0	0.1	0.0
Sweetgum	22.3	1.3	1.6	1.3	0.1	18.1
Tupelo and blackgum	5.5	0.7	0.6	0.6	0.3	3.3
Ash	5.0	0.1	0.2	0.3	0.5	4.0
Cottonwood and aspen	1.9	0.0	0.0	0.0	0.0	1.9
Basswood	0.6	0.0	0.0	0.0	0.0	0.6
Yellow-poplar	14.0	1.0	0.0	0.0	0.1	12.8
Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	24.3	0.4	1.4	1.2	2.2	19.1
Other eastern hard hardwoods	3.3	0.4	0.0	0.0	0.1	2.8
Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
Total hardwoods	150.0	11.9	5.7	9.2	6.3	116.9
All species	254.8	27.5	6.2	13.0	11.7	196.5

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table B.32—Average annual net removals of live trees by ownership class and land status, Mississippi, 2017 (2006–2012 to 2009–2017)

Ownership class[a]	Timberland	Forest land
	million cubic feet per year	
U.S. Forest Service		
National forest	17.3	17.3
Total	17.3	17.3
Other Federal		
U.S. Fish and Wildlife Service	6.5	5.5
Dept. of Defense/Dept. of Energy	0.8	0.8
Other Federal	0.6	0.6
Total	7.9	6.9
State and local government		
State	5.2	5.2
Local	16.0	16.0
Total	21.2	21.2
Forest industry		
Corporate	71.8	71.8
Unincorporated local partnership/association/club	0.3	0.3
Total	72.1	72.1
Nonindustrial private		
Corporate	236.0	236.0
Conservation/natural resources organization	0.4	0.4
Unincorporated local partnership/association/club	32.6	32.6
Native American	3.8	3.8
Individual	480.9	480.9
Total	753.8	753.8
All classes	872.2	871.2

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table 33—Average annual removals of live trees on forest land by forest-type group and stand-size class, Mississippi, 2017 (2006–2012 to 2009–2017)

Forest-type group[a]	All classes	Stand-size class[a]			
		Large diameter	Medium diameter	Small diameter	Non-stocked
	million cubic feet per year				
Softwood types					
Longleaf-slash pine	28.9	17.4	11.2	0.2	0.0
Loblolly-shortleaf pine	576.4	370.0	199.7	6.7	0.0
Other eastern softwoods	0.0	0.0	0.0	0.0	0.0
Total softwoods	605.3	387.5	210.9	6.9	0.0
Hardwood types					
Oak-pine	69.3	49.9	16.4	2.9	0.0
Oak-hickory	118.8	88.7	22.5	7.6	0.0
Oak-gum-cypress	48.3	41.9	5.8	0.6	0.0
Elm-ash-cottonwood	27.7	23.0	3.2	1.6	0.0
Other hardwoods	0.0	0.0	0.0	0.0	0.0
Exotic hardwoods	1.7	0.0	1.6	0.1	0.0
Total hardwoods	265.8	203.5	49.4	12.9	0.0
Nonstocked	0.1	0.0	0.0	0.0	0.1
All groups	871.2	591.0	260.3	19.8	0.1

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on past conditions.

Table B.34—Average annual removals of live trees on forest land by species group and ownership group, Mississippi, 2017 (2006–2012 to 2009–2017)

Species group	All ownerships	Ownership group[a]				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet per year					
Softwood						
Longleaf and slash pines	30.6	3.4	1.7	0.4	5.4	19.6
Loblolly and shortleaf pines	584.1	6.4	4.5	15.9	49.9	507.5
Other yellow pines	3.6	0.0	0.0	0.0	0.0	3.6
Cypress	0.1	0.0	0.0	0.0	0.0	0.1
Other eastern softwoods	1.5	0.1	0.0	0.5	0.0	0.8
Total softwoods	619.9	9.9	6.2	16.8	55.4	531.6
Hardwood						
Select white oaks	14.9	0.9	0.0	0.4	0.2	13.3
Select red oaks	12.8	0.5	0.0	0.0	0.6	11.8
Other white oaks	13.2	0.6	0.0	0.7	0.0	12.0
Other red oaks	62.0	0.6	0.0	0.3	4.6	56.5
Hickory	14.2	0.2	0.3	0.0	0.8	13.0
Hard maple	1.0	0.0	0.0	0.0	0.8	0.2
Soft maple	4.5	0.2	0.0	0.1	0.4	3.8
Beech	4.3	0.0	0.0	0.7	0.3	3.2
Sweetgum	58.7	0.9	0.3	1.5	5.2	50.8
Tupelo and blackgum	8.1	0.3	0.1	0.0	0.2	7.5
Ash	5.2	2.0	0.0	0.0	0.6	2.5
Cottonwood and aspen	3.0	0.0	0.0	0.0	0.0	3.0
Basswood	0.7	0.0	0.0	0.0	0.7	0.0
Yellow-poplar	16.2	0.8	0.0	0.2	0.9	14.3
Black walnut	0.3	0.0	0.0	0.0	0.0	0.3
Other eastern soft hardwoods	24.5	0.3	0.0	0.4	1.2	22.6
Other eastern hard hardwoods	2.5	0.1	0.0	0.0	0.1	2.4
Eastern noncommercial hardwoods	5.1	0.1	0.0	0.1	0.2	4.8
Total hardwoods	251.3	7.4	0.7	4.4	16.7	222.2
All species	871.2	17.3	6.9	21.2	72.1	753.8

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Table B.35—Average annual removals of growing-stock trees on timberland by species group and ownership group, Mississippi, 2017 (2006–2012 to 2009–2017)

Species group	All ownerships	Ownership group[a]				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	million cubic feet per year					
Softwood						
Longleaf and slash pines	29.9	3.4	1.4	0.4	5.3	19.4
Loblolly and shortleaf pines	561.8	6.2	0.0	15.5	49.1	491.0
Other yellow pines	3.2	0.0	0.0	0.0	0.0	3.2
Cypress	0.1	0.0	0.0	0.0	0.0	0.1
Other eastern softwoods	0.7	0.1	0.0	0.0	0.0	0.5
Total softwoods	595.7	9.7	1.4	15.9	54.5	514.2
Hardwood						
Select white oaks	14.1	0.8	0.0	0.4	0.2	12.7
Select red oaks	12.2	0.5	0.0	0.0	0.5	11.2
Other white oaks	11.9	0.6	0.9	0.4	0.0	10.0
Other red oaks	53.9	0.6	0.9	0.2	4.2	48.0
Hickory	13.0	0.1	0.2	0.0	0.8	11.8
Hard maple	0.8	0.0	0.0	0.0	0.7	0.0
Soft maple	1.8	0.0	0.0	0.0	0.1	1.6
Beech	2.5	0.0	0.0	0.3	0.2	1.9
Sweetgum	54.6	0.6	3.6	0.9	4.9	44.6
Tupelo and blackgum	6.7	0.3	0.0	0.0	0.1	6.3
Ash	4.2	2.0	0.0	0.0	0.5	1.8
Cottonwood and aspen	2.4	0.0	0.1	0.0	0.0	2.3
Basswood	0.7	0.0	0.0	0.0	0.7	0.0
Yellow-poplar	14.5	0.8	0.0	0.1	0.8	12.7
Black walnut	0.3	0.0	0.0	0.0	0.0	0.3
Other eastern soft hardwoods	18.4	0.2	0.5	0.3	0.9	16.4
Other eastern hard hardwoods	1.5	0.0	0.0	0.0	0.0	1.5
Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
Total hardwoods	213.2	6.5	6.3	2.6	14.7	183.1
All species	808.9	16.2	7.7	18.5	69.2	697.3

Numbers in rows and columns may not sum to totals due to rounding.

0.0 = no sample for the cell or a value of > 0.0 but < 0.05.

[a] Based on current conditions.

Oswalt, Sonja N. 2019. Mississippi's forests, 2017. Resour. Bull. SRS–226. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 68 p.

This report summarizes the findings of data collected as part of the Forest Inventory and Analysis (FIA) program in the State of Mississippi with data collection points from 2008 to 2017. Forest land area has declined slightly to 19.3 million acres, with the majority of diversions from forest land use to urban or agriculture land uses. Mississippi is a wood-rich State, with 37 billion cubic feet of wood volume and 2 billion tons of biomass. During the 2017 survey period, Mississippi grew more than twice what it removed on average, annually. Harvest removals averaged 865 million cubic feet per year, while net growth (growth minus mortality) averaged 2 billion cubic feet per year. In terms of threats to forests in the State, from 2012 to 2017, fire impacted more area than any other primary disturbance.

Keywords: Carbon, disturbance, FIA, forest inventory, forest trends, Mississippi, timber volume.

December 2019

Southern Research Station
200 W.T. Weaver Blvd.
Asheville, NC 28804

A coneflower in early autumn. (U.S. Forest Service photo)

How do you rate this publication?
Scan this code to submit your feedback or go to www.srs.fs.usda.gov/pubeval.

A copy of this resource bulletin is available for download at www.srs.fs.usda.gov/pubs/.