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Mississippi's Forests, 2013

Sonja N. Oswalt



Forest Service

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About the Author

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Front cover: top left, a serene wooded path winds through the forest at Tishomingo State Park, Tishomingo County, MS. (photo courtesy of Visit Mississippi/flickr.com); top right, Prothonotary warblers are common inhabitants of bottomland forests in Mississippi. (photo courtesy of Visit Mississippi/flickr.com); bottom, a bee gathers nectar from a wildflower at the NRCS Plant Materials Center in Coffeeville, MS. (photo courtesy of U.S. Department of Agriculture). Back cover: top left, Chewalla Lake and Holly Springs National Forest, Holly Springs, MS. (photo courtesy of Visit Mississippi/flickr.com); top right, a serene wooded path winds through the forest at Tishomingo State Park, Tishomingo County, MS. (photo courtesy of Visit Mississippi/flickr.com); bottom, Farm Bill programs like the Wetlands Reserve Program have helped populations of the Louisiana Black Bear increase in Mississippi. Biologists estimate the State to be home to 120 Black Bears. (photo by Brad Young, Mississippi Department of Wildlife, Fisheries and Parks).

Spoonleaf sundew (*Drosera intermedia*) is a carnivorous plant found in coastal Mississippi. (photo by James Henderson, Golden Delight Honey, Bugwood.org)





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Two young fishermen enjoy a forested riverbank in Greenwood, MS. (photo courtesy of Visit Mississippi/flickr.com)



Flowering cogongrass invades a southern pine forest. (photo by Chris Evans, Bugwood.org)



FOREWORD

The Forest Inventory and Analysis (FIA) unit of the U.S. Department of Agriculture Forest Service, Southern Research Station (SRS) conducts continuous inventories of forest resources in 13 Southern States (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia), as well as Puerto Rico and the U.S. Virgin Islands. It is a collaborative partnership with the Southern Group of State Foresters of these States, the Southern Region National Forest System, and State and Private forestry.

This bulletin presents the findings of the 2013 survey of Mississippi, which includes field data collected in 2006, 2009, 2010, 2011, 2012, and 2013 and includes 3,668 forested plots out of 5,219 total plots. While sample protocols, processing procedures, and definitions have changed over the decades since FIA sampling in Mississippi began in the 1930s, attempts have been

made to harmonize the data when possible. These data represent the most comprehensive data collected on public and private lands in the State.

Tabular data collected by FIA are available to the public through various tools accessible via the Internet at <http://srsfia2.fs.fed.us/>. Data referenced in this report were obtained from the Forest Inventory and Analysis Database on May 19, 2014.

ACKNOWLEDGMENTS

The SRS gratefully acknowledges the Mississippi Forestry Commission for their cooperation and input during this survey. FIA field personnel, Information Management, Publication Management, and Science Delivery staff are all due thanks for their dedication and hard work and assistance. We also appreciate the cooperation of other public agencies and private landowners for providing access to measurement plots.



U.S. Forester, Christina Harper inventories a pine stand on the Bienville National Forest, MS. (photo by Christopher Locke, U.S. Forest Service)



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Baskets made by the Puget Salish Tribe using Mississippi-sourced longleaf pine needles.
(photo courtesy of U.S. Department of Agriculture)





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INTRODUCTION

Forests and forestry-related activities represent a quintessential part of Mississippi culture and livelihood. In the 2012 Resources Planning Act (RPA) report (Oswalt and others 2014), Mississippi comprised 13 percent of all forest land and 23 percent of all planted timberland in the eight States of the South Central United States, illustrating the State's position of importance in the forested landscape of the South. The need to understand, track, and practice knowledgeable stewardship

in the forests of the 21st century landscape cannot be overstated. More than ever, landowners, policymakers, industries, and researchers are seeking information to feed into business development opportunities, forecasting models, and conservation goals as well as long-term economic development plans. The goal of this publication is to provide up-to-date information on the resources of Mississippi's forests to aid in landscape-level planning and policymaking and to provide a starting point for those interested in learning about and researching Mississippi's wooded landscape.



Longleaf pine forest in Mississippi. (photo courtesy of Visit Mississippi/flickr.com)



AREA

Estimates suggest that forests covered as much as 27 million acres of Mississippi's 30 million terrestrial acres in the 17th century prior to European settlement (Kellog 1909). Agricultural clearing from the late 1800s through the 1970s, combined with some clearing for development, led to decreases in statewide forest cover to lows between 16 and 17 million acres from the 1930s through the 1980s. Today, forests cover 19.5 million acres (65 percent) of the Mississippi landscape. Virtually all of that (19.3 million acres) is available for timber production. The South, Southwest, and Central units are most heavily forested,

while the Delta—the rich agricultural heart of the State—remains least forested (fig. 1). There are about 3 forested acres for every nonforest acre in the South unit, for example, compared to 0.5 forested acres for every nonforest acre in the Delta. Comparing with the rest of the country, Mississippi was the eighth most forested State in the Nation in the 2012 RPA (Oswalt and others 2014).

Statewide, total forest area experienced no appreciable changes since 2006 (all change was within standard error). However, since 1987, the loblolly-shortleaf pine forest-type group has increased dramatically in timberland extent due to widespread

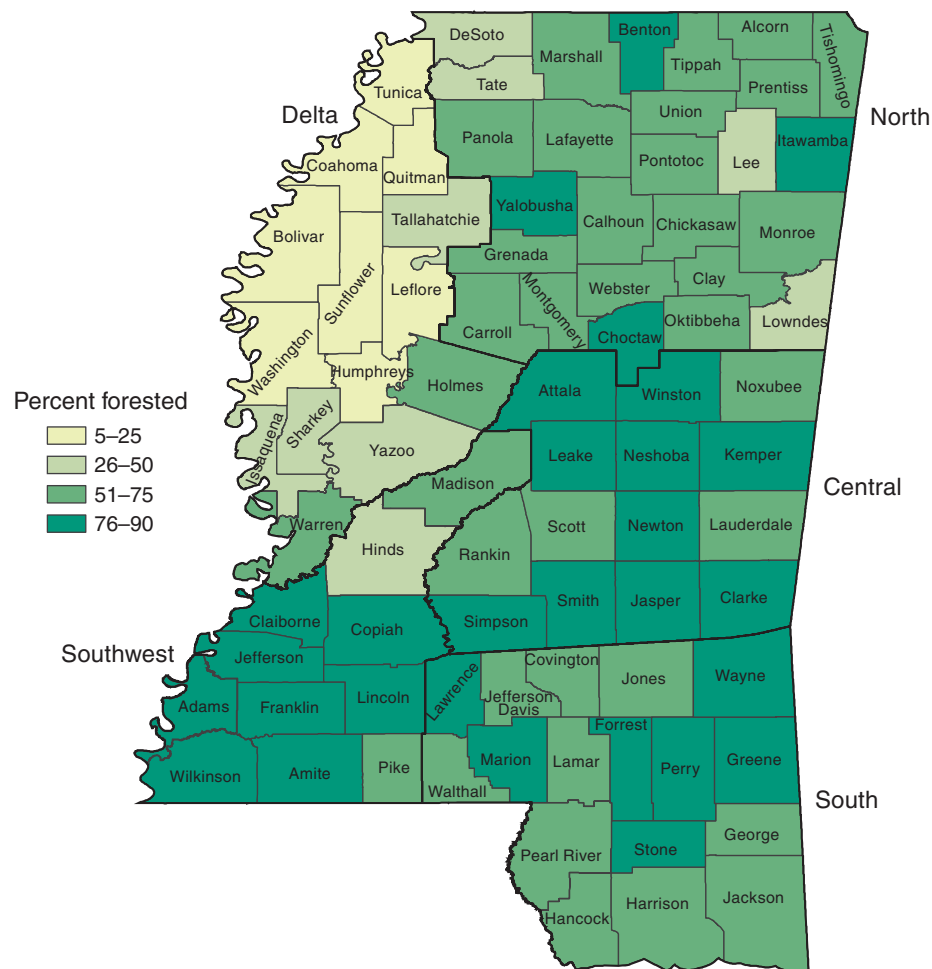


Figure 1—Mississippi counties and survey units colored by forest area proportion, 2013.



planting for use in forest products. Meanwhile, the oak-pine, oak-hickory, and oak-gum-cypress forest-type groups have decreased in timberland extent for a variety of reasons, including conversion to loblolly pine, clearing for agriculture, and development (fig. 2). Thus, while the total area of Mississippi forests has increased since 1987, the characteristics of the forests are changing (table 1).

In the Delta unit, oak-gum-cypress and elm-ash-cottonwood still occupy the largest area; these trees grow in wet areas that are often not suitable for agriculture. Oak-hickory and loblolly-shortleaf pine dominate Mississippi’s North unit, while loblolly-shortleaf pine occupies twice the area of the next largest forest-type (oak-hickory) in the Central unit. Loblolly-

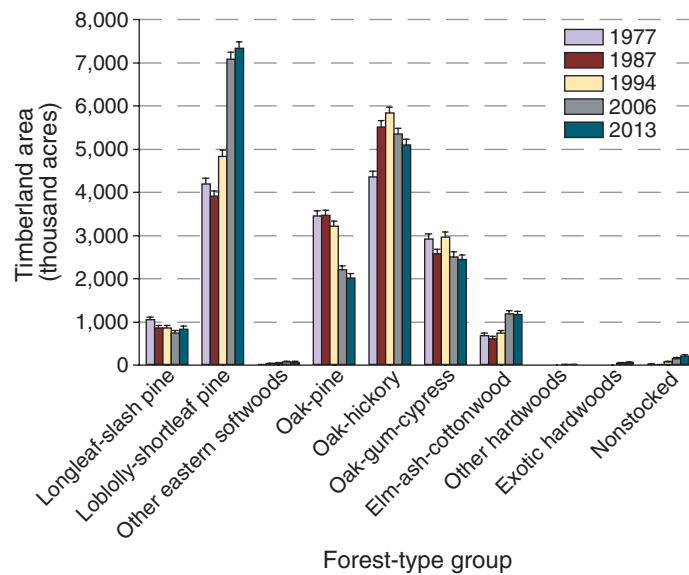


Figure 2—Area of timberland by forest-type group and survey year, Mississippi, 1977–2013.

Table 1—Area of timberland by forest-type group and survey year, Mississippi, 1977–2013

Forest-type group	Survey year				
	1977	1987	1994	2006	2013
	<i>acres</i>				
Longleaf-slash pine	1,052,114	857,728	866,096	745,453	838,943
Loblolly-shortleaf pine	4,201,603	3,909,716	4,836,667	7,085,729	7,333,903
Other eastern softwoods	8,443	29,217	48,689	77,712	66,698
Oak-pine	3,451,179	3,469,561	3,218,274	2,204,641	2,020,588
Oak-hickory	4,354,814	5,519,048	5,834,293	5,347,213	5,095,131
Oak-gum-cypress	2,916,816	2,575,924	2,960,617	2,512,846	2,449,588
Elm-ash-cottonwood	681,655	617,336	749,851	1,192,498	1,176,402
Other hardwoods	0	0	0	13,649	13,769
Exotic hardwoods	0	0	0	45,675	64,127
Nonstocked	18,076	8,073	72,849	159,410	207,673
Total	16,684,700	16,986,604	18,587,331	19,384,827	19,266,824



shortleaf and longleaf-slash pine forest types are predominate in the South unit, while loblolly-shortleaf and oak-hickory are the primary forest types in the Southwest unit.

Although the standard error is quite high due to the relatively small sample of exotic hardwoods, that forest-type group, which consists almost entirely of Chinese tallowtree (*Triadica sebifera*) in Mississippi, has increased by 40 percent since 2006. Those findings echo results from other research into the expansion of tallowtree along the Gulf coast (Oswalt 2010). Tallowtree often spreads into previously nonforest native wet prairies, resulting in the loss of that important ecosystem. Historically, the seeds were used in soap and candlemaking, but more recently, people have investigated the potential use of tallowtree in the biofuels industry. Tallowtree can negatively impact both nonforest and forest environments by changing the chemistry of surrounding soils, displacing native vegetation, and altering ecological processes.

Forest Ownership

Understanding ownership patterns and the motivations for owning forests can help decisionmakers and land managers tailor their services to the needs of the State. Additionally, in the case of privately owned forests, understanding landowner interests and weighing those in the context of ecological concerns and timber availability helps professionals develop sustainable forest practices.

Eighty-one percent of Mississippi’s forest land is privately owned by nonindustrial landowners; only 12 percent is owned by public entities, and 7 percent is owned by industry (fig. 3). In the 1967 report (Murphy 1978), nearly 3 million acres of timberland were under forest industry ownership. In 2013, forest industry accounted for 1.3 million acres—a decline of 1.7 million acres. Individual private ownerships (“individual” plus “farmer” in the 1967 report) have remained similar from 1967 (11.4 million acres) to 2013

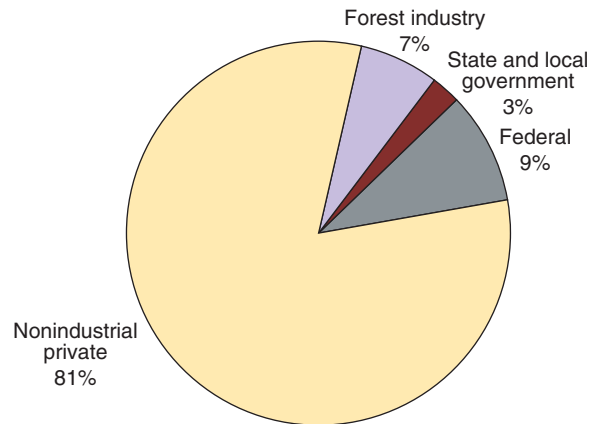


Figure 3—Mississippi forest land proportioned by ownership, 2013.



Baldcypress forest on the Natchez Trace, MS. (photo courtesy of Visit Mississippi/flickr.com)

(11.8 million acres), while nonindustrial corporate ownerships have increased sevenfold from 469,000 acres in 1967 to 3.4 million acres in 2013. This shift is due, in part, to the divestiture of industry lands to timber investment management organizations (TIMOs) and real estate investment trusts (REITs).

Family forests occupy approximately 12 million acres of Mississippi's forest land. A little more than half of that acreage is not associated with a landowner's primary residence, suggesting many of Mississippi's family forests have absentee owners. Mississippians own forest land for a variety of reasons. Some of the most often listed motivations on the National Woodland Landowner Survey include passing the land to heirs, land investment,

protecting or improving wildlife habitat, and timber production (Butler and others, in press). While about 8 million acres of Mississippi's family-owned forests were acquired through real estate purchases, over 6 million acres were inherited, further demonstrating the importance of ownership lineage in Mississippi culture and tradition. Similarly, the most frequently listed concern for family forest landowners was keeping the land intact for future generations.

The majority of family-owned forests in Mississippi do not have management plans in place. Only 3 million acres were reported as covered by a written management plan. However, forest owners report cutting timber for sale on over 5 million family forest acres (Butler and others, in press).



Stand Origin

The area of timberland composed of natural stands has continued to decrease since 2006, while planted timberland has continued to increase (fig. 4). Thirty-one percent of timberland in Mississippi shows clear evidence of artificial regeneration. That compares to 11 percent in 1977 and 16 percent in 1987 (table 2). Eighty-one percent of planted timberland consists of loblolly-shortleaf pine. Since 1977, planted loblolly-shortleaf pine acreage has increased sixfold (fig. 5). Planted acreage is primarily owned by individual private landowners (55 percent), followed by corporate private landowners (36 percent).

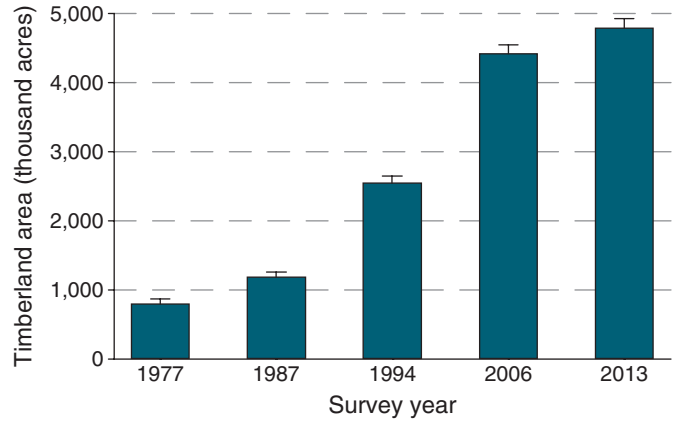


Figure 5—Planted loblolly-shortleaf pine timberland area by survey year, Mississippi, 1977–2013.

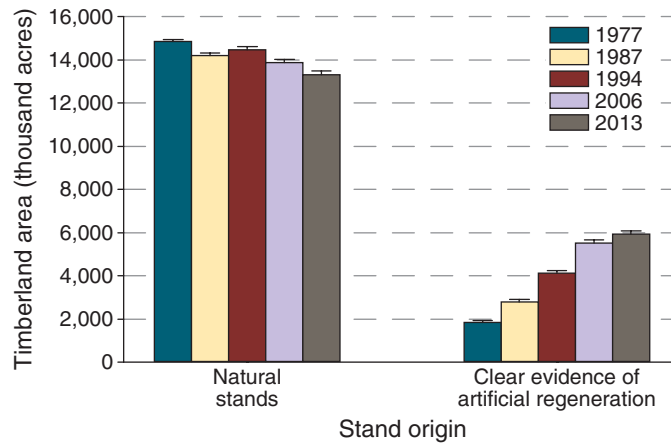


Figure 4—Timberland area by stand origin and survey year, Mississippi, 1977–2013.

Table 2—Area of timberland by survey year and stand origin, Mississippi, 1977–2013

Survey year	Stand origin		Total
	Natural	Planted	
	<i>acres</i>		
1977	14,842,042	1,842,649	16,684,691
1987	14,198,761	2,787,840	16,986,604
1994	14,475,724	4,111,611	18,587,331
2006	13,872,882	5,511,944	19,384,827
2013	13,321,553	5,945,270	19,266,824



Age

Thirty-nine percent of Mississippi’s forest area is estimated at ≤ 20 years old. Fifty-five percent of that area is softwood. Forest area aged 21 to 60 years old totals 9 million acres—about 48 percent of total forest. In contrast to heavily managed softwood forests in younger age classes, hardwoods account for 60 percent of the area in the 21- to 60-year age range. Only 13 percent of forest area in Mississippi is >60 years old, and 89 percent of that is ≤ 80 years old (fig. 6).

Unlike the overall pattern of forest-type groups in the State, the oak-gum-cypress forest-type group shows a distinctly different age distribution. Fifty-seven percent of forest area in that forest-type group falls between age 41 and 80, while

only 20 percent is ≤ 20 years old. That is nearly half the proportion for combined forest-type groups in the 0-to-20 age class.

Stand-age distribution in Mississippi is driven, therefore, by softwoods (primarily loblolly-shortleaf pine) in the younger age classes and hardwoods (particularly oak-gum-cypress and, to some extent, oak-hickory) in the middle to older age classes. Some concern might be warranted for forests in the oak-gum-cypress forest type in terms of stand development in the future and the persistence of the forest type, given known concerns about altered hydrology and regeneration in areas that typically support that forest type. However, users are cautioned that stand age is derived from site trees selected based on specific criteria, and that inferences should be somewhat limited.

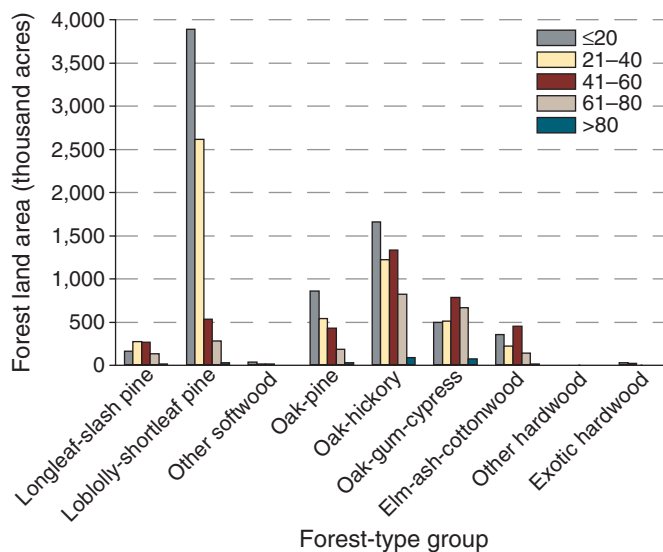


Figure 6—Area of forest land by forest-type group and stand-age class, Mississippi, 2013.



FOREST COMPOSITION

Tracking the number, diversity, and volume of trees in Mississippi’s forests is important to understanding the availability of timber, wildlife habitat, and other ecosystem services. Knowing where volume is available aids in economic development planning as well as understanding whether or not timber supply can meet the demands placed on the resource.

Diversity

The number of distinct species (species richness) recorded by county ranged from 5 to 63 in 2013 (fig. 7). Lowest species richness occurs in the less forested Delta,

while some of the highest species richness occurs in counties along the Natchez Trace Parkway. The 10 most common species in terms of number of live trees in Mississippi are loblolly pine, sweetgum, water oak, red maple, winged elm, blackgum, black cherry, American hornbeam, green ash, and yellow-poplar (table 3). In 2013, loblolly pine was 1.4 times more numerous than the next most numerous species.

Despite the prevalence of loblolly pine on the landscape, Mississippi still has more hardwood trees than softwood trees. In fact, hardwood trees outnumber softwoods 3 to 1, but no single species is as predominate in the hardwood species group as loblolly pine is in the softwood

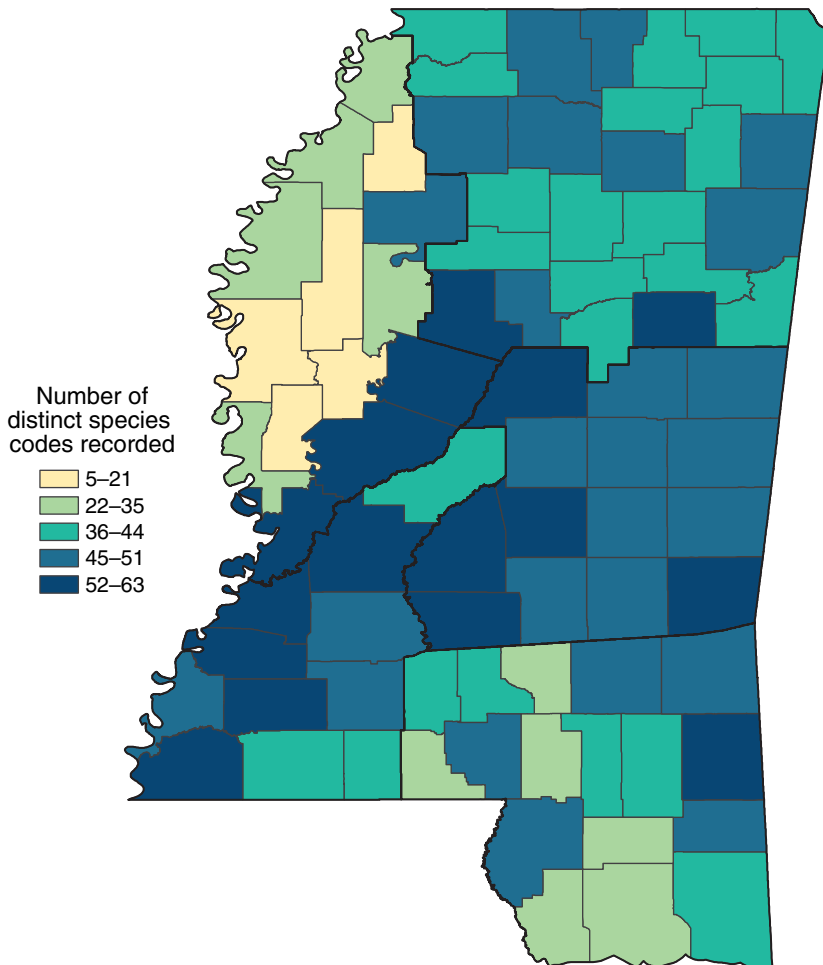


Table 3—Top 20 species on forest land in terms of number of live trees, Mississippi, 2013

Species	Live trees number
Loblolly pine	2,802,577,622
Sweetgum	2,010,737,873
Water oak	1,019,783,330
Red maple	934,822,997
Winged elm	570,195,764
Blackgum	483,762,757
Black cherry	345,239,166
American hornbeam, musclewood	332,243,242
Green ash	295,258,801
Yellow-poplar	281,544,813
White oak	280,836,637
Southern red oak	256,898,734
Eastern hophornbeam	245,552,534
Mockernut hickory	227,178,718
Sweetbay	219,544,206
Flowering dogwood	213,323,171
Common persimmon	172,996,855
Slash pine	169,882,351
Eastern redcedar	155,742,315

Figure 7—Number of distinct species recorded by county in Mississippi, 2013.



Loblolly pine (*Pinus taeda*) growing in south Mississippi. (photo courtesy of Wikimedia.org)

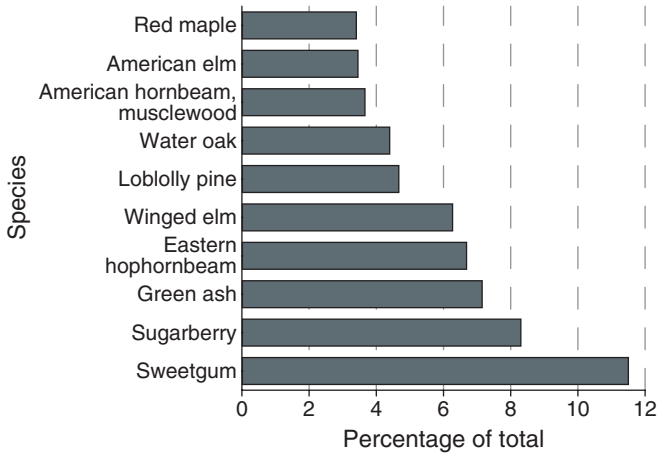
species group. In the Delta unit, sweetgum accounted for almost 12 percent of the total estimated number of trees (fig. 8A). Other common species included sugarberry, green ash, and eastern hophornbeam. Loblolly pine accounted for almost 20 percent of trees in the South unit, followed by water oak, red maple, and sweetgum (fig. 8B). In the North unit, loblolly pine made up 17 percent of the total estimated number of trees, followed by sweetgum, red maple, winged elm, and yellow-poplar—all species characteristic of the upland,

dry physiography in that part of the State (fig. 8C). Loblolly pine was 27 percent of the total estimated number of trees in the Southwest unit, followed by sweetgum, water oak, and winged elm (fig. 8D). In the Central unit, Loblolly pine made up 26 percent of the estimated number of trees, followed by sweetgum, water oak, and red maple (fig. 8E). The following figures (9A–I) show the distribution of nine species of economic and/or ecological interest in the State.

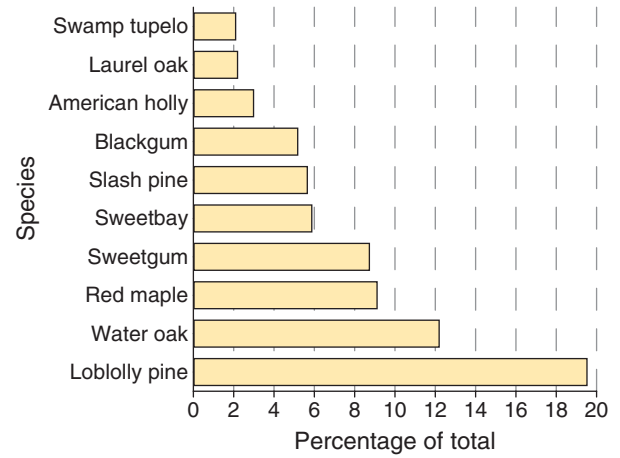


Forest Composition

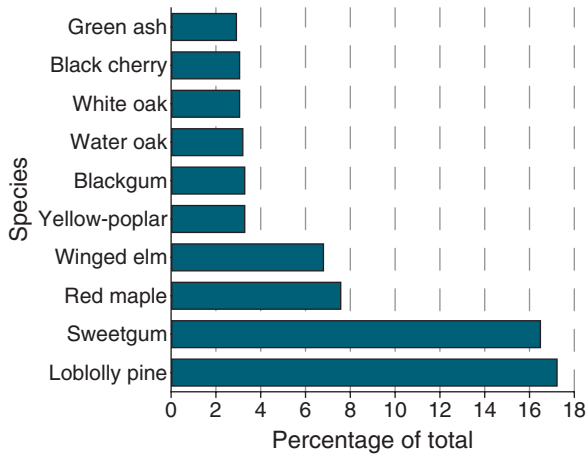
(A) Delta



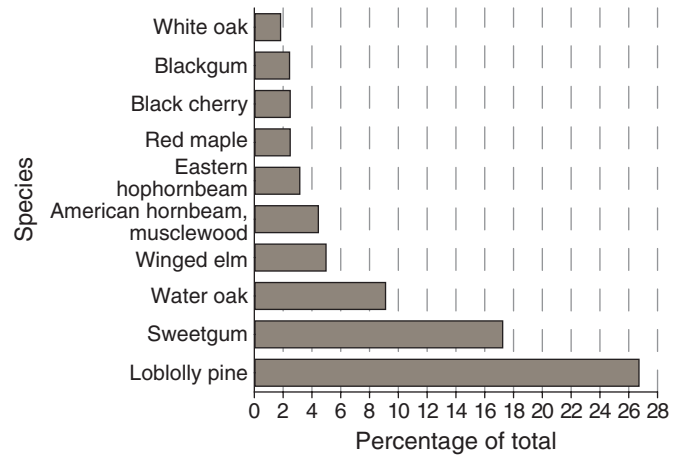
(B) South



(C) North



(D) Southwest



(E) Central

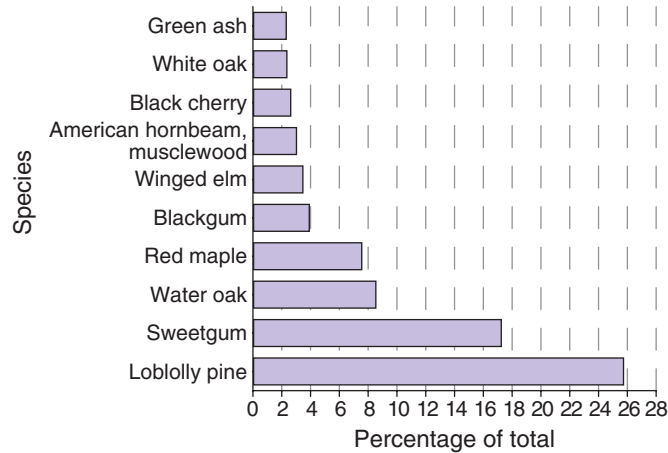
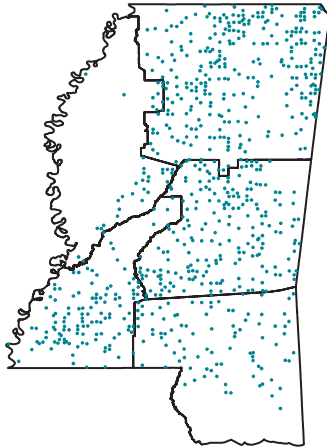


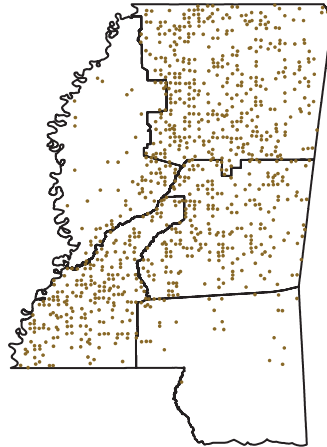
Figure 8—Top 10 most numerous trees, expressed as percentage of total by survey unit: (A) Delta, (B) South, (C) North, (D) Southwest, and (E) Central, Mississippi, 2013.



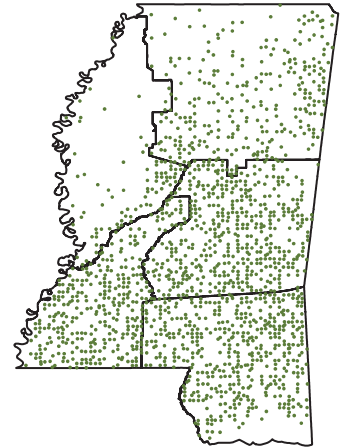
(A) White oak (*Quercus alba*)



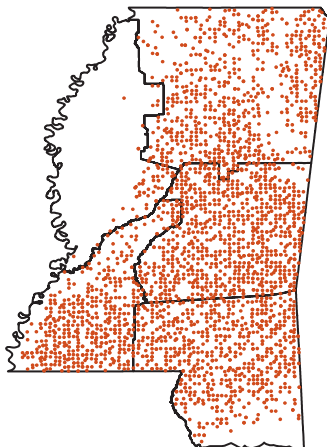
(B) Winged elm (*Ulmus alata*)



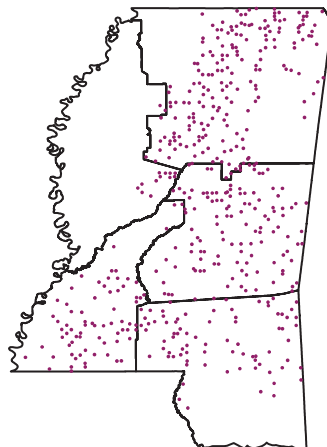
(C) Water oak (*Quercus nigra*)



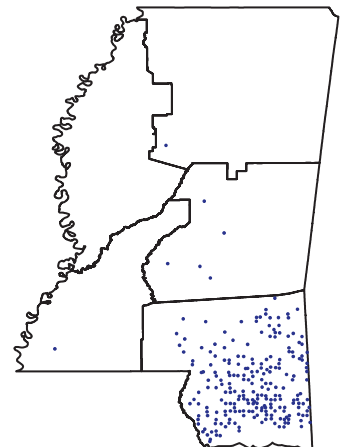
(D) Loblolly pine (*Pinus taeda*)



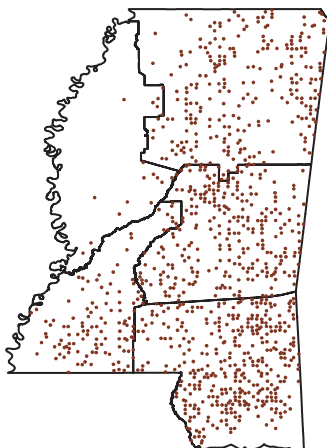
(E) Shortleaf pine (*Pinus echinata*)



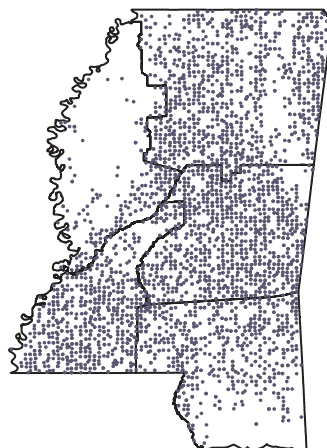
(F) Slash pine (*Pinus elliottii*)



(G) Blackgum (*Nyssa sylvatica*)



(H) Sweetgum (*Liquidambar styraciflua*)



(I) Water tupelo (*Nyssa aquatica*)

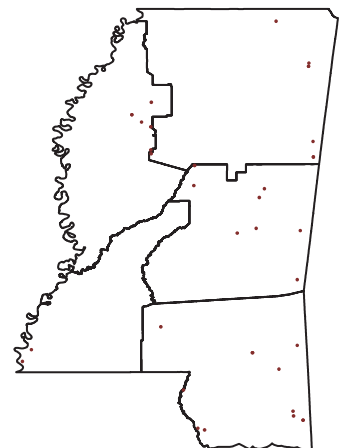


Figure 9—Distribution of plot observations of some economically and/or ecologically important trees in Mississippi, 2013: (A) white oak (*Quercus alba*), (B) winged elm (*Ulmus alata*), (C) water oak (*Quercus nigra*), (D) loblolly pine (*Pinus taeda*), (E) shortleaf pine (*Pinus echinata*), (F) slash pine (*Pinus elliottii*), (G) blackgum (*Nyssa sylvatica*), (H) sweetgum (*Liquidambar styraciflua*), and (I) water tupelo (*Nyssa aquatica*).



Volume

Statewide live-tree volume equals 32.2 billion cubic feet (table 4). Seventy-eight percent of this volume is privately owned, reflecting broad land ownership patterns across the State. In 2013, Mississippi trees accounted for 3 percent of live-tree volume in the entire Nation, 9 percent of live-tree volume in the South, and 16 percent of live-tree volume in the South Central region. Almost all (99 percent) of Mississippi’s live-tree volume is on timberland, which means it is potentially available for harvest, making Mississippi a valuable national resource for timber products. Forest industry owns 5 percent of statewide live-tree volume, compared to 11 percent owned by the Forest Service, U.S. Department of Agriculture and 78 percent owned by nonindustrial private landowners (fig. 10).

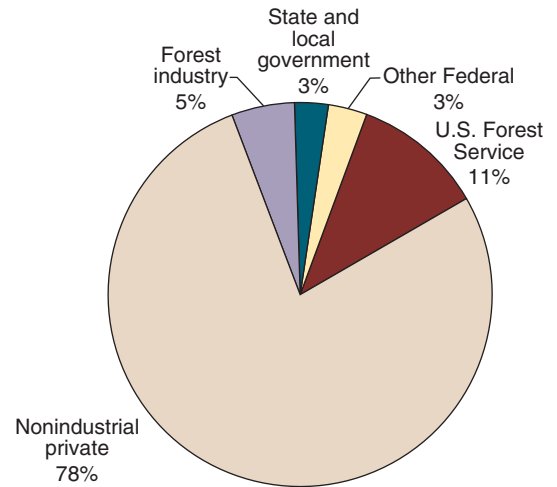


Figure 10—Proportion of live-tree volume by ownership on Mississippi forest land, 2013.

Table 4—Top 20 species on forest land in terms of live-tree volume, Mississippi, 2013

Species	Volume <i>cubic feet</i>
Loblolly pine	12,284,060,142
Sweetgum	2,756,840,892
Water oak	2,090,883,388
White oak	1,134,768,641
Yellow-poplar	1,000,171,916
Cherrybark oak	968,099,232
Shortleaf pine	944,499,739
Southern red oak	933,485,650
Slash pine	921,770,116
Longleaf pine	498,377,224
Blackgum	482,104,806
Green ash	463,556,138
Willow oak	456,115,452
Post oak	434,601,345
Sugarberry	403,265,373
Red maple	366,914,651
Sweetbay	320,773,843
Baldcypress	316,809,144
Pignut hickory	288,102,895
Swamp tupelo	287,548,134

Hardwood forest-type groups make up 55 percent of live-tree volume, and that volume is split among four primary forest-type groups: oak-pine, oak-hickory, oak-gum-cypress, and elm-ash-cottonwood. Ninety-eight percent of hardwood volume in Mississippi is naturally regenerated, in sharp contrast to widespread planting of softwoods in the State. Only 5 percent of Mississippi’s hardwood species groups are owned by forest industry, compared to 8 percent owned by the U.S. Forest Service in national forests, and 79 percent in nonindustrial ownerships.

In the softwood forest-type group, loblolly-shortleaf pine occupies 89 percent of live-tree volume. Over half of that is planted, reflecting the extensive use of yellow pine for pulp and sawtimber in the State. In fact, loblolly pine contributes the largest volume of any individual species group, with 13 billion cubic feet—41 percent of total tree volume in the State (fig. 11). Mississippi’s 2012 loblolly-shortleaf growing stock accounted for 22 percent of loblolly growing stock in the entire South Central region and 13 percent in the entire Eastern United States. Forest industry ownerships account for 6 percent of softwood tree volume in Mississippi.

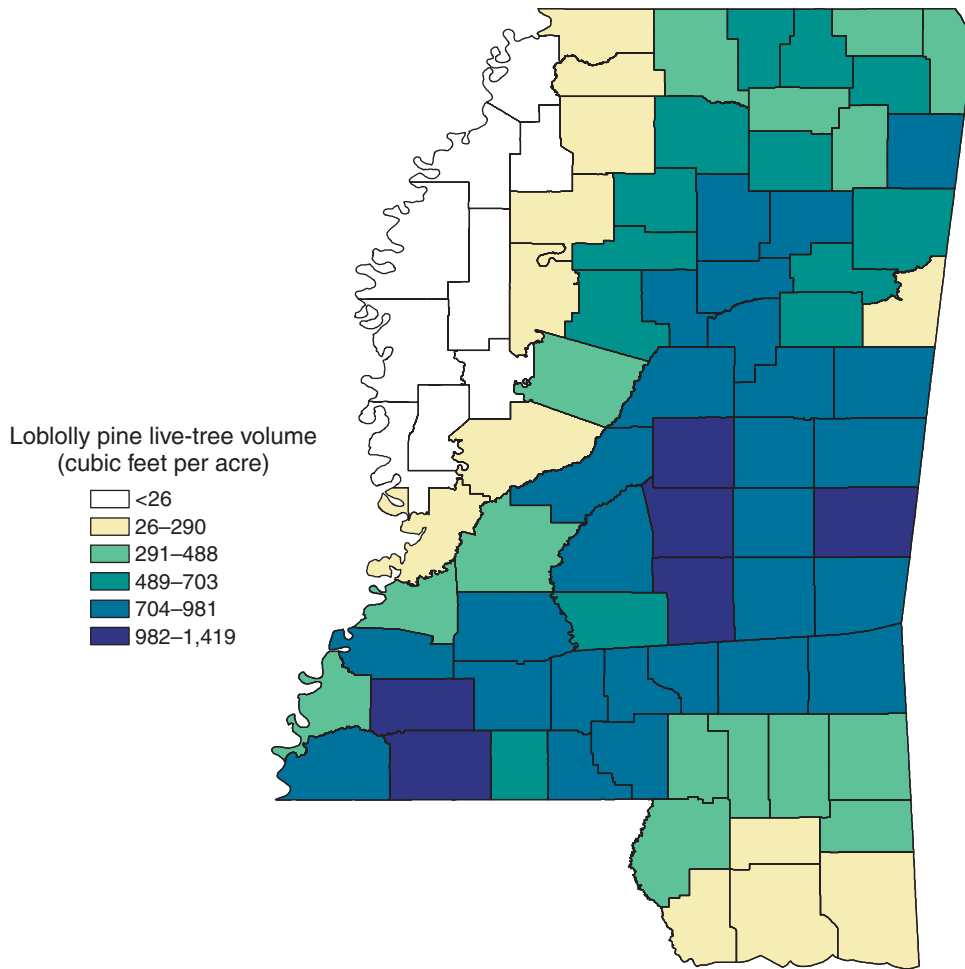


Figure 11—Per-acre cubic foot live-tree volume of loblolly pine on Mississippi forest land, 2013.

Sawtimber trees, in board foot volume, equal 101 billion board feet. Loblolly pine and red oaks contribute the largest proportion of sawtimber volume. Most forest-type acreage in Mississippi meets the definition of full or medium stocking. No group is primarily overstocked or understocked (fig. 12). In terms of cubic feet, Mississippi’s sawtimber volume is 18 billion cubic feet, up from 17 billion cubic feet in 2006 and up from 10 billion cubic feet in 1977. The largest amount of volume is in the 9.0- to 14.9-inch diameter

class at 8 billion cubic feet, followed by 6 billion in the 15.0- to 20.9-inch class, 3 billion in the 21.0- to 28.9-inch diameter class, and 833 million in diameters ≥ 29.0 inches diameter at breast height (d.b.h.). Volumetric increases from 1977 to 2013 occurred in all diameter classes, but the greatest increase was in the 21.0- to 28.9-inch diameter class, which went from 946 million cubic feet to 3.2 billion cubic feet—a threefold gain—and the ≥ 29.0 -inch diameter class, which experienced a fivefold gain (fig. 13).



Forest Composition

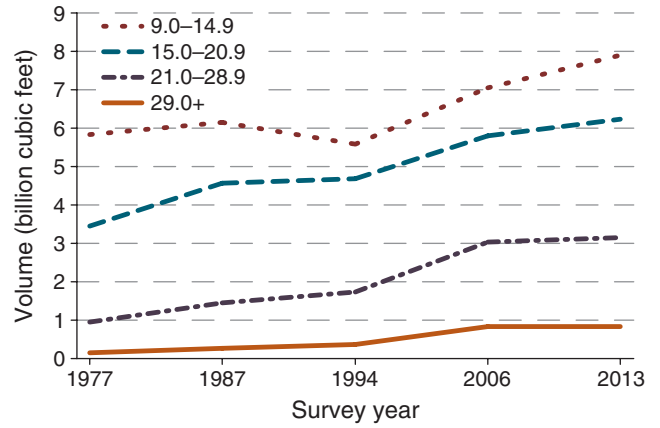
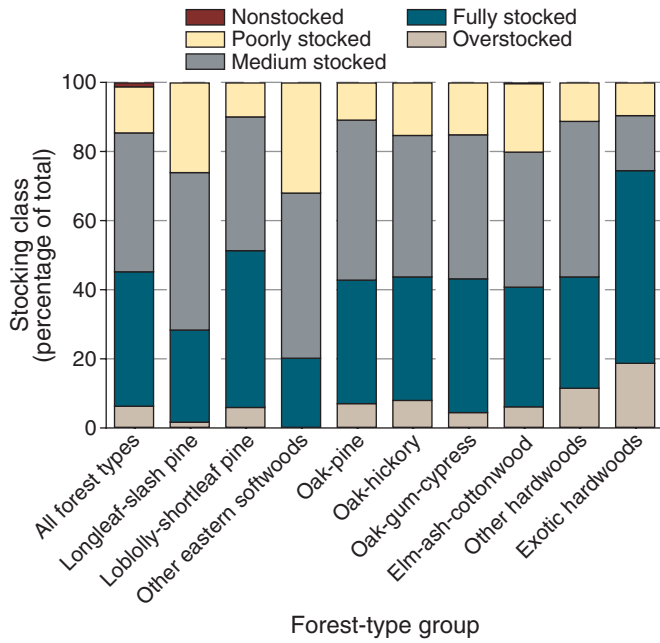


Figure 13—Net volume of the saw-log portion of sawtimber trees on timberland by survey year and diameter class (inches), Mississippi, 1977–2013.

Figure 12—Proportion of forest-type acreage by stocking class on Mississippi forest land, 2013.



Louisiana black bear cubs frolic in the forest. (photo by Brad Young, Mississippi Department of Wildlife, Fisheries and Parks)



GROWTH, REMOVALS, AND MORTALITY

Components of change such as tree growth, removals in the form of harvest or land use change, and tree mortality shed light on the sustainability of the resource in a given area. If net growth (growth minus mortality) exceeds removals, then either productivity is high, planting or natural reversions from nonforest land uses have occurred, or management practices have helped to ensure that overharvesting is not occurring. Often, the reality is a combination of many factors. If removals exceed growth over a sustained period of time, there may have been a large mortality event (thereby lowering net growth), or there may be a need to assess harvesting practices, land use change, and the long-term sustainability of the forest. Components of change are calculated on an average annual basis and are only calculated on plots with multiple measurements through time. Because of a reduced sample size, standard errors can be slightly higher for these components than for some other forest metrics; therefore, users are cautioned to limit analyses or inferences to large scales such as the unit or State.

Average annual net growth of live trees on Mississippi forest land was 1.9 billion cubic feet from 2006–13. That equates to an average of 98 cubic feet per acre annually across the State (fig. 14). Average annual per-acre growth rates were highest in the Southwest unit at 119 cubic feet and lowest in the South unit at 63 cubic feet. The loblolly-shortleaf pine managed forests in the Southwest likely contribute to the high annual growth rates, while slower growing oak-gum-cypress forests and longleaf-slash pine forests likely offset the contribution of loblolly-slash to growth rates in the South unit, resulting in lower total annual per-acre values (table 5).

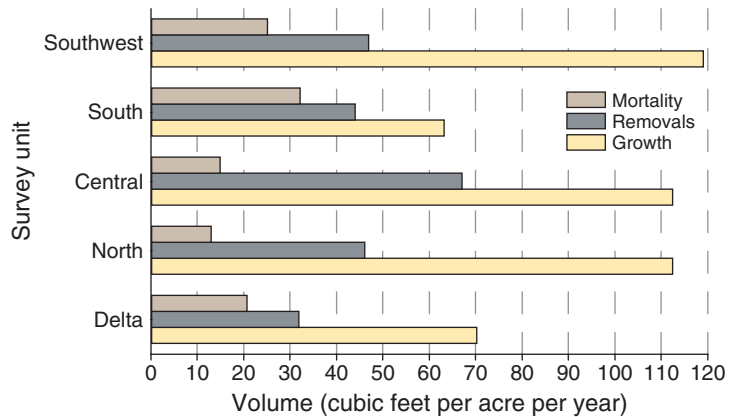


Figure 14—Average annual per-acre net growth, removals, and mortality by survey unit, Mississippi, 2006–13.

Table 5—Average annual per-acre net growth on forest land by forest-type group, Mississippi, 2006–13

Forest-type group	Net growth <i>cubic feet per acre</i>
Longleaf-slash pine	64.6
Loblolly-shortleaf pine	168.2
Other eastern softwoods	64.8
Oak-pine	67.9
Oak-hickory	55.2
Oak-gum-cypress	33.3
Elm-ash-cottonwood	57.4
Other hardwoods	23.2
Total average growth	98.1



Average annual net growth nearly doubled removals during the survey period (fig. 14). Removals averaged 1 billion cubic feet per year, on average. These removals included harvests and diversions to other land uses, though harvest removals accounted for the majority of removal volume in Mississippi. Softwoods accounted for the largest proportion of forest land removals at 658 million cubic feet. The loblolly-shortleaf pine forest-type group alone accounted for 61 percent of removals volume—an expected result given the importance of yellow pine in Mississippi’s forestry economy. Removals for uses other than timber averaged 1.2 million cubic feet, annually, with the largest volumes coming from the elm-ash-cottonwood forest-type group at 644,000 cubic feet per year, on average. These removals were most likely diversions to other land uses, particularly agriculture.

Mortality on Mississippi forest land averaged 393 million cubic feet (or 39 million trees) annually during the survey period (2006–13). That equates to roughly 2 trees per acre per year across all forest-type groups. Per-acre mortality rates were highest in the oak-gum-cypress (3 trees per acre per year, on average) and longleaf-slash pine (3 trees per acre per year, on average) forest-type groups, though absolute mortality was highest in the loblolly-shortleaf pine group (13 million trees per year, on average). Mortality rates in oak-gum-cypress were particularly high in the South unit compared to all other units at an average of 5 trees per acre per year (fig. 15). The South unit experienced higher mortality rates in all forest-type groups when compared to the other units in Mississippi, possibly due to continuing influences from hurricane activity.

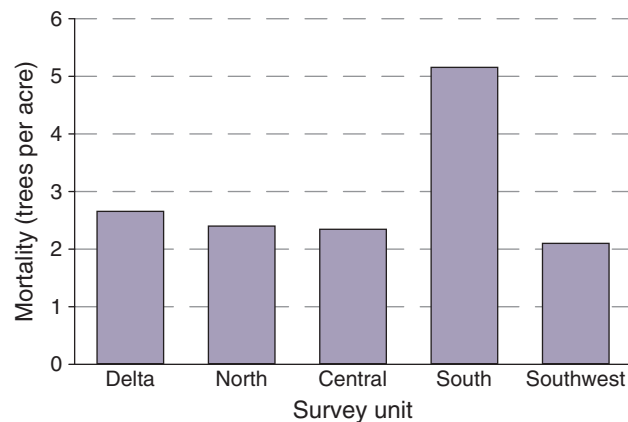


Figure 15—Average annual per-acre tree mortality in the oak-gum-cypress forest-type group by survey unit, Mississippi, 2006–13.



FOREST HEALTH AND DISTURBANCE

Fire and weather events were the two biggest disturbance agents in Mississippi forests during the survey period. Wildfire damage was estimated to have occurred on 68,500 acres annually, on average (0.4 percent of total Mississippi forest land), while weather damage was detected on 40,200 acres annually, on average (0.2 percent of total forest land). Fire disturbance affected more softwood acreage, while weather disturbance affected more hardwood acreage. Wild animals and humans were the next largest disturbance agents (table 6).

Damage detected on field plots may overestimate or underestimate actual

damage to the resource. For example, the Mississippi Forestry Commission (MFC) reports a 5-year average of 2,268 wildfires per year and about 28,000 acres damaged per year, on average. The difference between FIA and MFC estimates could be due to the method of subplot expansion used for FIA field estimates, or there could be a difference in how and when a wildfire is reported and recorded. Additionally, FIA does not distinguish between wildfire and controlled fire if damage is detected, while MFC only reports wildfire.

Severe weather events in Mississippi that cause damage to trees can range from heavy straight-line winds to hail or ice storms, unusually heavy flooding, tornadoes, and hurricanes.

Table 6—Area of forest land disturbed annually by forest-type group and disturbance class, Mississippi, 2006–13

Forest-type group ^a	Disturbance class							Other natural
	Insects	Disease	Weather	Fire	Domestic animals	Wild animals	Human	
	<i>thousand acres</i>							
Softwood types								
Longleaf-slash pine	0.0	1.9	0.9	6.1	0.0	0.0	0.0	0.0
Loblolly-shortleaf pine	2.8	2.6	11.1	43.6	0.7	1.9	5.4	6.2
Other eastern softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	2.8	4.5	11.9	49.7	0.7	1.9	5.4	6.2
Hardwood types								
Oak-pine	0.0	0.0	1.9	10.5	0.1	0.0	4.1	0.0
Oak-hickory	0.0	0.0	11.3	5.1	7.4	10.6	13.9	0.0
Oak-gum-cypress	0.0	0.0	7.3	2.5	0.2	12.2	2.8	0.0
Elm-ash-cottonwood	0.0	0.0	7.4	0.0	0.0	7.7	0.0	0.4
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	2.9	0.0
Total hardwoods	0.0	0.0	27.9	18.2	7.8	30.5	23.7	0.4
Nonstocked	0.0	0.0	0.4	0.7	0.0	1.5	0.0	8.2
All groups	2.8	4.5	40.2	68.5	8.4	33.9	29.1	14.8

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 past conditions.



A row of Nuttall oaks between two rows of taller cottonwoods at Forest Service's Center for Bottomland Hardwoods Research, research site in Stoneville, MS. (photo courtesy of U.S. Department of Agriculture)

Emerald Ash Borer

Emerald ash borer (*Agrilus planipennis*) has been found in many Southern States, including Tennessee, Missouri, Kentucky, Georgia, North Carolina, and, most recently, Arkansas. This movement south raises concerns for forestry professionals and landowners in Mississippi who own trees in the genus *Fraxinus*.

There are an estimated 329 million trees in the *Fraxinus* genus in Mississippi. Ash species make up about 2 percent of all live trees in the State, and 3 percent of all hardwood trees. The largest number of ash trees occurs in the North survey unit of Mississippi, followed by the Central and Delta units. Seventy-one percent of ash trees are <3 inches d.b.h. Another 17 percent are between 3 and 5 inches d.b.h. Ash was detected by the FIA inventory in all but nine counties in the State.

Ash species account for 539 million cubic feet of all-live volume in Mississippi. Most ash volume occurs in bottomland hardwood (oak-gum-cypress or elm-ash-cottonwood) and oak-hickory forest-type groups. The largest volume occurs along the Mississippi River in the Delta survey unit, followed by the North survey unit (fig. 16). Thus, there are larger numbers of ash seedlings in the North and Central units than in the Delta, but there are a greater number of large, mature trees in the Delta. Seventy-six percent of ash volume grows on nonindustrial private land in Mississippi.

Net annual growth (growth minus mortality) of ash trees was 19 million cubic feet, on average, while annual mortality was 6 million cubic feet, on average. Average annual removals equaled 12 million cubic feet in 2013. According to FIA Timber Product Output data, most harvested ash logs sold to mills were used for saw logs or pulpwood and come from nonindustrial private timberland.

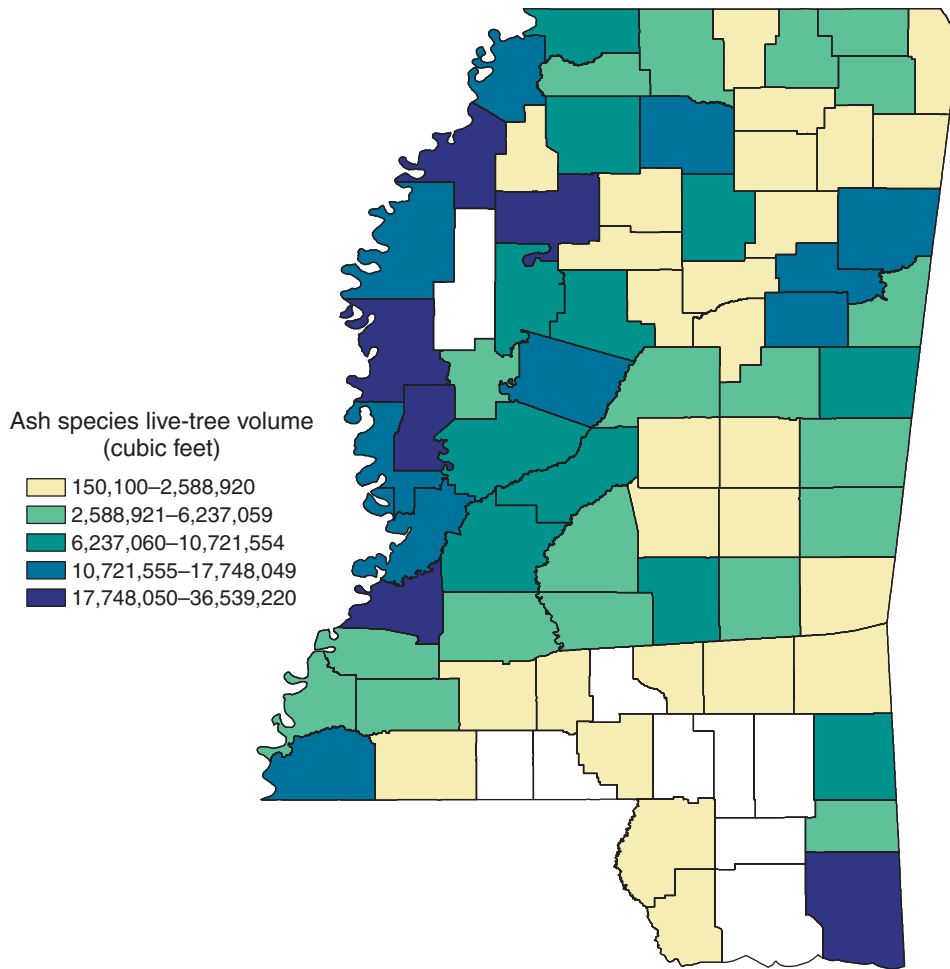


Figure 16—Cubic foot live-tree volume of ash species on forest land by county, Mississippi, 2013.

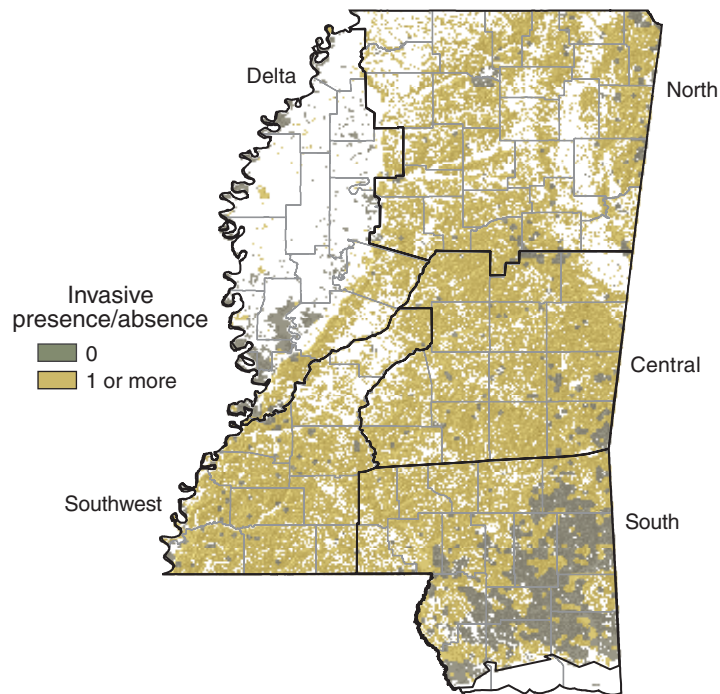
Invasive Plants

In 2010, the date of the last update, invasive plants from the FIA watch list were found on 2,935 forested plots across the State (80 percent of forested plots sampled). The large percentage of invaded plots is largely due to the presence of Japanese honeysuckle (*Lonicera japonica*), which is prevalent across the Southern United States (figs. 17A, 17B). Invasive plants other than Japanese honeysuckle were found on 2,165 plots, or 59 percent of forested plots. Fifty-two percent of plots contained two or more invasive plants from the FIA watch list. Invasive plants were detected throughout Mississippi, with at least one invasive plant (including Japanese honeysuckle) showing

up in 55 percent of forested plots in the Delta, 90 percent of forested plots in the North, 90 percent of forested plots in the Central, 61 percent of forested plots in the South, and 80 percent of forested plots in the Southwest. Again, if honeysuckle is removed from the list of plants detected, invasive plants were detected on 35, 59, 58, 55, and 80 percent of plots in the Delta, North, Central, South, and Southwest units, respectively. Japanese honeysuckle was the most frequently detected plant on Mississippi forest land, found on 70 percent of forested plots in the State. Chinese and European privets (*Ligustrum sinense/L. vulgare*) were the second most frequently detected invasive plants, found on 42 percent of sampled plots in the State.



(A) With Japanese honeysuckle



(B) Without Japanese honeysuckle

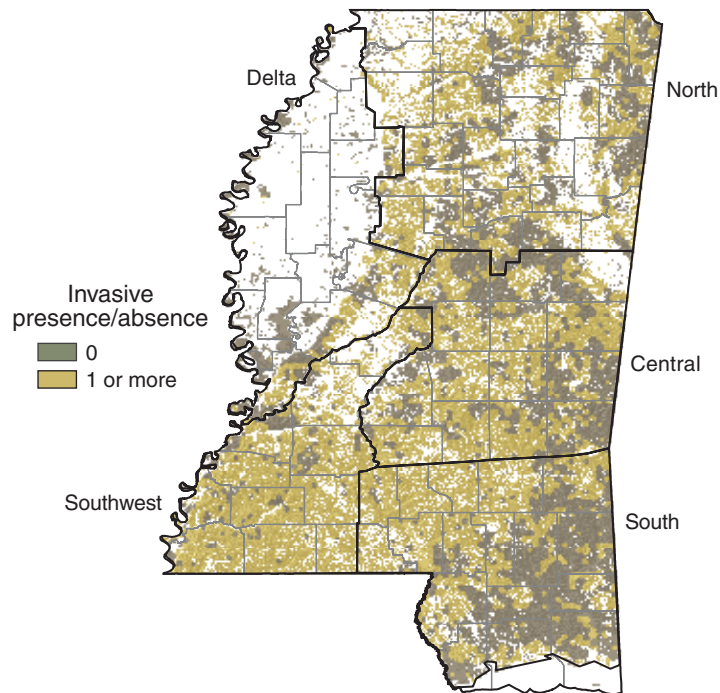


Figure 17—Invasive species presence and absence on forest land in Mississippi in 2010 (A) with Japanese honeysuckle (*Lonicera japonica*) included and (B) without Japanese honeysuckle included. White areas represent nonforest land and were not included in the survey.



Chinese tallowtree (*Triadica sebifera*) is a nonnative species that is expanding rapidly in coastal Mississippi, Louisiana, and Texas. (photo by Charles T. Bryson, U.S. Department of Agriculture Research Service, Bugwood.org)

Chinese tallowtree was the most frequently detected invasive tree in the State, followed by mimosa (*Albizia julirissin*). Mimosa was most commonly detected in the North and Central units. Statewide, invasive trees were found on 8 percent of sampled plots. Chinese and European privets were the most common invasive shrubs. Nonnative roses (*Rosa* spp.) occurred on 4 percent of sampled plots statewide, with a large proportion of those observations in the North unit. Japanese privet (*L. japonicum*) was recorded on 3 percent of sampled plots, with almost half of those observations occurring in the South unit. No other shrubs were detected on >1 percent of plots. Japanese honeysuckle was the only invasive vine occurring on >2 percent of sampled plots. The vine was detected throughout Mississippi, though it was least common in the South unit, where it occurred on 38 percent of sampled plots. Japanese honeysuckle occurred on 87 percent of plots that contained one or more invasive species, and was the only invasive species found on 770 invaded plots (26 percent of all plots with invasive plant detections). Japanese honeysuckle

covered, on average, 14 percent of the area of subplots on which it was detected. Nepalese browntop (*Microstegium vimineum*) was the most common invasive grass in Mississippi, detected on 4 percent of plots. Invasive grasses were most frequently detected in the North and Southwest units, and observations consisted primarily of both Nepalese browntop and tall fescue (*Schedonorus arundinaceus*). Chinese lespedeza (*Lespedeza bicolor/L. cuneata*) was the only invasive herb identified on >2 percent of sampled plots, with detections on 8 percent of plots (Oswalt and Oswalt 2011). The species was most common in the North unit, where 59 percent of observations of the species were noted, though it was found on sample plots in all units. Japanese climbing fern (*Lygodium japonicum*) occurred throughout the southern part of Mississippi, though it was most common in the Southwest unit, where it was found on 45 percent of sampled plots. Detections equaled 21 percent of sampled plots in the South unit. On subplots where it was found, it covered between 2 and 8 percent of the aerial proportion, on average.



INVENTORY DESIGN

The following provides a very general description of the sample design used to derive forest resource estimates provided in this report. Only the current sample design is included. Users wishing to learn about how the current methodology differs from previous methodologies should refer to the inventory methods in previous State reports (Oswalt and others 2009, Rosson 2001). Highly detailed explanations of current FIA sample design and estimation procedures are in Bechtold and Patterson (2005).

The Forest Inventory and Analysis sampling design is based on a grid of hexagons superimposed on a map of the United States, with each hexagon approximately 6,000 acres in size and at least one permanent plot established in each hexagon. In phase 1 of FIA's multiphase inventory, the population of interest is stratified and plots are assigned to each stratum to increase the precision of estimates. During phase 2 (P2), tree and site attributes are measured for forested plots established in each hexagon. P2 plots

consist of four 24-foot fixed-radius subplots on which standing trees are inventoried (fig. 18). During phase 3, select forest health indicators (tree crown condition, forest soils, vegetation diversity, and down woody materials) are measured on approximately $\frac{1}{16}$ th of P2 plots, so that each plot represents approximately 96,000 acres.

Area Estimation

Forest area estimates for Mississippi in 2013 were based on classifying National Land Cover Database points. Stratification of forest and nonforest was performed at the unit level. Area estimation of all lands and ownerships was based on the probability of selection of P2 plot locations. As a result, the known forest land area for specific ownerships will not always agree with area estimates based on probability of selection. For example, the acreage of national forests as published by the National Forest System will not agree exactly with the statistical estimate of national forest land generated by FIA. These numbers could differ substantially for very small areas.

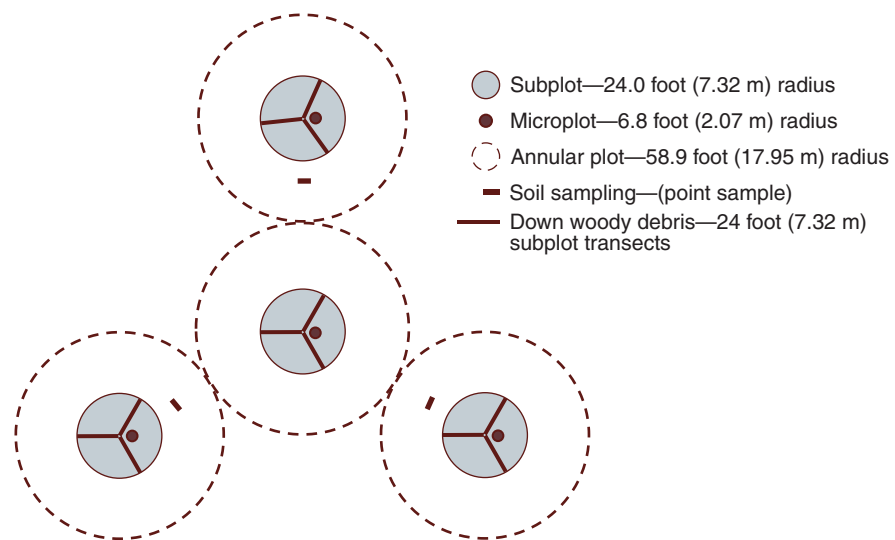


Figure 18—Layout of the fixed-radius plot design illustrating where the Forest Inventory and Analysis phase 3 variables (soil and down woody material) were collected.



STATISTICAL RELIABILITY

A relative standard of accuracy has been incorporated into the forest survey. This standard satisfies user demands, minimizes human and instrumental sources of error, and keeps costs within prescribed limits. The two primary types of error are measurement error and sampling error.

Measurement Error

There are three elements of measurement error: (1) bias, which is caused by instruments that are not properly calibrated; (2) compensating, which is caused by instruments of moderate precision; and (3) accidental, which is caused by human error in measuring and compiling. All of these are held to a minimum by a system that incorporates training, check plots, and editing and checking for consistency. Editing checks screen out logical and data entry errors for all plots. It is not possible to determine measurement error statistically, but it is possible to hold it to a minimum.

Sampling Error

Sampling error is associated with the natural and expected deviation of the sample from the true population mean. This deviation is susceptible to a mathematical evaluation of the probability of error. FIA inventories supported by the full complement of sample plots are designed to achieve reliable statistics for the region. Sampling error increases as the area or volume considered decreases in magnitude. Sampling errors and associated confidence intervals are often unacceptably high for small components of the total resource. However, there may

be instances where a smaller component does not have a proportionately larger sampling error. This can happen when the postdefined strata are more homogeneous than the larger strata, thereby having a smaller variance. For specific postdefined strata, the sampling error is available from online retrievals using the Forest Inventory Data Online (FIDO) at <http://apps.fs.fed.us/fia/fido/index.html>, or can be calculated using the following formula. (Note: Sampling errors obtained by this method are only approximations of reliability, because this process assumes constant variance across all subdivisions of totals.)

$$SE_s = SE_t \frac{\sqrt{X_t}}{\sqrt{X_s}}$$

where

SE_s = sampling error for subdivision of State total

SE_t = sampling error for State total

X_s = sum of values for the variable of interest (area or volume) for subdivision of State

X_t = total area or volume for State

Precautions

Users are cautioned to be aware of the highly variable accuracy and questionable reliability of small subsets of the data, e.g., volume estimates by county. When summarizing statistics from the FIA Database, users should familiarize themselves with the procedures used to compute sampling error as outlined above.



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GLOSSARY

All-live tree—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.



The Dusky Gopher Frog, once known as the Mississippi Gopher Frog, has an average length of about three inches and a stocky body with colors on its back that range from black to brown or gray, and is covered with dark spots and warts. In 2012, the frog was identified as one of the top 100 most endangered species in the world by the International Union for the Conservation of Nature. In February 2013, the U.S. Department of Agriculture's (USDA) National Forest Mississippi staff, researchers and volunteers discovered and documented six of the nearly extinct Dusky Gopher Frogs at the De Soto National Forest pond in Mississippi. The success of the Dusky Gopher Frog is part of the De Soto's strategy to restore 13,400 acres of longleaf pine over 9 years as part of USDA's Collaborative Forest Landscape Restoration Program. (photo courtesy of John A. Tupy, Western Carolina University)

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 aboveground 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.

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 (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 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.

Hard 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 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 (O₃)—A gaseous air pollutant produced primarily through sunlight-driven chemical reactions of NO₂ 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 $\frac{1}{3}$ of its gross board-foot volume meets size, soundness, and grade requirements and $<\frac{1}{2}$ 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 $\frac{1}{3}$ or more of its gross board-foot volume meeting size, soundness, and grade requirements, and over $\frac{1}{2}$ 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.



Sunlight shines through the trees in Rocky Springs Park on the Natchez Trace in Mississippi. (photo courtesy of Visit Mississippi/flickr.com)



INVENTORY QUALITY ASSURANCE

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 then are 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.

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 an 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



Appendix A—Inventory Quality Assurance



Daybreak at Tishomingo State Park in Mississippi. (photo courtesy of Visit Mississippi/flickr.com)

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. The tables below (tables A.1–A.3) show the percentage of observations that fell within the program tolerances in Mississippi and the Southern region during the reporting period.

A.1—Performance of data collection on achieving measurement quality objectives for plot-level variables, Mississippi and the Southern Region, 2006–13

Variable	Tolerance	Number of observations		
		Mississippi	Mississippi	Southern Region
		- number -	- - - - - percent - - - - -	
Plot-level variables				
Distance to road	No tolerance	15	93.3	75.8
Water on plot	No tolerance	12	100.0	87.1
Latitude	±2.3 degrees	11	100.0	97.0
Longitude	±2.3 degrees	11	100.0	82.4
Distance to agriculture	No tolerance	3	66.7	69.5
Distance to urban area	No tolerance	3	33.3	61.0
Accessibility	No tolerance	13	84.6	80.1
Number of conditions	No tolerance	3	100.0	95.1



A.2—Performance of data collection on achieving measurement quality objectives for condition-level variables, Mississippi and the Southern Region, 2006–13

Variable	Tolerance	Number of observations	Percent within tolerance	
		Mississippi <i>- number -</i>	Mississippi <i>----- percent -----</i>	Southern Region
Condition-level variables				
Condition status	No tolerance	26	100.0	99.8
Reserve status	No tolerance	16	100.0	99.6
Owner group	No tolerance	16	100.0	99.4
Owner class	No tolerance	16	100.0	96.7
Owner status	No tolerance	16	100.0	97.4
Forest type	No tolerance	16	87.5	82.6
Forest-type group	No tolerance	16	87.5	89.6
Stand size	No tolerance	16	93.8	87.1
Regeneration status	No tolerance	16	93.8	96.6
Regeneration species	No tolerance	7	100.0	98.1
Tree density	No tolerance	16	100.0	99.8
Stand age	±10 percent	16	56.3	61.2
Disturbance 1	No tolerance	16	93.8	92.1
Treatment 1	No tolerance	16	100.0	96.4
Treatment year 1	±1 year	6	100.0	84.1
Treatment 2	No tolerance	6	100.0	85.9
Treatment year 2	±1 year	1	100.0	85.9
Treatment 3	No tolerance	1	100.0	89.6
Physiographic class	No tolerance	16	87.5	85.7
Land use	No tolerance	16	100.0	99.1
Stand structure	No tolerance	16	87.5	89.6
Prescribed fire	No tolerance	16	100.0	96.9
Grazing	No tolerance	16	100.0	98.1



A.3—Performance of data collection on achieving measurement quality objectives for tree-level variables, Mississippi and the Southern Region, 2006–13

Variable	Tolerance	Number of observations	Percent within tolerance	
		Mississippi <i>- number -</i>	Mississippi <i>- - - - percent - - - -</i>	Southern Region
Tree-level variables				
D.b.h.	±0.1/20 inch	147	73.5	74.6
D.r.c.	±0.1/20 inch	15	86.7	86.9
Azimuth	±10 degrees	198	95.5	91.6
Horizontal distance	±0.2/1.0 feet	197	98.0	97.0
Species	No tolerance	221	93.2	96.3
Genus	No tolerance	221	97.3	99.1
Tree status	No tolerance	221	100.0	98.8
Reconcile	No tolerance	37	100.0	97.5
Total length	±10 percent	162	82.7	82.6
Compacted crown ratio	±10 percent	162	93.2	82.0
Crown class	No tolerance	162	93.2	84.2
Decay class	±1 class	36	100.0	98.0
Standing dead	No tolerance	36	97.2	98.6
Tree class	No tolerance	147	95.2	91.4
Tree grade	No tolerance	28	92.9	73.8
Utilization class	No tolerance	23	100.0	95.8
Board foot cull	±10 percent	28	64.3	78.7

D.b.h. = diameter at breast height; d.r.c. = diameter at root collar.



Cotton is a common agricultural commodity in Mississippi. (photo courtesy of Visit Mississippi/flickr.com)



Table B.1—Common name, scientific name, and FIA species code of tree species ≥ 5.0 inches in d.b.h. occurring in the FIA sample, Mississippi, 2013

Common name	Scientific name	FIA species code	Trees measured number
Atlantic white-cedar	<i>Chamaecyparis thyoides</i>	43	5
Eastern redcedar	<i>Juniperus virginiana</i>	68	170
Shortleaf pine	<i>Pinus echinata</i>	110	427
Slash pine	<i>P. elliotii</i>	111	841
Spruce pine	<i>P. glabra</i>	115	45
Longleaf pine	<i>P. palustris</i>	121	297
Loblolly pine	<i>P. taeda</i>	131	8,153
Virginia pine	<i>P. virginiana</i>	132	2
Baldcypress	<i>Taxodium distichum</i>	221	24
Pondcypress	<i>T. ascendens</i>	222	43
Florida maple	<i>Acer barbatum</i>	311	24
Boxelder	<i>A. negundo</i>	313	103
Red maple	<i>A. rubrum</i>	316	623
Silver maple	<i>A. saccharinum</i>	317	3
Mimosa, silktree	<i>Albizia julibrissin</i>	345	14
Serviceberry spp.	<i>Amelanchier</i> spp.	356	2
Pawpaw	<i>Asimina triloba</i>	367	10
River birch	<i>Betula nigra</i>	373	55
American hornbeam, musclewood	<i>Carpinus caroliniana</i>	391	275
Water hickory	<i>Carya aquatica</i>	401	121
Bitternut hickory	<i>C. cordiformis</i>	402	12
Pignut hickory	<i>C. glabra</i>	403	206
Pecan	<i>C. illinoensis</i>	404	47
Shellbark hickory	<i>C. laciniosa</i>	405	2
Shagbark hickory	<i>C. ovata</i>	407	57
Black hickory	<i>C. texana</i>	408	13
Mockernut hickory	<i>C. alba</i>	409	197
Sugarberry	<i>Celtis laevigata</i>	461	272
Hackberry	<i>C. occidentalis</i>	462	2
Eastern redbud	<i>Circis canadensis</i>	471	22
Flowering dogwood	<i>Cornus florida</i>	491	206
Hawthorn spp.	<i>Crataegus</i> spp.	500	6
Common persimmon	<i>Diospyros virginiana</i>	521	114
American beech	<i>Fagus grandifolia</i>	531	74
White ash	<i>Fraxinus americana</i>	541	44
Green ash	<i>F. pennsylvanica</i>	544	282
Honeylocust	<i>Gleditsia triacanthos</i>	552	33
Two-wing silverbell	<i>Halesia diptera</i>	582	9
American holly	<i>Ilex opaca</i>	591	103

continued



Appendix B—Species List

Table B.1—Common name, scientific name, and FIA species codes of tree species ≥ 5.0 inches in d.b.h. occurring in the FIA sample, Mississippi, 2013 (continued)

Common name	Scientific name	FIA species code	Trees measured number
Black walnut	<i>Juglans nigra</i>	602	6
Sweetgum	<i>Liquidambar styraciflua</i>	611	2,218
Yellow-poplar	<i>Liriodendron tulipifera</i>	621	435
Osage-orange	<i>Maclura pomifera</i>	641	18
Cucumbertree	<i>Magnolia acuminata</i>	651	2
Southern magnolia	<i>M. grandiflora</i>	652	48
Sweetbay	<i>M. virginiana</i>	653	339
Bigleaf magnolia	<i>M. macrophylla</i>	654	13
Southern crabapple	<i>Malus angustifolia</i>	662	1
Red mulberry	<i>Morus rubra</i>	682	30
Water tupelo	<i>Nyssa aquatica</i>	691	105
Blackgum	<i>N. sylvatica</i>	693	513
Swamp tupelo	<i>N. biflora</i>	694	320
Eastern hophornbeam	<i>Ostrya virginiana</i>	701	168
Sourwood	<i>Oxydendrum arboreum</i>	711	102
Redbay	<i>Persea borbonia</i>	721	54
Water-elm, planertree	<i>Planera aquatica</i>	722	2
American sycamore	<i>Platanus occidentalis</i>	731	74
Eastern cottonwood	<i>Populus deltoides</i>	742	18
Black cherry	<i>Prunus serotina</i>	762	327
Chokecherry	<i>P. virginiana</i>	763	1
American plum	<i>P. americana</i>	766	2
White oak	<i>Quercus alba</i>	802	427
Scarlet oak	<i>Q. coccinea</i>	806	8
Southern red oak	<i>Q. falcata</i>	812	364
Cherrybark oak	<i>Q. pagoda</i>	813	190
Laurel oak	<i>Q. laurifolia</i>	820	80
Overcup oak	<i>Q. lyrata</i>	822	68
Blackjack oak	<i>Q. marilandica</i>	824	15
Swamp chestnut oak	<i>Q. michauxii</i>	825	43
Chinkapin oak	<i>Q. muehlenbergii</i>	826	4
Water oak	<i>Q. nigra</i>	827	1,009
Texas red oak	<i>Q. texana</i>	828	60
Willow oak	<i>Q. phellos</i>	831	115
Northern red oak	<i>Q. rubra</i>	833	17
Shumard oak	<i>Q. shumardii</i>	834	12
Post oak	<i>Q. stellata</i>	835	238
Black oak	<i>Q. velutina</i>	837	53
Live oak	<i>Q. virginiana</i>	838	7

continued



Crayfish are common in Mississippi creeks and streams. (photo by Chris Lukhaup, U.S. Forest Service)

Table B.1—Common name, scientific name, and FIA species codes of tree species ≥ 5.0 inches in d.b.h. occurring in the FIA sample, Mississippi, 2013 (continued)

Common name	Scientific name	FIA species code	Trees measured number
Bluejack oak	<i>Q. incana</i>	842	3
Black locust	<i>Robinia pseudoacacia</i>	901	33
Black willow	<i>Salix nigra</i>	922	160
Sassafras	<i>Sassafras albidum</i>	931	54
Carolina basswood	<i>Tilia americana</i> var. <i>caroliniana</i>	953	1
Winged elm	<i>Ulmus alata</i>	971	465
American elm	<i>U. americana</i>	972	207
Cedar elm	<i>U. crassifolia</i>	973	4
Slippery elm	<i>U. rubra</i>	975	93
Chinaberry	<i>Melia azedarach</i>	993	11
Chinese tallowtree	<i>Triadica sebifera</i>	994	64
Tungoil tree	<i>Vernicia fordii</i>	995	4
Unknown dead hardwood	—	998	1
Other or unknown live tree	—	999	12

FIA = Forest Inventory and Analysis; d.b.h. = diameter at breast height.



A serene wooded path winds through the forest at Tishomingo State Park, Tishomingo County, MS.
(photo courtesy of Visit Mississippi/flickr.com)



Table C.1—Percentage of area by land status, Mississippi, 2013

Land status	Area <i>percent</i>
Accessible forest land	
Unreserved forest land	
Timberland	61.6
Unproductive	0.0
Total	61.6
Reserved forest land	
Productive	0.6
Unproductive	0.0
Total	0.6
Total forest land	62.2
Nonforest and other area	
Nonforest land	33.1
Water	
Noncensus water	0.7
Census water	3.1
Total	37.0
Nonsampled area	
Access denied	0.5
Hazardous conditions	0.2
All area	100.0
Total area (<i>thousand acres</i>)	31,001.8

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.

Table C.1.1—Area by survey unit and land status, Mississippi, 2013

Survey unit	Total area	All forest	Land status						Nonforest land	Census water
			Unreserved			Reserved				
			Total	Timberland	Un-productive	Total	Productive	Un-productive		
<i>thousand acres</i>										
Delta	5,585.9	1,794.0	1,690.9	1,690.9	0.0	103.1	103.1	0.0	3,641.5	150.4
North	8,406.4	5,217.8	5,199.4	5,190.6	8.7	18.5	18.5	0.0	3,024.9	163.6
Central	5,939.7	4,592.4	4,572.8	4,572.8	0.0	19.7	19.7	0.0	1,290.7	56.6
South	6,654.1	4,647.8	4,626.8	4,626.8	0.0	21.0	21.0	0.0	1,457.7	548.6
Southwest	4,415.7	3,216.3	3,185.7	3,185.7	0.0	30.6	30.6	0.0	1,148.8	50.6
All units	31,001.8	19,468.4	19,275.5	19,266.8	8.7	192.9	192.9	0.0	10,563.6	969.8

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.



Appendix C—Supporting Tables

Table C.2—Area of forest land by ownership class and land status, Mississippi, 2013

Ownership class	All forest	Land status					
		Unreserved			Reserved		
		Total	Timberland	Un-productive	Total	Productive	Un-productive
<i>thousand acres</i>							
U.S. Forest Service							
National forest	1,336.7	1,330.8	1,330.8	0.0	5.9	5.9	0.0
Total	1,336.7	1,330.8	1,330.8	0.0	5.9	5.9	0.0
Other Federal							
National Park Service	10.2	0.0	0.0	0.0	10.2	10.2	0.0
U.S. Fish and Wildlife Service	170.5	0.0	0.0	0.0	170.5	170.5	0.0
Dept. of Defense/Dept. of Energy	253.4	253.4	253.4	0.0	0.0	0.0	0.0
Other Federal	67.7	67.7	67.7	0.0	0.0	0.0	0.0
Total	501.8	321.1	321.1	0.0	180.7	180.7	0.0
State and local government							
State	232.5	226.3	226.3	0.0	6.2	6.2	0.0
Local	246.1	246.1	246.1	0.0	0.0	0.0	0.0
Total	478.6	472.4	472.4	0.0	6.2	6.2	0.0
Forest industry							
Corporate	1,294.8	1,294.8	1,294.8	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	6.3	6.3	6.3	0.0	0.0	0.0	0.0
Total	1,307.0	1,307.0	1,307.0	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	3,361.9	3,361.9	3,361.9	0.0	0.0	0.0	0.0
Conservation/natural resources organization	27.3	27.3	27.3	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	640.1	640.1	640.1	0.0	0.0	0.0	0.0
Native American	18.1	18.1	18.1	0.0	0.0	0.0	0.0
Individual	11,796.8	11,796.8	11,788.1	8.7	0.0	0.0	0.0
Total	15,844.3	15,844.3	15,835.6	8.7	0.0	0.0	0.0
All classes	19,468.4	19,275.5	19,266.8	8.7	192.9	192.9	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 C.3—Area of forest land by forest-type group and site productivity class, Mississippi, 2013

Forest-type group	All classes	Site productivity class (<i>cubic feet/acre/year</i>)						
		0–19	20–49	50–84	85–119	120–164	165–224	225+
<i>thousand acres</i>								
Softwood types								
Longleaf-slash pine	850.9	0.0	54.6	376.8	318.2	89.9	5.9	5.5
Loblolly-shortleaf pine	7,350.8	0.0	76.4	1,239.2	2,633.3	2,235.1	1,123.5	43.4
Other eastern softwoods	66.7	0.0	4.9	30.1	25.4	0.0	6.3	0.0
Total softwoods	8,268.4	0.0	135.9	1,646.1	2,976.8	2,325.0	1,135.7	48.9
Hardwood types								
Oak-pine	2,050.6	0.0	42.3	540.3	687.2	525.1	243.9	11.9
Oak-hickory	5,130.2	7.3	131.0	1,481.9	1,896.8	1,158.7	400.9	53.7
Oak-gum-cypress	2,536.9	1.5	91.9	889.5	855.3	425.1	221.6	52.1
Elm-ash-cottonwood	1,184.4	0.0	31.4	370.9	478.9	215.1	49.5	38.7
Other hardwoods	13.8	0.0	0.0	6.2	4.4	3.1	0.0	0.0
Exotic hardwoods	64.1	0.0	0.0	40.6	12.8	4.8	0.0	5.9
Total hardwoods	10,980.0	8.7	296.5	3,329.4	3,935.5	2,331.9	915.8	162.2
Nonstocked	220.0	0.0	16.8	102.7	64.5	27.9	8.2	0.0
All groups	19,468.4	8.7	449.1	5,078.2	6,976.8	4,684.7	2,059.6	211.1

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.



Appendix C—Supporting Tables

Table C.4—Area of forest land by forest-type group and ownership group, Mississippi, 2013

Forest-type group	All ownerships	Ownership group				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
<i>thousand acres</i>						
Softwood types						
Longleaf-slash pine	850.9	292.0	17.6	52.5	34.2	454.5
Loblolly-shortleaf pine	7,350.8	456.9	56.5	137.4	683.5	6,016.4
Other eastern softwoods	66.7	0.0	0.0	0.0	0.0	66.7
Total softwoods	8,268.4	749.0	74.1	189.9	717.8	6,537.6
Hardwood types						
Oak-pine	2,050.6	163.8	41.7	64.4	130.1	1,650.5
Oak-hickory	5,130.2	260.7	82.6	68.7	238.0	4,480.2
Oak-gum-cypress	2,536.9	134.9	216.4	105.0	99.8	1,981.0
Elm-ash-cottonwood	1,184.4	19.0	65.9	41.4	107.3	950.8
Other hardwoods	13.8	0.0	0.0	0.0	3.1	10.6
Exotic hardwoods	64.1	0.0	0.0	1.5	0.0	62.6
Total hardwoods	10,980.0	578.3	406.6	281.1	578.3	9,135.7
Nonstocked	220.0	9.4	21.1	7.5	10.9	171.1
All groups	19,468.4	1,336.7	501.8	478.6	1,307.0	15,844.3

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 C.5—Area of forest land by forest-type group and stand-size class, Mississippi, 2013

Forest-type group	All size classes	Stand-size class			Non-stocked
		Large diameter	Medium diameter	Small diameter	
<i>thousand acres</i>					
Softwood types					
Longleaf-slash pine	850.9	577.8	156.7	116.4	0.0
Loblolly-shortleaf pine	7,350.8	3,525.3	2,677.4	1,148.0	0.0
Other eastern softwoods	66.7	13.5	32.3	20.9	0.0
Total softwoods	8,268.4	4,116.6	2,866.5	1,285.3	0.0
Hardwood types					
Oak-pine	2,050.6	937.1	426.9	686.5	0.0
Oak-hickory	5,130.2	2,484.2	1,038.8	1,607.2	0.0
Oak-gum-cypress	2,536.9	1,603.4	461.1	472.4	0.0
Elm-ash-cottonwood	1,184.4	629.0	232.2	323.2	0.0
Other hardwoods	13.8	2.9	1.6	9.3	0.0
Exotic hardwoods	64.1	1.5	12.9	49.7	0.0
Total hardwoods	10,980.0	5,658.2	2,173.4	3,148.4	0.0
Nonstocked	220.0	0.0	0.0	0.0	220.0
All groups	19,468.4	9,774.9	5,039.9	4,433.7	220.0

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.



Appendix C—Supporting Tables

Table C.6—Area of forest land by forest-type group and stand-age class, Mississippi, 2013

Forest-type group	Stand-age class (<i>years</i>)												Non- stocked
	All classes	1– 20	21– 40	41– 60	61– 80	81– 100	101– 120	121– 140	141– 160	161– 180	181– 200	201+	
	<i>thousand acres</i>												
Softwood types													
Longleaf-slash pine	850.9	162.7	274.7	264.6	131.5	17.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loblolly-shortleaf pine	7,350.8	3,888.7	2,615.9	535.2	278.2	32.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other eastern softwoods	66.7	39.1	14.2	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	8,268.4	4,090.5	2,904.9	813.2	409.8	50.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardwood types													
Oak-pine	2,050.6	857.4	543.3	431.6	187.9	24.3	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Oak-hickory	5,130.2	1,657.7	1,225.2	1,337.6	823.6	66.0	1.6	0.0	0.0	0.0	0.0	0.0	18.6
Oak-gum-cypress	2,536.9	498.8	513.1	782.3	665.2	67.0	6.0	4.4	0.0	0.0	0.0	0.0	0.0
Elm-ash-cottonwood	1,184.4	353.5	221.3	451.8	141.2	16.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other hardwoods	13.8	6.3	5.9	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exotic hardwoods	64.1	33.2	23.2	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
Total hardwoods	10,980.0	3,406.9	2,532.0	3,006.5	1,819.5	173.7	13.7	4.4	0.0	0.0	0.0	0.0	23.4
Nonstocked	220.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	220.0
All groups	19,468.4	7,497.4	5,436.9	3,819.7	2,229.2	223.8	13.7	4.4	0.0	0.0	0.0	0.0	243.3

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 C.7—Area of forest land by forest-type group and stand origin, Mississippi, 2013

Forest-type group	Total	Stand origin	
		Natural stands	Artificial regeneration
<i>thousand acres</i>			
Softwood types			
Longleaf-slash pine	850.9	591.0	260.0
Loblolly-shortleaf pine	7,350.8	2,559.6	4,791.2
Other eastern softwoods	66.7	66.7	0.0
Total softwoods	8,268.4	3,217.3	5,051.1
Hardwood types			
Oak-pine	2,050.6	1,574.3	476.2
Oak-hickory	5,130.2	4,921.8	208.4
Oak-gum-cypress	2,536.9	2,359.9	177.0
Elm-ash-cottonwood	1,184.4	1,138.2	46.2
Other hardwoods	13.8	12.2	1.6
Exotic hardwoods	64.1	64.1	0.0
Total hardwoods	10,980.0	10,070.6	909.5
Nonstocked	220.0	190.0	30.0
All groups	19,468.4	13,477.8	5,990.6

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.



Appendix C—Supporting Tables

Table C.8—Area of forest land disturbed annually by forest-type group and disturbance class, Mississippi, 2006–13

Forest-type group ^a	Disturbance class							
	Insects	Disease	Weather	Fire	Domestic animals	Wild animals	Human	Other natural
	<i>thousand acres</i>							
Softwood types								
Longleaf-slash pine	0.0	1.9	0.9	6.1	0.0	0.0	0.0	0.0
Loblolly-shortleaf pine	2.8	2.6	11.1	43.6	0.7	1.9	5.4	6.2
Other eastern softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total softwoods	2.8	4.5	11.9	49.7	0.7	1.9	5.4	6.2
Hardwood types								
Oak-pine	0.0	0.0	1.9	10.5	0.1	0.0	4.1	0.0
Oak-hickory	0.0	0.0	11.3	5.1	7.4	10.6	13.9	0.0
Oak-gum-cypress	0.0	0.0	7.3	2.5	0.2	12.2	2.8	0.0
Elm-ash-cottonwood	0.0	0.0	7.4	0.0	0.0	7.7	0.0	0.4
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	2.9	0.0
Total hardwoods	0.0	0.0	27.9	18.2	7.8	30.5	23.7	0.4
Nonstocked	0.0	0.0	0.4	0.7	0.0	1.5	0.0	8.2
All groups	2.8	4.5	40.2	68.5	8.4	33.9	29.1	14.8

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 past conditions.



Table C.9—Area of timberland by forest-type group and stand-size class, Mississippi, 2013

Forest-type group	All size classes	Stand-size class			Non-stocked
		Large diameter	Medium diameter	Small diameter	
<i>thousand acres</i>					
Softwood types					
Longleaf-slash pine	838.9	572.0	150.6	116.4	0.0
Loblolly-shortleaf pine	7,333.9	3,510.0	2,675.9	1,148.0	0.0
Other eastern softwoods	66.7	13.5	32.3	20.9	0.0
Total softwoods	8,239.5	4,095.5	2,858.8	1,285.3	0.0
Hardwood types					
Oak-pine	2,020.6	916.2	417.9	686.5	0.0
Oak-hickory	5,095.1	2,462.3	1,034.4	1,598.4	0.0
Oak-gum-cypress	2,449.6	1,556.6	449.4	443.6	0.0
Elm-ash-cottonwood	1,176.4	624.4	230.5	321.5	0.0
Other hardwoods	13.8	2.9	1.6	9.3	0.0
Exotic hardwoods	64.1	1.5	12.9	49.7	0.0
Total hardwoods	10,819.6	5,563.9	2,146.6	3,109.1	0.0
Nonstocked	207.7	0.0	0.0	0.0	207.7
All groups	19,266.8	9,659.4	5,005.4	4,394.4	207.7

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.



Appendix C—Supporting Tables

Table C.10—Number of live trees on forest land by species group and diameter class, Mississippi, 2013

Species group	All classes	Diameter class														
		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+
<i>million trees</i>																
Softwood																
Cypress	49.7	21.8	12.1	5.0	2.9	2.6	1.2	1.1	0.9	0.8	0.4	0.5	0.2	0.2	0.0	0.1
Loblolly and shortleaf pines	2,941.3	952.7	683.6	527.2	370.6	193.1	106.3	52.0	26.1	13.0	8.1	6.6	1.5	0.3	0.1	0.0
Longleaf and slash pines	225.1	75.2	48.0	32.3	26.6	17.2	10.9	7.2	4.2	2.0	1.0	0.4	0.0	0.0	0.0	0.0
Other eastern softwoods	159.2	92.6	34.9	14.2	7.7	4.7	2.4	1.5	0.7	0.3	0.1	0.1	0.0	0.0	0.0	0.0
Other yellow pines	16.2	8.1	2.7	1.8	1.1	0.5	0.5	0.6	0.1	0.3	0.2	0.1	0.1	0.0	0.0	0.0
Total softwoods	3,391.5	1,150.4	781.3	580.5	409.0	218.1	121.3	62.3	32.0	16.4	9.9	7.7	1.9	0.5	0.2	0.1
Hardwood																
Ash	328.7	232.9	57.1	15.3	8.5	4.7	3.9	1.9	2.0	0.9	0.5	0.6	0.2	0.1	0.0	0.1
Basswood	9.1	6.0	1.4	0.8	0.4	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	66.6	45.5	10.2	3.4	1.9	1.2	1.2	0.7	0.8	0.5	0.4	0.2	0.4	0.2	0.1	0.0
Black walnut	3.5	1.8	0.5	0.4	0.3	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Cottonwood and aspen	14.6	7.3	2.2	2.0	1.1	0.4	0.4	0.2	0.4	0.1	0.1	0.2	0.0	0.1	0.0	0.0
Eastern noncommercial hardwoods	1,134.7	844.9	181.9	60.3	26.9	11.4	4.8	2.2	1.4	0.5	0.2	0.1	0.0	0.0	0.0	0.0
Hard maple	15.7	11.5	1.8	1.1	0.5	0.5	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Hickory	475.8	350.8	54.3	24.0	16.5	10.4	6.8	4.3	3.6	1.9	1.1	1.4	0.3	0.2	0.1	0.0
Other eastern hard hardwoods	572.2	460.8	77.3	21.2	7.5	2.8	1.2	0.7	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	1,600.7	1,128.6	264.2	97.6	46.0	27.0	14.4	8.6	6.0	3.4	2.2	1.6	0.8	0.1	0.1	0.0
Other red oaks	1,524.9	1,115.8	205.4	68.4	38.0	26.8	19.4	14.3	10.9	8.9	5.5	6.7	2.6	1.4	0.5	0.5
Other white oaks	151.4	85.1	24.1	11.4	9.7	6.5	4.5	3.3	2.2	1.7	0.8	0.9	0.5	0.3	0.1	0.0
Select red oaks	134.8	76.1	22.5	9.2	6.3	4.3	3.4	3.1	2.1	1.8	1.9	2.2	1.2	0.3	0.2	0.2
Select white oaks	307.7	191.4	49.0	20.2	14.2	10.5	6.8	4.9	3.4	2.8	1.8	1.8	0.8	0.2	0.0	0.0
Soft maple	941.0	760.2	119.6	33.9	14.7	6.9	3.0	1.3	0.8	0.3	0.3	0.1	0.0	0.0	0.0	0.0
Sweetgum	2,010.7	1,357.8	378.0	133.2	62.9	33.0	20.0	10.6	6.1	3.9	2.6	1.9	0.5	0.2	0.0	0.0
Tupelo and blackgum	581.2	403.0	84.5	37.7	22.4	13.4	8.9	4.7	3.2	1.9	0.9	0.4	0.1	0.0	0.0	0.0
Yellow-poplar	281.5	165.4	54.0	23.2	14.2	7.5	5.7	3.8	2.7	2.1	1.2	1.1	0.5	0.1	0.1	0.0
Total hardwoods	10,154.9	7,244.9	1,588.0	563.2	291.9	167.9	104.6	64.7	45.8	31.0	19.8	19.5	8.0	3.4	1.2	1.1
All species	13,546.3	8,395.3	2,369.3	1,143.7	701.0	386.0	225.9	127.0	77.7	47.4	29.7	27.2	9.9	3.9	1.4	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 C.11—Number of growing-stock trees on timberland by species group and diameter class, Mississippi, 2013

Species group	Diameter class													
	All classes	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+
	<i>million trees</i>													
Softwood														
Cypress	12.9	3.7	2.3	2.1	1.0	1.0	0.8	0.6	0.4	0.5	0.2	0.2	0.0	0.0
Loblolly and shortleaf pines	1,242.8	497.7	355.8	184.1	102.2	50.1	25.0	12.4	7.5	6.2	1.4	0.3	0.1	0.0
Longleaf and slash pines	97.9	30.3	25.6	16.9	10.6	7.1	4.1	1.9	1.0	0.4	0.0	0.0	0.0	0.0
Other eastern softwoods	17.8	8.3	4.4	2.6	1.5	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Other yellow pines	4.5	1.4	0.9	0.4	0.4	0.4	0.1	0.3	0.2	0.1	0.1	0.0	0.0	0.0
Total softwoods	1,375.9	541.5	389.0	206.2	115.8	59.2	30.2	15.4	9.1	7.2	1.7	0.4	0.1	0.0
Hardwood														
Ash	24.7	9.1	5.7	3.3	2.3	1.3	1.4	0.6	0.4	0.5	0.2	0.1	0.0	0.0
Basswood	1.1	0.4	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Beech	6.6	1.8	1.1	0.8	0.8	0.3	0.6	0.4	0.2	0.2	0.2	0.1	0.0	0.0
Black walnut	0.6	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cottonwood and aspen	3.7	1.6	0.8	0.3	0.3	0.1	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Hard maple	1.2	0.4	0.3	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Hickory	50.4	15.7	11.2	7.8	5.6	3.2	2.8	1.5	1.0	1.1	0.2	0.2	0.0	0.0
Other eastern hard hardwoods	11.1	5.6	3.0	1.3	0.5	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	104.3	42.7	24.5	14.6	8.1	5.0	4.2	2.2	1.4	1.0	0.5	0.0	0.1	0.0
Other red oaks	150.2	46.1	27.4	19.6	15.1	11.6	9.1	7.5	4.8	5.7	1.9	1.0	0.2	0.4
Other white oaks	30.0	7.3	6.7	4.9	3.6	2.7	1.7	1.3	0.6	0.5	0.3	0.1	0.1	0.0
Select red oaks	30.2	6.9	5.0	3.8	3.0	2.8	1.9	1.6	1.7	2.1	1.0	0.3	0.1	0.1
Select white oaks	56.3	15.0	12.1	9.0	6.0	4.5	3.2	2.7	1.7	1.5	0.7	0.1	0.0	0.0
Soft maple	23.8	12.0	6.0	3.0	1.4	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
Sweetgum	207.6	96.1	47.6	25.7	16.2	9.2	5.1	3.2	2.3	1.5	0.5	0.2	0.0	0.0
Tupelo and blackgum	63.3	22.2	15.9	9.9	6.4	3.8	2.6	1.5	0.7	0.2	0.1	0.0	0.0	0.0
Yellow-poplar	53.4	19.5	12.1	6.5	5.0	3.4	2.4	1.9	1.0	1.1	0.4	0.1	0.1	0.0
Total hardwoods	818.3	302.6	179.6	111.0	74.5	49.1	35.6	24.7	16.1	15.5	6.0	2.4	0.7	0.5
All species	2,194.2	844.1	568.6	317.2	190.3	108.3	65.7	40.0	25.2	22.7	7.8	2.8	0.8	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.



Appendix C—Supporting Tables

Table C.12—Net^a volume of live trees on forest land by ownership class and land status, Mississippi, 2013

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timberland	Un-productive	Total	Productive	Un-productive
<i>million cubic feet</i>							
U.S. Forest Service							
National forest	3,554.8	3,530.0	3,530.0	0.0	24.8	24.8	0.0
Total	3,554.8	3,530.0	3,530.0	0.0	24.8	24.8	0.0
Other Federal							
National Park Service	51.3	0.0	0.0	0.0	51.3	51.3	0.0
U.S. Fish and Wildlife Service	351.5	0.0	0.0	0.0	351.5	351.5	0.0
Dept. of Defense/Dept. of Energy	519.8	519.8	519.8	0.0	0.0	0.0	0.0
Other Federal	130.6	130.6	130.6	0.0	0.0	0.0	0.0
Total	1,053.2	650.4	650.4	0.0	402.8	402.8	0.0
State and local government							
State	476.7	460.2	460.2	0.0	16.5	16.5	0.0
Local	435.9	435.9	435.9	0.0	0.0	0.0	0.0
Total	912.5	896.1	896.1	0.0	16.5	16.5	0.0
Forest industry							
Corporate	1,693.1	1,693.1	1,693.1	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	7.4	7.4	7.4	0.0	0.0	0.0	0.0
Individual	11.6	11.6	11.6	0.0	0.0	0.0	0.0
Total	1,712.1	1,712.1	1,712.1	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	5,440.5	5,440.5	5,440.5	0.0	0.0	0.0	0.0
Conservation/natural resources organization	22.4	22.4	22.4	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	1,011.4	1,011.4	1,011.4	0.0	0.0	0.0	0.0
Native American	59.8	59.8	59.8	0.0	0.0	0.0	0.0
Individual	18,464.7	18,464.7	18,463.0	1.7	0.0	0.0	0.0
Total	24,998.8	24,998.8	24,997.1	1.7	0.0	0.0	0.0
All classes	32,231.4	31,787.4	31,785.7	1.7	444.1	444.1	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 C.13—Net^a volume of live trees on forest land by forest-type group and stand-size class, Mississippi, 2013

Forest-type group	All size classes	Stand-size class			Non-stocked
		Large diameter	Medium diameter	Small diameter	
<i>million cubic feet</i>					
Softwood types					
Longleaf-slash pine	1,477.0	1,273.9	189.0	14.0	0.0
Loblolly-shortleaf pine	12,963.4	9,261.8	3,528.0	173.6	0.0
Other eastern softwoods	65.4	24.6	36.8	4.0	0.0
Total softwoods	14,505.9	10,560.4	3,753.8	191.7	0.0
Hardwood types					
Oak-pine	2,939.1	2,300.5	481.3	157.3	0.0
Oak-hickory	7,698.8	6,182.7	1,201.5	314.5	0.0
Oak-gum-cypress	5,310.0	4,570.8	638.6	100.7	0.0
Elm-ash-cottonwood	1,729.3	1,430.7	227.4	71.2	0.0
Other hardwoods	7.2	5.0	0.6	1.6	0.0
Exotic hardwoods	23.9	2.3	15.2	6.3	0.0
Total hardwoods	17,708.3	14,492.1	2,564.5	651.7	0.0
Nonstocked	17.3	0.0	0.0	0.0	17.3
All groups	32,231.4	25,052.5	6,318.4	843.3	17.3

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.



Appendix C—Supporting Tables

Table C.14—Net^a volume of live trees on forest land by species group and ownership group, Mississippi, 2013

Species group	All ownerships	Ownership group				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
<i>million cubic feet</i>						
Softwood						
Cypress	333.2	4.1	24.1	39.5	10.2	255.4
Loblolly and shortleaf pines	13,228.6	1,491.0	221.7	316.1	871.0	10,328.8
Longleaf and slash pines	1,420.1	630.9	23.6	72.5	19.5	673.7
Other eastern softwoods	219.7	11.5	6.7	5.3	1.5	194.7
Other yellow pines	128.3	6.5	0.2	2.6	4.2	114.9
Total softwoods	15,330.0	2,143.9	276.3	436.0	906.4	11,567.4
Hardwood						
Ash	539.1	37.7	35.8	32.3	21.8	411.6
Basswood	27.0	1.6	0.1	0.3	6.0	19.0
Beech	240.1	12.9	0.2	5.6	15.9	205.4
Black walnut	12.1	0.0	0.0	0.0	2.4	9.7
Cottonwood and aspen	109.7	0.0	3.0	0.0	0.5	106.2
Eastern noncommercial hardwoods	575.0	61.5	11.4	13.0	26.8	462.3
Hard maple	25.1	0.3	1.0	0.0	5.4	18.5
Hickory	1,045.5	69.4	37.4	24.2	27.8	886.7
Other eastern hard hardwoods	169.3	17.8	7.9	5.8	6.4	131.4
Other eastern soft hardwoods	1,942.9	73.4	93.3	72.1	115.2	1,588.9
Other red oaks	3,974.5	325.0	157.8	107.1	144.8	3,239.7
Other white oaks	733.7	89.9	79.0	16.1	12.8	535.9
Select red oaks	1,140.1	75.4	81.9	42.9	49.2	890.8
Select white oaks	1,284.3	226.3	29.7	14.9	79.9	933.5
Soft maple	377.5	39.2	35.6	10.5	26.4	265.8
Sweetgum	2,756.8	146.4	135.7	101.5	126.9	2,246.3
Tupelo and blackgum	948.4	118.6	57.8	20.3	39.4	712.3
Yellow-poplar	1,000.2	115.4	9.3	9.8	98.1	767.4
Total hardwoods	16,901.5	1,410.9	776.9	476.6	805.8	13,431.3
All species	32,231.4	3,554.8	1,053.2	912.5	1,712.1	24,998.8

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 C.15—Net^a volume of live trees on forest land by species group and diameter class, Mississippi, 2013

Species group	Diameter class (inches at breast height)											All classes		
	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		33.0–37.0+	
	million cubic feet													
Softwood														
Cypress	333.2	13.8	17.3	30.6	20.9	32.6	32.4	41.6	32.0	44.4	20.2	28.3	7.3	12.0
Loblolly and shortleaf pines	13,228.6	1,293.3	2,280.8	2,332.6	2,132.3	1,572.5	1,119.7	767.0	644.6	728.8	250.5	78.0	28.4	0.0
Longleaf and slash pines	1,420.1	95.4	190.3	227.0	236.5	232.5	188.1	118.8	79.0	46.0	6.5	0.0	0.0	0.0
Other eastern softwoods	219.7	32.1	41.3	43.7	34.9	30.1	19.5	11.1	3.6	3.3	0.0	0.0	0.0	0.0
Other yellow pines	128.3	5.9	7.9	5.8	9.5	15.6	6.6	21.0	17.6	10.4	17.1	0.0	11.0	0.0
Total softwoods	15,330.0	1,440.4	2,537.5	2,639.7	2,434.1	1,883.4	1,366.4	959.3	776.9	832.9	294.3	106.3	46.7	12.0
Hardwood														
Ash	539.1	42.1	55.4	56.3	67.2	51.8	69.8	41.0	33.3	48.0	30.4	21.6	0.0	22.3
Basswood	27.0	2.6	2.2	2.6	1.3	3.0	4.3	2.4	0.0	3.2	5.5	0.0	0.0	0.0
Beech	240.1	7.9	10.8	13.0	21.0	16.2	25.4	24.3	22.3	18.1	43.3	23.0	10.4	4.4
Black walnut	12.1	1.0	1.8	2.4	1.6	0.6	0.0	2.7	1.9	0.0	0.0	0.0	0.0	0.0
Cottonwood and aspen	109.7	5.7	6.1	4.7	6.7	5.3	12.3	6.1	4.9	22.9	5.1	26.1	0.0	3.8
Eastern noncommercial hardwoods	575.0	140.7	137.5	104.4	69.8	47.9	40.0	20.9	8.5	5.4	0.0	0.0	0.0	0.0
Hard maple	25.1	2.4	2.7	5.5	3.9	1.8	0.0	4.6	0.0	4.2	0.0	0.0	0.0	0.0
Hickory	1,045.5	54.4	91.4	111.2	122.2	114.3	143.1	95.7	75.5	130.9	35.4	37.8	12.0	21.7
Other eastern hard hardwoods	169.3	46.1	36.8	26.6	18.2	15.1	3.8	6.4	10.5	5.9	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	1,942.9	251.2	260.5	273.3	233.2	198.6	200.7	143.0	128.1	132.0	74.1	15.9	28.7	3.6
Other red oaks	3,974.5	189.6	235.3	297.7	347.2	373.6	402.5	432.3	351.3	560.4	302.1	220.2	84.1	178.0
Other white oaks	733.7	28.6	56.4	72.3	77.9	83.5	74.8	78.4	48.0	68.6	58.9	49.0	27.7	9.6
Select red oaks	1,140.1	29.2	43.1	52.5	68.4	91.6	90.9	101.0	129.2	213.0	172.8	42.0	35.2	71.2
Select white oaks	1,284.3	54.9	90.6	124.0	131.0	140.6	139.8	150.4	128.3	178.0	102.7	34.6	0.0	9.4
Soft maple	377.5	91.4	82.8	68.8	44.5	28.5	24.7	11.7	10.9	6.7	4.8	2.7	0.0	0.0
Sweetgum	2,756.8	316.9	381.6	393.0	398.9	311.2	251.6	210.3	184.9	192.3	66.4	43.1	6.6	0.0
Tupelo and blackgum	948.4	100.1	132.8	150.4	151.5	116.2	114.2	86.3	48.2	26.0	16.8	3.0	2.9	0.0
Yellow-poplar	1,000.2	69.0	95.0	93.1	113.4	107.5	106.8	111.3	80.5	106.8	73.4	26.5	16.8	0.0
Total hardwoods	16,901.5	1,434.2	1,722.6	1,851.9	1,877.9	1,707.4	1,704.6	1,528.8	1,266.5	1,722.2	991.6	545.4	224.4	324.0
All species	32,231.4	2,874.6	4,260.1	4,491.6	4,312.0	3,590.7	3,071.0	2,488.1	2,043.4	2,555.1	1,285.9	651.6	271.1	336.0

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.



Appendix C—Supporting Tables

Table C.16—Net^a volume of live trees on forest land by forest-type group and stand origin, Mississippi, 2013

Forest-type group	Total	Stand origin	
		Natural stands	Artificial regeneration
<i>million cubic feet</i>			
Softwood types			
Longleaf-slash pine	1,477.0	1,115.3	361.7
Loblolly-shortleaf pine	12,963.4	5,601.7	7,361.7
Other eastern softwoods	65.4	65.4	0.0
Total softwoods	14,505.9	6,782.5	7,723.4
Hardwood types			
Oak-pine	2,939.1	2,654.1	285.0
Oak-hickory	7,698.8	7,621.4	77.4
Oak-gum-cypress	5,310.0	5,275.3	34.8
Elm-ash-cottonwood	1,729.3	1,720.6	8.7
Other hardwoods	7.2	7.2	0.0
Exotic hardwoods	23.9	23.9	0.0
Total hardwoods	17,708.3	17,302.4	405.9
Nonstocked	17.3	17.1	0.2
All groups	32,231.4	24,102.0	8,129.4

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 C.17—Net^a volume of growing-stock trees on timberland by species group and diameter class, Mississippi, 2013

Species group	Diameter class (inches at breast height)														33.0– 37.0+		
	All classes	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				
	<i>million cubic feet</i>																
Softwood																	
Cypress	301.2	11.4	13.9	26.9	18.7	30.4	29.3	36.5	32.0	44.4	20.2	28.3	0.0	9.3			
Loblolly and shortleaf pines	12,669.9	1,231.0	2,199.6	2,235.6	2,060.5	1,520.2	1,078.1	729.3	601.0	692.1	236.9	64.3	21.2	0.0			
Longleaf and slash pines	1,382.0	91.2	185.1	223.5	232.0	229.9	185.6	114.2	76.2	38.0	6.5	0.0	0.0	0.0			
Other eastern softwoods	119.1	20.2	25.8	26.0	22.9	15.4	4.1	4.7	0.0	0.0	0.0	0.0	0.0	0.0			
Other yellow pines	119.7	4.6	6.1	5.4	7.9	11.9	6.6	21.0	17.6	10.4	17.1	0.0	11.0	0.0			
Total softwoods	14,592.0	1,358.4	2,430.5	2,517.4	2,342.0	1,807.7	1,303.8	905.7	726.9	784.9	280.8	92.6	32.2	9.3			
Hardwood																	
Ash	387.1	26.6	39.0	41.5	41.8	36.3	50.2	29.4	26.3	40.4	26.7	21.6	0.0	7.3			
Basswood	23.2	1.6	1.2	1.6	1.3	2.1	4.3	2.4	0.0	3.2	5.5	0.0	0.0	0.0			
Beech	155.1	4.5	7.1	9.2	15.5	8.9	20.4	17.1	12.8	15.6	29.4	7.5	7.3	0.0			
Black walnut	8.3	0.2	1.3	2.1	0.6	0.6	0.0	1.5	1.9	0.0	0.0	0.0	0.0	0.0			
Cottonwood and aspen	76.9	4.6	5.1	3.7	5.2	3.4	7.0	0.0	2.4	17.3	5.1	19.5	0.0	3.8			
Hard maple	17.5	1.0	1.3	2.8	3.4	1.2	0.0	3.6	0.0	4.2	0.0	0.0	0.0	0.0			
Hickory	823.2	38.4	66.5	86.6	103.6	89.4	118.0	78.0	70.1	103.0	25.8	37.8	6.1	0.0			
Other eastern hard hardwoods	81.9	15.0	17.3	15.1	9.2	8.7	1.2	3.5	8.7	3.2	0.0	0.0	0.0	0.0			
Other eastern soft hardwoods	1,205.3	120.1	150.1	160.4	142.7	123.5	150.5	96.8	84.0	87.1	56.1	5.3	28.7	0.0			
Other red oaks	3,253.8	135.0	179.4	231.3	283.3	314.8	348.2	377.4	313.8	487.1	239.2	168.7	36.7	138.9			
Other white oaks	527.1	19.9	40.9	56.9	63.4	70.1	58.9	61.3	38.8	44.4	37.6	19.7	15.3	0.0			
Select red oaks	971.8	23.3	35.9	48.2	61.8	84.7	81.5	86.6	114.2	201.0	141.3	42.0	27.3	24.0			
Select white oaks	1,138.4	43.2	79.6	110.4	118.8	130.4	131.0	144.9	122.1	147.3	83.9	26.9	0.0	0.0			
Soft maple	184.9	35.5	38.2	34.2	23.4	15.5	12.2	11.7	5.8	3.6	4.8	0.0	0.0	0.0			
Sweetgum	2,298.6	240.2	301.3	320.7	336.2	277.7	218.9	178.9	167.2	149.1	65.0	36.9	6.6	0.0			
Tupelo and blackgum	729.8	64.0	99.0	114.0	116.1	97.2	93.8	72.3	39.3	17.2	16.8	0.0	0.0	0.0			
Yellow-poplar	901.2	60.2	83.1	83.6	102.7	100.5	98.6	102.3	71.9	102.8	57.4	21.1	16.8	0.0			
Total hardwoods	12,784.3	833.2	1,146.3	1,322.2	1,429.0	1,365.2	1,394.7	1,267.6	1,079.4	1,426.3	794.5	407.0	144.8	174.1			
All species	27,376.3	2,191.6	3,576.8	3,839.7	3,770.9	3,172.9	2,698.5	2,173.4	1,806.3	2,211.2	1,075.3	499.5	177.0	183.3			

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.



Appendix C—Supporting Tables

Table C.18—Net^a volume of growing-stock trees on timberland by species group and ownership group, Mississippi, 2013

Species group	All ownerships	U.S. Forest Service	Other Federal	Ownership group		
				State and local government	Forest industry	Nonindustrial private
<i>million cubic feet</i>						
Softwood						
Cypress	301.2	4.1	15.4	36.3	8.1	237.4
Loblolly and shortleaf pines	12,669.9	1,474.6	118.0	295.8	857.1	9,924.4
Longleaf and slash pines	1,382.0	614.8	12.1	72.2	19.3	663.6
Other eastern softwoods	119.1	5.2	4.6	0.5	1.4	107.4
Other yellow pines	119.7	5.2	0.2	2.6	3.6	108.2
Total softwoods	14,592.0	2,103.8	150.3	407.4	889.6	11,041.0
Hardwood						
Ash	387.1	33.1	18.7	24.4	13.2	297.8
Basswood	23.2	1.6	0.0	0.0	6.0	15.6
Beech	155.1	7.4	0.0	1.9	4.7	141.1
Black walnut	8.3	0.0	0.0	0.0	1.5	6.8
Cottonwood and aspen	76.9	0.0	0.2	0.0	0.5	76.2
Hard maple	17.5	0.2	0.1	0.0	5.0	12.2
Hickory	823.2	63.1	15.0	21.4	20.9	702.9
Other eastern hard hardwoods	81.9	8.7	0.6	1.6	3.9	67.1
Other eastern soft hardwoods	1,205.3	57.7	40.7	36.6	81.4	988.8
Other red oaks	3,253.8	276.7	87.1	88.8	129.4	2,671.8
Other white oaks	527.1	74.6	31.5	8.3	9.7	403.0
Select red oaks	971.8	73.4	32.2	36.0	46.9	783.4
Select white oaks	1,138.4	217.4	11.3	14.7	70.9	824.1
Soft maple	184.9	21.5	26.3	3.7	6.8	126.6
Sweetgum	2,298.6	133.5	84.5	81.2	109.8	1,889.7
Tupelo and blackgum	729.8	82.3	50.4	17.3	26.9	552.8
Yellow-poplar	901.2	100.0	9.2	8.5	82.2	701.1
Total hardwoods	12,784.3	1,151.4	407.8	344.4	619.7	10,261.0
All species	27,376.3	3,255.2	558.1	751.7	1,509.3	21,302.0

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 C.19—Net^a volume of sawtimber trees on timberland by species group and diameter class, Mississippi, 2013

Species group	All classes	Diameter class (inches at breast height)										
		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+
<i>million board feet^b</i>												
Softwood												
Cypress	1,399.7	81.3	71.2	133.5	142.1	187.2	173.0	252.5	120.8	176.8	0.0	61.2
Loblolly and shortleaf pines	46,491.6	8,060.7	9,325.0	7,867.5	6,092.1	4,403.3	3,814.2	4,628.2	1,670.6	472.2	157.8	0.0
Longleaf and slash pines	5,698.7	845.3	1,086.8	1,217.4	1,067.4	697.2	484.9	253.0	46.7	0.0	0.0	0.0
Other eastern softwoods	348.3	107.4	109.2	80.6	23.3	27.7	0.0	0.0	0.0	0.0	0.0	0.0
Other yellow pines	638.9	22.1	37.4	61.7	36.7	121.9	106.8	65.3	111.7	0.0	75.2	0.0
Total softwoods	54,577.1	9,116.8	10,629.7	9,360.7	7,361.6	5,437.3	4,578.9	5,199.1	1,949.7	649.1	233.0	61.2
Hardwood												
Ash	1,304.3	0.0	135.0	142.9	216.9	139.0	132.2	213.9	151.0	127.7	0.0	45.6
Basswood	90.1	0.0	4.5	8.7	18.8	11.0	0.0	16.9	30.2	0.0	0.0	0.0
Beech	539.9	0.0	56.4	33.6	79.6	68.2	51.6	64.0	123.4	31.9	31.2	0.0
Black walnut	18.2	0.0	1.9	2.3	0.0	6.2	7.8	0.0	0.0	0.0	0.0	0.0
Cottonwood and aspen	356.2	0.0	17.9	14.6	32.0	0.0	13.0	100.5	30.3	122.7	0.0	25.2
Hard maple	54.6	0.0	11.9	5.0	0.0	16.6	0.0	21.1	0.0	0.0	0.0	0.0
Hickory	2,979.7	0.0	359.8	362.8	536.2	380.2	360.9	565.2	149.5	227.0	38.1	0.0
Other eastern hard hardwoods	146.4	0.0	32.8	34.7	5.1	15.9	41.8	16.1	0.0	0.0	0.0	0.0
Other eastern soft hardwoods	3,540.3	0.0	493.1	494.5	669.7	462.5	424.1	472.0	316.1	31.2	177.0	0.0
Other red oaks	13,954.7	0.0	1,066.0	1,342.4	1,630.1	1,897.4	1,661.0	2,731.8	1,420.9	1,058.3	231.8	915.0
Other white oaks	1,968.2	0.0	230.7	297.3	272.3	303.3	200.0	240.9	215.1	116.2	92.5	0.0
Select red oaks	4,721.5	0.0	206.6	348.6	381.1	445.8	624.8	1,174.5	906.7	282.0	175.4	175.9
Select white oaks	4,265.8	0.0	407.9	525.0	581.4	698.6	621.0	796.4	477.5	158.0	0.0	0.0
Soft maple	313.3	0.0	76.5	59.0	52.5	53.8	27.4	18.4	25.7	0.0	0.0	0.0
Sweetgum	6,902.4	0.0	1,206.6	1,191.2	1,054.7	937.6	933.1	881.2	408.6	244.2	45.1	0.0
Tupelo and blackgum	1,837.9	0.0	365.8	365.1	399.1	332.4	191.9	90.3	93.4	0.0	0.0	0.0
Yellow-poplar	3,515.6	0.0	366.8	438.0	482.5	548.5	412.2	629.0	376.0	144.2	118.5	0.0
Total hardwoods	46,509.0	0.0	5,040.5	5,665.6	6,412.0	6,317.1	5,702.7	8,032.0	4,724.4	2,543.3	909.6	1,161.8
All species	101,086.1	9,116.8	15,670.2	15,026.3	13,773.7	11,754.4	10,281.6	13,231.1	6,674.2	3,192.4	1,142.6	1,223.0

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.

^b International ¼-inch rule.



Appendix C—Supporting Tables

Table C.20—Net^a volume of sawtimber trees on timberland by species group and ownership group, Mississippi, 2013

Species group	All ownerships	U.S. Forest Service	Other Federal	Ownership group		
				State and local government	Forest industry	Nonindustrial private
<i>million board feet^b</i>						
Softwood						
Cypress	1,399.7	12.9	53.2	183.1	31.1	1,119.4
Loblolly and shortleaf pines	46,491.6	7,657.7	615.8	1,524.7	3,156.4	33,536.9
Longleaf and slash pines	5,698.7	2,738.9	49.7	325.3	56.6	2,528.1
Other eastern softwoods	348.3	23.2	18.1	0.0	2.0	305.0
Other yellow pines	638.9	27.8	0.0	14.0	18.2	578.8
Total softwoods	54,577.1	10,460.5	736.7	2,047.2	3,264.3	38,068.3
Hardwood						
Ash	1,304.3	160.5	56.6	110.9	54.5	921.9
Basswood	90.1	3.2	0.0	0.0	30.2	56.7
Beech	539.9	21.4	0.0	7.6	12.5	498.3
Black walnut	18.2	0.0	0.0	0.0	6.2	12.0
Cottonwood and aspen	356.2	0.0	0.0	0.0	0.0	356.2
Hard maple	54.6	0.0	0.0	0.0	23.1	31.5
Hickory	2,979.7	203.1	54.5	97.3	71.0	2,553.8
Other eastern hard hardwoods	146.4	14.3	2.1	1.3	7.2	121.5
Other eastern soft hardwoods	3,540.3	141.9	126.6	105.0	257.9	2,908.9
Other red oaks	13,954.7	1,225.8	407.6	439.8	558.9	11,322.6
Other white oaks	1,968.2	248.0	154.5	28.1	19.0	1,518.7
Select red oaks	4,721.5	358.5	131.8	200.9	249.1	3,781.1
Select white oaks	4,265.8	836.7	34.5	52.7	272.1	3,069.8
Soft maple	313.3	26.6	70.2	3.1	3.9	209.4
Sweetgum	6,902.4	399.1	333.3	290.0	356.9	5,523.0
Tupelo and blackgum	1,837.9	207.6	128.2	21.2	73.8	1,407.1
Yellow-poplar	3,515.6	424.5	35.6	16.6	371.3	2,667.6
Total hardwoods	46,509.0	4,271.2	1,535.7	1,374.4	2,367.6	36,960.1
All species	101,086.1	14,731.6	2,272.4	3,421.7	5,631.9	75,028.5

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.

^b International ¼-inch rule.



Table C.21—Aboveground dry weight^a of live trees on forest land by ownership class and land status, Mississippi, 2013

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timberland	Un-productive	Total	Productive	Un-productive
<i>thousand tons</i>							
U.S. Forest Service							
National forest	89,640.1	89,054.3	89,054.3	0.0	585.8	585.8	0.0
Total	89,640.1	89,054.3	89,054.3	0.0	585.8	585.8	0.0
Other Federal							
National Park Service	1,350.7	0.0	0.0	0.0	1,350.7	1,350.7	0.0
U.S. Fish and Wildlife Service	9,510.3	0.0	0.0	0.0	9,510.3	9,510.3	0.0
Dept. of Defense/Dept. of Energy	13,563.6	13,563.6	13,563.6	0.0	0.0	0.0	0.0
Other Federal	3,661.7	3,661.7	3,661.7	0.0	0.0	0.0	0.0
Total	28,086.2	17,225.3	17,225.3	0.0	10,860.9	10,860.9	0.0
State and local government							
State	12,621.3	12,161.9	12,161.9	0.0	459.4	459.4	0.0
Local	11,450.7	11,450.7	11,450.7	0.0	0.0	0.0	0.0
Total	24,072.0	23,612.5	23,612.5	0.0	459.4	459.4	0.0
Forest industry							
Corporate	45,281.6	45,281.6	45,281.6	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	204.4	204.4	204.4	0.0	0.0	0.0	0.0
Individual	253.1	253.1	253.1	0.0	0.0	0.0	0.0
Total	45,739.1	45,739.1	45,739.1	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	147,057.1	147,057.1	147,057.1	0.0	0.0	0.0	0.0
Conservation/natural resources organization	653.2	653.2	653.2	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	27,522.3	27,522.3	27,522.3	0.0	0.0	0.0	0.0
Native American	1,448.7	1,448.7	1,448.7	0.0	0.0	0.0	0.0
Individual	510,797.6	510,797.6	510,723.5	74.1	0.0	0.0	0.0
Total	687,478.9	687,478.9	687,404.8	74.1	0.0	0.0	0.0
All classes	875,016.3	863,110.1	863,036.0	74.1	11,906.2	11,906.2	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 in FIADB users guide.



Table C.22—Aboveground dry weight^a of live trees on forest land by species group and diameter class, Mississippi, 2013

Species group	Diameter class (inches at breast height)																	All classes
	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																		
Cypress	8,664.2	86.4	285.6	238.2	315.1	597.7	441.4	738.2	770.8	1,039.7	790.3	1,152.8	537.4	767.2	214.0	689.7		
Loblolly and shortleaf pines	314,525.2	3,347.3	12,638.4	34,472.1	52,985.2	51,798.0	46,594.7	34,181.4	24,306.0	16,575.5	13,993.1	15,801.9	5,491.2	1,699.9	640.4	0.0		
Longleaf and slash pines	34,971.1	392.9	1,430.1	2,464.1	4,510.8	5,255.3	5,452.1	5,354.5	4,351.1	2,737.7	1,829.5	1,046.4	146.6	0.0	0.0	0.0		
Other eastern softwoods	6,302.1	339.6	653.6	932.1	1,005.1	1,010.1	796.3	687.5	451.6	242.5	106.2	77.5	0.0	0.0	0.0	0.0		
Other yellow pines	2,766.4	35.6	89.4	110.1	155.9	117.6	196.9	329.7	136.1	432.3	361.8	217.7	356.8	0.0	226.5	0.0		
Total softwoods	367,229.0	4,201.8	15,097.1	38,216.7	58,972.1	58,778.5	53,481.4	41,291.3	30,015.6	21,027.7	17,080.9	18,296.3	6,531.9	2,467.1	1,080.9	689.7		
Hardwood																		
Ash	12,619.4	924.9	1,300.2	1,057.4	1,206.4	1,119.4	1,311.8	958.6	1,272.6	726.2	609.2	817.2	483.5	343.2	0.0	488.7		
Basswood	639.4	28.1	23.6	49.5	44.8	57.0	27.4	61.2	94.9	51.6	0.0	73.8	127.5	0.0	0.0	0.0		
Beech	8,295.3	205.0	256.5	209.5	276.4	330.3	564.2	472.4	774.4	733.7	731.7	561.9	1,484.0	986.9	415.5	293.1		
Black walnut	426.5	10.7	19.8	28.1	52.8	80.8	48.9	24.1	0.0	96.9	64.4	0.0	0.0	0.0	0.0	0.0		
Cottonwood and aspen	2,629.4	38.2	63.6	120.7	125.0	95.7	139.1	113.4	268.2	137.1	113.1	531.4	119.0	655.1	0.0	109.7		
Eastern noncommercial hardwoods	21,057.7	3,727.7	4,132.7	3,583.0	3,097.7	2,250.7	1,497.8	1,035.9	899.2	461.0	196.2	175.7	0.0	0.0	0.0	0.0		
Hard maple	847.7	41.4	46.7	70.1	75.6	155.2	113.7	54.9	0.0	162.7	0.0	127.5	0.0	0.0	0.0	0.0		
Hickory	32,197.0	1,413.1	1,526.2	1,532.5	2,371.2	2,886.8	3,223.4	3,073.1	3,924.0	2,695.6	2,141.6	3,859.2	1,091.3	1,135.2	359.4	964.6		
Other eastern hard hardwoods	9,044.7	2,089.0	2,021.2	1,294.8	1,019.5	735.8	511.3	474.4	129.4	189.4	311.0	268.9	0.0	0.0	0.0	0.0		
Other eastern soft hardwoods	55,453.1	4,570.3	6,159.9	5,495.6	5,574.8	5,921.9	5,206.9	4,584.0	4,671.7	3,405.2	3,096.5	3,317.0	2,006.8	473.8	750.2	218.4		
Other red oaks	126,208.1	5,230.5	5,299.2	5,516.9	6,495.4	8,062.3	9,581.0	10,484.3	11,478.5	12,569.1	10,235.5	16,625.9	9,025.6	6,835.6	2,613.2	6,155.2		
Other white oaks	22,822.4	292.0	547.2	811.2	1,544.5	1,997.2	2,204.1	2,427.7	2,195.1	2,388.3	1,460.1	2,190.4	1,877.4	1,693.0	878.7	315.4		
Select red oaks	35,108.9	380.3	616.7	716.8	1,085.9	1,377.5	1,863.0	2,295.4	2,620.1	2,961.4	3,849.6	6,469.0	5,618.9	1,352.7	1,180.5	2,421.2		
Select white oaks	38,714.5	883.8	1,230.3	1,498.6	2,398.5	3,299.8	3,568.7	3,893.6	3,939.3	4,300.7	3,720.1	5,349.3	3,095.2	1,051.0	0.0	485.5		
Soft maple	15,942.8	3,231.7	3,085.5	2,407.0	2,104.1	1,724.4	1,126.9	724.2	619.3	279.4	308.3	154.6	115.6	61.8	0.0	0.0		
Sweetgum	77,457.1	5,256.7	8,377.8	8,241.5	8,638.1	8,646.2	8,818.0	6,974.5	5,706.4	4,947.8	4,355.4	4,671.4	1,584.6	1,063.7	175.1	0.0		
Tupelo and blackgum	24,696.6	1,705.5	1,938.6	2,037.6	2,676.1	3,059.0	3,270.9	2,607.3	2,650.0	2,101.9	1,225.2	773.1	416.4	90.7	144.2	0.0		
Yellow-poplar	23,626.9	712.4	1,414.1	1,512.9	1,957.6	1,886.1	2,325.9	2,257.0	2,268.3	2,427.7	1,835.9	2,394.5	1,653.6	606.9	374.0	0.0		
Total hardwoods	507,787.3	30,741.2	38,059.7	36,183.9	40,744.3	43,686.0	45,403.1	42,816.0	43,511.3	40,635.8	34,253.8	48,360.8	28,699.3	16,349.8	6,890.7	11,451.8		
All species	875,016.3	34,943.0	53,156.8	74,400.6	99,716.4	102,464.5	98,884.5	84,107.2	73,526.9	61,663.5	51,334.7	66,657.0	35,231.2	18,816.9	7,971.7	12,141.5		

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 Calculations based on TREE_REGIONAL_BIOMASS_REGIONAL_DRYBIOT table in FIADB users guide.



Table C.23—Total carbon^a of live trees on forest land by ownership class and land status, Mississippi, 2013

Ownership class	All forest land	Unreserved			Reserved		
		Total	Timberland	Un-productive	Total	Productive	Un-productive
<i>thousand tons</i>							
U.S. Forest Service							
National forest	44,820.0	44,527.1	44,527.1	0.0	292.9	292.9	0.0
Total	44,820.0	44,527.1	44,527.1	0.0	292.9	292.9	0.0
Other Federal							
National Park Service	675.3	0.0	0.0	0.0	675.3	675.3	0.0
U.S. Fish and Wildlife Service	4,755.1	0.0	0.0	0.0	4,755.1	4,755.1	0.0
Dept. of Defense/Dept. of Energy	6,781.8	6,781.8	6,781.8	0.0	0.0	0.0	0.0
Other Federal	1,830.9	1,830.9	1,830.9	0.0	0.0	0.0	0.0
Total	14,043.1	8,612.6	8,612.6	0.0	5,430.5	5,430.5	0.0
State and local government							
State	6,310.6	6,080.9	6,080.9	0.0	229.7	229.7	0.0
Local	5,725.3	5,725.3	5,725.3	0.0	0.0	0.0	0.0
Total	12,036.0	11,806.3	11,806.3	0.0	229.7	229.7	0.0
Forest industry							
Corporate	22,640.8	22,640.8	22,640.8	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	102.2	102.2	102.2	0.0	0.0	0.0	0.0
Individual	126.6	126.6	126.6	0.0	0.0	0.0	0.0
Total	22,869.6	22,869.6	22,869.6	0.0	0.0	0.0	0.0
Nonindustrial private							
Corporate	73,528.5	73,528.5	73,528.5	0.0	0.0	0.0	0.0
Conservation/natural resources organization	326.6	326.6	326.6	0.0	0.0	0.0	0.0
Unincorporated local partnership/association/club	13,761.1	13,761.1	13,761.1	0.0	0.0	0.0	0.0
Native American	724.3	724.3	724.3	0.0	0.0	0.0	0.0
Individual	255,398.8	255,398.8	255,361.8	37.1	0.0	0.0	0.0
Total	343,739.5	343,739.5	343,702.4	37.1	0.0	0.0	0.0
All classes	437,508.2	431,555.1	431,518.0	37.1	5,953.1	5,953.1	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 in FIADB users guide.



Appendix C—Supporting Tables

Table C.24—Average annual net growth of live trees by ownership class and land status, Mississippi, 2006–13

Ownership class	Land status	
	Timberland	Forest land
	<i>thousand tons</i>	
U.S. Forest Service		
National forest	81.9	82.5
Total	81.9	82.5
Other Federal		
National Park Service	0.0	-1.0
U.S. Fish and Wildlife Service	0.9	9.6
Dept. of Defense/Dept. of Energy	20.9	20.4
Other Federal	0.7	0.7
Total	22.6	29.7
State and local government		
State	6.7	6.7
Local	5.2	5.1
Total	11.9	11.7
Forest industry		
Corporate	88.6	88.6
Unincorporated local partnership/ association/club	1.2	1.2
Total	89.8	89.8
Nonindustrial private		
Corporate	416.0	416.0
Conservation/natural resources organization	2.2	2.2
Unincorporated local partnership/ association/club	75.8	73.4
Native American	1.5	1.5
Individual	1,185.5	1,185.4
Total	1,681.1	1,678.6
All classes	1,887.2	1,892.3

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 Estimates of carbon calculated by multiplying aboveground dry tree biomass by 0.5. Calculations based on TREE_REGIONAL_BIOMASS. REGIONAL_DRYBIOT table in FIADB users guide.



Table C.25—Average annual net growth of live trees on forest land by forest-type group and stand-size class, Mississippi, 2006–13

Forest-type group ^a	Stand-size class				Non-stocked
	All size classes	Large diameter	Medium diameter	Small diameter	
	<i>million cubic feet</i>				
Softwood types					
Longleaf-slash pine	44.1	24.1	16.5	3.5	0.0
Loblolly-shortleaf pine	1,210.9	425.6	577.4	207.9	0.0
Other eastern softwoods	5.2	1.3	2.1	1.8	0.0
Total softwoods	1,260.2	451.0	596.0	213.2	0.0
Hardwood types					
Oak-pine	183.1	68.0	50.3	64.8	0.0
Oak-hickory	284.7	148.4	77.0	59.4	0.0
Oak-gum-cypress	90.2	49.1	23.9	17.1	0.0
Elm-ash-cottonwood	66.6	39.0	16.8	10.8	0.0
Other hardwoods	0.1	0.0	0.0	0.1	0.0
Exotic hardwoods	2.1	0.0	0.8	1.3	0.0
Total hardwoods	626.7	304.5	168.8	153.5	0.0
Nonstocked	5.4	0.0	0.0	0.0	5.4
All groups	1,892.3	755.4	764.8	366.7	5.4

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 past conditions.



Appendix C—Supporting Tables

Table C.26—Average annual net growth of live trees on forest land by species group and ownership group, Mississippi, 2006–13

Species group ^a	Ownership group					
	All ownerships	U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	<i>million cubic feet</i>					
Softwood						
Cypress	11.5	0.0	0.6	1.0	0.4	9.4
Loblolly and shortleaf pines	1,303.0	47.0	11.8	10.9	66.2	1,167.1
Longleaf and slash pines	57.9	19.1	1.0	1.9	1.6	34.3
Other eastern softwoods	8.0	0.2	-0.1	0.1	0.0	7.7
Other yellow pines	5.0	0.5	0.0	0.0	-0.1	4.6
Total softwoods	1,385.3	66.8	13.4	13.9	68.1	1,223.1
Hardwood						
Ash	18.8	0.0	0.9	1.7	1.2	14.9
Basswood	0.4	0.0	0.0	0.0	0.1	0.3
Beech	7.1	0.0	0.0	0.0	0.4	6.7
Black walnut	0.3	0.0	0.0	0.0	-0.1	0.3
Cottonwood and aspen	0.5	0.0	-0.9	-5.1	0.1	6.4
Eastern noncommercial hardwoods	10.9	-1.3	0.4	0.0	1.5	10.4
Hard maple	1.5	0.0	0.0	0.0	0.2	1.1
Hickory	28.1	1.1	-1.2	-0.3	1.4	27.1
Other eastern hard hardwoods	0.1	0.0	0.0	0.4	0.1	-0.3
Other eastern soft hardwoods	70.9	1.6	3.5	0.1	5.4	60.3
Other red oaks	123.8	0.9	2.0	-4.0	2.1	122.8
Other white oaks	11.9	1.9	1.5	-0.7	-2.7	11.8
Select red oaks	33.4	0.6	4.3	0.9	0.6	27.0
Select white oaks	40.9	4.7	0.3	0.3	2.2	33.5
Soft maple	13.0	0.0	2.1	0.4	0.8	9.6
Sweetgum	93.2	2.8	2.8	3.4	4.3	79.9
Tupelo and blackgum	20.6	1.8	1.4	0.0	1.7	15.8
Yellow-poplar	31.7	1.6	-0.7	0.7	2.4	27.8
Total hardwoods	507.0	15.8	16.3	-2.2	21.7	455.5
All species	1,892.3	82.5	29.7	11.7	89.8	1,678.6

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 C.27—Average annual net growth of growing-stock trees on timberland by species group and ownership group, Mississippi, 2006–13

Species group ^a	Ownership group					
	All ownerships	U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	<i>million cubic feet</i>					
Softwood						
Cypress	10.4	0.0	0.3	1.1	0.3	8.8
Loblolly and shortleaf pines	1,256.3	46.4	9.7	10.5	65.3	1,124.5
Longleaf and slash pines	56.7	18.8	0.3	2.0	1.8	33.7
Other eastern softwoods	4.1	0.0	-0.1	0.0	0.0	4.2
Other yellow pines	4.2	0.3	0.0	0.0	-0.2	4.1
Total softwoods	1,331.8	65.4	10.2	13.7	67.2	1,175.3
Hardwood						
Ash	13.3	0.1	0.3	1.3	0.7	10.9
Basswood	0.4	0.0	0.0	0.0	0.1	0.3
Beech	4.0	0.1	0.0	0.0	0.3	3.6
Black walnut	0.2	0.0	0.0	0.0	-0.1	0.3
Cottonwood and aspen	-1.2	0.0	0.0	-5.1	0.1	3.9
Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
Hard maple	0.8	0.0	0.0	0.0	0.2	0.5
Hickory	22.0	1.4	0.1	-0.3	0.7	20.0
Other eastern hard hardwoods	0.3	0.2	0.0	0.1	0.0	0.0
Other eastern soft hardwoods	42.1	1.2	1.0	-0.3	2.9	37.3
Other red oaks	107.9	2.5	2.4	-3.3	2.0	104.4
Other white oaks	8.6	1.8	0.8	-0.6	-2.7	9.3
Select red oaks	27.5	0.9	1.3	0.9	0.6	23.9
Select white oaks	38.4	4.7	0.1	0.3	2.0	31.3
Soft maple	7.7	0.1	2.3	0.2	0.2	4.9
Sweetgum	72.5	2.5	1.7	2.7	4.4	61.3
Tupelo and blackgum	16.7	1.8	1.3	0.2	0.9	12.5
Yellow-poplar	28.8	1.4	0.2	0.6	1.2	25.3
Total hardwoods	389.7	18.9	11.5	-3.5	13.5	349.4
All species	1,721.5	84.3	21.6	10.2	80.7	1,524.7

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 Based on current conditions.



Appendix C—Supporting Tables

Table C.28—Average annual mortality of live trees by ownership class and land status, Mississippi, 2006–13

Ownership class	Timberland	Forest land
	<i>thousand tons</i>	
U.S. Forest Service		
National forest	46.4	46.4
Total	46.4	46.4
Other Federal		
National Park Service	0.0	0.8
U.S. Fish and Wildlife Service	0.0	5.8
Dept. of Defense/Dept. of Energy	2.9	3.0
Other Federal	2.0	2.0
Total	4.9	11.6
State and local government		
State	13.4	13.4
Local	14.3	14.3
Total	27.7	27.7
Forest industry		
Corporate	22.4	22.4
Total	22.4	22.4
Nonindustrial private		
Corporate	62.8	62.8
Conservation/natural resources organization	0.2	0.2
Unincorporated local partnership/association/club	19.8	19.8
Native American	1.0	1.0
Individual	201.4	201.4
Total	285.1	285.1
All classes	386.6	393.3

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 C.29—Average annual mortality of live trees on forest land by forest-type group and stand-size class, Mississippi, 2006–13

Forest-type group	Stand-size class				Non-stocked
	All size classes	Large diameter	Medium diameter	Small diameter	
	<i>million cubic feet</i>				
Softwood types					
Longleaf-slash pine	19.5	14.4	4.9	0.1	0.0
Loblolly-shortleaf pine	105.6	70.7	29.3	5.6	0.0
Other eastern softwoods	0.3	0.1	0.2	0.0	0.0
Total softwoods	125.4	85.2	34.5	5.8	0.0
Hardwood types					
Oak-pine	40.9	28.7	8.0	4.2	0.0
Oak-hickory	88.7	67.6	14.3	6.8	0.0
Oak-gum-cypress	109.3	94.3	11.8	3.2	0.0
Elm-ash-cottonwood	28.6	22.9	4.3	1.4	0.0
Other hardwoods	0.0	0.0	0.0	0.0	0.0
Exotic hardwoods	0.3	0.0	0.1	0.2	0.0
Total hardwoods	267.8	213.5	38.5	15.8	0.0
Nonstocked	0.1	0.0	0.0	0.0	0.1
All groups	393.3	298.7	73.0	21.5	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.



Appendix C—Supporting Tables

Table C.30—Average annual mortality of live trees on forest land by species group and ownership group, Mississippi, 2006–13

Species group ^a	Ownership group					
	All ownerships	U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	<i>million cubic feet</i>					
Softwood						
Cypress	0.6	0.0	0.0	0.0	0.0	0.6
Loblolly and shortleaf pines	113.0	15.1	1.3	4.1	6.6	85.8
Longleaf and slash pines	19.3	5.4	0.3	1.3	1.4	10.9
Other eastern softwoods	3.2	0.0	0.2	0.0	0.0	2.9
Other yellow pines	2.3	0.1	0.0	0.0	0.4	1.8
Total softwoods	138.4	20.7	1.8	5.4	8.4	102.1
Hardwood						
Ash	6.0	0.3	0.0	0.3	0.0	5.4
Basswood	0.4	0.0	0.0	0.0	0.0	0.4
Beech	0.9	0.0	0.0	0.0	0.0	0.9
Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
Cottonwood and aspen	7.9	0.0	0.8	5.2	0.0	1.9
Eastern noncommercial hardwoods	13.9	2.7	0.2	0.1	0.2	10.8
Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
Hickory	12.6	1.3	1.9	0.5	0.0	9.0
Other eastern hard hardwoods	7.5	0.8	0.1	0.0	0.1	6.5
Other eastern soft hardwoods	36.3	0.7	2.2	2.7	1.4	29.3
Other red oaks	73.5	12.8	2.1	8.3	3.8	46.5
Other white oaks	9.5	0.9	0.1	1.2	3.2	4.1
Select red oaks	11.4	0.4	0.0	0.0	0.8	10.2
Select white oaks	11.5	1.4	0.0	0.0	0.5	9.6
Soft maple	7.5	1.6	0.3	0.2	0.3	5.1
Sweetgum	25.9	1.4	1.2	2.3	1.5	19.5
Tupelo and blackgum	9.2	0.8	0.0	1.3	0.0	7.1
Yellow-poplar	20.8	0.8	1.0	0.2	2.1	16.7
Total hardwoods	254.9	25.8	9.8	22.3	14.0	183.0
All species	393.3	46.4	11.6	27.7	22.4	285.1

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 C.31—Average annual mortality of growing-stock trees on timberland by species group and ownership group, Mississippi, 2006–13

Species group ^a	All ownerships	Ownership group				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
<i>million cubic feet</i>						
Softwood						
Cypress	0.6	0.0	0.0	0.0	0.0	0.6
Loblolly and shortleaf pines	105.9	14.9	0.1	3.5	6.3	81.1
Longleaf and slash pines	18.6	5.3	0.3	1.3	1.0	10.8
Other eastern softwoods	1.8	0.0	0.2	0.0	0.0	1.5
Other yellow pines	2.3	0.1	0.0	0.0	0.4	1.8
Total softwoods	129.2	20.4	0.5	4.8	7.7	95.8
Hardwood						
Ash	4.1	0.2	0.0	0.3	0.0	3.6
Basswood	0.3	0.0	0.0	0.0	0.0	0.3
Beech	0.1	0.0	0.0	0.0	0.0	0.1
Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
Cottonwood and aspen	7.1	0.0	0.0	5.2	0.0	1.9
Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
Hickory	8.9	0.8	0.0	0.4	0.0	7.8
Other eastern hard hardwoods	3.2	0.2	0.0	0.0	0.0	3.0
Other eastern soft hardwoods	24.1	0.6	0.8	2.1	1.3	19.3
Other red oaks	54.9	9.5	0.2	7.2	3.5	34.6
Other white oaks	7.6	0.5	0.1	1.0	3.2	2.9
Select red oaks	9.8	0.0	0.0	0.0	0.8	8.9
Select white oaks	10.9	1.3	0.0	0.0	0.5	9.1
Soft maple	2.7	0.7	0.0	0.2	0.1	1.7
Sweetgum	21.1	1.1	0.0	2.2	1.3	16.5
Tupelo and blackgum	5.9	0.6	0.0	0.8	0.0	4.4
Yellow-poplar	18.3	0.7	0.0	0.2	2.0	15.4
Total hardwoods	179.0	16.2	1.1	19.4	12.7	129.6
All species	308.2	36.6	1.6	24.2	20.4	225.4

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.



Appendix C—Supporting Tables

Table C.32—Average annual net removals of live trees by ownership class and land status, Mississippi, 2006–13

Ownership class ^a	Land status	
	Timberland	Forest land
	<i>million cubic feet</i>	
U.S. Forest Service		
National forest	31.2	31.2
Total	31.2	31.2
Other Federal		
U.S. Fish and Wildlife Service	11.6	6.9
Dept. of Defense/Dept. of Energy	10.0	10.0
Other Federal	0.9	0.9
Total	22.5	17.7
State and local government		
State	13.6	13.6
Local	13.1	13.1
Total	26.7	26.7
Forest industry		
Corporate	129.6	129.6
Unincorporated local partnership/ association/club	0.4	0.4
Total	130.0	130.0
Nonindustrial private		
Corporate	246.5	246.5
Conservation/natural resources organization	0.6	0.6
Unincorporated local partnership/ association/club	33.2	33.2
Native American	0.8	0.8
Individual	515.3	515.3
Total	796.4	796.4
All classes	1,006.7	1,002.0

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 Based on current conditions.



Table C.33—Average annual removals of live trees on forest land by forest-type group and stand-size class, Mississippi, 2006–13

Forest-type group ^a	Stand-size class				Non-stocked
	All size classes	Large diameter	Medium diameter	Small diameter	
	<i>million cubic feet</i>				
Softwood types					
Longleaf-slash pine	44.7	30.3	13.8	0.6	0.0
Loblolly-shortleaf pine	612.0	407.9	196.7	7.5	0.0
Other eastern softwoods	0.9	0.0	0.9	0.0	0.0
Total softwoods	657.6	438.2	211.3	8.1	0.0
Hardwood types					
Oak-pine	68.1	43.9	21.7	2.4	0.0
Oak-hickory	151.5	112.0	29.8	9.7	0.0
Oak-gum-cypress	97.7	86.7	9.7	1.4	0.0
Elm-ash-cottonwood	23.6	20.7	1.6	1.3	0.0
Other hardwoods	0.0	0.0	0.0	0.0	0.0
Exotic hardwoods	2.9	0.0	2.8	0.2	0.0
Total hardwoods	343.9	263.2	65.7	15.0	0.0
Nonstocked	0.5	0.0	0.0	0.0	0.5
All groups	1,002.0	701.4	277.0	23.1	0.5

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 past conditions.



Appendix C—Supporting Tables

Table C.34—Average annual removals of live trees on forest land by species group and ownership group, Mississippi, 2006–13

Species group	All ownerships	Ownership group				
		U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
<i>million cubic feet</i>						
Softwood						
Cypress	0.3	0.0	0.0	0.0	0.2	0.1
Loblolly and shortleaf pines	612.3	12.6	12.0	16.9	94.6	476.3
Longleaf and slash pines	44.6	5.7	0.9	2.4	16.0	19.5
Other eastern softwoods	1.4	0.0	0.0	0.0	0.0	1.3
Other yellow pines	4.4	0.0	0.0	0.0	0.0	4.4
Total softwoods	663.0	18.3	12.9	19.3	110.8	501.6
Hardwood						
Ash	11.7	5.4	0.0	0.1	2.9	3.4
Basswood	0.3	0.0	0.0	0.0	0.0	0.3
Beech	5.6	0.0	0.4	0.0	0.0	5.2
Black walnut	0.7	0.0	0.0	0.0	0.0	0.7
Cottonwood and aspen	2.7	0.0	0.0	0.0	0.0	2.7
Eastern noncommercial hardwoods	8.1	0.0	0.1	0.2	0.1	7.7
Hard maple	0.1	0.0	0.0	0.0	0.0	0.1
Hickory	21.3	0.0	0.4	0.0	1.5	19.4
Other eastern hard hardwoods	3.3	0.1	0.0	0.1	0.2	3.0
Other eastern soft hardwoods	23.6	1.2	0.5	0.6	1.4	20.1
Other red oaks	92.8	2.2	0.0	1.5	4.7	84.4
Other white oaks	15.0	0.2	0.0	1.1	0.8	12.8
Select red oaks	19.3	0.0	1.5	0.0	0.8	17.0
Select white oaks	26.9	0.0	0.0	0.0	0.1	26.7
Soft maple	5.1	0.4	0.0	0.0	0.2	4.4
Sweetgum	74.1	2.3	0.8	3.5	3.7	63.8
Tupelo and blackgum	8.0	0.1	0.2	0.1	0.2	7.5
Yellow-poplar	20.6	1.0	1.1	0.3	2.7	15.6
Total hardwoods	339.0	12.9	4.9	7.4	19.2	294.8
All species	1,002.0	31.2	17.7	26.7	130.0	796.4

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.



Table C.35—Average annual removals of growing-stock trees on timberland by species group and ownership group, Mississippi, 2006–13

Species group ^a	Ownership group					
	All ownerships	U.S. Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
	<i>million cubic feet</i>					
Softwood						
Cypress	0.3	0.0	0.0	0.0	0.2	0.1
Loblolly and shortleaf pines	592.7	12.1	15.0	16.8	94.1	454.8
Longleaf and slash pines	43.6	5.6	0.9	2.4	15.3	19.3
Other eastern softwoods	0.7	0.0	0.0	0.0	0.0	0.6
Other yellow pines	4.1	0.0	0.0	0.0	0.0	4.1
Total softwoods	641.4	17.7	15.9	19.2	109.6	478.9
Hardwood						
Ash	11.5	5.1	0.7	0.0	2.7	3.0
Basswood	0.3	0.0	0.0	0.0	0.0	0.3
Beech	2.6	0.0	0.0	0.0	0.0	2.6
Black walnut	0.4	0.0	0.0	0.0	0.0	0.4
Cottonwood and aspen	1.7	0.0	0.0	0.0	0.0	1.7
Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
Hickory	20.1	0.0	0.2	0.0	1.5	18.4
Other eastern hard hardwoods	1.5	0.0	0.0	0.0	0.0	1.5
Other eastern soft hardwoods	16.6	0.8	0.8	0.5	1.0	13.6
Other red oaks	80.2	2.1	0.0	1.3	4.4	72.3
Other white oaks	12.5	0.2	0.0	0.8	0.8	10.7
Select red oaks	16.0	0.0	0.0	0.0	0.8	15.2
Select white oaks	24.9	0.0	0.3	0.0	0.0	24.5
Soft maple	2.2	0.1	0.0	0.0	0.1	2.1
Sweetgum	65.3	1.9	0.5	3.0	2.1	57.8
Tupelo and blackgum	7.1	0.1	0.0	0.0	0.1	6.8
Yellow-poplar	18.3	1.0	1.1	0.2	2.4	13.7
Total hardwoods	281.2	11.3	3.5	5.8	15.9	244.7
All species	922.6	29.0	19.4	25.1	125.5	723.6

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

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^a Based on current conditions.



Oswalt, Sonja N. 2015. Mississippi's forests, 2013. Resour. Bull. SRS-204. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 81 p.

The principle findings of the 2013 forest survey in the State of Mississippi and changes that have occurred since previous surveys are presented. Topics examined include forest area, ownership, forest-type groups, stand structure, timber volume, growth, removals, and mortality. Emerald ash borer and invasive plants are also discussed in the context of Mississippi's forests.

Keywords: Components of change, FIA, forest inventory, forest survey, forest trends, Mississippi, plantations.



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