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Florida's Forests, 2018



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Cover photo: Three American white ibis on fallen tree at Withlacoochee State Forest. (Florida Forest Service photo by Jeremy Ashmore)

Following page photo: Wood Storks and American Alligators at Picayune Strand State Forest. (Florida Forest Service photo by Jeremy Ashmore)

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FOREWORD

The U.S. Department of Agriculture Forest Service, Southern Research Station's (SRS) Forest Inventory and Analysis (FIA) research work unit and cooperating State forestry agencies conduct annual forest inventories of resources in the 13 Southern States (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia), the Commonwealth of Puerto Rico, and the U.S. Virgin Islands. To facilitate more frequent and nationally consistent information on America's forest resources, all research stations and their respective FIA work units conduct annual surveys with a common sample design. These surveys are mandated by law through the Agricultural Research Extension and Education Reform Act of 1998 (Farm Bill) (AREERA 1998) and updated in Title VIII of the 2014 Farm Bill.

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

More information about Forest Service resource inventories is available in *"Forest Resource Inventories: An Overview"* (U.S. Department of Agriculture Forest Service 1992). More detailed information about sampling methodologies used in the annual FIA inventories can be found in *"The Enhanced Forest Inventory and Analysis Program—National Sampling Design and Estimation Procedures"* (Bechtold and Patterson 2005) and *"Sampling and Estimation documentation for the Enhanced Forest Inventory and Analysis Program: 2022"* (Westfall et al. 2022).

Data tables included in FIA reports are designed to provide an array of forest resource estimates, but additional tables can be obtained at <https://www.fs.usda.gov/srsfia/states/florida.shtml> (USDA Forest Service 2024a). Additional information about the FIA program can be obtained at the USDA Forest Service Research and Development website (USDA Forest Service 2024b).

Additional information about any aspect of Southern Research Station FIA surveys may be obtained from:

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Gulf Fritillary butterfly on Coastalplain Goldenaster at Pine Log State Forest. (Florida Forest Service photo by Jeremy Ashmore)

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Prescribed burn at Withlacoochee State Forest. (Florida Forest Service photo by Jeremy Ashmore)

HIGHLIGHTS FROM THE 2018 FOREST INVENTORY OF FLORIDA

Area

- Total forest area decreased almost 2 percent since 2013 to more than 16.9 million acres in 2018. Forests continue to occupy about 50 percent of the land area of Florida.
- Timberland area totaled 14.9 million acres, down from 15.4 million acres in 2013. Hardwood forest types accounted for 7.5 million acres (51 percent) of Florida's timberland, and softwood forest types accounted for 6.9 million acres (46 percent). The remaining 3 percent consisted of timberland classified as nonstocked.
- Longleaf-slash pine was the predominant forest-type group and occupied 5.1 million acres. Oak-gum-cypress forest-type group was second in prevalence with 3.1 million acres. The oak-hickory forest-type group was third with 2.5 million acres, followed by loblolly-shortleaf pine with 1.8 million acres.
- Artificially regenerated timberland totaled 4.2 million acres, down from 4.7 million acres in 2013.

Ownership

- Nonindustrial private forest (NIPF) ownerships controlled 10.2 million acres (69 percent) of the State's timberland, down from 10.2 million in 2013. Forest industry owned 0.5 million acres (3 percent), down from 0.8 million in 2013. Public ownerships held 4.4 million acres (30 percent) of timberland, relatively unchanged since 2013.
- Within the NIPF group, the private individual category (all NIPF owner classes other than corporate) owned 3.7 million acres of the State's timberland, down from 4.1 million acres in 2013. However, the other corporate category owned 6.2 million acres, up from 6.1 million acres in 2013.

Volume

- In 2018, total all-live merchantable volume on timberland in Florida amounted to 22.8 billion cubic feet, up from 20.8 billion cubic feet in 2013.
- In 2018, planted stands accounted for 20 percent, or less than 4.5 billion cubic feet, of total volume on timberland, down from more than 4.5 billion cubic feet, or 22 percent in 2013.
- With 13.0 billion cubic feet, softwoods made up 57 percent of all-live volume in the State. Hardwood volume totaled 9.8 billion cubic feet.
- Longleaf and slash pines accounted for 7.1 billion cubic feet, cypress 2.8 billion cubic feet, and loblolly and shortleaf pines 2.2 billion cubic feet of the softwood volume. Red oaks collectively accounted for 2.5 billion cubic feet, and tupelo and blackgum 2.0 billion cubic feet of the hardwood volume.

Net Growth and Removals

- Total net annual growth of all-live trees on timberland averaged 865 million cubic feet per year between 2013 and 2018, and removals averaged 562 million cubic feet during the same period.
- Net growth of softwood trees on timberland averaged 656 million cubic feet per year in 2018, about the same as 655 million cubic feet in 2013. Removals of softwood trees averaged 475 million cubic feet per year in 2018, up from 467 million cubic feet in 2013.
- Net growth of hardwood trees averaged 208 million cubic feet per year in 2018, down from 215 million cubic feet in 2013. Removals of hardwood trees averaged 87 million cubic feet per year in 2018, down from 103 million cubic feet in 2013.

Forest Health

- Total mortality of live trees on Florida's timberland averaged 227 million cubic feet per year between 2013 and 2018. Hardwood species represented 131 million cubic feet (58 percent) and softwoods represented 96 million cubic feet (42 percent) of total mortality compared to 141 and 123 million cubic feet, respectively, in the previous survey period.
- Standing dead trees totaled 107 million on Florida's timberland, equivalent to 1.6 percent of the total all-live tree population. The leading identifiable causes of death, in descending order of prevalence, were weather, disease, fire, competing vegetation, and insects.
- Chinese tallow (*Triadica sebifera*) followed by camphortree (*Cinnamomum camphora*) were the most common invasive trees detected on Florida's forest land. Caesarweed (*Urena lobata*) followed by Brazillian pepper (*Schinus terebinthifolius*) were the most common shrubs detected. Japanese honeysuckle (*Lonicera japonica*) was the most frequent vine, and cogongrass (*Imperata cylindrica*) was the most frequently detected invasive grass. Some type of invasive plant was found on 1,391 (43 percent) of Florida's 3,245 forested plots.

INTRODUCTION

This 2018 resource bulletin is the 10th report on Florida's forests produced by the U.S. Department of Agriculture, Forest Service, Forest Inventory and Analysis (FIA) program at the Southern Research Station. The last three reports were produced in collaboration with the Florida Forest Service. Field measurements for the 10th inventory cycle of Florida's forests began in February of 2014 and the complete sample of data collection sites used in this report were completed in October of 2021. In Florida, the strategy involves rotating measurements of five systematic samples (or panels), each of which represents about 20 percent of all plots in the State. A panel may take more or less than 1 year to complete. This bulletin provides inventory statistics and discusses the principal findings from the measurement of five panels from cycle 10 of annual inventory data. This dataset represented 100 percent of the sample plot population. Forest and timberland estimates, inventory volume, growth, removals, and mortality statistics are summarized from the data collected.

The nine previous inventories and State analytical reports were completed in 1936 (Southern Forest Experiment Station 1948), 1949 (Larson 1952), 1959 (Larson and Goforth 1961), 1970 (Knight and McClure 1971), 1980 (Bechtold and Knight 1982), 1987 (Bechtold et al. 1990), 1995 (Brown 1999), 2007 (Brown et al. 2012) and 2013 (Brown et al. 2017). Tabular summaries of the 2018 resource statistics for Florida used in this report are available in appendix 4 of this report. Additionally, continually updated or non-static "moving average" tabular summaries of this data and for many of the previous survey years are available on the web (USDA Forest Service 2024a). However, caution is advised when making comparisons to previous surveys because changes have occurred in plot design, collection procedures, and data processing algorithms. Methods have continued to evolve as changing technologies are adapted and implemented over time to improve

Forest Inventory and Analysis (FIA) surveys. It is recommended to review the Inventory Methods section (app. 1) prior to any trend analysis.

Physiography

Florida stretches 650 miles from Pensacola in the northwest to Miami at the southeast, and then another 150 miles across the Keys to Key West, the southernmost point in the United States. With elevations ranging from sea level to 345 feet, Florida's physiography is entirely classified as Coastal Plain (Fenneman 1938). However, Florida's Coastal Plain differs significantly from Coastal Plain regions in other Southern States. Surrounded by oceans and the warm Gulf Stream, the State's relatively mild winters moderate to near subtropical at the lower latitudes along the peninsula. This climate range creates conditions that support a great variety of tree species, more than any other State in the United States



American Alligator at Picayune Strand State Forest. (Florida Forest Service photo by Jeremy Ashmore)

other than Hawaii (FDACS 1999). Wetlands, both the depressional and floodplain type, exist throughout the State. The riverine systems include blackwater, aquifer fed, and red river bottoms (which originate in Georgia and Alabama). Areas of sand hills and flatwoods are common. South Florida's shallow limestone substrate supports the Everglades, palm hammocks, and its coastal fringes harbor dense mangroves.

LAND USE

Area and condition of Florida's forest land are determined in many respects by trends in ownership and by land use changes. Change in forest land ownership often result in a change in the reasons for owning the land. Traditional timber harvesting or other forest-product-based uses may be replaced by desires to develop and manage habitat for wildlife or provide another recreational opportunity. Ownership change can also lead to land use change, particularly if plans are to convert forest land to new cropland, pasture, or urban use. Loss of forest land to urbanization continues to be a concern. These losses are considered diversions from forest land to nonforest uses. Owner decisions can also increase forest land, either through planting efforts or by allowing idle cropland or pasture to revert naturally to forest. These increases are considered additions to forest land from nonforest sources.

The 2020 Census (USDC Census Bureau 2021) reported that more than 21.5 million people lived in Florida, or about 401 people per square mile. Florida continued to rank eighth in population density among all States. At the time of the 2010 Census, the population was 18.8 million people, or about 350 people per square mile (USDC Census Bureau 2012). The additional 2.7 million people living in the State represented a 14.6 percent increase and made Florida one of the fastest growing States in the country over that decade. Increased population can bring increased pressure on finite natural resources, including the State's forest land.

Table 1 summarizes the broad category distribution of land in Florida by land use since 2007. Some general trends are apparent. Total land area of Florida is almost 34.7 million acres, including 252,000 acres of noncensus water defined by the U.S. Bureau of the Census as land. Forests occupy about 50 percent of the State's land area, or more than 16.9 million acres. The remaining 17.7 million acres of land reflect a variety of nonforest uses such as cropland, pasture, urban, and the aforementioned noncensus water. Total nonforest land increased by about 448,000 acres between 2013 and 2018. Much of this increase was driven by the increase in other nonforest land (which includes urban, industrial, and other developed areas), which has risen by 415,000 acres, or 4 percent since 2013 to almost 11.3 million acres in 2018. Land used for

Table 1—Land area by land use and survey year, Florida

Land use		Survey years		
		2007 ^a	2013 ^a	2018
<i>thousand acres</i>				
Forest land	Timberland	15,597.8	15,392.7	14,905.7
	Reserved	1,131.8	1,570.0	1,695.0
	Other forest ^b	167.5	309.1	342.1
	Total	16,897.1	17,271.8	16,942.7
Nonforest land	Cropland	2,661.3	2,551.5	2,455.1
	Pasture	3,733.4	3,618.0	3,764.1
	Other nonforest ^c	10,601.6	10,856.8	11,271.7
	Noncensus water ^d	482.9	268.2	252.0
	Total	17,479.2	17,294.5	17,743.0
All land ^e		34,376.3	34,566.3	34,685.7
Census water		7,706.5	7,518.4	7,398.9
Total area		42,082.8	42,084.7	42,084.6
Percent land area forested		49.2	50.0	49.0

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

^a From Brown et al 2017.

^b Unproductive lands incapable of producing 20 cubic feet of wood per acre per year due to adverse site conditions.

^c Includes areas classified as urban, industrial, swampland, and other nonforest, etc.

^d Areas classed as water by FIA standards, but defined by Bureau of Census as land.

^e USDC, Census Bureau (2002, 2012, 2021).

cropland has declined by 4 percent since 2013, whereas pasture has increased by 4 percent since 2013. Shifts in agriculture and urban land uses often directly impact the extent and condition of Florida's forest land. Historically, clearing land for agriculture was the primary reason for loss of forest. Although conversions to agriculture still occur, the principal threat to forest land in recent decades has been urbanization, as evidenced by the increase in area of other nonforest land (table 1). The loss of forest land due to urbanization is permanent, whereas clearing of forest land for crops or pasture can be reversed in many instances. In fact, idle cropland and pasture continue to be the primary source for new acres of forest land, either from planting or from natural reversion.

Table 2—Land area by land use and survey year, Northwest unit, Florida

Land use		Survey year		
		2007 ^a	2013 ^a	2018
<i>thousand acres</i>				
Forest land	Timberland	5,469.0	5,443.5	5,351.1
	Reserved	87.1	92.6	101.4
	Other forest ^b	51.7	53.3	92.9
	Total	5,607.8	5,589.4	5,545.5
Nonforest land	Cropland	322.0	291.7	295.7
	Pasture	249.2	269.2	265.3
	Other nonforest ^c	1,003.1	1,069.8	1,124.1
	Noncensus water ^d	41.7	28.1	25.5
Total		1,616.0	1,658.8	1,710.6
All land ^e		7,223.8	7,248.2	7,256.1
Census water		1,264.9	1,241.4	1,218.5
Total area		8,488.7	8,489.6	8,474.6
Percent land area forested		77.6	77.1	76.4

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

^a From Brown et al 2017.

^b Unproductive lands incapable of producing 20 cubic feet of wood per acre per year due to adverse site conditions.

^c Includes areas classified as urban, industrial, swampland, and other nonforest, etc.

^d Areas classed as water by FIA standards, but defined by Bureau of Census as land.

^e From the USDC Census Bureau (2002, 2012, 2021).

Since 2013, area of cropland decreased slightly at the State level (table 1). However, area of cropland changed differently within each of the four survey units (tables 2, 3, 4, 5). The Northeast unit (table 3) showed a large increase in cropland, whereas the Central unit (table 4) showed a large decrease. Both the Northwest unit (table 2) and the South unit (table 5) were relatively stable. Area in pasture increased in three of the four survey units. Only the Northwest unit showed a slight decrease in pasture. The area of other nonforest land (primarily urban) increased in all four survey units, although the increase in the Northeast unit was negligible. Eighty-six percent of the State's total increase in area of other nonforest land occurred in the Central and South survey units.

Table 3—Land area by land use and survey year, Northeast unit, Florida

Land use		Survey year		
		2007 ^a	2013 ^a	2018
<i>thousand acres</i>				
Forest land	Timberland	6,558.90	6,397.1	6,279.9
	Reserved	124.60	172.3	176.6
	Other forest ^b	18.10	12.0	14.9
	Total	6,701.60	6,581.4	6,471.4
Nonforest land	Cropland	334.70	342.6	400.8
	Pasture	766.60	737.0	772.5
	Other nonforest ^c	1,822.80	1,988.2	1,990.9
	Noncensus water ^d	73.40	50.1	62.2
Total		2,997.50	3,117.9	3,226.4
All land ^e		9,699.10	9,699.3	9,697.8
Census water		1,084.80	1,084.9	1,099.1
Total area		10,783.90	10,784.2	10,796.9
Percent land area forested		69.10	67.9	66.7

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

^a From Brown et al 2017.

^b Unproductive lands incapable of producing 20 cubic feet of wood per acre per year due to adverse site conditions.

^c Includes areas classified as urban, industrial, swampland, and other nonforest, etc.

^d Areas classed as water by FIA standards, but defined by Bureau of Census as land.

^e From the USDC, Census Bureau (2002, 2012, 2021).

Table 4—Land area by land use and survey year, Central unit, Florida

Land use		Survey year		
		2007 ^a	2013 ^a	2018
<i>thousand acres</i>				
Forest land	Timberland	2,514.2	2,592.5	2,453.7
	Reserved	236.9	245.6	306.1
	Other forest ^b	30.6	85.9	107.0
	Total	2,781.7	2,924.0	2,866.8
Nonforest land	Cropland	924.3	891.5	737.1
	Pasture	2,222.5	2,131.3	2,206.0
	Other nonforest ^c	3,916.3	3,899.9	4,090.8
	Noncensus water ^d	79.4	120.1	105.3
Total		7,142.5	7,042.8	7,139.2
All land ^e		9,924.2	9,966.8	10,005.9
Census water		1,891.3	1,849.2	1,812.2
Total area		11,815.5	11,816.0	11,818.1
Percent land area forested		28.0	29.3	28.7

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

^a From Brown et al 2017.

^b Unproductive lands incapable of producing 20 cubic feet of wood per acre per year due to adverse site conditions.

^c Includes areas classified as urban, industrial, swampland, and other nonforest, etc.

^d Areas classed as water by FIA standards, but defined by Bureau of Census as land.

^e From the USDC Census Bureau (2002, 2012, 2021).

Timberland Classification

As shown in table 1, 14.9 million acres (88 percent) of Florida's 16.9 million acres in forest were classified as timberland. These 14.9 million acres were defined as capable of producing at least 20 cubic feet of industrial wood per acre per year and not classified as reserved and withdrawn from timber production. The area of timberland in 2018 was down 3 percent from 15.4 million acres in 2013. The decline for 2018 was more related to the increase in other nonforest land uses rather than the cause behind the previous 2013 downward change which largely resulted from national-level decisions to standardize classification of certain timberlands as reserved based on ownership criteria established in FIA field manual version 6.0 (USDA Forest Service 2012). In Florida, that previous change increased reserved timberland

Table 5—Land area by land use and survey year, South unit, Florida

Land use		Survey year		
		2007 ^a	2013 ^a	2018
<i>thousand acres</i>				
Forest land	Timberland	1,055.6	959.5	820.9
	Reserved	683.1	1,059.6	1,110.9
	Other forest ^b	67.2	157.9	127.3
	Total	1,805.9	2,177.0	2,059.1
Nonforest land	Cropland	1,080.4	1,025.8	1,021.5
	Pasture	495.2	480.6	520.3
	Other nonforest ^c	3,859.4	3,898.9	4,065.9
	Noncensus water ^d	288.4	69.9	59.1
Total		5,723.4	5,475.2	5,666.8
All land ^e		7,529.3	7,652.2	7,725.9
Census water		3,465.5	3,342.9	3,269.0
Total area		10,994.8	10,995.1	10,994.9
Percent land area forested		24.0	28.4	26.7

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

^a From Brown et al 2017.

^b Unproductive lands incapable of producing 20 cubic feet of wood per acre per year due to adverse site conditions.

^c Includes areas classified as urban, industrial, swampland, and other nonforest, etc.

^d Areas classed as water by FIA standards, but defined by Bureau of Census as land.

^e From the USDC Census Bureau (2002, 2012, 2021).

from 1.1 million acres in 2007 to 1.6 million acres in 2013. These acres classified as reserved timberland are generally under public ownership and primarily located in the national forest wilderness areas, national wildlife refuges and preserves, and the national parks. The remaining other forest land category of land use consisted largely of unproductive or adverse sites. The area of other forest land in 2018 has increased from 2013 levels, but to a lesser extent than the previous increase for which reasons of the change were unclear and may have been related to the reclassification decision involving reserved acres. Since the acres classified as timberland are the ones subject to viable forest management activities and thus are most apt to influence forest economics of the State, the remainder of this report will concentrate on timberland.

Timberland Distribution

FIA surveys divide Florida into four units (fig. 1). The Northwest unit is that portion along the Gulf of Mexico bordering both Alabama and Georgia. It is commonly referred to as the panhandle of the State. The Northeast unit is that portion of the State bordering only Georgia while fronting on both the Gulf of Mexico and the Atlantic Ocean. The Central unit is roughly the center one-fourth of the State and borders only the Northeast unit to the North while fronting both the Gulf of Mexico and the Atlantic Ocean. The South unit is the entire southern portion of the State, only bordering the Central unit to its north while otherwise surrounded by ocean.

Timberland as a percentage of land area by county (fig. 1) shows the most heavily forested part of the State to be the Northwest unit followed by the Northeast unit. Timberland covered 76 percent of the land area in the Northwest unit, and 67 percent in the Northeast unit. The Central unit had 29 percent timberland coverage and the South unit had 27 percent. Liberty County was the most forested in the State with 95 percent coverage. Another six counties had more than 80 percent forest coverage, and 13 counties had at least 70 percent forest coverage, all were in the two northern units of the State. Only one county in the southern half of the State (Hernando) had at least 60 percent forest coverage, largely because the Withlacoochee State Forest is located there.

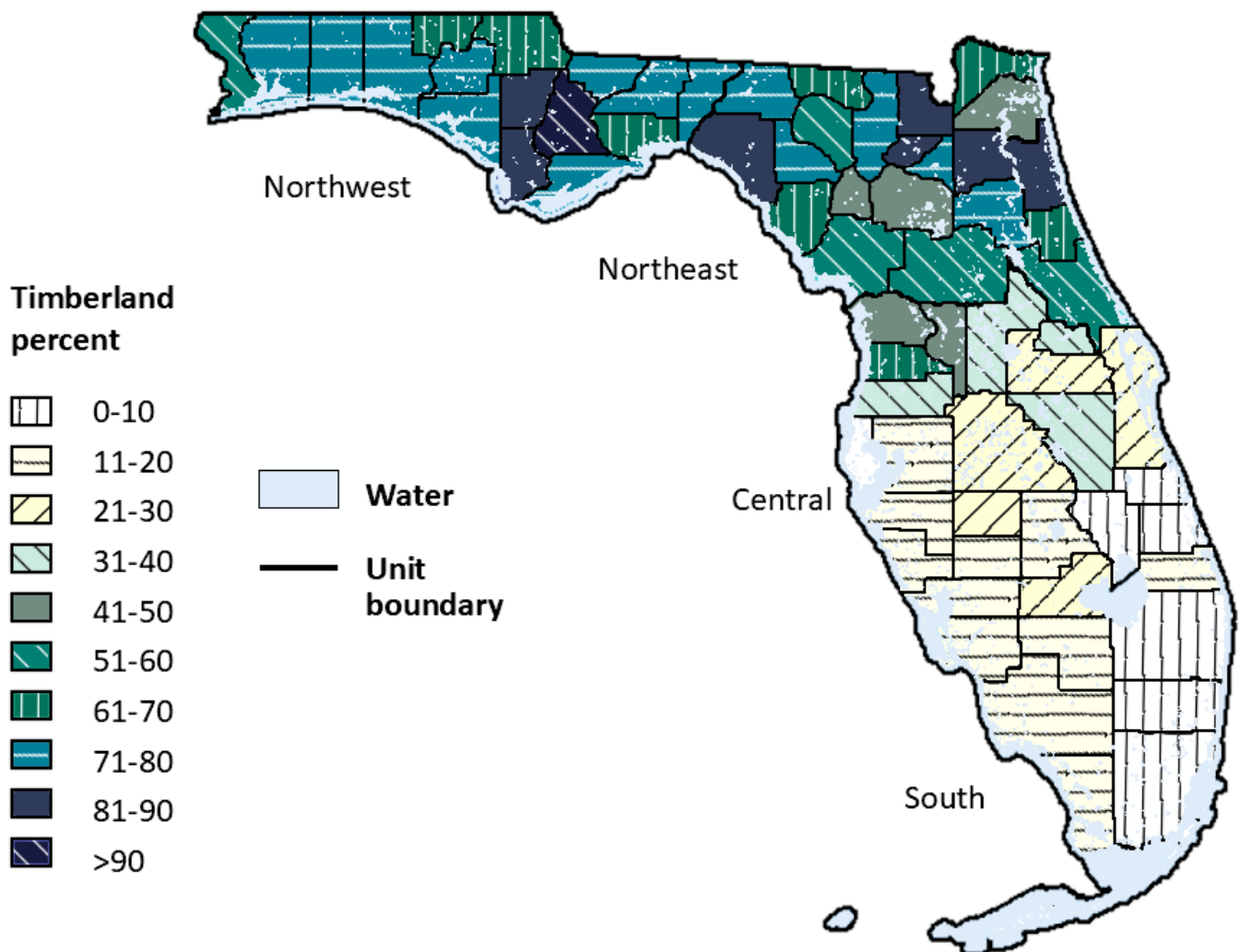


Figure 1—Timberland as a percentage of all land by county, Florida, 2018.

TIMBERLAND STATISTICS: AREA

Trends

The 14.9 million acres of timberland recorded for Florida in 2018 continued a downward trend in area of timberland for the State (fig. 2A) since 2007. The 487,000-acre decrease since 2013 represented a nearly 3 percent drop from the 15.4 million acres reported for the 2013 survey. Appendix D contains 37 tables with information describing this resource. The expansion of the major metropolitan areas found across the State increased the area of the “other nonforest land” category (table 1) by 415,000 acres since 2013. Such expansion often came at the expense of previously forested areas. This urbanization was the leading cause of timberland loss in the State.

Occurrence

The State's 487,000-acre overall decrease in timberland since 2013 was somewhat evenly distributed across all four survey units of the State. Although the Northwest unit (fig. 2B), the Northeast unit (fig. 2C), the Central unit (fig. 2D) and the South unit (fig. 2E) each declined, they did so differently by percentage of loss. For instance, although the Northeast unit (fig. 2C) accounted for the largest acreage portion of the State's total timberland loss, it actually incurred the second lowest percentage loss of timberland among the four units.

Area of timberland in the Northeast unit (fig. 2C) decreased by 2 percent, or 129,000 acres since 2013. The Northwest unit (fig. 2B) decreased by <2 percent, or more than 92,000 acres. This represented the smallest acreage decrease of the four units, as well as the lowest percentage loss by unit. The Central unit (fig. 2D) decreased by 5 percent, or 139,000 acres. In contrast, the South unit (fig. 2E) decreased by 14 percent, or 139,000 acres. This represented the largest percentage decrease of the four units and the second largest acreage portion of the State's total timberland loss.

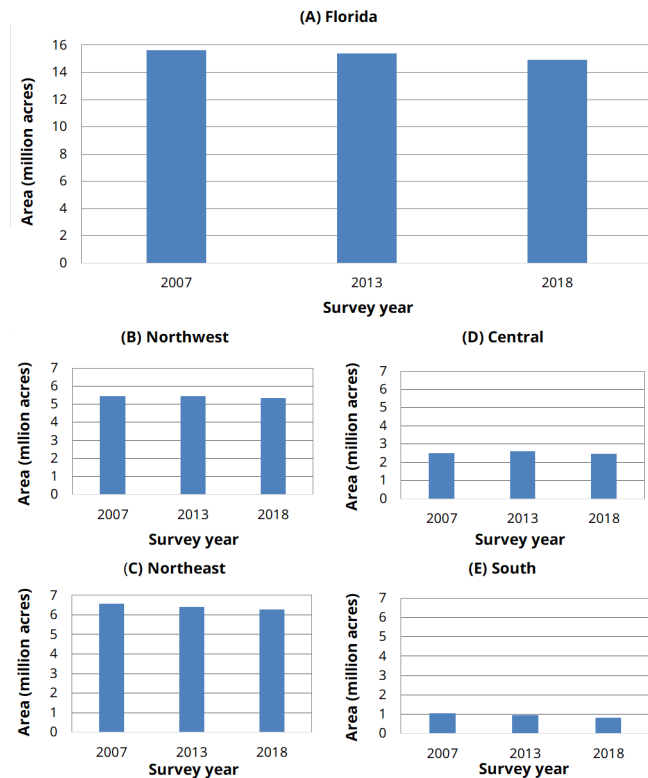


Figure 2—Area of timberland in (A) Florida by survey year and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

Ownership

The other corporate category (all corporate-owned timberland other than forest industry) with more than 6.4 million acres continued to control most (43 percent) of Florida's timberland in 2018 (fig. 3A). The private individual category (all NIPF owner classes other than corporate) with 3.7 million acres, was second with nearly 25 percent. The State and local category of public ownerships was third with almost 2.8 million acres (19 percent) of total timberland. National forest was fourth with 1.1 million acres (7 percent), and other federal lands accounted for less than 0.6 million acres, or less than 4 percent. Forest industry ownership was next with <0.3 million acres (2 percent).

Area of timberland owned by the other corporate category dominated three of the four survey units and was a close second in the other. However, some differences in the order of ownership category dominance existed by survey unit. In the Northwest unit (fig. 3B), other corporate owned 38 percent, private individual owned 28 percent, State and local owned 15 percent, and forest industry owned just 1 percent. In the Northeast unit (fig. 3C), other corporate owned 50 percent, private individual owned 24 percent, State and local owned 14 percent, and forest industry owned 3 percent. In the Central unit (fig. 3D), other corporate owned 39 percent, State and local owned 31 percent, private individual owned 21 percent, and forest industry owned 1 percent. In the South unit (fig. 3E), State and local owned 38 percent, other corporate owned 37 percent, private individual owned 19 percent, and forest industry was not recorded.

The decrease in area of Florida's timberland was also distributed differently by ownership category. At the State level, most of the decrease in timberland was recorded in the private individual and forest industry categories. Some of the State's timberland decrease occurred in the other Federal category through reclassification of areas to a reserved status. Area of private individual owned timberland decreased 8 percent since 2013, from 4.0 million to 3.7 million acres in 2018. Forest industry timberland decreased 66 percent from 0.8 million to 0.3 million acres in 2018. Some of the lost private individual and forest industry category timberland was absorbed by increased area of timberland in the other corporate and State and local ownership categories.

By survey unit, for instance, the decreased timberland in the private individual owner category occurred in each of the State's four

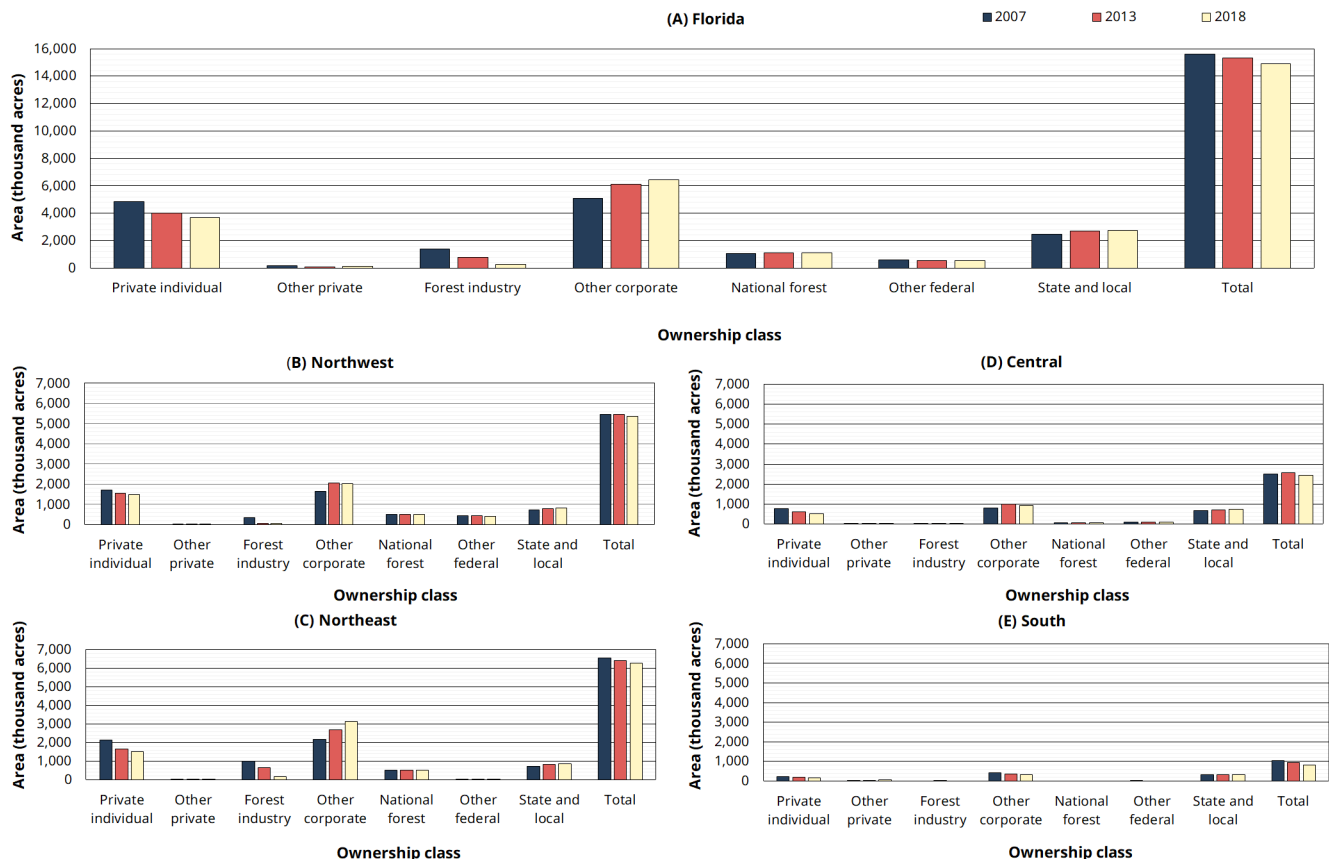


Figure 3—Area of timberland in (A) Florida by ownership, survey year, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

survey units. The decreased timberland in the forest industry category occurred in three of the four survey units. The only increase occurred from a nominal amount recorded in the Northwest unit. Forest industry timberland decreased most in the Northeast unit, where it decreased by 74 percent.

The increased area of other corporate timberland often corresponds with the decreased area of forest industry timberland as seen in the figure 3 graphs. The other corporate timberland acres are often held in Timber Investment and Management Organizations (TIMOs), Real Estate Investment Trusts (REITs), Limited Liability Corporations, and similar organizations. Whether these timberlands remain in the timber base and contribute to the State's wood supply is unclear and depends on the new landowners' management goals and priorities.

More of the State's 3.7 million acres of private individual timberland, 42 percent, occurred in the Northeast unit, and 40 percent occurred in the Northwest unit. The Central unit accounted for 14 percent, and the South unit accounted for the remaining 4 percent.

Most of the State's 0.3 million acres of forest industry timberland, 67 percent, occurred in the Northeast unit, and 25 percent occurred in the

Northwest unit. The Central unit accounted for the remaining 8 percent, as none was recorded in the South unit.

Most of the State's 6.4 million acres of other corporate timberland, 49 percent, was found in the Northeast unit, and 31 percent was found in the Northwest unit. The Central unit accounted for 15 percent, and the South unit accounted for the remaining 5 percent.

The State's 1.1 million acres of national forest timberland was closely divided between 47 percent located in the Northeast unit, and 46 percent located in the Northwest unit. The Central unit accounted for the remaining 7 percent. None exists in the South unit.

Most of the State's 0.5 million acres of other Federal timberland, 80 percent, occurred in the Northwest unit, and 18 percent occurred in the Central unit. The Northeast unit accounted for the remaining 2 percent, as none was recorded for the South unit.

Florida's 2.8 million acres of State and local timberland was well distributed among the units, with 32 percent located in the Northeast unit, 30 percent located in the Northwest unit, 27 percent located in the Central, and 11 percent located in the South unit.



Natural pine stand at Twin Rivers State Forest. (Florida Forest Service photo by Jeremy Ashmore)

Forest Types

Florida's boundaries encompass climatic zones ranging from temperate to sub-tropical. The State's geography ranges from sea-level, sand hills and ridges, to rolling uplands. The State contains many physiographic classes, including cypress ponds, pocosins, drains, swamps, floodplains, rolling uplands, flatwoods, and deep sands. These conditions permit many forest types and even transitional types to flourish. Among these types, numerous tree species exist, some less common than others and some even rare. For this reason, the accompanying species list is limited to 143 tree species subject to identification on sample plots (app. 3). Furthermore, the most common species associations can be combined into forest types. The individual forest types are named for the species forming a plurality of the stocking. Forest types are collapsed into forest-type groups for better graphical representation in the figures. The forest-type groups of longleaf-slash pine, loblolly-shortleaf pine, other eastern softwoods, oak-pine, oak-hickory, oak-gum-cypress, elm-ash-cottonwood, other hardwoods, tropical hardwoods, exotic hardwoods, and nonstocked are used in this report.

Collectively, the hardwood forest types accounted for 7.5 million acres (51 percent) of Florida's timberland, and softwood forest types accounted for 6.9 million acres, or 46 percent. Nonstocked areas of 0.5 million acres made up the remaining 3 percent.

The most common forest-type group in Florida was longleaf-slash pine (fig. 4A). The longleaf-slash pine (LngSl) forest-type group accounted for 5.1 million acres (34 percent) of Florida's timberland. Oak-gum-cypress (OkGC) types were next with 3.1 million acres (20 percent) of the State's timberland. Oak-hickory (OkH) types were third with 2.5 million acres (17 percent) of the State's timberland. The area of timberland classified as loblolly-shortleaf (LobSh) forest type was fourth and accounted for 1.8 million acres (12 percent) of the State total. Oak-pine (OkP) forest types were a close fifth with 1.5 million acres (10

percent). Areas having insufficient stocking of trees to determine a forest type were classified as nonstocked. Nonstocked timberland accounted for 0.5 million acres.

Most of the State's 5.1 million acres of longleaf-slash pine forest-type timberland, 46 percent, occurred in the Northeast unit (fig. 4C), and 38 percent occurred in the Northwest unit. The Central unit accounted for 11 percent, and the South unit accounted for the remaining 5 percent.

Most of the State's nearly 3.1 million acres of oak-gum-cypress forest type timberland, 41 percent, was found in the Northeast unit (fig. 4C), and 31 percent was found in the Northwest unit. The Central unit accounted for 23 percent, and 5 percent was recorded in the South unit.

Most of the State's 2.5 million acres of oak-hickory forest type, 41 percent, was found in the Northeast unit (fig. 4C). The Northwest unit accounted for 29 percent, and nearly 26 percent occurred in the Central unit. The remaining 4 percent was found in the South unit.

Most of the State's 1.8 million acres of loblolly-shortleaf pine forest-type timberland, 54 percent, occurred in the Northwest unit (fig. 4B), and 42 percent occurred in the Northeast unit. The Central unit accounted for 4 percent, and none was recorded in the South unit.

Most of the State's 1.5 million acres of oak-pine forest-type timberland, 44 percent, was found in the Northwest unit (fig. 4B), and 41 percent was found in the Northeast unit. The Central unit accounted for 12 percent, and the South unit accounted for the remaining 3 percent.

The forest-type group order of prevalence at the State level (LngSl, OkGC, OkH, LobSh, OkP) was slightly different for three of the State's four survey units. The Northeast unit's (fig. 4C) order of forest-type prevalence most emulated that of the State as a whole. In the Northeast unit, longleaf-slash pine type accounted for 37 percent, oak-gum-cypress 20 percent, oak-hickory 16 percent, loblolly-shortleaf pine 12 percent, and

oak-pine type 10 percent of the timberland. In the Northwest unit (fig. 4B), the most common forest-type group present was longleaf-slash pine, which accounted for 36 percent of the unit's timberland. Loblolly-shortleaf pine type ranked second with 18 percent of the unit's timberland. However, due to the acreage covered, it accounted for 54 percent of all loblolly-shortleaf pine in the State. A close third was oak-gum-cypress type with almost 18 percent. Oak-hickory type came in fourth with 14 percent, and oak-pine accounted for 12 percent. The Central unit (fig. 4D) was the only unit not dominated by the longleaf-slash pine type. In the Central unit, oak-gum-cypress forest type accounted for the most area with 29 percent of the timberland, followed by oak-hickory type with 26 percent, longleaf-slash pine type with

23 percent, and oak-pine type with 8 percent. Tropical hardwood (TropHw) forest type made up 7 percent of the Central unit's timberland; yet due to the acreage covered, it accounted for the most (48 percent) of all tropical hardwood forest type in the State. In the South unit (fig. 4E), longleaf-slash pine type accounted for 31 percent of the timberland. Oak-gum-cypress type was second with 20 percent. Tropical hardwoods were third with 17 percent (highest percentage of all units) of the South unit's timberland. Oak-hickory type was fourth with 12 percent, and oak-pine with just 5 percent. Potentially noteworthy is the exotic hardwood (ExHd) type also found on just 5 percent of the South unit's timberland, yet it accounted for 79 percent of all exotic hardwood type present in the State.

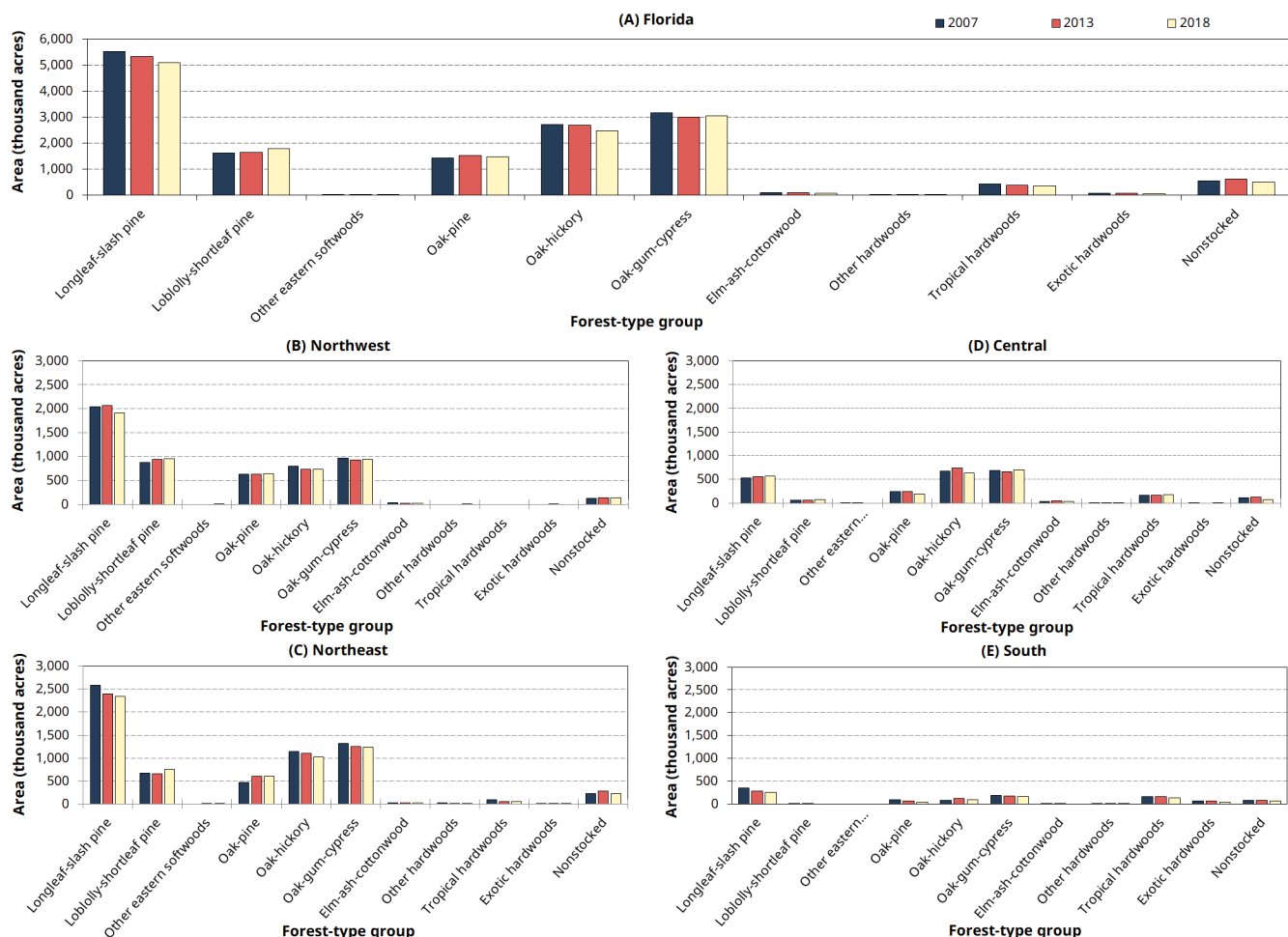


Figure 4—Area of timberland in (A) Florida by forest-type group, survey year, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

Stand-Size Class

For a broad-scale portrayal of the State's timberland, FIA classified forest stands into three major stand-size classes. Those few acres with insufficient stocking to determine forest type or stand size were allocated to the nonstocked category. The large stand-size class correlates to the sawtimber-size class, the medium stand-size class correlates to the poletimber-size class, and the small stand-size class correlates to the sapling-seedling-size class. For all forest-type groups, the small stand size included stands at least 10 percent stocked with trees more than half of which were from 1.0 to 4.9 inches in diameter at breast height (d.b.h.). For softwood forest types, the medium stand size included stands at least 10 percent stocked with trees more than half of which were from 5.0 to 8.9 inches d.b.h., and the large stand size included stands at least 10 percent stocked with trees more than half of which were 9.0 inches d.b.h. and larger. The definition for hardwood forest types only differs in the diameter threshold, where medium size ranges from 5.0 to 10.9 inches d.b.h., and large size requires 11.0 inches d.b.h. and larger.

The large diameter size class covered almost 7.0 million acres (47 percent), of Florida's timberland in 2018. Based on major forest-type groupings, most of the large diameter size stands, 58 percent, were composed of hardwood forest types (fig. 5A). Softwood forest types made up 42 percent. The area in a large diameter size class has increased for both softwoods and hardwoods since the 2013 survey.

The medium diameter size class covered almost 4.0 million acres (27 percent), of Florida's timberland in 2018. Based on major forest-type groupings, most of the medium diameter size stands, 60 percent, were composed of softwood forest types (fig. 5A). Hardwood forest types made up 40 percent. The area in a medium diameter size class has decreased for both softwoods and hardwoods since 2013.

The small diameter size class covered almost 3.5 million acres (23 percent), of Florida's timberland in 2018. Based on major forest-type groupings, most of the small diameter size stands, 54 percent, were composed of hardwood forest types (fig. 5A). Softwood forest types made up 46 percent. The area in a small diameter size class has remained almost the same for softwoods but decreased for hardwoods since 2013.

The nonstocked category described above accounted for 0.5 million acres, or the remaining 3 percent, of Florida's timberland. The area of nonstocked stands has decreased slightly since 2013.

Just as forest-type distribution by survey unit differed slightly from those at the State level, so the stand-size class distribution across the major forest-type categories had differences by survey unit from the statewide distribution. For instance, whereas hardwood forest types dominated the statewide distribution of large diameter size stands, the softwood forest types dominated large diameter size stands in the Northwest unit.

In the Northwest unit (fig. 5B), the large diameter size class covered almost 2.5 million acres (46 percent), of the unit's timberland in 2018. Based on major forest-type groupings, most of the large diameter size stands, 53 percent, consisted of softwood forest types. Hardwood forest types made up 47 percent. The medium diameter size class covered 1.4 million acres (26 percent), of the unit's timberland in 2018. Softwoods made up 63 percent, and hardwoods made up 37 percent. The small diameter size class covered more than 1.3 million acres (25 percent), of the unit's timberland in 2018. Softwoods made up 49 percent, and hardwoods made up 51 percent. Across the Northwest unit, the large diameter size class increased for both softwoods and hardwoods. The medium diameter size classes decreased for softwoods but increased for hardwoods. The small diameter size classes increased for softwoods but decreased for hardwoods. The area of nonstocked stands in this unit remained about the same at 137,000 acres.

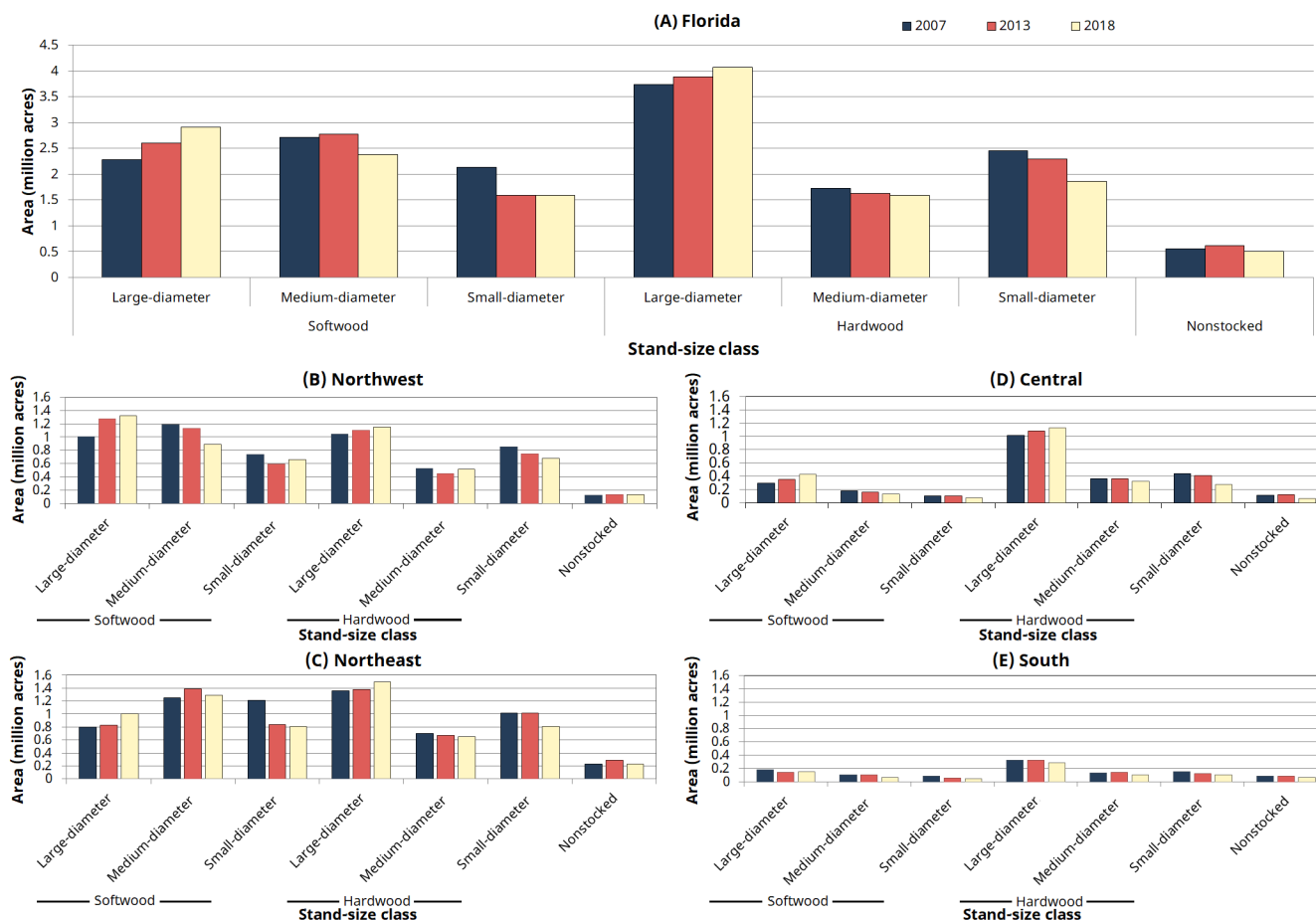


Figure 5—Area of timberland in (A) Florida by stand-size class, major forest-type group, survey year, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

In the Northeast unit (fig. 5C), the large diameter size class covered 2.5 million acres (40 percent) of the unit's timberland in 2018. Based on major forest-type groupings, most of the large diameter size stands, 60 percent, consisted of hardwood forest types. Softwood forest types made up 40 percent. The medium diameter size class covered more than 1.9 million acres (31 percent) of the unit's timberland in 2018. Softwoods made up 67 percent, and hardwoods made up 33 percent. The small diameter size class covered 1.6 million acres (26 percent) of the unit's timberland in 2018. Both hardwoods and softwoods each accounted for 50 percent. Across the Northeast unit, the large diameter size class increased for both softwoods and hardwoods. Although, medium diameter size classes decreased for both softwoods and hardwoods, the decrease was

nominal for hardwoods. The small diameter size class for softwoods decreased slightly, whereas the decrease for small diameter hardwoods was large. The area of nonstocked stands decreased but still remained the highest of all four units with 231,000 acres.

In the Central unit (fig. 5D), the large diameter size class covered almost 1.6 million acres (64 percent) of the unit's timberland in 2018. Based on major forest-type groupings, most of the large diameter size stands, 72 percent, consisted of hardwood forest types. Softwood forest types made up 28 percent. The medium diameter size class covered less than 0.5 million acres (19 percent) of the unit's timberland in 2018. Hardwoods made up 71 percent, and softwoods made up 29 percent. The small diameter size class covered less than 0.4

million acres (15 percent) of the unit's timberland in 2018. Hardwoods made up 78 percent and softwoods made up 22 percent. Across the Central unit, the large diameter size class increased for both softwoods and hardwoods. However, the medium diameter size classes decreased for both softwoods and hardwoods. The small diameter size class decreased for softwoods, whereas the decrease for hardwoods was large. The area of nonstocked stands decreased to 69,000 acres.

In the South unit (fig. 5E), the large diameter size class covered more than 0.4 million acres (53 percent) of the unit's timberland in 2018. Based on major forest-type groupings, most of the large diameter size stands, 66 percent, consisted of hardwood forest types. Softwood forest types

made up 34 percent. The medium diameter size class covered less than 0.2 million acres (21 percent) of the unit's timberland in 2018. Hardwoods made up 61 percent and softwoods made up 39 percent. The small diameter size class covered less than 0.2 million acres (18 percent) of the unit's timberland in 2018. Hardwoods made up 70 percent and softwoods made up 30 percent. Across the South unit, the large diameter size class increased slightly for softwoods but decreased for hardwoods. The medium diameter size class decreased for both softwoods and hardwoods. The small diameter size class for both softwoods and hardwoods decreased. The area of nonstocked stands decreased to 65,000 acres, which was the least area of all units but the most by percentage of unit area at 8 percent versus 3 percent elsewhere.



Scenic view of Longleaf pine forest. (Florida Forest Service photo by Jeremy Ashmore)

Stand Origin

Determining whether a forest stand was established naturally or through planting helps characterize the State's timberland resource and provides important information to the State's wood-using industry. In 2018, almost 4.2 million acres (28 percent) of Florida's timberland exhibited clear evidence of artificial regeneration (fig. 6A), compared to 4.7 million acres in 2013. For the purposes of this report, those acres are considered as planted and the terms herein used synonymously.

More than 3.6 million acres (87 percent) of the area with evidence of artificial regeneration, was classified in the softwood forest-type group, compared to 4.0 million acres in 2013. Hardwoods accounted for 10 percent, and the remaining 3 percent was classified in the nonstocked category (table A4.6). Oak-pine forest types accounted for 56 percent of the planted hardwood forest-type group timberland. These planted oak-pine stands typically result from varying degrees of planting spacing, survival, and hardwood competition. Under these circumstances, forest-type classifications compute to mixed-species stands from the species stocking ratios present. However, some acres are intentionally planted to specific hardwood species. Of the more than 0.4 million planted hardwood acres, 232,000 acres were oak-pine forest types and 122,000 were oak-hickory forest types. Also, 46,000 acres were classified as oak-gum-cypress and 18,000 acres were classified as exotic hardwood (ExHd) forest types. Within the softwood forest-type group, longleaf-slash pine forest type accounted for almost 2.7 million acres (64 percent) of the State's total planted timberland. Loblolly-shortleaf pine forest type accounted for less than 1.0 million acres (23 percent) of the State's planted timberland.

In 2018, the area of planted softwood in Florida (fig. 6A) decreased by 0.4 million acres from that in 2013. In contrast, the area of natural softwood in 2018 increased by 0.3 million acres from that in 2013. Nonstocked area totals decreased by 119,000 acres between the surveys.

Distribution of the State's nearly 4.2 million acres of planted timberland was not even across the four survey units. The two northernmost units together accounted for 96 percent of the planted timberland in Florida. Most of the planted acres, or 54 percent, occurred in the Northeast unit (fig. 6C) and another 42 percent occurred in the Northwest unit (fig. 6B). The Central unit (fig. 6D) accounted for 3 percent of the planted timberland. Planted timberland in the South unit (fig. 6E) accounted for more than 1 percent of the State total.

Area of planted timberland accounted for almost 1.8 million acres, or 32 percent, of the Northwest's timberland in 2018. Based on major forest-type groups, most of the planted stands, 89 percent, were composed of softwood forest types (fig. 6B). Since 2013, the area of planted softwood stands has decreased by 161,000 acres in the Northwest unit, whereas the area of natural softwood stands increased by 30,000 acres.

Area of planted timberland accounted for more than 2.2 million acres (36 percent) of the Northeast unit's timberland in 2018. Based on major forest-type groups, most of the planted stands, 88 percent, were composed of softwood forest types (fig. 6C). Since 2013, the area of planted softwood stands has decreased by 136,000 acres in the Northeast unit, and the area of natural softwood stands has increased by 186,000 acres.

Area of planted timberland accounted for 0.1 million acres (4 percent) of the Central unit's timberland in 2018. Based on major forest-type groups, most of the planted stands, 85 percent, were composed of softwood forest types (fig. 6D). Since 2013, the area of planted softwood stands decreased by 40,000 acres in the Central unit, and the area of natural softwood stands has increased by 61,000 acres.

Area of planted timberland accounted for 61,000 acres (7 percent) of the South unit's timberland in 2018. However, contrary to the State's other units, most of the planted stands in the South unit, 60 percent, were composed of hardwood forest

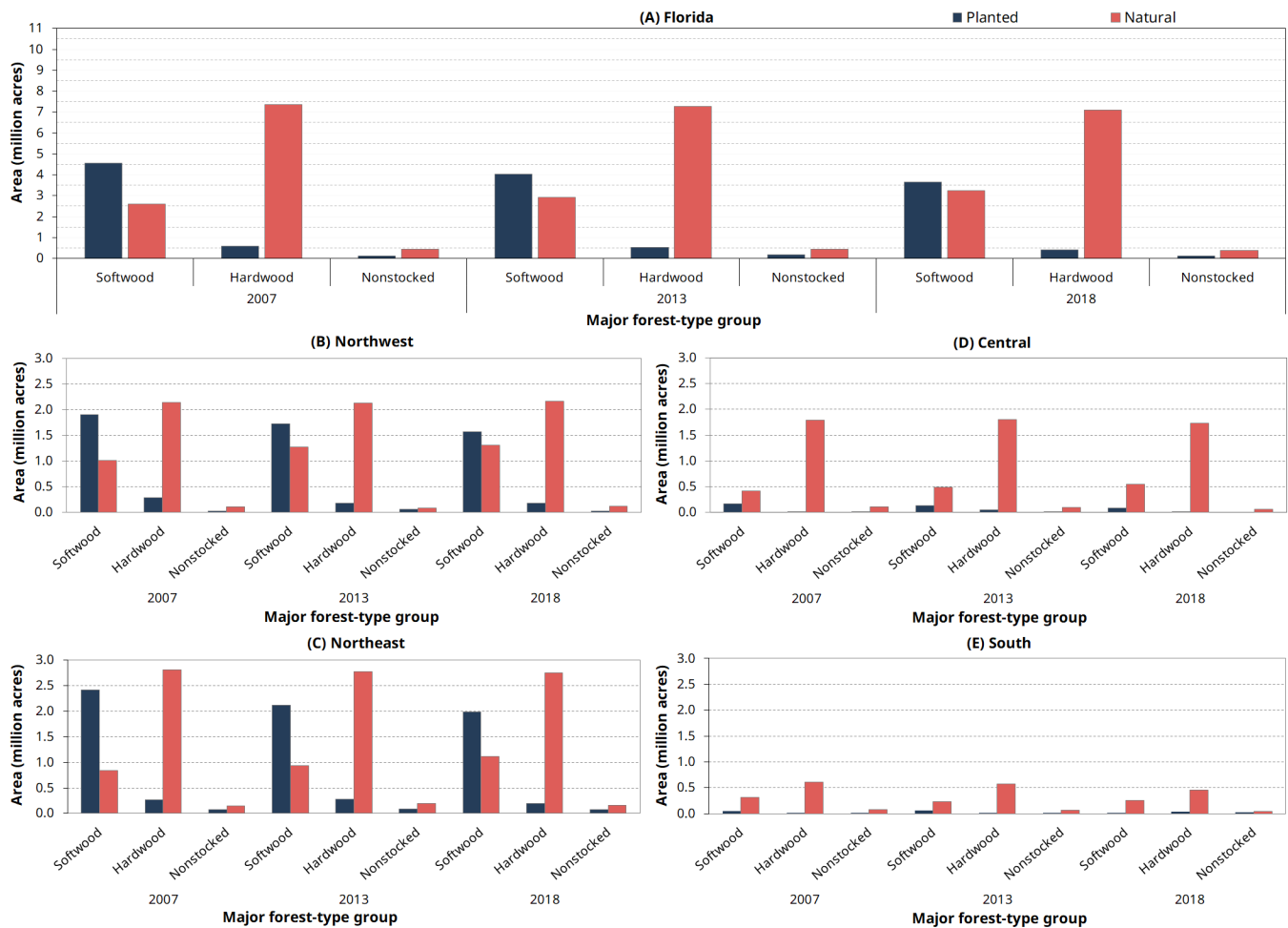


Figure 6—Area of timberland in (A) Florida by major forest-type group, stand origin, survey year, and survey unit (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

types (fig. 6E) based on major forest-type groups. Although nominal, but unlike changes in the other units, the area of planted softwood stands dissolved in the South unit, while that of planted hardwoods more than doubled.

Stand-Age Class

The planted and natural stands by stand-age class provide another method to describe Florida's timberland. In 2018, for all species combined, the nearly 4.2-million-acre statewide area of planted timberland peaked in the 0- to 20-year age class with more than 2.5 million acres (fig. 7A). The 21- to 40-year age class held more than 1.4 million acres of the planted timberland, the typical point where many planted yellow pine stands begin to be harvested. However, liquidation of these acres

was evident by the 41- to 60-year age class where only 205,000 acres remained. The 10.7-million-acre statewide area of natural timberland peaked in the 41- to 60-year age class with almost 2.7 million acres.

In the Northwest unit (fig. 7B), the age distribution of the less than 1.8-million-acre area of planted timberland differed from that at the State level, peaking in the 21- to 40-year age class with less than 0.9 million acres, after which the rate of liquidation accelerated. The Northwest unit contained 132,000 acres (64 percent) of the State's remaining acres of planted timberland in the 41- to 60-year age class. In the Northwest unit, natural timberland peaked in the 61- to 80-year age class with almost 3.6 million acres.

In the Northeast unit (fig. 7C), the more than 2.2-million-acre area of planted timberland peaked in the 0- to 20-year age class with almost 1.7 million acres, however, liquidation dropped the area planted to 0.5 million acres in the 21- to 40-year age class. The State's largest total reduction between the 0-20 and the 21-40-year age classes of planted timberland, where more than 1.1 million acres were removed, occurred in the Northeast unit. The natural timberland totaled 4.0 million acres in the Northeast unit and it peaked in the 21- to 40-year age class. It also remained fairly stable through the 61- to 80-year age classes, after which reductions took place.

In the Central unit (fig. 7D), the 0.1-million-acre area of planted timberland plateaued from the 0- to 20-year age class through the 21- to 40-year age class. Then liquidation began in the 41- to 60-year age classes of planted timberland of the Central unit. The natural timberland totaled more than

2.3 million acres in the Central unit, and it peaked in the 41- to 60-year age class but remained fairly stable through the 61- to 80-year age class.

In the South unit (fig. 7E), the nominal 61,000-acre area of planted timberland only existed in the 0- to 20-year age class. None were recorded for the older age classes. The South unit's nearly 0.8 million acres of natural timberland peaked in the 41- to 60-year age class.

TIMBERLAND STATISTICS: VOLUME

Volume as a descriptor of the timber resource is in many ways a better approach to analyzing the potential of a State's forests. Unlike area by forest type, volume can be analyzed related to tree species population estimates regardless of occurrence. For example, all slash pine volume can be summed for an individual survey unit regardless of its distribution on the ground, or trends in volume of slash pine can be tracked.

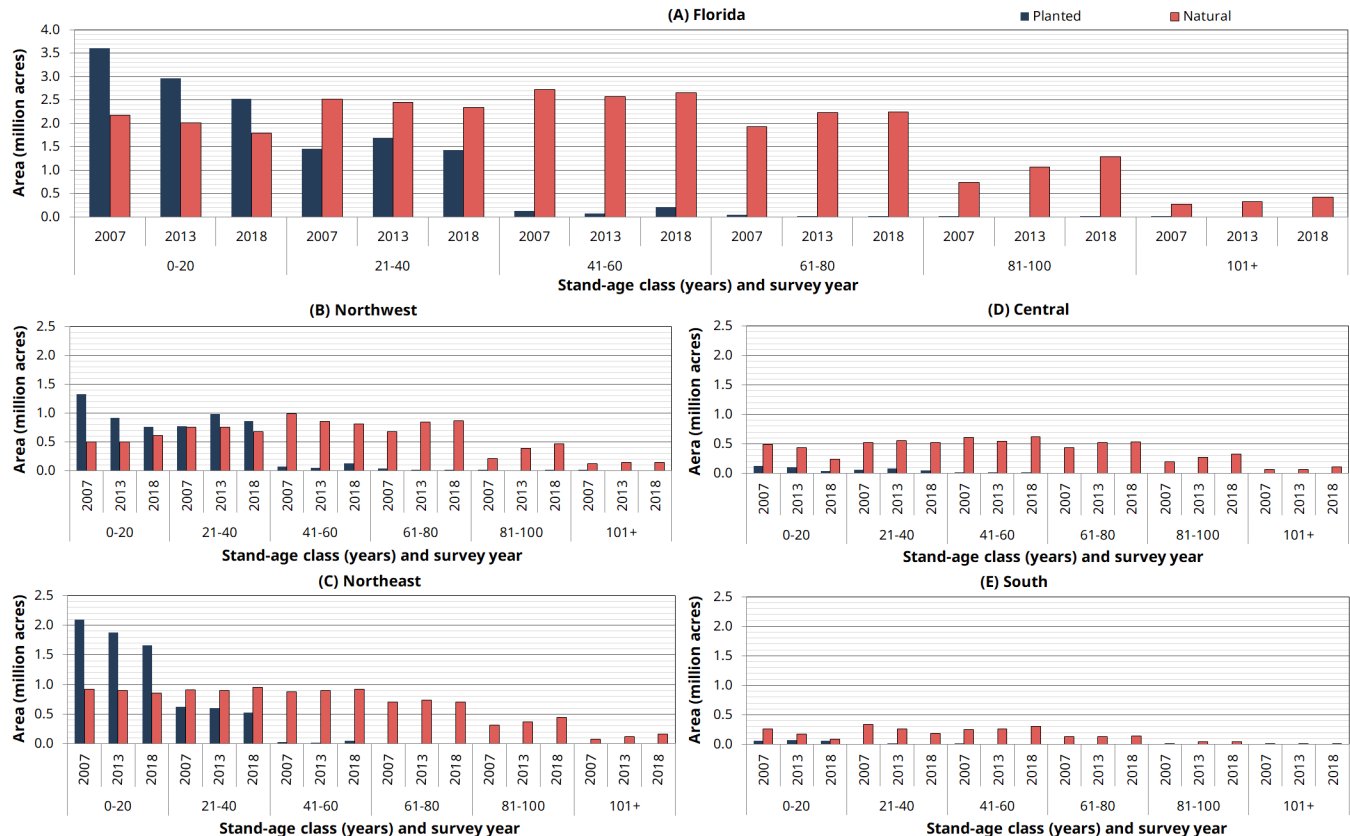


Figure 7—Area of timberland in (A) Florida by stand-age class, stand origin, survey year, and survey unit (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

Furthermore, volume can be summed for a species or species group by diameter class or for a particular ownership group alone. In essence, wood volume is the medium of exchange that propels the State's forest industry economy. Volume is ultimately the basis for determining net change using components of growth to be discussed in the next section of this report.

The calculation of volume begins with a tally of trees. The numbers of trees by species along with their heights and diameters form the foundation for all the algorithmic processes to follow.

Tree Numbers

Figure 8A shows the top 10 timberland tree species by number that are at least 1-inch d.b.h. Slash pine, laurel oak, swamp tupelo, and pondcypress accounted for the highest numbers

of trees. Slash pine was Florida's most common tree species by far, with twice as many trees as the second most common species of laurel oak.

There were similarities and differences in the order of prevalence and species present by survey unit. For instance, the State's number one tree, slash pine, was the most common species in the Northwest (fig. 8B) and Northeast units (fig. 8C), but the second most common in the Central (fig. 8D) and South (fig. 8E) units. The State's second most common tree, laurel oak, was second in the Northeast unit, but third in the Northwest and Central units. Laurel oak was only ninth of the top 10 most common in the South unit. The State's third most common tree, swamp tupelo, was second in the Northwest unit and third in the Northeast unit. Swamp tupelo was down to eighth of the top 10 in the Central unit and not

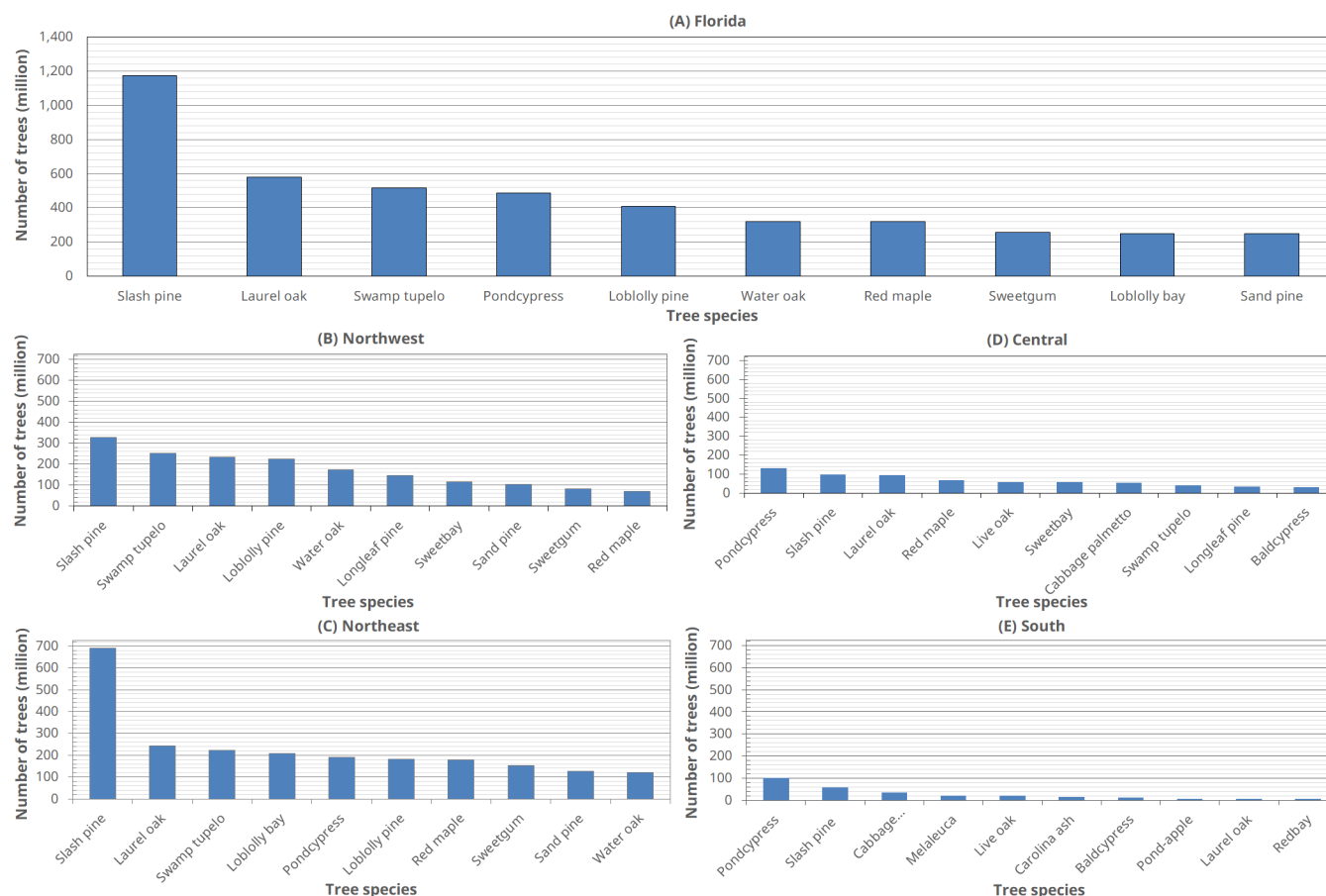


Figure 8—Top 10 species based on number of trees in (A) Florida and by survey unit (B) Northwest, (C) Northeast, (D) Central, and (E) South, 2018. Data from FIADB 03/15/2023.

in the top 10 of the South unit. The State's fourth most common tree, pondcypress, was first in the Central and South units. Pondcypress was fifth in the Northeast unit and not in the top 10 in the Northwest unit.

Longleaf pine made the top 10 in two units. In the Northwest unit, it was the sixth most common tree species by number of trees. Longleaf pine was ninth in the Central unit. Baldcypress occurred in the top 10 of two units as well. It was seventh in the South unit and 10th in the Central unit. Live oak made the top 10 in the Central and South units. It ranked fifth in both units. Sand pine was 10th Statewide, eighth in the Northwest unit and ninth in the Northeast unit. Cabbage palm was seventh in the Central unit and number three in the South unit. One invasive tree, melaleuca, was fourth in the South unit (fig. 8E).

Tree Volume

The top 10 trees on Florida timberland based on tree species volume (fig. 9A) altered the list of species order and presence from that by number of trees. These differences occurred for two primary reasons. First, it would take the volume from numerous small trees of a particular species to match the volume in one large tree of another species. Second, volume is calculated based on merchantability standards of a 1-foot stump to a 4-inch top; thus, only trees >5.0 inches d.b.h. are included in volume calculations. Statewide, slash pine, which ranked first in tree numbers (fig. 8A), remained on top in prominence when considered by volume (fig. 9A). The list by volume versus by tree numbers reshuffled ranking for spots 2 through 10, while adding three new species and dropping three species. The additions were longleaf pine, live oak, and baldcypress. Dropping off the statewide list by tree numbers when going to a statewide list by volume were water oak, red maple, and loblolly-bay.

Similar changes occurred by survey unit. Mainly, slash pine rose to first on the list by volume in all four survey units. In the Northwest unit (fig. 9B), loblolly pine moved from fourth in number

of trees to second by volume. Swamp tupelo was second in tree numbers but third by volume. Longleaf pine was fourth by volume, having been sixth in tree numbers. Laurel oak dropped from third in tree numbers to sixth by volume. Pondcypress had enough volume to be added as 10th on the list by volume.

In the Northeast unit (fig. 9C), laurel oak changed from second by tree numbers to third volume. Loblolly pine moved to second by volume from sixth in tree numbers. Pondcypress went from fifth by number to fourth by volume. Live oak entered fifth by volume, having not been in the top 10 by tree numbers. Longleaf pine and baldcypress entered at eighth and ninth, respectively, by volume although neither was top 10 in tree numbers.

In the Central unit (fig. 9D), pondcypress went from first in tree numbers to second by volume. Baldcypress rose to third by volume, having been 10th in tree numbers. Live oak remained fifth on both lists. Laurel oak went from third in numbers to fourth in volume. Cabbage palm moved up to sixth in volume from seventh in tree numbers. Swamp tupelo changed from eighth by numbers to seventh in volume.

In the South unit (fig. 9E), pondcypress was now second to slash pine by volume, a reversal of tree numbers order. Cabbage palm remained third in both lists. Baldcypress moved up from seventh by numbers to fourth by volume. Live oak remained fifth in both lists. The invasive melaleuca dropped from fourth in tree numbers to seventh by volume.

Florida's slash pine volume totaled 5.9 billion cubic feet (fig. 9A), 48 percent of which occurred in the Northeast unit and 38 percent in the Northwest unit. Together the Northwest and Northeast units held 86 percent of the State's total slash pine volume. Florida's loblolly pine volume totaled 2.1 billion cubic feet, 55 percent of which occurred in the Northwest unit and 44 percent in the Northeast unit. Together, these two units

held 99 percent of the State's total loblolly pine volume. Florida's pondcypress volume totaled 1.7 billion cubic feet, 36 percent of which occurred in the Northeast unit and 35 percent in the Central unit. Together, the Northeast and Central unit held 71 percent of the State's pondcypress volume. Florida's laurel oak volume totaled 1.7 billion cubic feet, 50 percent of which was found in the Northeast unit. Florida's swamp tupelo volume totaled 1.4 billion cubic feet, 49 percent of which was found in the Northwest unit. Florida's longleaf pine volume totaled 1.2 billion cubic feet, 55 percent of which was found in the Northwest

unit. Florida's live oak volume totaled less than 1.2 billion cubic feet, 44 percent of which occurred in the Northeast unit and 35 percent in the Central unit. Florida's baldcypress volume totaled 1.1 billion cubic feet, 45 percent of which was found in the Central unit. The Northeast unit contained 27 percent of the baldcypress volume, 19 percent was found in the Northwest unit, and 9 percent in the South unit. Florida's sweetbay volume totaled more than 0.7 billion cubic feet, 59 percent of which was found in the Northwest unit. Florida's sweetgum volume totaled 0.7 billion cubic feet, 55 percent of which occurred in the Northeast unit.

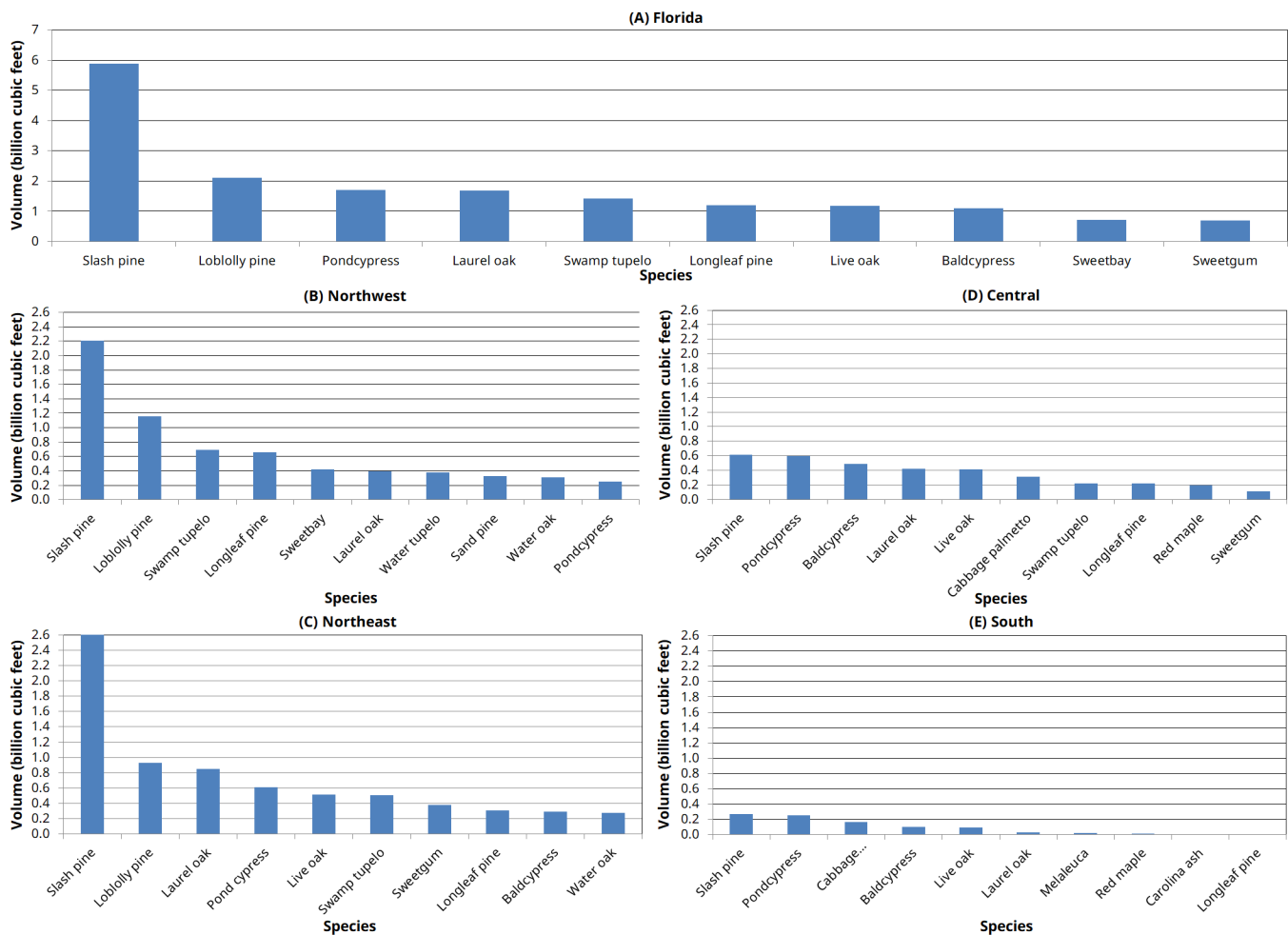


Figure 9—Top 10 species based on volume of trees in (A) Florida and by survey unit (B) Northwest, (C) Northeast, (D) Central, and (E) South, 2018. Data from FIADB 03/15/2023.

Stand Origin

Overall, all-live tree merchantable volume on timberland in Florida increased to 22.8 billion cubic feet in 2018 from 20.8 billion cubic feet in 2013. Merchantable volume is based on trees 5.0 inches d.b.h. and larger. The softwood species together accounted for 13.0 billion cubic feet (57 percent) of the total (fig. 10A). In combination, all the hardwood species made up 9.8 billion cubic feet (43 percent).

Based on stand origin, 80 percent, or almost 18.4 billion cubic feet, of Florida's total all-live merchantable volume is in species from stands of natural origin. Twenty percent, or less than 4.5 billion cubic feet, is in species from stands with evidence of artificial regeneration (planted). Softwood species accounted for 94 percent, or 4.2 billion cubic feet, of the State's planted volume (fig. 10A). In 2018, planted softwood volume had decreased by 2 percent since 2013. Whereas natural softwood volume had increased by 16 percent. Natural hardwood volume increased by nearly 10 percent since 2013.

The distribution of the planted volume differed by survey unit region within the State. Specifically, the State's two northern units almost equally contained all the planted volume. The Northwest unit (fig. 10B) accounted for 49 percent, or almost 2.1 billion cubic feet, of the State's planted volume. The Northeast unit (fig. 10C) was practically identical with 49 percent, or 2.1 billion cubic feet of the planted volume. The Central unit (fig. 10D) accounted for 2 percent, or nearly 0.1 billion cubic feet of the planted volume. The South unit (fig. 10E) accounted for only a trace, or just 822,000 cubic feet of the State's planted volume. In 2018, planted softwood volume had increased only in the Northeast unit. It decreased in each of the other three survey units. In contrast, natural softwood volume increased in each survey unit since 2013. Natural hardwood volume rose in three survey units with only the South unit having decreased.

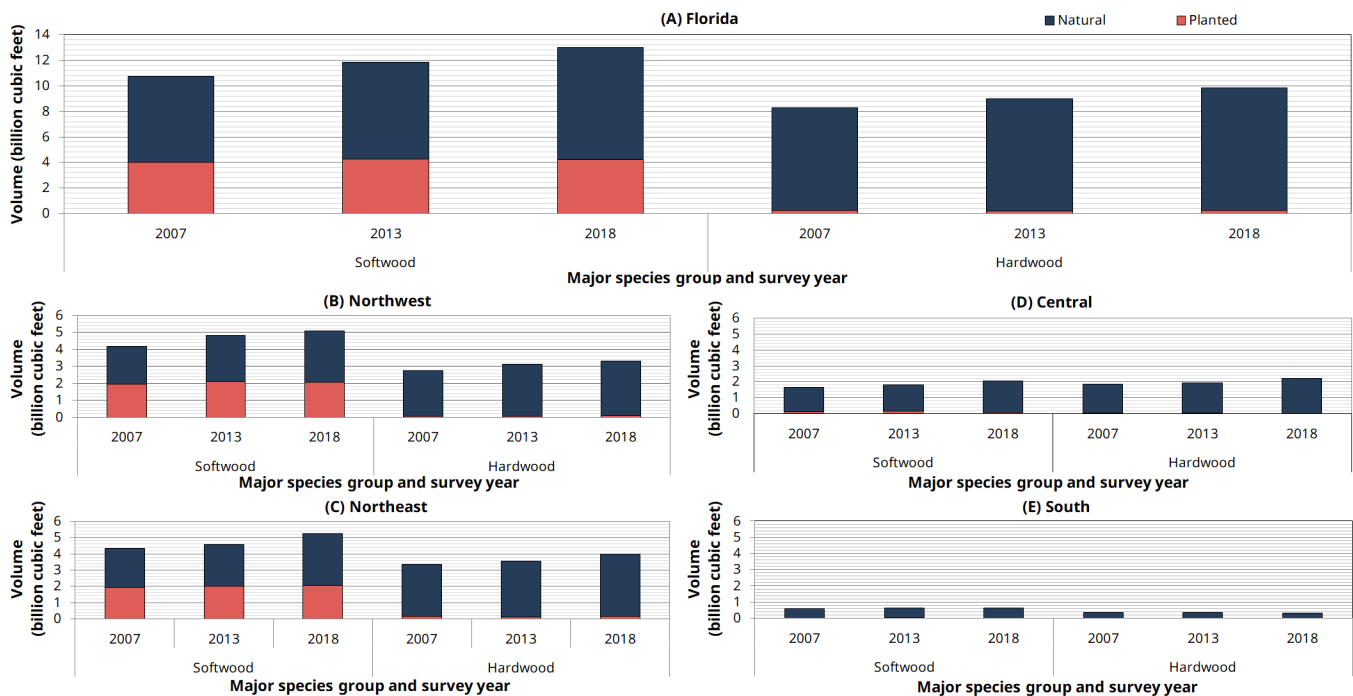


Figure 10—All-live merchantable volume in (A) Florida by major species group, survey year, stand origin, and survey unit (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.



Aerial view of roads, pine stand, and hardwood drain at Lake Talquin State Forest. (Florida Forest Service photo by Jeremy Ashmore)

Diameter Class

The diameter class distribution of Florida's 22.8 billion cubic feet of all-live merchantable volume differed between the major species groups. For the State's 13.0 billion cubic feet in softwoods, 63 percent of the volume was distributed in the 8- to 14-inch diameter classes (fig. 11A). The softwood volume peaked in the 8-inch d.b.h. class where 18 percent of the total existed. Although softwood volume totals increased statewide since 2013, that was not the case for all diameter classes. The 6-inch class decreased noticeably, and the 8-inch class remained unchanged. However, all softwood diameter classes 10 inches and larger increased in volume.

In the Northwest unit (fig. 11B), the 5.1 billion cubic feet of softwood volume distributed by diameter class peaked in the 10-inch diameter class. The softwood volume increased unit-wide since 2013. However, not all softwood diameter classes increased in the Northwest unit. The 6- and 8-inch diameter classes both decreased. Those softwood diameter classes 10 inches and larger increased in volume.

In the Northeast unit (fig. 11C), the nearly 5.3 billion cubic feet of softwood volume peaked in the 8-inch diameter class. However, the distribution by diameter class differed from that of the State level with a steeper decline in volume after the peak. The softwood volume increased unit-wide since 2013. All diameter classes increased in volume except for the 6-inch class.

In the Central unit (fig. 11D), the 2.0 billion cubic feet of softwood volume distributed by diameter class was more spread out across the range of diameters than it was in the two northern units. Softwood volume peaked in the 12-inch diameter class in this unit. The softwood volume increased unit-wide since 2013. Both the 6- and 8-inch diameter classes decreased in volume. All 10-inch and larger diameter classes increased.

In the South unit (fig. 11E), the 0.6 billion cubic feet of softwood volume distributed by diameter class generally peaked or plateaued from the 8- to 12-inch diameter classes. The softwood volume slightly decreased unit-wide since 2013. Softwood volume decreased in the 6-, 8-, and 10-inch diameter classes. It was also down in the 18-inch

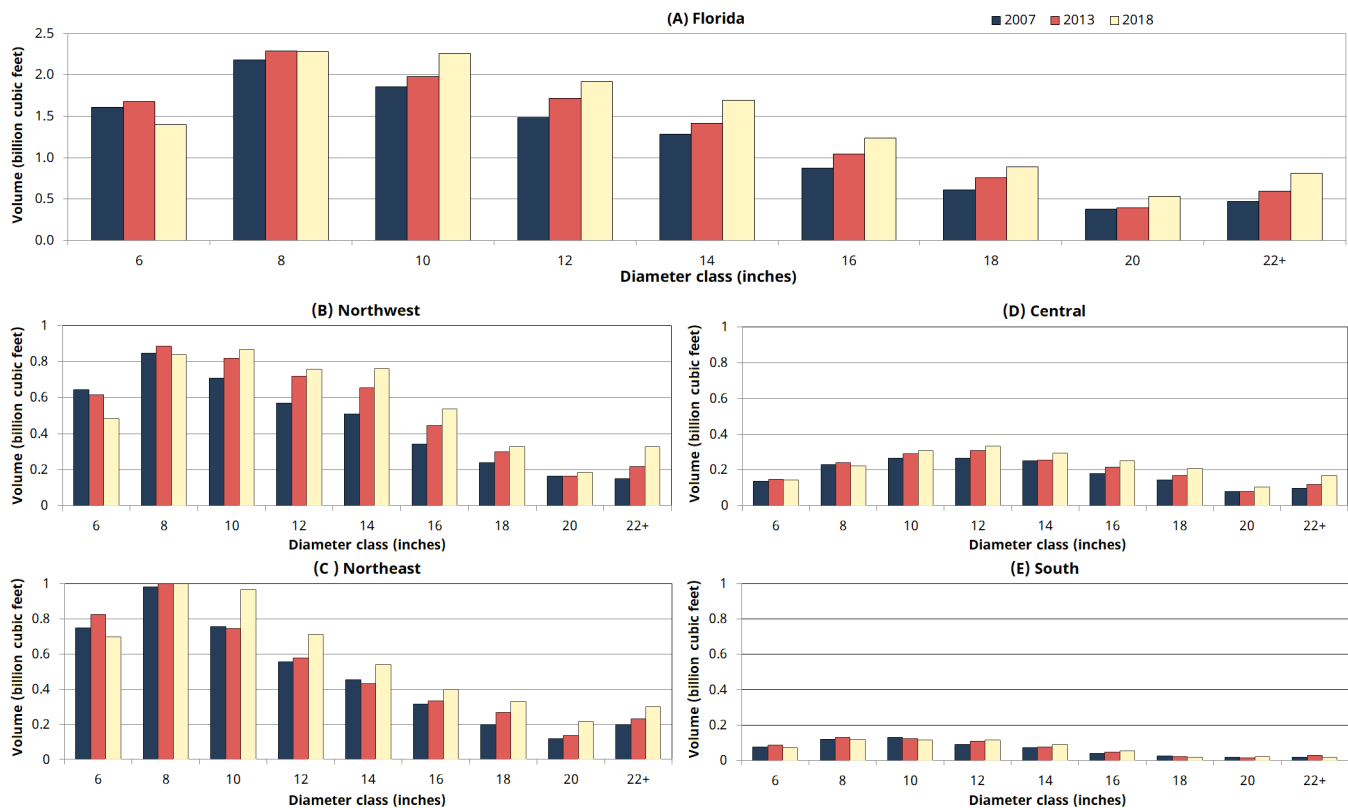


Figure 11—All-live merchantable softwood volume on timberland in (A) Florida by diameter class, survey year, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

class along with those large diameter classes grouped as 22 inches and greater.

The diameter class distribution of Florida's 9.8 billion cubic feet of volume in hardwood species was distributed more widely across the range of diameter classes (fig. 12A) than softwoods. While the highest volume occurred in the summation of all diameter classes 22+ inches, hardwood volume overall peaked across the 10- to 12-inch diameter classes, with 50 percent of the volume spread across the 8- to 14-inch diameter classes. The hardwood volume increased statewide since 2013 and increased in all diameter classes.

The distribution of hardwood volume by diameter class differed by survey unit. In the Northwest unit (fig. 12B), the 3.3 billion cubic feet of hardwood volume peaked in the 8- to 12-inch diameter classes. The hardwood volume increased unit-wide since 2013, in all but the 16- and 20-inch diameter classes.

In the Northeast unit (fig. 12C), the 4.0 billion cubic feet of hardwood volume peaked in the 10- to 12-inch diameter classes. The hardwood volume increased unit-wide since 2013 and increased across all diameter classes.

In the Central unit (fig. 12D), the 2.2 billion cubic feet of hardwood volume peaked in the 12-inch diameter class. The hardwood volume increased unit-wide since 2013 and increased across all diameter classes.

In the South unit (fig. 12E), the more than 0.3 billion cubic feet of hardwood volume peaked in the 12-inch diameter class. The hardwood volume decreased unit-wide since 2013. The South unit was the only unit of the State where hardwood volume decreased. Most diameter classes decreased, while the 10- and 12-inch classes remained relatively unchanged. Only the 22 inch and larger group increased.

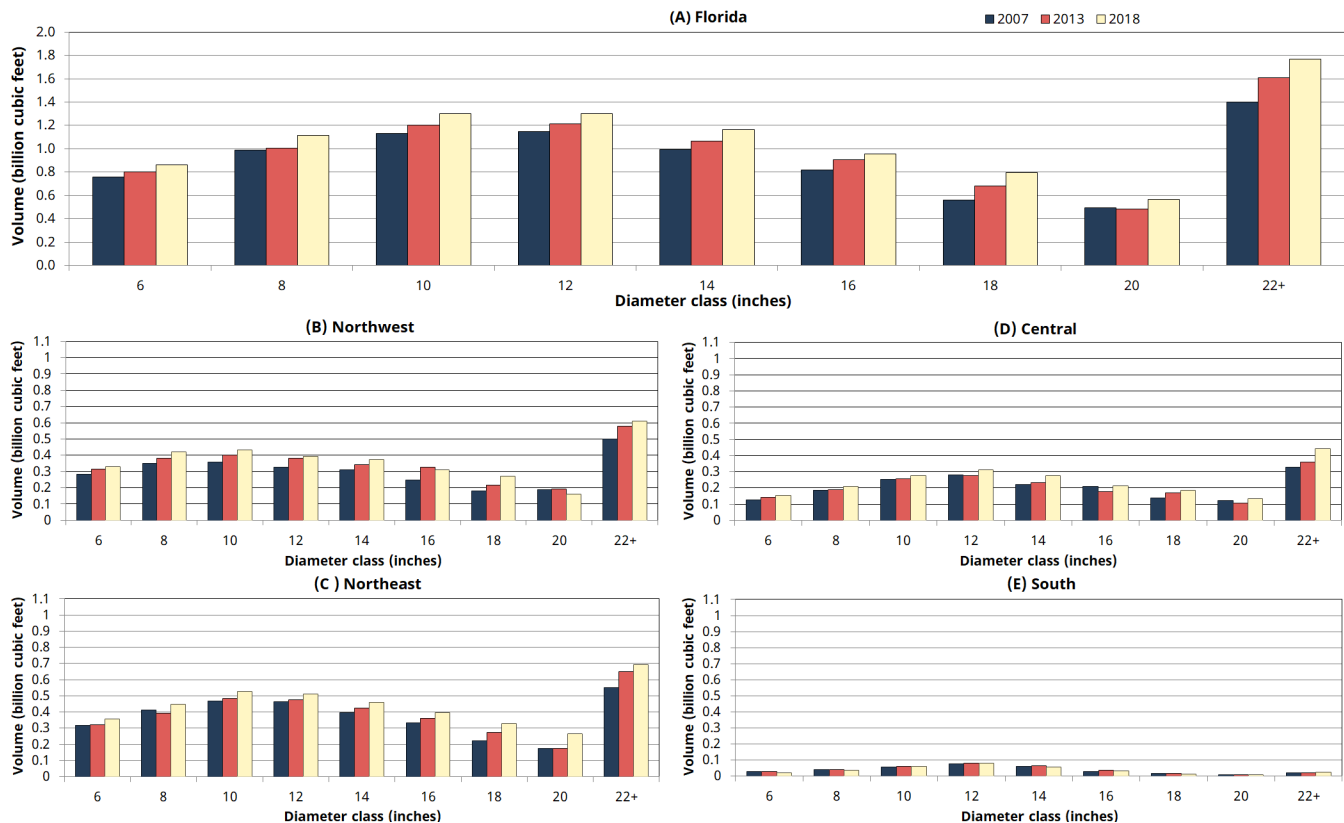


Figure 12—All-live merchantable hardwood volume on timberland in (A) Florida by diameter class, survey year, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 FIADB 06/01/2023.

TIMBERLAND STATISTICS: NET CHANGE COMPONENTS

A major purpose of the forest inventory is to determine resource change and direction, if any. The components of change revolve around measurements of gross growth, mortality, and removal volumes calculated in terms of average annual rates based on the remeasurement period. The relationship is such that gross growth is diminished by mortality, creating net growth. Measured removals then detract from net growth, resulting in net change in the inventory.

Statewide, for all species combined, net growth averaged almost 865 million cubic feet annually, and removals averaged 562 million cubic feet annually. The difference between these two components yielded a positive average annual net change in inventory of more than 302 million cubic feet for Florida in 2018. Comparison of these components of change by major species group

provide a more detailed analysis of the State's timberland resource.

The average annual components of change for softwood volume in Florida are shown in figure 13A. Statewide in 2018, softwood average annual net growth of 656 million cubic feet exceeded softwood average annual removals of 475 million cubic feet. The difference between these two components yielded a positive average annual net change of 181 million cubic feet for the State's softwood resource.

To put the State-level net change impact in perspective, figure 14A shows the growth and removals dynamics for softwoods compared to total inventory volume of softwoods. For the period ending in 2018, softwood net growth averaged 5.0 percent of total inventory volume and removals averaged 3.7 percent. The positive net change of 181 million cubic feet of softwood averaged 1.4 percent of total softwood inventory in the State.

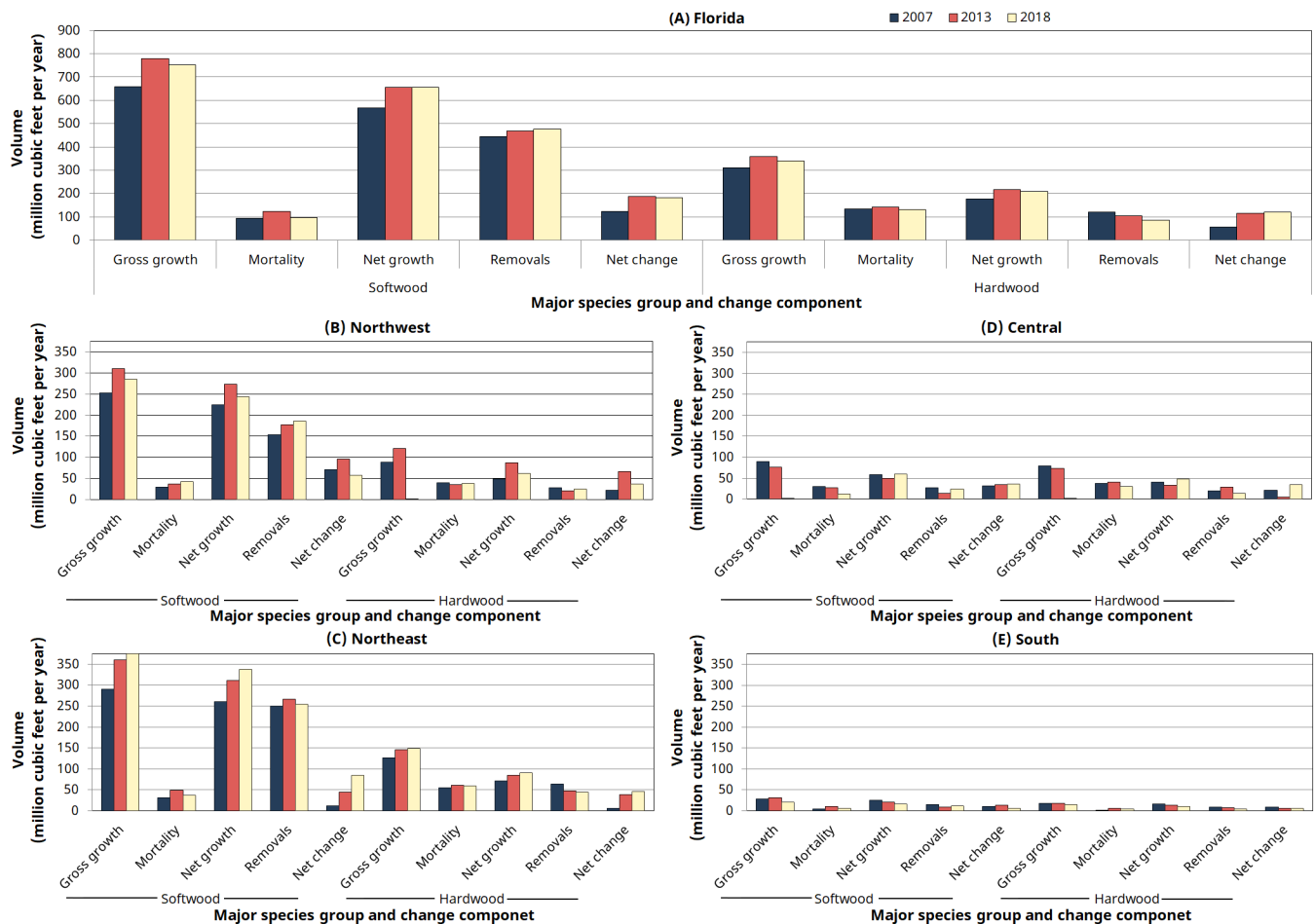


Figure 13—Net change components for all-live volume in (A) Florida by major species group, change component, survey year, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

In the Northwest unit (fig. 13B), average annual softwood net growth of more than 243 million cubic feet exceeded average annual softwood removals of almost 187 million cubic feet by a wide margin and resulted in a positive average annual softwood net change of more than 56 million cubic feet. For the period ending in 2018, the Northwest unit's softwood net growth averaged 4.8 percent of its total softwood inventory volume and removals averaged 3.7 percent (fig. 14B). The net change of more than 56 million cubic feet averaged 1.1 percent of total softwood inventory in the unit.

In the Northeast unit (fig. 13C), average annual softwood net growth of almost 338 million cubic feet exceeded average annual softwood removals of 254 million cubic feet, which resulted in a

positive average annual softwood net change of 84 million cubic feet. For the period ending in 2018, the Northeast unit's softwood net growth averaged 6.4 percent of its total softwood inventory volume and removals averaged 4.8 percent (fig. 14C). The net change of 84 million cubic feet averaged 1.6 percent of total softwood inventory in the unit.

In the Central unit (fig. 13D), average annual softwood net growth of almost 60 million cubic feet exceeded average annual softwood removals of 24 million cubic feet, which resulted in a positive average annual softwood net change of almost 36 million cubic feet. For the period ending in 2018, the Central unit's softwood net growth averaged 2.9 percent of total softwood inventory volume and removals averaged 1.2 percent

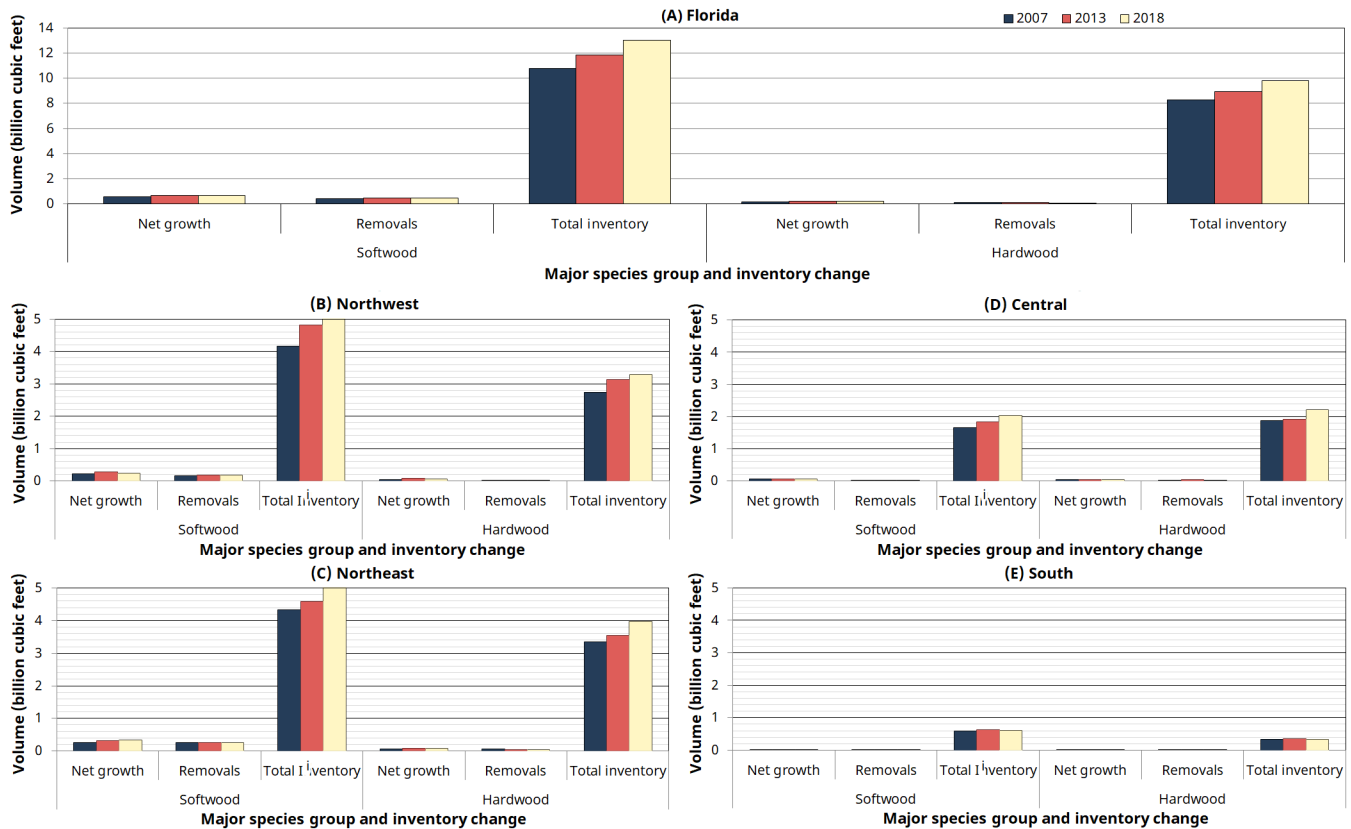


Figure 14—Comparison of net growth and removals to total inventory volume for softwood and hardwood in (A) Florida by survey year and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South. Data for 2007 and 2013 from Brown et al. (2017). Data for 2018 from FIADB 06/01/2023.

(fig. 14D). The net change of almost 36 million cubic feet averaged 1.7 percent of total softwood inventory in the unit.

In the South unit (fig. 13E), where the softwood component is the lowest of all units in the State, average annual softwood net growth of less than 16 million cubic feet exceeded average annual softwood removals of 11 million cubic feet. This resulted in a narrow positive average annual softwood net change of almost 5 million cubic feet. For the period ending in 2018, the South unit's softwood net growth averaged 2.5 percent of total softwood inventory volume and removals averaged 1.8 percent (fig. 14E). The net change of almost 5 million cubic feet averaged 0.8 percent of total softwood inventory in the unit.

The average annual components of change for hardwood volume in Florida are shown in figure 13A. Statewide in 2018, hardwood average annual net growth of 208 million cubic feet exceeded

hardwood average annual removals of almost 87 million cubic feet. The difference between these two components yielded a large positive average annual net change of 121 million cubic feet for the State's hardwood resource.

To put the State-level net change impact in perspective, figure 14A shows the growth and removals dynamics for hardwoods compared to total inventory volume of hardwoods. For the period ending in 2018, Florida's hardwood net growth averaged 2.1 percent of total inventory volume and removals averaged 0.9 percent. The positive 121 million cubic feet of hardwood net change averaged 1.2 percent of total hardwood inventory in the State.

In the Northwest unit (fig. 13B), average annual hardwood net growth of 61 million cubic feet exceeded average annual hardwood removals of 24 million cubic feet, which resulted in a positive average annual hardwood net change

of 37 million cubic feet. For the period ending in 2018, the Northwest unit's hardwood net growth averaged 1.8 percent of total hardwood inventory volume and removals averaged 0.7 percent (fig. 14B). The net change of 37 million cubic feet averaged 1.1 percent of total hardwood inventory in the unit.

In the Northeast unit (fig. 13C), average annual hardwood net growth of 90 million cubic feet exceeded average annual hardwood removals of 45 million cubic feet, which resulted in a positive average annual hardwood net change of 45 million cubic feet. For the period ending in 2018, the Northeast unit's hardwood net growth averaged 2.3 percent of total hardwood inventory volume and removals averaged 1.1 percent (fig. 14C). The net change of 45 million cubic feet averaged 1.1 percent of total hardwood inventory in the unit.

In the Central unit (fig. 13D), average annual hardwood net growth of 47 million cubic feet exceeded average annual hardwood removals of 13 million cubic feet, which resulted in a positive average annual hardwood net change of 34 million cubic feet. For the period ending in 2018, the Central unit's hardwood net growth averaged 2.1 percent of total hardwood inventory volume and removals averaged 0.6 percent (fig. 14D). The net change of 34 million cubic feet averaged 1.5 percent of total hardwood inventory in the unit.

In the South unit (fig. 13E), where the hardwood component is the lowest of all units in the State, average annual hardwood net growth of 10 million cubic feet exceeded average annual hardwood removals of 4 million cubic feet. This resulted in a positive average annual hardwood net change of 6 million cubic feet. For the period ending in 2018, the South unit's hardwood net growth averaged 3.0 percent of total hardwood inventory volume and removals averaged 1.3 percent (fig. 14E). The net change of positive 6 million cubic feet averaged 1.7 percent of total hardwood inventory in the unit.



Two Pileated Woodpeckers in a pine cavity on Picayune Strand State Forest. (Florida Forest Service photo by Jeremy Ashmore)

TIMBERLAND STATISTICS: FOREST HEALTH

FIA collected several variables during sample plot measurement that can be used or interpreted to assess forest health in Florida. Some of these variables are degree of tree mortality, number of standing dead trees by identifiable causes of death, and the invasion of nonnative plants.

Tree Mortality

In 2018, average annual mortality volume of all-live trees ≥ 5 inches d.b.h. on Florida's timberland totaled almost 227 million cubic feet, down from 264 million cubic feet in 2013. Softwood species accounted for 96 million cubic feet (42 percent) compared to 123 million cubic feet in 2013. Hardwood species accounted for 131 million cubic feet (58 percent), compared to 141 million cubic feet in 2013. A nominal amount was attributed to trees not measured. Statewide, for all species combined, mortality peaked in the 61- to 80-year age class (fig. 15A), where 25 percent of total mortality occurred. For softwood species, mortality peaked in the 21- to 40-year age class, where 33 percent of the total softwood mortality occurred. For hardwood species, mortality peaked in the 61- to 80-year age class, where 33 percent of the total hardwood mortality occurred.

The Northwest unit (fig. 15B) contained 35 percent of the State's total mortality of all species, 44 percent of the State's softwood mortality, and 29 percent of the State's hardwood mortality. In the Northwest unit, softwood mortality peaked in the 21- to 40-year age class. The Northwest unit's hardwood mortality peaked in the 61- to 80-year age class.

The Northeast unit (fig. 15C) contained 42 percent of the State's total mortality of all species (highest of all the units), 39 percent of the State's softwood mortality, and 45 percent of the State's hardwood mortality. Softwood mortality in the Northeast unit peaked across both the 21- to 40- and 41- to 60-year age classes. The Northeast unit's hardwood mortality peaked in the 61- to 80-year age class.

The Central unit (fig. 15D) contained 18 percent of the State's total mortality of all species, 12 percent of the State's softwood mortality, and 23 percent of the State's hardwood mortality. Softwood mortality in the Central unit peaked across both the 21- to 40- and 41- to 60-year age classes. The Central unit's hardwood mortality peaked across both the 61- to 80- and 81- to 100-year age classes.

The South unit (fig. 15E) contained 4 percent of the State's total mortality of all species, 5 percent of the State's softwood mortality, and 3 percent of the State's hardwood mortality. In the South unit, softwood mortality peaked in the 41- to 60-year age class. Hardwood mortality in the South unit peaked in the 21- to 40-year age class.

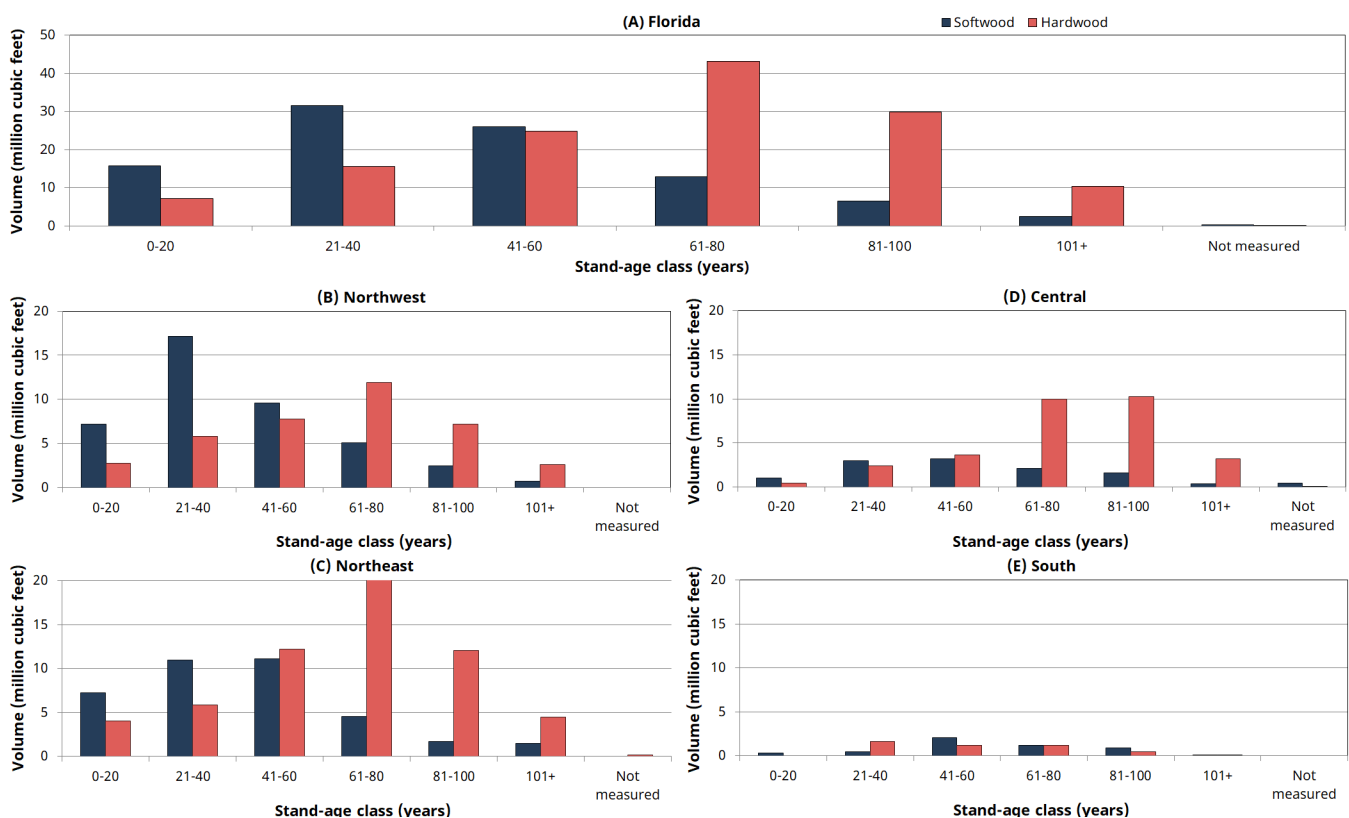


Figure 15—Average annual mortality of trees in (A) Florida by stand-age class, major species group, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South, 2018. Data from FIADB 06/01/2023.

Standing Dead Trees

The number of standing dead trees by cause of death across the State provides a gauge to the health of Florida's timberland. Figure 16A showed the number of standing dead trees, nearly 107 million trees ≥ 5 inches d.b.h., present on timberland in 2018 and lists major agents involved. In 2018, the number of standing dead trees was equivalent to 1.6 percent of the total all-live tree population on timberland. In comparison, Florida had 101 million standing dead trees on timberland in 2013, which was equivalent to 1.4 percent of the total all-live tree population at that time. Figure 16A showed almost 31 percent of the standing dead trees in 2018 were snags measured in prior surveys for which cause of death was attributed at that time. To ascertain current impacts, only data for new snags are

broken out by cause of death. Statewide in 2018, for all species combined, the leading identifiable causes of death in descending order of prevalence were weather, disease, fire, vegetation, insect, and silviculture/land clearing. However, the order differed between softwoods and hardwoods.

For softwood species, the leading identifiable causes of death statewide (fig. 16A) were the same for the first three (weather, disease, and fire) before switching the remaining order to insects, vegetation, and silviculture/land clearing. For hardwood species, disease was the leading identifiable cause of death statewide, with the order changing to disease, weather, vegetation, fire, silviculture/land clearing, and insects. The order of the impact for these leading identifiable causes of death differed somewhat among the four survey units of the State.

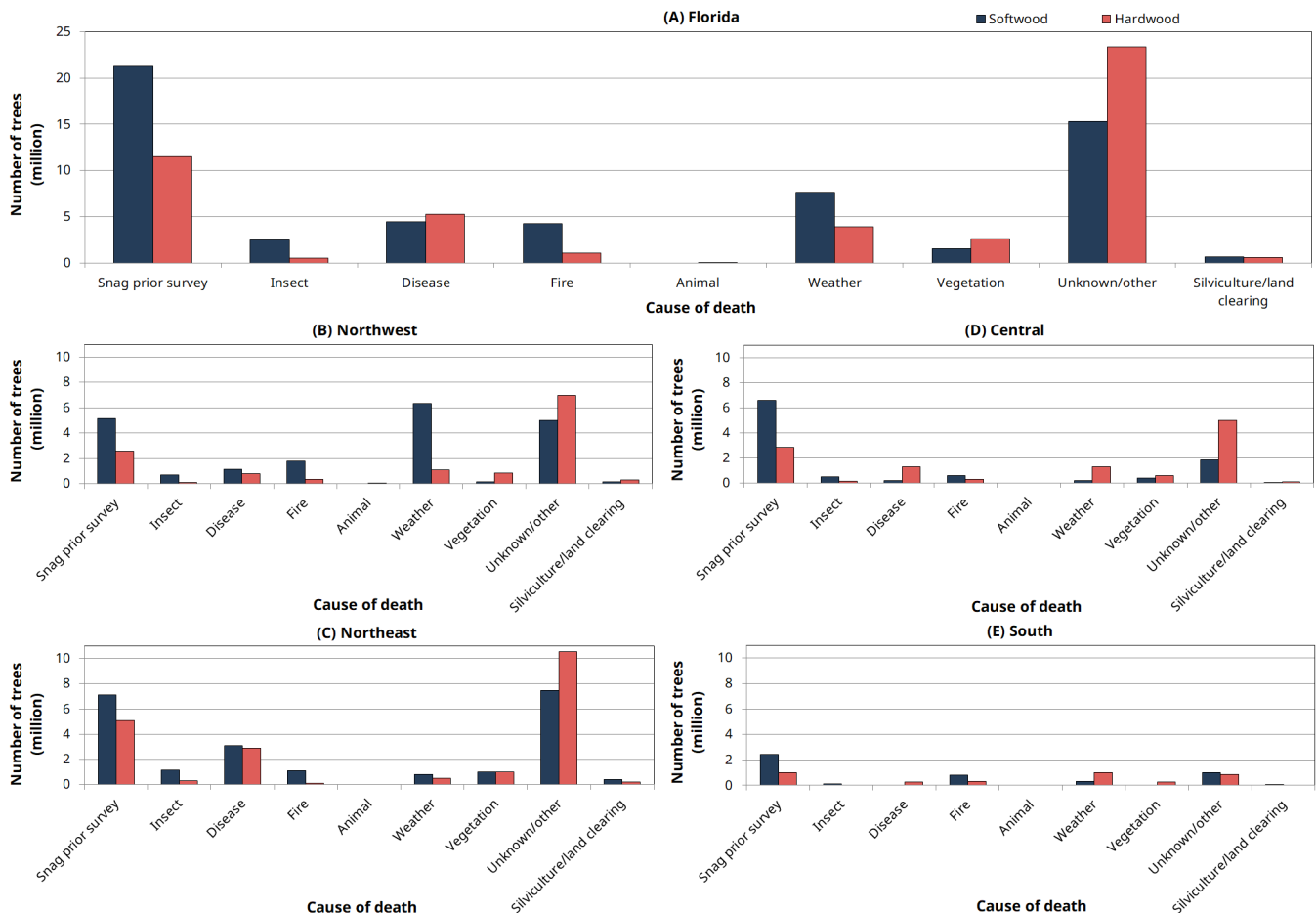


Figure 16—Number of standing dead trees >5 inches d.b.h. on timberland in (A) Florida by cause of death, major species group, and survey unit, (B) Northwest, (C) Northeast, (D) Central, and (E) South, 2018. Data from FIADB 06/01/2023.

In the Northwest unit (fig. 16B), weather was the leading identifiable cause of death for softwoods, and disease was second. The Northwest unit accounted for most (83 percent) of the State's total softwood trees lost to weather. The Northwest unit also accounted for most (41 percent) of the State's total softwood trees lost to fire. For hardwoods in the Northwest unit, weather was the leading identifiable cause of death, and vegetation was second. The largest portion of the State's hardwood trees lost to fire and silviculture/land clearing (32 and 50 percent, respectively) occurred in the Northwest unit.

In the Northeast unit (fig. 16C), disease was the leading identifiable cause of death for softwoods, and insects was second. This unit accounted for most (70 percent) of the State's total softwood trees lost to disease. The Northeast unit also accounted for most of the State's total softwood trees lost to insects, vegetation, and silviculture/land clearing with 47, 65, and 61 percent, respectively. For hardwoods in the Northeast unit, disease was the leading identifiable cause of death, and vegetation

was second. The Northeast unit accounted for most (55 percent) of the State total hardwood trees lost to disease. The largest portion of the State's hardwood trees lost to insects and vegetation (54 and 37 percent, respectively) occurred in the Northeast unit.

In the Central unit (fig. 16D), fire was the leading identifiable cause of death for softwoods, and insects was second. For hardwoods in the Central unit, disease was the leading identifiable cause of death, and weather was second. The largest portion of the State's hardwood trees lost to weather, 33 percent, occurred in the Central unit.

In the South unit (fig. 16E), fire was the leading identifiable cause of death for softwoods, and weather was second. The South unit accounted for 19 percent of the State's total softwood trees lost to fire. For hardwoods in the South unit, weather was the leading identifiable cause of death, and fire was second. The South unit accounted for 26 percent of the State's total hardwood trees lost to weather.



Recording damage from Hurricane Michael in Gulf County, Florida. (Florida Forest Service photo by Jarek Nowak)

Nonnative Invasive Plants

Many nonnative invasive plants have been recognized as problematic because they compete with or even threaten to displace native species. Table 6 lists by frequency those invasive species of trees, shrubs, vines, grasses, and ferns encountered on forested FIA plots in Florida in 2018. The list includes samples recorded using FIA field manual version 6.0 guidelines (USDA Forest Service 2012) between the 2013 and 2018 survey cycles.

The most frequently encountered invasive tree was Chinese tallow (*Triadica sebifera*), which was encountered on 99 plots. The camphortree (*Cinnamomum camphora*) was second in occurrence and found on 77 plots. The melaleuca or punktree (*Melealeuca quinquenervia*) was third in frequency and identified on 49 plots. Fourth was mimosa (*Albizia julibrissin*), which was encountered on 24 plots. Overall, invasive trees were found on 9 percent of all forested plots in Florida in 2018.

The most frequently encountered invasive shrub was Caesarweed (*Urena lobata*), which was encountered on 247 plots. Caesarweed presence accounted for the highest number of plots, making it the most frequently encountered invasive plant form in the State. Brazilian pepper (*Schinus terebinthifolius*) was the second most frequently encountered invasive plant form in the State and was found on 208 plots. As a group, the privets (*Ligustrum* spp.) were third in occurrence for shrubs, and encountered on 78 plots. Overall, invasive shrubs were found on 20 percent of all forested plots in Florida in 2018.

The most frequently encountered invasive vine was Japanese honeysuckle (*Lonicera japonica*), which was encountered on 41 plots. Rosarypea (*Abrus precatorius*) was second of invasive vines and identified on 30 plots. As a group, yams (*Dioscorea alata*) were third in occurrence for vines, and encountered on 25 plots. Overall, invasive vines were found on 3 percent of all forested plots in Florida in 2018.

The most frequently encountered invasive grass was cogongrass (*Imperata cylindrica*), which was encountered on 68 plots. Nonnative bamboo (*Bambusa*) was second, encountered on four plots. Overall, invasive grasses were found on 2 percent of all forested plots in Florida in 2018.

Table 6—Regionally recognized nonnative invasive plants identified on forest survey plots by common name, scientific name, and number of plots, Florida, 2018

Plant type	Common name	Scientific name	Plots ¹
Trees	Chinese tallow	<i>Triadica sebifera</i>	99
	Camphortree	<i>Cinnamomum camphora</i>	77
	Punktree	<i>Melealeuca quinquenervia</i>	49
	Mimosa	<i>Albizia julibrissin</i>	24
	Chinaberry	<i>Melia azedarach</i>	19
	Carrotwood	<i>Cupaniopsis anacardioides</i>	11
	Tungoil	<i>Vernicia fordii</i>	5
	Paper mulberry	<i>Broussonetia papyrifera</i>	5
	White leadtree	<i>Leucaena leucocephala</i>	3
	Oleaster	<i>Elaeagnus</i>	3
	Octopus tree	<i>Schefflera actinophylla</i>	1
	Hardy orange	<i>Poncirus trifoliata</i>	1
	Java plum	<i>Syzygium cumini</i>	—
Shrubs	Caesarweed	<i>Urena lobata</i>	247
	Brazilian pepper	<i>Schinus terebinthifolius</i>	208
	Privet	<i>Ligustrum</i> spp.	78
	Hen's eyes	<i>Ardisia crenata</i>	29
	Guava	<i>Psidium guajava</i>	19
	Lantana	<i>Lantana camara</i>	13
	Japanese privet	<i>Ligustrum japonicum</i>	13
	Sacred bamboo	<i>Nandina domestica</i>	8
	Rose myrtle	<i>Rhodomyrtus tomentosa</i>	8
	Earleaf acacia	<i>Acacia auriculiformis</i>	7
	Nonnative roses	<i>Rosa</i> spp.	5
	Scrambling nightshade	<i>Solanum tampicense</i>	5

Table 6—Regionally recognized nonnative invasive plants identified on forest survey plots by common name, scientific name, and number of plots, Florida, 2018 (continued)

Plant type	Common name	Scientific name	Plots ¹
Vines	Japanese honeysuckle	<i>Lonicera japonica</i>	41
	Rosarypea	<i>Abrus precatorius</i>	30
	Yam	<i>Dioscorea alata</i>	25
	Ivy	<i>Hedera helix</i>	5
	Wisteria	<i>Wisteria sinensis</i>	3
	Catclawvine	<i>Macfadyena unguis-cati</i>	2
	Oriental bittersweet	<i>Celastrus orbiculatus</i>	1
	Kudzu	<i>Pueraria montana</i> var. <i>lobata</i>	1
	Periwinkle	<i>Vinca</i>	1
Grasses	Cogongrass	<i>Imperata cylindrica</i>	68
	Bamboo	<i>Bambusa</i>	4
	Guineagrass	<i>Urochloa maxima</i>	1
Ferns	Japanese climbing fern	<i>Lygodium japonicum</i>	163
	Small leaf climbing fern	<i>Lygodium microphyllum</i>	84
	Swordfern	<i>Nephrolepis cordifolia</i>	19
	Sericea lespedeza	<i>Lespedeza cuneata</i>	2
	Hairy indigo	<i>Indigofera hirsuta</i>	2
	Lespedeza	<i>Lespedeza</i>	1
	Lilyturf	<i>Liriope</i>	1

¹ Count of survey plots with at least one invasive plant present collected under Forest Inventory and Analysis program field manual guidelines.

— = not measured in plot.

The most frequently encountered invasive fern was Japanese climbing fern (*Lygodium japonicum*), which was encountered on 163 plots. Small leaf climbing fern (*Lygodium microphyllum*) was second, encountered on 84 plots. Overall, invasive ferns were found on 8 percent of all forested plots in the State in 2018.

Altogether, for all categories of plants, invasive species of some type were found on 43 percent of all forested plots in Florida in 2018.

HURRICANE MICHAEL: AFTERMATH

Hurricane Michael came ashore near Mexico Beach, FL just east of Panama City, FL with over 155 mph winds at noon local time on October 10, 2018. The severe impact hit one of the most heavily forested parts of Florida's panhandle before moving northeast to Georgia and skirting Alabama. Michael was considered category 4 on landing but was upgraded to a category 5 hurricane by National Oceanic Atmospheric Administration (NOAA) in April 2019 (Beven et al. 2019). Although smaller by total energy released than other notable hurricanes such as Katrina (105 TJ), Ivan (78 TJ), or Florence (49), Hurricane Michael released 25 Terajoules (TJ) of Integrated Kinetic Energy (IKE). Michael's energy was focused in its destructive core, which was responsible for the extensive damage seen near the landfall (Moody's Corporation 2018). The tropical storm force winds extended up to 115 miles from the hurricane center. Widespread rains of 3 to 6 inches and localized rainfall totals in excess of 10 inches were reported. The town of Lynn Haven, FL received a storm total of 11.62 inches of rain (Beven et al. 2019).

Initial Timber Damage Assessment

FFS began working on timber damage assessment immediately after Hurricane Micheal. The initial work delineated 20-, 40-, and 80-mile swaths along the hurricane track where timber damages were expected to be 95 percent, 75 percent and 15 percent of the before hurricane timber volume, respectively. The summary of losses was developed through a combination of ground, aerial and desk surveys involving GIS techniques, USDA-FS Forest Inventory and Analysis (FIA) timber volumes, and "TimberMart-South" average stumpage prices. Overall, 2.81 million acres of timberlands were impacted, with 72 million tons of timber damaged at a value of \$1.29 billion in Florida alone (FFS 2018). In Florida, approximately 16,000 private forest landowners were impacted

and 233 communities were at increased risk from wildfires (FFS 2019). Hurricane Michael was the most destructive hurricane to Florida's timber resources in at least two decades since Hurricane Ivan hit Florida's panhandle in 2004.

Impact on Mills

Initial impact on primary wood-using mills was much less than anticipated. The pulpmill just east of the hurricane track sustained moderate damage but returned to full capacity within a few months. A pellet mill and a significant sawmill in the path of the hurricane sustained superficial damages. These and other mills such as OSB and plywood mills in the affected counties were expected to return to their almost normal operations as soon as electrical power was restored. Since then, the pulpmill which was in the path of the hurricane shut down in 2022, and even mills further west and east shut down or curtailed their production in 2023 and 2024 for reasons that may in part be related to a spillover effect of the squeeze put on timber supplies in north Florida.

Remeasurement of FIA Plots

Between July 2019 and October 2020, Florida, Georgia, and Alabama State forestry agencies in conjunction with the Forest Service FIA program remeasured a total of 265 FIA plots in the Hurricane Michael affected areas. The information on how much timber was there, how much remained alive and standing, and how much was salvaged comes from these remeasured plots (Brandeis et al. 2022). Three zones of forest damage severity were based on the NOAA wind speed data: light plus moderate experienced winds up to 110 mph; severe experienced winds between 111 and 129 mph; and catastrophic experienced wind speeds 130 mph and higher. In the combined light plus moderate zone 177 FIA plots were remeasured, while in the severe and catastrophic zones 44 plots each were remeasured. Out of 10.01 billion cubic feet of timber originally in the damage zones prehurricane, 6.81 billion cubic feet remained alive, a 68.0 percent survival overall. However, in the catastrophic zone, live volume

in trees >5 inches d.b.h. was only 36.6 percent, while in the severe zone it was 64.3 percent and moderate zone 74.5 percent. Among survivors, standing dead trees were 1.54 billion cubic feet, which was 15.4 percent of original timber volume (Brandeis et al. 2022).

Timber Salvage

After most hurricanes, tornados, and other natural disasters have passed, forest landowners try to salvage whatever timber they can. In such situations there is usually a shortage of logging crews who salvage the timber by removing the broken, uprooted and twisted trees. Access to the timber that could be salvaged is sometimes not possible for some time because roads may not be passable and area flooding may still be present. Salvage crews focus on areas that could be accessed and on higher value timber products first. According to the FIA remeasurements, after Hurricane Michael, 1.66 billion cubic feet of timber were utilized which is 16.6 percent of the original timber volume (Brandeis et al. 2022). The salvage rate varied depending on damage zone and species. It was 13.3 percent overall in the moderate zone, 15.4 percent in the severe zone, and 39.4 percent in the catastrophic zone. However, pines were salvaged at higher rates, overall, for all species. Salvage of pine volume in the moderate zone was 20.2 percent while in the severe zone it was 35.5 percent and in the catastrophic zone as high as 50.5 percent of the original timber volume. The reason for this could be that the severe and catastrophic zones required more cleanup before reforestation could be attempted. This is further illustrated by the pine live volume remaining after the hurricane where in the moderate zone it was 70.0 percent, severe zone 37.3 percent, and catastrophic zone only 22.7 percent of live pine volume remaining. Other softwoods, and hard- and soft- hardwood groups were less impacted than pines. The volume of downed woody material was over four times higher than that prior to the hurricane (Brandeis et al. 2022).



Damage from Hurricane Michael in Gulf County, Florida. (Florida Forest Service photo by Jarek Nowak)

Reforestation after Hurricane Michael

FFS conducted land-use change analysis in the Hurricane Michael impact area, which included nine Florida counties in the path and vicinity of the storm track. That analysis concluded that trees were replanted on 304,199 acres, while natural regeneration was present on 156,039 acres by March 2023 (FFS 2023). Together that represents over 460,000 reforested acres (33 percent) of the combined catastrophic and severe timber damage zones as estimated by the FFS methods (FFS 2018).

For best results, artificial regeneration required heavy mechanical site prep followed by chemical site prep, herbaceous weed control and establishment fertilization. Where hurricane damage was the worst, the remaining standing dead trees and snags were first felled by dragging a ship anchor chain stretched between two dozers. Planting beds were created by shearing, followed by application of herbicides and pine seedling planting (Sharp 2024).

Landowner Assistance Programs

After natural disasters, Federal programs are usually set up to help affected landowners to recover in the aftermath. Federal Emergency Forest Restoration Program (EFRP) is one program activated after Hurricane Michael for forest landowners in the affected counties in Florida. The EFRP provided payments to restore forests damaged by Hurricane Michael for eligible nonindustrial private forest (NIPF) landowners. Before an application for EFRP assistance was approved, an onsite inspection by the USDA Farm Service Agency in cooperation with the FFS foresters was required to verify the extent of damages. A novel USDA block grant, [Florida Hurricane Michael Disaster Relief, Agreement Number: FSA20GRA0010342] administered by the Florida Department of Emergency Management in conjunction with the FFS was also set up to assist forest landowners in the State of Florida. The block grant helped eligible producers to recover income which they would otherwise receive from their timber crop. By January 2024, over \$250 million was received from the block grant funds for 3,208 NIPF landowners on 468,420 acres.

Post-hurricane Landowner Survey

A mail survey was administered by University of Florida researchers to 1,000 randomly selected NIPF landowners in the panhandle of Florida who owned forest land in the counties most severely affected by Hurricane Michael (Clarke et al. 2023). The overall response rate was 40 percent. Of the 401 returned survey responses, 339 were used in the subsequent analysis as the remaining 62 were either incomplete, there was a change in ownership, or their forest land did not have substantial damage from Hurricane Michael. Of the responding landowners, only 25 percent had a written forest management or stewardship plan and 46 percent had their primary home or residence more than a mile away from their forest land, and therefore were considered “absentee landowners” (Clarke et al. 2023). Survey results showed that most landowners did little to no forest management to prepare for the hurricane.

Following Hurricane Michael 82 percent of respondents experienced timber loss, 62 percent had damaged wildlife habitats, and 53 percent had increased vulnerability to wildfire hazards, whereas 34 percent of respondents reported increased invasive plants (Clarke et al. 2023). Landowners who experienced timber damage from Hurricane Michael were more likely to engage in forest management in the future to reduce fire hazard, eliminate or reduce invasive plants, perform road and trail maintenance, improve wildlife habitat, and reforest both salvage-harvested areas and areas that were not salvage-harvested. They expressed intent to search for information on the internet about forest management and to pass their forest land to family. Most respondents were unlikely to sell their forest land in the next 5 years.

Lessons Learned

The damage to forests from hurricanes and other natural disasters seem unavoidable because these disasters are somewhat random in space and time; no one knows where the next disaster will strike. We can better prepare to respond to events by learning from Hurricane Michael. In the aftermath, the Southern Group of State Foresters (SGSF) and the USDA Forest Service working group developed a disaster response protocol that helps Southern States to respond and report on natural disasters in a more uniform way. The FFS routine response to tropical storms and hurricanes since Hurricane Michael includes modeled results of timber damages generated by ForestGALES and Random model runs provided by the USDA Forest Service Geospatial Technology and Applications Center 48 hours after a storm passes.

SUMMARY

The 2018 FIA survey recorded more than 16.9 million acres of forest land in Florida, of which 14.9 million acres were classified as timberland. Hardwood forest types covered 7.5 million acres (51 percent) of timberland, and softwood forest types covered 6.9 million acres (46 percent). Nonstocked timberland accounted for the remaining 3 percent. Longleaf-slash pine was

the predominant forest-type group and occupied 5.1 million acres. Nonindustrial private forest landowners controlled 10.2 million acres (69 percent) of the State's timberland. Forest industry held 0.3 million acres (2 percent) and public ownerships held 4.4 million acres (30 percent).

The volume of all-live trees on timberland totaled 22.8 billion cubic feet. Softwoods accounted for 13.0 billion cubic feet (57 percent) of the State's total volume, and hardwoods accounted for 9.8 billion cubic feet. Net annual growth of all-live trees averaged 865 billion cubic feet, and annual removals averaged 562 billion cubic feet. Softwood net growth averaged 657 million cubic feet per year and exceeded softwood removals, which averaged 476 million cubic feet per year. In comparison, hardwood net growth averaged 208 million cubic feet per year and exceeded hardwood removals, which averaged 87 million cubic feet per year.

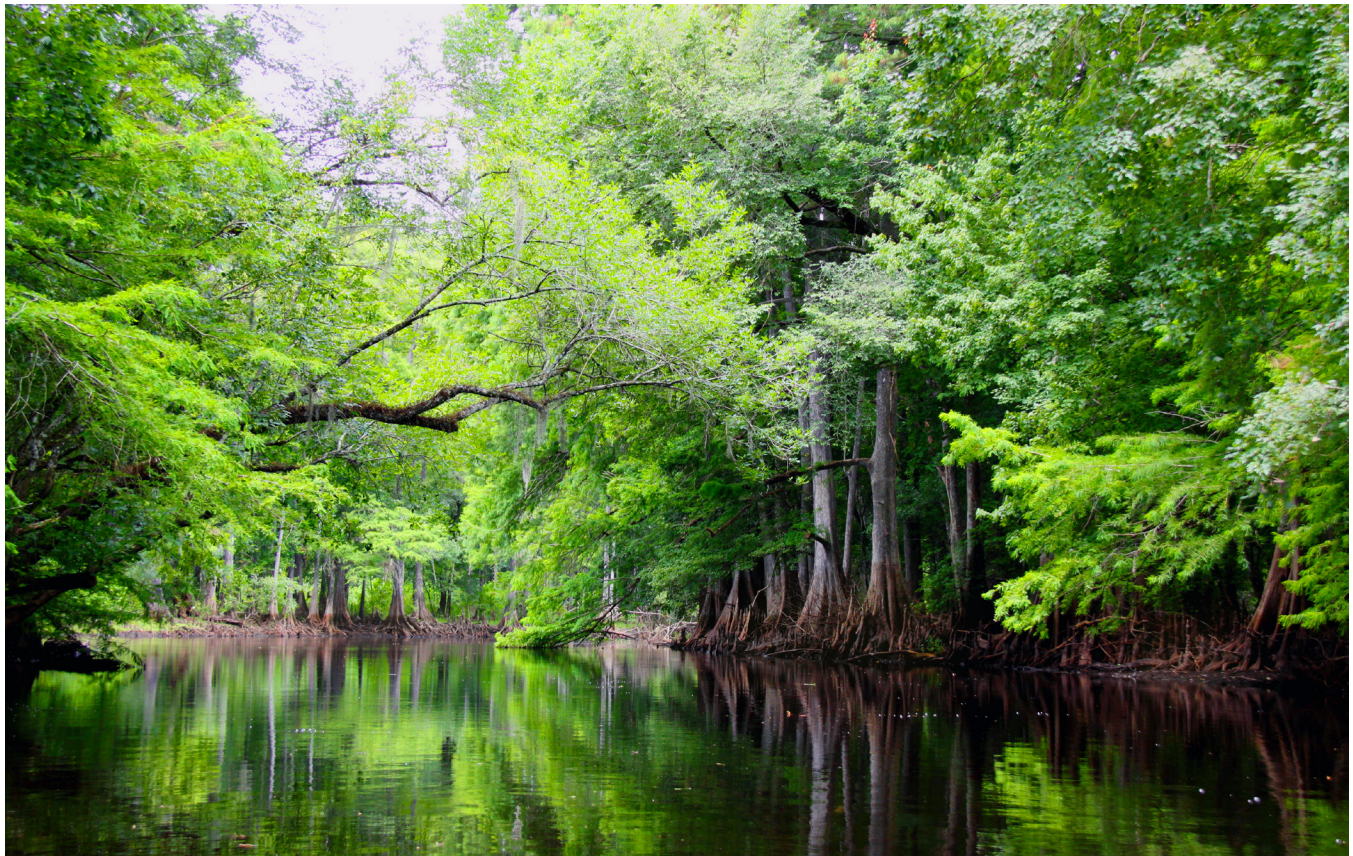
Nevertheless, regional differences exist. Net growth decreased for both softwood and hardwood in the Northwest unit, while removals simultaneously increased for both softwood and hardwood. Mortality also increased for both softwood and hardwood in the Northwest unit, the lone unit where mortality increased, augmented by weather damage. The combination of these factors decreased the upward trend in net change for both the softwood and hardwood resource within the unit. However, because net growth still exceeded removals, the net change for both the softwood and hardwood resource in the Northwest unit remained positive. In contrast, the Northeast unit of the State fared better. Both softwood and hardwood net growth increased in the Northeast unit. Removals also decreased for softwood and hardwood in the Northeast unit, and mortality decreased. Net growth exceeded removals and the gain increased the upward trend of net change for the softwood and hardwood resource in the Northeast unit. In the Central unit, net growth increased for both softwood and hardwood. Removals of softwood in the Central unit increased and decreased for hardwood. Growth exceeded removals for both

and increased the upward trend of net change in the Central unit. In the South unit of the State, net growth was down for both softwood and hardwood. Removals increased for softwood and decreased for hardwood. Although growth exceeded removals for both, net change trended down for softwoods and remained the same for hardwoods in the South unit.

In 2018, the area of planted softwood forest types decreased nearly 400,000 acres since 2013. This decline follows a 500,000 acre decrease in area of planted softwood forest types between 2007 and 2013 (Brown et al. 2017). In addition, the 2007 survey showed a 100,000 acre decrease from its previous survey as well (Brown et al. 2012). The long term downward trend in area of planted pine forest types altered the structure of Florida's yellow pine resource. For decades, area of planted

yellow pine exceeded area of natural yellow pine in the State. Liquidation of planted stands changed the structure of Florida's yellow pine resource toward half planted and half natural (fig. 6A). The structural changes could be noteworthy to that segment of the State's wood-using industry which relies on plantation wood as its primary source.

The two northern units of Florida are the primary source for the State's wood-using industry. Despite weather related losses in the Northwest unit, recovery efforts are underway and indicate intent to keep these acres largely forested and as productive as previous surveys. Growth rates remain high and net growth still exceeded removals estimates at the State and unit levels. On these bases, the 2018 Florida survey data suggest an adequate supply of softwood and hardwood volume.



Cypress and hardwoods along river at Withlacoochee State Forest. (Florida Forest Service photo by Jeremy Ashmore)

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GLOSSARY

All-live tree—All living trees. All size classes, all tree classes, and both sawlog and nonsawlog 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.

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

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

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

Main stem—The central portion of the tree extending from the ground level to the tip for timber species. Woodland species includes from ground level to the tips of all branches

of qualifying stems. For timber species trees that fork, the main stem refers to the fork that would yield the most merchantable volume.

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

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

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

Net aboveground biomass—Gross 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.

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

Board foot—A unit of measure applied to lumber that is 1-foot long, 1-foot wide, and 1-inch thick (or its equivalent) and associated with roundwood as to its potential yield of such products.

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.

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.

Composite panel—Roundwood products manufactured into chips, wafers, strands, flakes, shavings, or sawdust and then reconstituted into a variety of panel and engineered lumber products.

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.

Cull—Portions of a tree that are unusable for industrial wood products because of rot, form, or other defects. 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 sawlog 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 sawlog 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). Nonsawlog 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.

Diameter inside bark (d.i.b.)—Diameter measured at any point on a tree or log that excludes the bark.

Diameter at root collar (d.r.c.)—Diameter measured at the root collar or at the natural ground line, whichever is higher, outside the bark. Measure tree stems only, not branches.

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.

Fiber products—Byproducts used in the manufacture of pulp, paper, paperboard, and composite products, such as chipboard.

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.

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.)

Longleaf-slash pine—Forests in which longleaf pine 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.)

Growing-stock trees—Live large-diameter timber species (excludes nonsawlog species) trees with one-third or more of the gross board-foot volume in the entire sawlog 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.

Industrial roundwood products—Any primary use of the main stem of a tree, such as sawlogs, pulpwood, veneer logs, intended to be processed into primary wood products such as lumber, wood pulp, and sheathing at primary wood using mills.

International 1/4-inch rule—A log rule or formula for estimating the board-foot volume of logs, allowing 1/2 inch of taper for each 4-foot length. The rule appears in a number of forms that allow for kerf. In the form used by FIA, a 1/4 inch of kerf is assumed. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

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 United States 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.).

Log—8-foot (2.4-m) or longer tree segment suitable for processing into lumber, veneer, or other wood products.

Logging residues—The unused portions of trees cut or destroyed during harvest and left in the forest.

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.

Merchantable portion—The 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. The portion of a woodland species tree from the d.r.c. measurement to the 1.5-inch diameters of all the qualifying stems.

Merchantable volume—Solid-wood volume in the merchantable portion of live trees.

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.

Mill residues—Wood material generated in the production of timber products at primary manufacturing plants.

Bark.

Coarse residues—Material, such as slabs, edgings, trim, veneer cores and ends, which is suitable for chipping.

Fine residues—Material, such as sawdust, shavings, and veneer residue, which is not suitable for chipping.

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.

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.

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.

Posts, poles, and pilings—Roundwood products milled (cut or peeled) into standard sizes (lengths and circumferences) to be put in the ground to provide vertical and lateral support in buildings, foundations, utility lines, and fences. May also include nonindustrial (unmilled) products.

Primary wood using plants—Industries that convert roundwood products (sawlogs, veneer logs, pulpwood, etc.) into primary wood products, such as lumber, veneer or sheathing, and wood pulp.

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.

Pulpwood—A roundwood product that will be reduced to individual wood fibers by chemical or mechanical means. The fibers are used to make a broad generic group of pulp products that includes paper products, as well as fiberboard, insulating board, and paperboard.

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.

Residential fuelwood—The volume of roundwood harvested to produce heat for residential settings.

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

Roundwood products—Any primary product, such as lumber, veneer, composite panels, poles, pilings, pulp, or fuelwood that is produced from roundwood.

Roundwood logs—Logs or other round sections cut from trees for industrial manufacture or consumer uses.

Roundwood chipped—Any timber cut primarily for industrial manufacture, delivered to nonpulp mills, chipped, and then sold to pulpmills for use as fiber. Includes tops, whole trees, and pulpwood sticks.

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

Sawlog portion—That portion of the main stem of a timber species tree of large-diameter size from a 1-foot stump to a minimum top d.o.b. 7.0 inches for softwoods and 9.0 inches for hardwoods (equivalent 6.0 inches d.i.b. for softwoods, 8.0 inches d.i.b. for hardwoods).

Sawlog top—The point on the bole of sawtimber trees above which a conventional sawlog cannot be produced. The minimum sawlog top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods for FIA standards.

Sawtimber-size trees—Softwood timber species ≥ 9.0 inches d.b.h., and hardwood timber species ≥ 11.0 inches d.b.h. Now referred to as large-diameter trees.

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.

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.

Standard cord—A unit of measure applied to roundwood, usually bolts or split wood. It is a stack of wood 4 feet high, 4 feet wide, and 8 feet long encompassing 128 cubic feet of wood, bark, and air space. This usually translates to approximately 75.0 to 81.0 cubic feet of solid wood for pulpwood, because pulpwood is more uniform.

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 percentage 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 (1/4 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.

Timber product output—A unit measure applied to roundwood timber products. Board feet (International 1/4-inch rule) are the standard unit used for sawlogs and veneer; cords are used for pulpwood, composite panel, and fuelwood; hundred pieces for poles; thousand pieces for posts; and thousand cubic feet for all other miscellaneous forest products.

Timber products—Roundwood products and byproducts.

Timber removals—The total volume of trees removed from the timberland inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use. (Note: Includes roundwood products, logging residues, and other removals.)

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. Southern Research Station 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.

Utilization studies—Studies conducted on active logging operations to develop factors for merchantable portions of trees left in the woods (logging residues), logging damage, and utilization of the nonmerchantable portion of growing-stock trees and nongrowing-stock trees.

Veneer log—A roundwood product either rotary cut, sliced, stamped, or sawn into a variety of veneer products such as plywood, finished panels, veneer sheets, or sheathing.

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.

APPENDIX 1—INVENTORY METHODS

Inventory Methods Overview

The Florida 2018 inventory was a three-phase, fixed-plot design conducted on an annualized basis. Annualized means that a portion (a panel) of the entire sample population (a cycle) is collected each year until all plots have been remeasured. For the 2013 survey, the inventory involved 5 years of new data collection from a 5-year cycle period plus reuse of the previous cycle's data for those plots not yet remeasured. Phase 1 (P1) provides the area estimates for the inventory. Phase 2 (P2) involves on-the-ground measurements of sample plots by field personnel. Phase 3 (P3) is a subset of the P2 plot system where additional measurements are made by personnel to assess unique forest health indicators, many of which are not measured on the P2 plots. However, due to changing methodology, only a portion of the P3 data were collected for the 2018 survey.

The data that were used to derive the estimates in this report came from panels 1, 2, 3, 4, and 5 of cycle 10. Collectively, these five panels represent approximately 100 percent of sample plots in the cycle. The data were processed with National Information Management System (NIMS) version 6.0 software.

Sample Design

Under Florida's annual inventory system, approximately 20 percent (one panel) of the total number of plots in a State are measured every year over a 5-year period (one cycle). Each panel of plots is selected on a subgrid that is slightly offset from the previous panel, so that each panel covers essentially the same sample area (both spatially and in intensity) as the prior panel. In the sixth year, the plots that were measured in the first panel are remeasured. This marks the beginning of the next cycle of data collection. The 1998 Farm Bill requires a report every 5 years using the available field measurements completed at that time for the 5-year report (AREERA 1998). The

dataset consists of data that are <1 year old (the most recently collected data), data up to 5 years old (the data collected at the beginning of the cycle), and data not yet remeasured that are reused to yield a full cycle's worth of data.

Sample Design Phases

The three phases (P1, P2, and P3) of the current sampling method are based upon a hexagonal-grid design for sample placement on the ground; successive phases are sampled with less intensity. In general, the P1 phase involves area estimation. The P2 and P3 phases involve placement of sample plots on the ground where measurement of variable attributes are made. The grid ensures a systematic placement of P2 and P3 plots on the ground. There are 16 P2 hexagons for every P3 hexagon. The P2 and P3 hexagons represent about 6,000 and 96,000 acres, respectively. To ensure systematic coverage of the sample domain (State), the goal is to place one P2 plot in every hexagonal grid cell. The grid covering Florida contains hex cells with 7,023 plots essentially centrally located.

Area

The determination of forest area applies a stratification technique to improve the precision of the estimate; that is, it reduces the variance of the estimate. With this method, the placement (on the ground) and subsequent classification (by land use) of the P2 plot carry much of the weight in determining forest area. The area of control was the survey unit. Forest Inventory and Analysis (FIA) used National Land Cover Database (NLCD) data for the stratification platform (USGS 2018). The NLCD data are derived from Landsat Thematic Mapper data and incorporate the U.S. Geological Survey's land cover classification scheme. Using these data, FIA identified four strata to improve the variance of the area estimate. These strata are identified by a pixel classification according to four types of placement: (1) pixels in forest, (2) pixels in nonforest, (3) pixels in nonforest but within a 2-pixel width of a forest edge, and (4) pixels in a forest area but within a 2-pixel width of a forest edge. The estimation

of forest area is then summed across all strata from respective pixel counts (based on placement within the above strata) and the mean area from the P2 plots (Westfall et al. 2022).

Ownership

Under the annual inventory system, area estimation of all lands and ownerships was based on the probability of selection of P2 plot locations. There was no enumeration of any ownership (no use of known areas of ownership to determine area and plot expansion factors). As a result, the known forest land area (for specific ownerships) does not always agree with area estimates based on probability of selection. For example, the acreage of national forests, published by the National Forest System, will not agree exactly with the statistical estimate of national forest land derived by FIA. These numbers may differ substantially for very small areas.

Plot Design

Bechtold and Patterson (2005) describe the current P2 and P3 ground plots and explain their use. Further instructions are contained in field crew manuals (USDA Forest Service 2014). These plots

are clusters of four points arranged so that one point is central and the other three lie 120 feet from it at azimuths of 0, 120, and 240 degrees (fig. A.1). Each point is the center of a circular subplot with a fixed 24-foot radius. Trees >5.0 inches in diameter at breast height (d.b.h.) are measured in these subplots. Each subplot in turn contains a circular 1/300th-acre microplot with a fixed 6.8-foot radius (fig. A.2). Trees 1.0 to 4.9 inches d.b.h. and seedlings (<1.0-inch d.b.h.) are measured on these microplots.

Sometimes a plot cluster straddles two or more land use or forest condition classes (Bechtold and Patterson 2005). There are seven condition-class variables that require mapping of a unique condition on a plot: land use, forest type, stand size, ownership, stand density, regeneration status, and reserved status. A new condition is defined and mapped each time the aerial extent of one of these variables is encountered during plot measurement. The process of mapping any of these conditions on a plot changes the plot size for a respective condition. In other words, the condition size will be smaller than a full plot complement, so the variance of the estimate may increase.

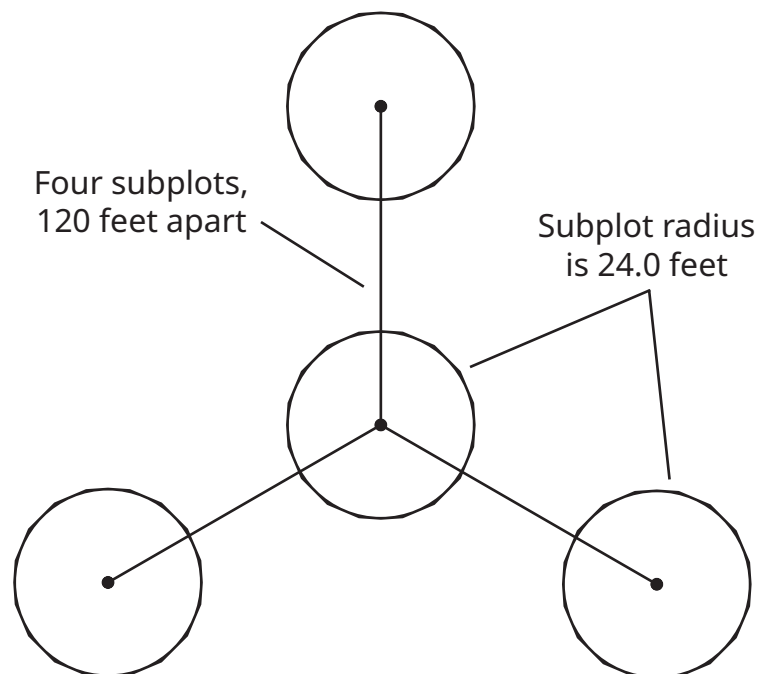


Figure A.1—Annual inventory fixed-plot design (the P2 plot)

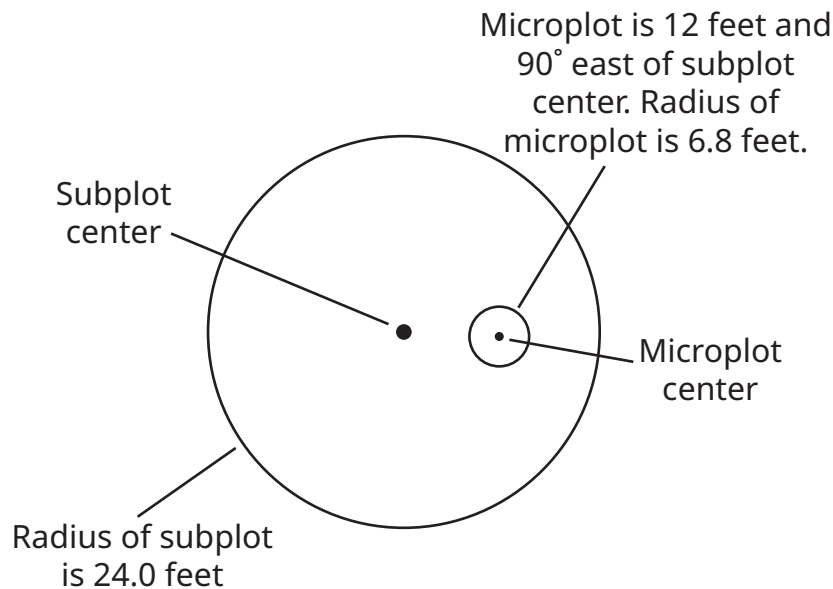


Figure A.2—Subplot and microplot layout.

Data on forest health variables (P3) are collected on about 1/16th of the P2 sample plots (USDA Forest Service 2010). P3 data are coarse descriptions and are meant to be used as general indicators of overall forest health over large geographic areas. However, the number of P3 data variables collected has been scaled back to a more simplified set so that their field protocols can be implemented on more plots to improve the sample size.

Volume

Tree volumes for each individual tally tree were derived by a linear regression model. The general form of the model involves two measurements from sample trees: d.b.h. and total height. This equation estimated gross cubic foot volume from a 1-foot stump to a 4-inch top for each sample tree. Separate equation coefficients for 77 species or species groupings were used. The volume in forks in the central bole and the volume in limbs outside of the main bole were excluded. Net cubic foot volume was derived by subtracting the estimate of rotten or missing wood for each sample tree. Volume of the saw-log portion (expressed in International 1/4-inch board feet) of sample trees was derived by using board foot-to-cubic foot ratio equations. All equations and coefficients were

developed from standing and felled tree volume studies conducted by FIA across several Southern States. See the Southern Research Station (SRS) volume calculations in the following document (USDA Forest Service 2024). For more detailed and specific information regarding volume models and coefficients, contact the SRS-FIA work unit.

Biomass

Tree biomass for each individual tally tree was derived by applying models and coefficients derived by McClure and Biesterfeldt (1981) and McClure and Knight (1984). The general form of the model used two measurements from sample trees: d.b.h. and total height. The coefficients derived green weight by means of a volume conversion method. The dry weight was then derived by multiplying the green weight by 0.5. The tree biomass model gives the weight of the total tree, including wood and bark, from ground level; foliage is not included. The model for the merchantable stem, including wood and bark, gives the weight of the stem from a 1-foot stump to a 4-inch top. For more detailed and specific information regarding biomass models and coefficients, contact the SRS FIA work unit.

Growth, Removals, and Mortality

Growth, removals, and mortality estimates were determined from the remeasurement of the 7,023 hexes with sample plots measured in the 2013 inventory. Florida's 2018 survey remeasured 6,875 of these plots. The 148-plot difference predominantly consisted of new plots (sample kind 1) as well as a nominal number of plots not sampled due to adverse conditions or denied access. Forty-six percent, or 3,245, of the remeasured plots were forested and 3,778 were nonforested. The remeasurement information was then used in the calculation of seven components of change: survivor growth, ingrowth, growth on ingrowth, growth on mortality, mortality, growth on removals, and removals. The mathematical exchanges between these components of change were used to determine average annual rates of net growth and removals. The interaction of net growth to removals ultimately provided estimates of net change for the resource.

Summary

Users wishing to make rigorous comparisons of data between surveys should be aware of changes in methods and measurements evolving from nationalization of the FIA program, as well as continued adjustments and improvements to the processing methods and algorithms used to enhance accuracy of the data. Assuming there is no bias in plot selection or maintenance of plot integrity, the most valuable and powerful trend information comes from the same plots being revisited from one survey to the next and measured in the same way. This is also the only method that yields reliable components of change estimation for growth, removals, and mortality. Since the last periodic inventory of Florida in 1995 (Brown 1999), the State has followed the national annualized inventory protocols for three cycles, 2007 (Brown et al. 2012), 2013 (Brown et al. 2017), and 2018, permitting trend analysis with more certainty.

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APPENDIX 2—DATA 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

Measurement error is also called nonsampling error or data acquisition error. These are errors that arise in the acquisition, recording, or editing of statistical data (Burt and Barber 1996). There are three elements of measurement error: (1) biased error, caused by instruments not properly calibrated; (2) compensating error, caused by instruments of moderate precision; and (3) accidental error, caused by human error in measuring, recording, and compiling. All of these are held to a minimum by a system, the Forest Inventory and Analysis (FIA) quality assurance (QA) program that incorporates training, check plots, and editing and checking for consistency. The goal of the QA program is to provide a framework to assure the production of complete, accurate, and unbiased forest assessments for given standards.

The QA program uses quality control (QC) procedures to minimize field measurement error. These QC methods include use of nationally standardized field manuals, use of portable data recorders (PDRs), intensive entry-level training, periodic review training, supervision, check plots, editing checks, and emphasis on careful work. Data quality is assessed and documented using performance measurements and post-survey assessments. These assessments are then used to identify areas of the data collection process that need improvement, or refinement, to meet quality standards of the program.

For all plots, editing checks are performed in the PDR and office to screen out logical and data entry inconsistencies and errors. The use of PDR's also helps to ensure 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 returning employees. Field crew members are certified on a test plot. All crews are required to have at least one certified person on the plot.

Field audits consist of hot checks, cold checks, and blind checks. A hot check is an inspection normally done as part of the training process. The inspector is present with the crew to document crew performance as plots are measured. 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 remeasurement of a previously completed plot. However, the QA crew performs the remeasurement without the previously recorded data. 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 take place within 2 weeks of the date of the field measurement. The recommended intensity for blind checks is 3 percent of the plots installed.

Each variable collected by FIA is assigned a measurement quality objective (MQO) and a measurement tolerance level. The MQO's are documented in the FIA national field manuals for P2 and P3 collection (USDA Forest Service 2014). In some instances, the MQO's are a "best guess" of what experienced field crews should be able to consistently achieve. Tolerances are somewhat arbitrary and are based on the ability of crews to make repeatable measurements or observations within the assigned MQO. Based on review and analysis, these tolerances improved over time.

Evaluation of field crew performance is accomplished by calculating the differences between data collected by the field crew and that collected by the QA crew on blind-check plots. Results of these calculations are compared to the established MQO's. In the analysis of blind-check data, an observation is within tolerance when the difference between the field crew observation and the QA crew observation 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 with the standard are within the tolerance level.

Sampling Error

A measure of reliability of inventory statistics is provided by sampling errors. 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. Sampling errors for State totals are based on one standard deviation, meaning that the chances are two out of three that the true population value is within the limits indicated by a confidence interval.

FIA inventories supported by the full complement of sample plots are designed to achieve reliable statistics at the survey unit and State levels. However, users should note that sampling error increases as the area considered decreases in size. Sampling errors and associated confidence intervals are often unacceptably high for small components of the total resource.

Sampling errors (in percent) and associated confidence intervals around the sample estimates for timberland area, inventory volumes, and components of change are presented in the following tabulation:

Item	Sample estimate and confidence interval	Sampling error
		percent
Timberland (1,000 acres)	14,905.7 ± 146.1	0.98
All-live Inventory (million cubic feet)	22,839.2 ± 429.4	1.88
Net annual growth	864.6 ± 20.2	2.34
Annual removals	562.1 ± 31.0	5.51
Annual mortality	226.7 ± 9.6	4.25

Statistical confidence may be computed for any subdivision of the State totals using the following formula. Sampling errors obtained from this method are only approximations of reliability because this process assumes constant variance across all subdivisions of totals. This method of sampling error calculation differs from the process and formulas used in the Evaluator output.

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

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

For example, the estimate of sampling error for softwood live-tree volume on public timberland is computed as:

$$SEs = 1.88 \left[\frac{\sqrt{22,839.2}}{\sqrt{4,629.1}} \right] = 4.18$$

Thus, the sampling error is 4.18 percent, and the resulting confidence interval (two times out of three) for softwood live-tree inventory on public timberland is $4,629.1 \pm 193.5$ million cubic feet.

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APPENDIX 3

Table A3.1—Softwood species ¹ list by common and scientific name, Florida, 2018

Common name	Scientific name ²
Atlantic white-cedar	<i>Chamaecyparis thyoides</i> (L.) B.S.P.
Southern redcedar	<i>Juniperus silicicola</i> (Small) Bailey
Eastern redcedar	<i>J. virginiana</i> L.
Caribbean pine	<i>Pinus caribaea</i> Morelet
Sand pine	<i>P. clausa</i> (Chapman ex Engelm.) Vasey ex Sarg.
Shortleaf pine	<i>P. echinata</i> Mill.
Slash pine	<i>P. elliotii</i> Engelm.
Spruce pine	<i>P. glabra</i> Walt.
Longleaf pine	<i>P. palustris</i> Mill.
Pond pine	<i>P. serotina</i> Michx.
Loblolly pine	<i>P. taeda</i> L.
Baldcypress	<i>Taxodium distichum</i> (L.) Rich.
Pondcypress	<i>T. distichum</i> var. <i>nutans</i>
Florida yew	<i>Taxus floridana</i> Nutt. ex Chapman
Florida torreya	<i>Torreya taxifolia</i> Arn.

¹ Scientific and common names of tree species subject to survey in Florida.

² Little (1979).

Table A3.2—Hardwood species ¹ list by common and scientific name, Florida, 2018

Common name	Scientific name ²
Florida maple	<i>Acer barbatum</i> Michx.
Boxelder	<i>A. negundo</i> L.
Red maple	<i>A. rubrum</i> L.
Silver maple	<i>A. saccharinum</i> L.
Ailanthus	<i>Ailanthus altissima</i> (Mill.) Swingle
Tung-oil tree	<i>Aleurites fordii</i> Hemsl.
Serviceberry	<i>Amelanchier</i> spp. Med.
Torchwood	<i>Amyris elemifera</i> L.
Pond apple	<i>Annona glabra</i> L.
Black mangrove	<i>Avicennia germinans</i> (L.) L.
River birch	<i>Betula nigra</i> L.
Gumbo limbo	<i>Bursera simaruba</i> (L.) Sarg.

Table A3.2—Hardwood species ¹ list by common and scientific name, Florida, 2018 (continued)

Common name	Scientific name ²
American hornbeam	<i>Carpinus caroliniana</i> Walt.
Hickory	<i>Carya</i> spp. Nutt.
Water hickory	<i>C. aquatica</i> (Michx. f.) Nutt.
Bitternut hickory	<i>C. cordiformis</i> (Wangenh.) K. Koch
Pignut hickory	<i>C. glabra</i> (Mill.) Sweet
Pecan	<i>C. illinoensis</i> (Wangenh.) K. Koch
Shellbark hickory	<i>C. laciniosa</i> (Michx. f.) Loud.
Nutmeg hickory	<i>C. myristiciformis</i> (Michx. f.) Nutt.
Shagbark hickory	<i>C. ovata</i> (Mill.) K. Koch
Mockernut hickory	<i>C. tomentosa</i> (Poir.) Nutt.
Allegheny chinkapin	<i>Castanea pumila</i> Mill.
Florida chinkapin	<i>Castanea alnifolia</i> Nutt.
Australian pine	<i>Casuarina</i> L.
Catalpa	<i>Catalpa</i> spp. Scop.
Southern catalpa	<i>Catalpa bignonioides</i> Walt.
Sugarberry	<i>Celtis laevigata</i> Willd.
Eastern redbud	<i>Cercis canadensis</i> L.
Camphor tree	<i>Cinnamomum camphora</i> (L.) J. Presl
Fiddlewood	<i>Citharexylum fruticosum</i> L.
Citrus spp.	<i>Citrus</i> L.
Pigeon plum	<i>Coccoloba diversifolia</i> Jacq.
Soldierwood	<i>Colubrina elliptica</i> (Sw.) Briz. & Stern
Button-mangrove	<i>Conocarpus erectus</i> L.
Largeleaf geigertree	<i>Cordia sebestena</i> L.
Flowering dogwood	<i>Cornus florida</i> L.
Hawthorn	<i>Crataegus</i> spp. L.
Carrotwood	<i>Cupaniopsis anacardioides</i> (A. Rich.) Radlk.
Common persimmon	<i>Diospyros virginiana</i> L.
Red stopper	<i>Eugenia rhombea</i> Krug & Urban
Inkwood (butterbough)	<i>Exothea paniculata</i> (Juss.) Radlk.
American beech	<i>Fagus grandifolia</i> Ehrh.
Strangler fig	<i>Ficus aurea</i> Nutt.

Table A3.2—Hardwood species ¹ list by common and scientific name, Florida, 2018 (continued)

Common name	Scientific name ²
Shortleaf fig (wild banyantree)	<i>F. citrifolia</i> P. Mill.
White ash	<i>Fraxinus americana</i> L.
Carolina ash	<i>F. caroliniana</i> P. Mill.
Green ash	<i>F. pennsylvanica</i> Marsh.
Pumpkin ash	<i>F. profunda</i> (Bush) Bush
Waterlocust	<i>Gleditsia aquatica</i> Marsh.
Honeylocust	<i>G. triacanthos</i> L.
Loblolly bay	<i>Gordonia lasianthus</i> (L.) Ellis
Longleaf blolly (beefree)	<i>Guapira discolor</i> (Spreng.) Little
Manchineel	<i>Hippomane mancinella</i> L.
American holly	<i>Ilex opaca</i> Ait.
Black walnut	<i>Juglans nigra</i> L.
White mangrove	<i>Laguncularia racemosa</i> (L.) Gaertn. f.
Sweetgum	<i>Liquidambar styraciflua</i> L.
Yellow-poplar	<i>Liriodendron tulipifera</i> L.
False tamarind	<i>Lysiloma latisiliquum</i> (L.) Benth.
Cucumbertree	<i>Magnolia acuminata</i> L.
Southern magnolia	<i>M. grandiflora</i> L.
Bigleaf magnolia	<i>M. macrophylla</i> Michx.
Sweetbay	<i>M. virginiana</i> L.
Crabapple	<i>Malus angustifolia</i> (Ait.) Michx.
Mango	<i>Mangifera indica</i> L.
False mastic	<i>Mastichodendron foetidissimum</i> (Jacq.) H.J. Lam
Melaleuca	<i>Melaleuca quinquenervia</i> (Cav.) Blake
Chinaberry	<i>Melia azedarach</i> L.
Florida poisonwood	<i>Metopium toxiferum</i> (L.) Krug & Urban
White mulberry	<i>Morus alba</i> L.
Red mulberry	<i>M. rubra</i> L.
Water tupelo	<i>Nyssa aquatica</i> L.
Blackgum	<i>N. sylvatica</i> Marsh.
Swamp tupelo	<i>N. sylvatica</i> var. <i>biflora</i> (Walt.) Sarg.
Eastern hophornbeam	<i>Ostrya virginiana</i> (Mill.) K. Koch

Table A3.2—Hardwood species ¹ list by common and scientific name, Florida, 2018 (continued)

Common name	Scientific name ²
Sourwood	<i>Oxydendrum arboreum</i> (L.) DC.
Redbay	<i>Persea borbonia</i> (L.) Spreng.
Fishpoison tree	<i>Piscidia piscipula</i> (L.) Sarg.
Planertree	<i>Planera aquatica</i> J.F. Gmel.
American sycamore	<i>Platanus occidentalis</i> L.
Cottonwood	<i>Populus</i> spp. L.
American plum	<i>Prunus americana</i> Marsh.
Carolina laurelcherry	<i>P. caroliniana</i> (P. Mill.) Ait.
Black cherry	<i>P. serotina</i> Ehrh.
White oak	<i>Quercus alba</i> L.
Scarlet oak	<i>Q. coccinea</i> Muenchh.
Durand oak	<i>Q. durandii</i> Buckl.
Southern red oak	<i>Q. falcata</i> Michx.
Cherrybark oak	<i>Q. falcata</i> var. <i>pagodifolia</i> Ell.
Bluejack oak	<i>Q. incana</i> Bartr.
Turkey oak	<i>Q. laevis</i> Walt.
Laurel oak	<i>Q. laurifolia</i> Michx.
Overcup oak	<i>Q. lyrata</i> Walt.
Swamp chestnut oak	<i>Q. michauxii</i> Nutt.
Chinkapin oak	<i>Q. muehlenbergii</i> Engelm.
Water oak	<i>Q. nigra</i> L.
Nuttall oak	<i>Q. nuttallii</i> Palmer
Willow oak	<i>Q. phellos</i> L.
Shumard oak	<i>Q. shumardii</i> Buckl.
Post oak	<i>Q. stellata</i> Wangenh.
Black oak	<i>Q. velutina</i> Lam.
Live oak	<i>Q. virginiana</i> Mill.
Red mangrove	<i>Rhizophora mangle</i> L.
Willow	<i>Salix</i> spp. L.
Sassafras	<i>Sassafras albidum</i> (Nutt.) Nees
Schefflera (octopus tree)	<i>Schefflera actinophylla</i> (Endl.) H.A.T. Harms
False mastic	<i>Sideroxylon foetidissimum</i> Jacq.

Table A3.2—Hardwood species ¹ list by common and scientific name, Florida, 2018 (continued)

Common name	Scientific name ²
White bully (willow bastic)	<i>S. salicifolium</i> (L.) Lam.
Paradise tree	<i>Simarouba glauca</i> DC.
West Indian mahogany	<i>Swietenia mahagoni</i> (L.) Jacq.
Java plum	<i>Syzygium cumini</i> (L.) Skeels
Tamarind	<i>Tamarindus indica</i> L.
Carolina basswood	<i>Tilia americana</i> var. <i>caroliniana</i> (P. Mill.) Castigl.
White basswood	<i>T. heterophylla</i> Vent.
Winged elm	<i>Ulmus alata</i> Michx.
American elm	<i>U. americana</i> L.
Cedar elm	<i>U. crassifolia</i> Nutt.
Chinese elm	<i>U. parvifolia</i> Jacq.
English elm	<i>U. procera</i> Salisb.
Slippery elm	<i>U. rubra</i> Muhl.

¹ Scientific and common names of tree species subject to survey in Florida.² Little (1979).**Table A3.3**—Palm species ¹ list by common and scientific name, Florida, 2018

Common name	Scientific name ²
Paurotis palm	<i>Acoelorrhaphe wrightii</i> (Griseb. & H. Wendl.) H. Wendl. ex Becc.
Florida silver palm	<i>Coccothrinax argentata</i> (Jacq.) Bailey
Coconut palm	<i>Cocos nucifera</i> L.
Florida royal palm	<i>Roystonea elata</i> (Bartr.) F. Harper
Cabbage palm	<i>Sabal palmetto</i> (Walt.) Lodd. ex J.A. & J.H. Schultes
Key thatch palm	<i>Thrinax morrisii</i> H. Wendl.
Florida thatch palm	<i>T. radiata</i> Lodd. ex J.A. & J.H. Schultes

¹ Scientific and common names of tree species subject to survey in Florida.² Little (1979).

Literature Cited

Little, E.L., Jr. 1979. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture. 375 p.

APPENDIX 4—SUPPLEMENTAL TABLES

Table A4.1—Area by survey unit and land status, Florida, 2018

Unit	Total area	All forest	Unreserved			Reserved			Nonforest land	Census water
			Total	Timberland	Unproductive	Total	Productive	Unproductive		
thousand acres										
Northeast	10,796.9	6,471.4	6,294.8	6,279.9	14.9	176.6	166.0	10.6	3,226.4	1,099.1
Northwest	8,474.6	5,545.5	5,444.0	5,351.1	92.9	101.4	85.1	16.3	1,710.6	1,218.5
Central	11,818.1	2,866.8	2,560.7	2,453.7	107.0	306.1	287.5	18.6	7,139.2	1,812.2
South	10,994.9	2,059.1	948.2	820.9	127.3	1,110.9	810.9	300.0	5,666.8	3,269.0
All survey units	42,084.6	16,942.7	15,247.8	14,905.7	342.1	1,695.0	1,349.5	345.5	17,743.0	7,398.9

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

Table created:03-FEB-22.

FLORIDA'S FORESTS, 2018

Table A4.2—Area of forest land by ownership class and land status, Florida, 2018

Ownership class		All forest land	Unreserved			Reserved		
			Total	Timberland	Unproductive	Total	Productive	Unproductive
thousand acres								
USDA Forest Service	National forest	1,185.3	1,125.5	1,112.3	13.3	59.7	52.3	7.4
	Total	1,185.3	1,125.5	1,112.3	13.3	59.7	52.3	7.4
Other Federal	National Park Service	782.2	0.0	0.0	0.0	782.2	599.5	182.7
	Bureau of Land Management	4.8	0.0	0.0	0.0	4.8	4.8	0.0
	U.S. Fish and Wildlife Service	197.9	0.0	0.0	0.0	197.9	157.7	40.1
	Dept. of Defense/Dept. of Energy	540.6	540.6	504.2	36.4	0.0	0.0	0.0
	Other Federal	29.3	29.3	23.8	5.5	0.0	0.0	0.0
	Total	1,554.8	570.0	528.0	42.0	984.9	762.1	222.8
State and local government	State	2,937.5	2,483.4	2,429.2	54.3	454.1	369.1	85.0
	Local	579.4	383.0	334.0	49.0	196.3	166.0	30.3
	Other nonfederal public	9.3	9.3	3.4	6.0	0.0	0.0	0.0
	Total	3,526.2	2,875.8	2,766.6	109.2	650.4	535.1	115.3
Forest industry	Corporate	255.0	255.0	255.0	0.0	0.0	0.0	0.0
	Individual	6.1	6.1	6.1	0.0	0.0	0.0	0.0
	Total	261.1	261.1	261.1	0.0	0.0	0.0	0.0
Nonindustrial private	Corporate	6,561.2	6,561.2	6,431.0	130.2	0.0	0.0	0.0
	Conservation/natural resources organization	55.7	55.7	55.7	0.0	0.0	0.0	0.0
	Unincorporated local partnership/association/club	11.3	11.3	11.3	0.0	0.0	0.0	0.0
	Native American	50.6	50.6	47.5	3.1	0.0	0.0	0.0
	Individual	3,736.6	3,736.6	3,692.3	44.3	0.0	0.0	0.0
	Total	10,415.4	10,415.4	10,237.8	177.6	0.0	0.0	0.0
All classes		16,942.7	15,247.8	14,905.7	342.1	1,695.0	1,349.5	345.5

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

Table created:03-FEB-22.

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

FLORIDA'S FORESTS, 2018

Table A4.3—Area of timberland by forest-type group and site productivity class, Florida, 2018

Forest-type group		Site productivity class (cubic feet/acre/year)							
		All classes	0–19	20–49	50–84	85–119	120–164	165–224	225+
		thousand acres							
Softwood types	Longleaf-slash pine	5,086.7	0.0	1,140.7	2,699.0	1,049.7	165.0	1.6	30.7
	Loblolly-shortleaf pine	1,780.7	0.0	383.3	875.4	372.9	114.2	27.5	7.6
	Other eastern softwoods	9.5	0.0	0.0	9.5	0.0	0.0	0.0	0.0
	Total softwoods	6,876.9	0.0	1,523.9	3,583.9	1,422.5	279.1	29.1	38.3
Hardwood types	Oak-pine	1,473.1	0.0	440.7	745.9	198.1	76.9	11.5	0.0
	Oak-hickory	2,483.7	0.0	782.2	1,362.1	246.9	80.1	0.0	12.4
	Oak-gum-cypress	3,051.7	0.0	1,181.9	1,560.3	253.2	33.8	4.8	17.7
	Elm-ash-cottonwood	79.0	0.0	33.0	40.2	4.4	1.5	0.0	0.0
	Other hardwoods	22.3	0.0	10.6	10.3	0.0	0.0	0.0	1.5
	Tropical hardwoods	365.4	0.0	236.7	120.4	8.3	0.0	0.0	0.0
	Exotic hardwoods	52.1	0.0	41.2	10.9	0.0	0.0	0.0	0.0
	Total hardwoods	7,527.4	0.0	2,726.2	3,850.1	710.9	192.3	16.3	31.6
Nonstocked		501.4	0.0	187.2	241.6	43.9	21.4	0.0	7.3
All groups		14,905.7	0.0	4,437.4	7,675.6	2,177.3	492.9	45.3	77.1

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

Table created:03-FEB-22.

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

FLORIDA'S FORESTS, 2018

Table A4.4—Area of timberland by forest-type group and ownership group, Florida, 2018

Forest-type group		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
<i>thousand acres</i>							
Softwood types	Longleaf-slash pine	5,086.7	547.1	202.7	943.0	108.5	3,285.4
	Loblolly-shortleaf pine	1,780.7	208.7	54.6	181.9	49.4	1,286.1
	Other eastern softwoods	9.5	0.0	0.0	0.0	0.0	9.5
	Total softwoods	6,876.9	755.8	257.3	1,124.9	157.9	4,581.1
Hardwood types	Oak-pine	1,473.1	108.5	81.9	235.8	20.1	1,026.8
	Oak-hickory	2,483.7	57.2	128.6	365.2	20.5	1,912.1
	Oak-gum-cypress	3,051.7	165.9	52.9	760.5	62.6	2,009.9
	Elm-ash-cottonwood	79.0	0.0	0.0	29.5	0.0	49.5
	Other hardwoods	22.3	0.0	0.0	11.1	0.0	11.3
	Tropical hardwoods	365.4	3.3	1.6	142.3	0.0	218.2
	Exotic hardwoods	52.1	0.0	0.0	13.9	0.0	38.2
	Total hardwoods	7,527.4	334.8	265.1	1,558.4	103.2	5,266.0
Nonstocked		501.4	21.7	5.7	83.3	0.0	390.7
All groups		14,905.7	1,112.3	528.0	2,766.6	261.1	10,237.8

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

Table created:03-FEB-22

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

FLORIDA'S FORESTS, 2018

Table A4.5—Area of timberland by forest-type group and stand age class, Florida, 2018

Forest-type group		All classes	Stand age (years)											Nonstocked
			1–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90	91–100	101+	
thousand acres														
Softwood types	Longleaf-slash pine	5,086.7	743.0	958.1	949.4	713.7	485.6	375.4	298.3	279.7	144.7	57.7	34.4	46.8
	Loblolly- shortleaf pine	1,780.7	403.0	362.8	323.0	362.5	143.1	78.0	38.8	31.3	11.9	14.5	0.0	11.8
	Other eastern softwoods	9.5	1.4	0.0	0.0	0.0	4.7	0.0	3.4	0.0	0.0	0.0	0.0	0.0
	Total softwoods	6,876.9	1,147.4	1,321.0	1,272.3	1,076.2	633.5	453.4	340.5	311.0	156.6	72.1	34.4	58.6
Hardwood types	Oak-pine	1,473.1	154.9	142.5	163.0	227.7	210.9	221.0	136.0	89.7	69.3	31.3	21.0	5.8
	Oak-hickory	2,483.7	298.2	168.5	191.5	280.6	306.6	275.5	288.1	240.0	176.8	69.6	87.1	101.2
	Oak-gum-cypress	3,051.7	120.7	175.7	210.5	210.4	298.1	315.3	400.0	355.7	369.8	283.6	265.4	46.5
	Elm-ash- cottonwood	79.0	9.1	11.3	16.0	4.4	1.5	6.4	8.1	5.8	14.6	0.0	0.0	1.9
	Other hardwoods	22.3	1.5	0.0	0.0	1.5	6.2	0.0	3.9	9.2	0.0	0.0	0.0	0.0
	Tropical hardwoods	365.4	2.1	15.3	36.6	68.8	66.7	58.8	29.4	35.2	27.2	12.8	12.5	0.0
	Exotic hardwoods	52.1	30.4	6.3	2.9	9.4	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0
Total hardwoods		7,527.4	616.9	519.5	620.4	802.8	890.0	880.2	865.6	735.5	657.7	397.3	386.0	155.4
Nonstocked		501.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	501.4
All groups		14,905.7	1,764.3	1,840.5	1,892.8	1,879.0	1,523.5	1,333.5	1,206.0	1,046.5	814.3	469.4	420.4	715.3

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

Table created:03-FEB-22

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

Table A4.6—Area of timberland by forest-type group and stand origin, Florida, 2018

Forest-type group		Total	Stand origin	
			Natural stands	Artificial regeneration
		thousand acres		
Softwood types	Longleaf-slash pine	5,086.7	2,409.9	2,676.8
	Loblolly-shortleaf pine	1,780.7	811.3	969.4
	Other eastern softwoods	9.5	9.5	0.0
	Total softwoods	6,876.9	3,230.7	3,646.2
Hardwood types	Oak-pine	1,473.1	1,241.5	231.6
	Oak-hickory	2,483.7	2,362.0	121.7
	Oak-gum-cypress	3,051.7	3,006.2	45.6
	Elm-ash-cottonwood	79.0	79.0	0.0
	Other hardwoods	22.3	22.3	0.0
	Tropical hardwoods	365.4	365.4	0.0
	Exotic hardwoods	52.1	34.0	18.2
	Total hardwoods	7,527.4	7,110.3	417.1
Nonstocked		501.4	386.1	115.3
All groups		14,905.7	10,727.0	4,178.6

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

Table created:03-FEB-22

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

Table A4.7—Area of timberland disturbed annually by forest-type group and disturbance class, Florida, 2018

Forest-type group ²		Disturbance class ¹							
		Insects	Disease	Weather	Fire	Domestic animals	Wild animals	Human	Other natural
<i>thousand acres</i>									
Softwood types	Longleaf-slash pine	4.5	33.9	37.1	199.7	17.1	30.3	24.1	12.5
	Loblolly-shortleaf pine	3.1	7.7	16.5	27.2	1.2	3.4	2.8	1.0
	Other eastern softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total softwoods	7.6	41.6	53.6	226.9	18.3	33.7	26.9	13.5
Hardwood types	Oak-pine	1.1	3.8	10.2	36.3	6.8	7.5	6.0	3.2
	Oak-hickory	2.9	5.9	16.8	40.6	35.3	27.1	18.9	8.1
	Oak-gum-cypress	2.9	9.4	54.2	13.7	9.9	8.9	9.4	13.8
	Elm-ash-cottonwood	0.0	0.0	0.9	0.0	0.3	1.2	0.0	0.0
	Other hardwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Tropical hardwoods	0.0	0.0	11.9	11.1	10.0	7.1	5.6	1.5
	Exotic hardwoods	0.0	0.0	0.9	0.0	1.0	0.9	1.9	1.6
	Total hardwoods	6.9	19.1	94.9	101.7	63.4	52.6	41.8	28.3
Nonstocked		0.0	2.8	4.7	10.1	3.1	6.5	2.9	1.4
All groups		14.5	63.5	153.1	338.7	84.8	92.9	71.6	43.2

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

Table created:03-FEB-22

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

¹ Based on current conditions.² Based on past conditions.

FLORIDA'S FORESTS, 2018

Table A4.8—Area of timberland treated annually by forest-type group and treatment class (cutting), Florida, 2018

Forest-type group ²		Treatment class ¹						
		Cutting						
		Total treated	Final harvest	Partial harvest	Seed-tree/ shelterwood harvest	Commercial thinning	Timber stand improvement	Salvage cutting
thousand acres								
Softwood types	Longleaf-slash pine	222.4	111.1	9.3	3.5	84.0	8.2	6.2
	Loblolly-shortleaf pine	78.4	41.9	4.5	0.0	29.7	2.2	0.0
	Other eastern softwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total softwoods	300.8	153.1	13.8	3.5	113.8	10.4	6.2
Hardwood types	Oak-pine	21.2	10.4	5.1	1.1	1.9	1.1	1.5
	Oak-hickory	18.9	10.3	4.6	0.3	0.0	3.5	0.2
	Oak-gum-cypress	8.7	2.9	5.0	0.0	0.3	0.0	0.4
	Elm-ash-cottonwood	0.7	0.2	0.5	0.0	0.0	0.0	0.0
	Other hardwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Tropical hardwoods	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Exotic hardwoods	1.2	1.2	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	50.8	25.1	15.2	1.4	2.3	4.6	2.2
Nonstocked		5.1	4.7	0.0	0.0	0.1	0.3	0.0
All groups		356.6	182.9	29.0	5.0	116.1	15.3	8.3

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

Table created:03-FEB-22

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

HARVEST_TYPE[1,2,3]_SRS code 16 (Salvage Cutting) started with Field Guide 4.0

¹ Based on current conditions.

² Based on past conditions.

Table A4.9—Area of timberland treated annually by forest-type group and treatment class (regeneration), Florida, 2018

Forest-type group ¹		Treatment class ¹			
		Site preparation	Artificial regeneration	Natural regeneration	Other silvicultural
<i>thousand acres</i>					
Softwood types	Longleaf-slash pine	51.4	67.8	4.1	26.1
	Loblolly-shortleaf pine	17.8	29.7	3.5	8.9
	Other eastern softwoods	0.0	0.0	0.0	0.0
	Total softwoods	69.2	97.5	7.6	34.9
Hardwood types	Oak-pine	8.8	10.7	1.8	1.0
	Oak-hickory	12.5	8.1	6.5	3.8
	Oak-gum-cypress	2.0	1.2	2.2	1.6
	Elm-ash-cottonwood	0.0	0.0	0.0	0.0
	Other hardwoods	0.0	0.0	0.0	0.0
	Tropical hardwoods	0.0	0.0	0.0	2.3
	Exotic hardwoods	2.5	2.5	0.0	0.9
	Total hardwoods	25.7	22.5	10.6	9.5
Nonstocked		10.2	2.1	3.6	2.5
All groups		105.2	122.1	21.8	47.0

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

Table created:03-FEB-22

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

¹ Based on current conditions.

Table A4.10—Area of timberland by forest-type group and stand-size class, Florida, 2018

Forest-type group		All classes	Stand-size class			Nonstocked
			Large diameter	Medium diameter	Small diameter	
		thousand acres				
Softwood types	Longleaf-slash pine	5,086.7	2,281.4	1,711.4	1,093.9	0.0
	Loblolly-shortleaf pine	1,780.7	618.8	666.8	495.0	0.0
	Other eastern softwoods	9.5	4.7	0.0	4.8	0.0
	Total softwoods	6,876.9	2,904.9	2,378.3	1,593.7	0.0
Hardwood types	Oak-pine	1,473.1	765.8	303.4	403.9	0.0
	Oak-hickory	2,483.7	1,181.4	528.3	774.0	0.0
	Oak-gum-cypress	3,051.7	1,811.4	666.3	574.1	0.0
	Elm-ash-cottonwood	79.0	25.4	27.0	26.5	0.0
	Other hardwoods	22.3	4.9	4.3	13.2	0.0
	Tropical hardwoods	365.4	277.1	52.2	36.0	0.0
	Exotic hardwoods	52.1	3.2	9.5	39.5	0.0
	Total hardwoods	7,527.4	4,069.2	1,591.0	1,867.2	0.0
Nonstocked		501.4	0.0	0.0	0.0	501.4
All groups		14,905.7	6,974.2	3,969.3	3,460.8	501.4

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

Table created:03-FEB-22

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

FLORIDA'S FORESTS, 2018

Table A4.11—Number of live trees on timberland by species group and diameter class, Florida, 2018

Species group		Diameter class (inches)															
		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+
		<i>million trees</i>															
Softwood	Longleaf and slash pines	1,411.6	367.5	337.0	288.2	202.3	105.1	53.2	31.2	14.4	7.8	3.1	1.4	0.2	0.0	0.0	0.0
	Loblolly and shortleaf pines	412.5	130.5	101.3	75.6	49.5	24.1	12.3	7.7	4.8	2.7	1.7	1.8	0.4	0.2	0.0	0.0
	Other yellow pines	267.2	110.3	66.7	41.0	28.4	11.7	4.6	2.2	1.2	0.6	0.2	0.3	0.0	0.0	0.0	0.0
	Cypress	588.2	256.4	122.2	70.9	48.2	33.8	22.6	14.5	9.3	4.9	2.4	2.2	0.5	0.2	0.1	0.1
	Other eastern softwoods	62.8	36.0	15.7	4.2	2.3	1.7	1.1	0.7	0.5	0.3	0.1	0.2	0.0	0.0	0.0	0.0
	Total softwoods	2,742.2	900.6	642.9	479.9	330.7	176.4	93.8	56.3	30.2	16.2	7.6	6.0	1.2	0.4	0.1	0.1
Hardwood	Select white oaks	5.2	1.8	1.3	0.9	0.4	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Select red oaks	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Other white oaks	351.7	198.9	62.7	30.5	18.5	11.6	7.5	5.5	4.9	2.9	2.3	3.1	1.5	0.9	0.4	0.5
	Other red oaks	922.9	562.2	174.0	69.5	41.9	27.2	16.1	11.3	7.3	5.0	3.0	3.5	1.2	0.6	0.1	0.1
	Hickory	36.6	19.7	8.2	2.0	1.7	1.7	0.9	0.8	0.4	0.4	0.3	0.3	0.2	0.0	0.0	0.0
	Hard maple	1.2	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	319.2	199.4	60.4	27.4	13.9	8.1	4.3	2.7	1.4	0.8	0.3	0.4	0.1	0.0	0.0	0.0
	Beech	1.6	0.9	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
	Sweetgum	258.0	158.4	50.3	18.8	11.3	6.8	4.6	2.7	1.9	1.4	0.7	0.5	0.5	0.0	0.0	0.0
	Tupelo and blackgum	588.4	275.2	145.5	64.5	39.3	24.4	14.8	10.5	6.1	4.0	1.7	1.6	0.6	0.1	0.1	0.0
	Ash	173.9	88.0	47.5	17.3	9.3	4.0	2.7	2.2	1.1	0.6	0.4	0.5	0.2	0.1	0.0	0.0
	Cottonwood and aspen	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	4.9	1.5	1.4	0.6	0.3	0.3	0.3	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0
	Yellow-poplar	12.4	3.2	2.7	1.9	1.7	0.9	0.6	0.4	0.2	0.3	0.2	0.2	0.1	0.0	0.0	0.0
	Other eastern soft hardwoods	503.8	323.8	104.0	37.2	18.9	9.4	5.2	2.1	1.2	0.9	0.4	0.5	0.2	0.0	0.0	0.0
	Other eastern hard hardwoods	96.5	75.8	14.9	3.9	1.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Eastern noncommercial hardwoods	686.0	351.0	121.8	46.6	35.9	46.3	41.8	25.4	11.7	3.5	1.1	0.7	0.3	0.0	0.0	0.0
	Total hardwoods	3,962.6	2,260.6	795.3	321.5	194.6	141.3	99.1	64.1	36.3	20.0	10.6	11.5	4.6	1.8	0.7	0.6
All species		6,704.8	3,161.2	1,438.2	801.3	525.2	317.7	192.9	120.4	66.4	36.2	18.2	17.5	5.8	2.2	0.8	0.7

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Table created:03-FEB-22

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FLORIDA'S FORESTS, 2018

Table A4.12—Number of growing-stock trees on timberland by species group and diameter class, Florida, 2018

Species group		Diameter class (inches)													
		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	Longleaf and slash pines	667.5	269.9	190.8	100.0	51.0	29.9	13.9	7.4	3.1	1.3	0.2	0.0	0.0	0.0
	Loblolly and shortleaf pines	164.3	68.7	45.0	21.7	11.0	7.0	4.6	2.5	1.6	1.6	0.4	0.2	0.0	0.0
	Other yellow pines	70.6	32.3	22.1	8.6	3.7	1.8	0.9	0.5	0.2	0.3	0.0	0.0	0.0	0.0
	Cypress	179.4	57.7	40.0	29.7	20.6	13.2	8.8	4.4	2.2	2.0	0.5	0.2	0.0	0.0
	Other eastern softwoods	6.2	2.6	1.3	0.8	0.6	0.5	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0
	Total softwoods	1,087.9	431.2	299.2	160.9	86.8	52.4	28.5	15.0	7.2	5.4	1.0	0.4	0.0	0.0
Hardwood	Select white oaks	1.7	0.8	0.3	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Select red oaks	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Other white oaks	10.1	3.2	2.1	1.1	0.7	0.8	0.7	0.2	0.3	0.5	0.3	0.1	0.1	0.0
	Other red oaks	98.7	38.1	21.3	14.3	7.5	5.8	3.8	2.9	1.9	2.0	0.6	0.4	0.0	0.0
	Hickory	5.8	1.2	1.2	1.1	0.6	0.6	0.4	0.2	0.3	0.2	0.0	0.0	0.0	0.0
	Hard maple	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	23.0	10.0	5.8	2.8	2.1	1.2	0.3	0.4	0.1	0.2	0.1	0.0	0.0	0.0
	Beech	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sweetgum	33.9	12.6	7.8	4.6	3.2	1.9	1.2	1.2	0.6	0.4	0.4	0.0	0.0	0.0
	Tupelo and blackgum	104.1	38.8	24.8	16.0	8.9	6.7	3.6	2.6	1.1	1.0	0.4	0.0	0.0	0.0
	Ash	15.4	5.5	3.4	1.5	1.6	1.5	0.7	0.4	0.3	0.3	0.2	0.1	0.0	0.0
	Cottonwood and aspen	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	0.9	0.2	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Yellow-poplar	4.7	1.2	1.3	0.6	0.5	0.3	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0
	Other eastern soft hardwoods	37.2	17.3	9.5	5.1	2.6	1.0	0.5	0.6	0.3	0.3	0.1	0.0	0.0	0.0
	Other eastern hard hardwoods	2.2	1.5	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	338.3	130.6	78.2	47.6	28.2	19.9	11.5	9.0	5.0	5.2	2.2	0.7	0.2	0.0
All species		1,426.2	561.9	377.4	208.5	115.0	72.3	40.0	23.9	12.2	10.6	3.2	1.1	0.2	0.0

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

Table created:03-FEB-22

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Table A4.13—Net ¹ volume of live trees on timberland by forest-type group and stand-size class, Florida, 2018

Forest-type group		All classes	Stand-size class			Nonstocked
			Large diameter	Medium diameter	Small diameter	
		million cubic feet				
Softwood types	Longleaf-slash pine	6,656.8	4,463.4	2,060.0	133.4	0.0
	Loblolly-shortleaf pine	2,519.9	1,467.1	984.2	68.7	0.0
	Other eastern softwoods	6.9	6.5	0.0	0.4	0.0
	Total softwoods	9,183.6	5,937.0	3,044.2	202.4	0.0
Hardwood types	Oak-pine	2,084.5	1,673.5	301.0	110.0	0.0
	Oak-hickory	3,187.9	2,573.5	470.3	144.1	0.0
	Oak-gum-cypress	7,722.5	6,495.2	1,096.2	131.2	0.0
	Elm-ash-cottonwood	118.5	94.1	22.8	1.6	0.0
	Other hardwoods	26.3	19.1	4.9	2.3	0.0
	Tropical hardwoods	469.5	393.9	67.9	7.6	0.0
	Exotic hardwoods	17.4	9.3	5.8	2.3	0.0
	Total hardwoods	13,626.5	11,258.6	1,968.9	399.1	0.0
Nonstocked		29.1	0.0	0.0	0.0	29.1
All groups		22,839.2	17,195.6	5,013.0	601.5	29.1

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Table created:03-FEB-22

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¹ Excludes rotten, missing, and form cull defects volume.

FLORIDA'S FORESTS, 2018

Table A4.14—Net ¹ volume of live trees on timberland by species group and ownership group, Florida, 2018

Species group		Ownership group					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million cubic feet					
Softwood	Longleaf and slash pines	7,079.6	975.7	257.6	1,334.5	104.2	4,407.5
	Loblolly and shortleaf pines	2,170.9	47.5	3.1	305.6	116.2	1,698.5
	Other yellow pines	831.2	247.0	95.2	102.5	2.2	384.2
	Cypress	2,798.2	124.2	42.3	1,020.4	29.7	1,581.6
	Other eastern softwoods	131.4	6.1	25.4	41.9	0.1	58.0
	Total softwoods	13,011.2	1,400.6	423.7	2,804.8	252.4	8,129.8
Hardwood	Select white oaks	30.6	0.0	0.0	1.3	0.2	29.0
	Select red oaks	5.0	0.0	0.0	5.0	0.0	0.0
	Other white oaks	1,316.9	31.6	60.6	271.6	13.3	939.7
	Other red oaks	2,429.7	40.6	69.3	505.9	51.3	1,762.5
	Hickory	188.5	7.6	1.0	66.1	0.8	113.1
	Hard maple	2.1	0.0	0.0	0.1	0.7	1.4
	Soft maple	518.4	20.5	3.2	150.8	10.7	333.2
	Beech	8.4	0.0	0.0	1.3	0.0	7.2
	Sweetgum	697.4	22.2	0.0	127.6	10.5	537.2
	Tupelo and blackgum	1,965.9	176.2	23.0	605.4	47.6	1,113.6
	Ash	420.0	16.0	0.7	225.8	3.3	174.2
	Cottonwood and aspen	1.3	0.0	0.0	0.0	0.0	1.3
	Basswood	35.5	0.0	0.0	5.0	0.0	30.5
	Yellow-poplar	123.1	7.2	0.0	22.8	1.0	92.1
	Other eastern soft hardwoods	592.8	52.8	5.4	92.2	26.5	415.9
	Other eastern hard hardwoods	27.1	0.5	0.1	5.5	0.0	21.0
	Eastern noncommercial hardwoods	1,465.4	84.9	21.0	355.0	15.2	989.3
	Total hardwoods	9,828.0	460.0	184.4	2,441.4	181.2	6,561.0
All species		22,839.2	1,860.6	608.1	5,246.3	433.5	14,690.8

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Table created:03-FEB-22

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¹ Excludes rotten, missing, and form cull defects volume.

FLORIDA'S FORESTS, 2018

Table A4.15—Net ¹ volume of live trees on timberland by species group and diameter class, Florida, 2018

		Diameter class (inches)													
		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+
Species group															
		million cubic feet													
Softwood	Longleaf and slash pines	7,079.6	803.6	1,380.5	1,359.0	1,124.6	969.9	617.4	443.1	225.1	127.7	21.8	7.0	0.0	0.0
	Loblolly and shortleaf pines	2,170.9	207.6	336.2	311.8	264.0	248.9	214.7	160.8	131.3	197.7	63.1	34.8	0.0	0.0
	Other yellow pines	831.2	154.8	227.4	157.3	95.0	64.7	47.5	30.9	15.3	31.5	6.7	0.0	0.0	0.0
	Cypress	2,798.2	220.0	326.5	408.1	414.6	389.1	342.8	240.5	153.6	184.7	67.4	30.7	11.2	9.1
	Other eastern softwoods	131.4	12.7	14.4	18.8	18.6	17.1	14.5	10.9	5.4	15.7	3.4	0.0	0.0	0.0
	Total softwoods	13,011.2	1,398.6	2,285.0	2,255.0	1,916.8	1,689.7	1,236.8	886.1	530.7	557.4	162.4	72.5	11.2	9.1
Hardwood	Select white oaks	30.6	2.8	2.6	1.6	3.9	5.4	4.1	1.9	0.0	2.3	0.0	5.9	0.0	0.0
	Select red oaks	5.0	0.0	0.2	0.6	0.0	1.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0
	Other white oaks	1,316.9	70.2	81.3	90.9	92.3	97.1	118.4	88.5	93.9	175.7	129.7	101.8	61.3	115.8
	Other red oaks	2,429.7	193.0	256.1	297.2	272.1	273.7	248.7	225.6	170.9	268.5	107.2	76.1	25.6	15.0
	Hickory	188.5	4.6	10.4	18.7	16.4	22.0	19.8	20.1	21.8	24.3	21.7	8.7	0.0	0.0
	Hard maple	2.1	0.4	0.1	0.7	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0
	Soft maple	518.4	81.4	81.9	84.3	69.1	63.5	45.1	30.5	15.9	29.1	7.0	2.1	8.5	0.0
	Beech	8.4	0.1	0.7	0.8	0.0	1.3	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
	Sweetgum	697.4	44.9	71.1	82.0	92.3	80.8	77.1	77.5	54.5	49.6	67.5	0.0	0.0	0.0
	Tupelo and blackgum	1,965.9	184.6	254.8	284.9	273.1	272.2	210.0	182.6	101.1	118.1	58.5	4.5	16.0	5.4
	Ash	420.0	46.4	55.5	42.5	48.5	61.3	42.4	29.2	22.2	42.4	17.5	11.9	0.0	0.0
	Cottonwood and aspen	1.3	0.4	0.2	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	35.5	2.1	2.6	3.1	6.9	2.5	2.9	7.8	2.8	4.8	0.0	0.0	0.0	0.0
	Yellow-poplar	123.1	5.4	11.7	10.7	12.8	11.0	6.5	14.8	14.4	16.9	11.7	7.1	0.0	0.0
	Other eastern soft hardwoods	592.8	96.2	105.2	96.9	84.2	44.5	37.5	40.7	27.6	43.1	17.0	0.0	0.0	0.0
	Other eastern hard hardwoods	27.1	9.7	7.9	3.6	2.6	0.9	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
	Eastern noncommercial hardwoods	1,465.4	118.3	171.4	283.5	324.1	227.6	142.2	75.1	41.1	48.1	29.1	4.9	0.0	0.0
	Total hardwoods		9,828.0	860.3	1,113.8	1,301.9	1,298.4	1,165.6	954.7	796.8	567.3	831.6	466.9	223.0	111.5
All species		22,839.2	2,258.9	3,398.8	3,556.9	3,215.2	2,855.2	2,191.5	1,682.9	1,098.0	1,389.0	629.3	295.5	122.6	145.4

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

Table created:03-FEB-22

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¹ Excludes rotten, missing, and form cull defects volume.

Table A4.16—Net ¹ volume of live trees on timberland by forest-type group and stand origin, Florida, 2018

Forest-type group		Total	Stand origin	
			Natural stands	Artificial regeneration
		million cubic feet		
Softwood types	Longleaf-slash pine	6,656.8	3,582.1	3,074.8
	Loblolly-shortleaf pine	2,519.9	1,322.3	1,197.6
	Other eastern softwoods	6.9	6.9	0.0
	Total softwoods	9,183.6	4,911.2	4,272.4
Hardwood types	Oak-pine	2,084.5	1,960.0	124.5
	Oak-hickory	3,187.9	3,138.0	50.0
	Oak-gum-cypress	7,722.5	7,717.8	4.7
	Elm-ash-cottonwood	118.5	118.5	0.0
	Other hardwoods	26.3	26.3	0.0
	Tropical hardwoods	469.5	469.5	0.0
	Exotic hardwoods	17.4	17.1	0.3
	Total hardwoods	13,626.5	13,447.1	179.5
Nonstocked		29.1	20.8	8.4
All groups		22,839.2	18,379.0	4,460.2

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

Table created:03-FEB-22

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¹ Excludes rotten, missing, and form cull defects volume.

FLORIDA'S FORESTS, 2018

Table A4.17—Net ¹ volume of growing-stock trees on timberland by species group and diameter class, Florida, 2018

Species group		Diameter class (inches)													
		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 cubic feet</i>													
Softwood	Longleaf and slash pines	6,774.0	757.7	1,309.0	1,299.9	1,082.2	934.6	598.2	425.1	221.3	117.2	21.8	7.0	0.0	0.0
	Loblolly and shortleaf pines	2,008.5	189.4	308.0	282.8	239.5	229.4	204.0	151.4	127.0	183.0	59.1	34.8	0.0	0.0
	Other yellow pines	666.0	122.3	177.5	116.5	75.4	51.2	39.3	30.2	15.3	31.5	6.7	0.0	0.0	0.0
	Cypress	2,530.2	184.4	278.1	363.7	385.1	359.2	330.3	218.5	143.6	169.3	61.2	30.7	6.1	0.0
	Other eastern softwoods	71.8	8.3	8.5	9.4	10.8	13.2	7.9	5.8	3.4	4.6	0.0	0.0	0.0	0.0
	Total softwoods	12,050.4	1,262.0	2,081.2	2,072.4	1,793.0	1,587.6	1,179.6	831.0	510.5	505.7	148.7	72.5	6.1	0.0
Hardwood	Select white oaks	26.5	2.5	2.2	1.6	3.9	2.0	4.1	1.9	0.0	2.3	0.0	5.9	0.0	0.0
	Select red oaks	5.0	0.0	0.2	0.6	0.0	1.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0
	Other white oaks	205.5	8.3	11.0	10.5	10.7	15.7	21.2	8.6	14.0	33.2	31.8	14.9	16.5	9.2
	Other red oaks	1,413.0	112.2	141.8	168.1	142.5	152.9	141.7	141.4	112.7	163.2	67.8	60.8	7.8	0.0
	Hickory	136.6	2.8	7.1	13.4	10.2	17.2	16.7	10.9	21.8	22.0	5.9	8.7	0.0	0.0
	Hard maple	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	228.4	31.0	36.7	31.1	37.4	32.4	11.9	20.1	4.4	16.3	7.0	0.0	0.0	0.0
	Beech	3.5	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0
	Sweetgum	530.2	31.5	49.8	56.1	66.5	58.4	52.3	69.0	46.7	42.7	57.1	0.0	0.0	0.0
	Tupelo and blackgum	1,291.9	115.7	169.3	194.7	169.3	182.6	132.1	126.9	71.0	75.8	43.2	2.2	9.0	0.0
	Ash	257.6	17.4	22.8	18.7	32.2	42.0	27.7	22.4	18.7	26.2	17.5	11.9	0.0	0.0
	Cottonwood and aspen	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	18.9	0.9	1.2	1.4	5.0	0.0	1.7	2.0	2.1	4.8	0.0	0.0	0.0	0.0
	Yellow-poplar	100.5	3.5	9.2	8.1	11.1	8.0	5.4	7.7	12.9	15.7	11.7	7.1	0.0	0.0
	Other eastern soft hardwoods	328.6	48.2	56.4	55.3	45.0	24.7	16.9	29.7	16.4	25.5	10.5	0.0	0.0	0.0
	Other eastern hard hardwoods	13.0	3.9	3.5	1.7	1.4	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	4,559.5	378.4	511.5	561.7	535.2	537.1	431.7	443.0	320.7	433.5	252.7	111.5	33.3	9.2
All species		16,609.9	1,640.5	2,592.6	2,634.1	2,328.2	2,124.7	1,611.3	1,274.0	831.3	939.3	401.4	184.1	39.4	9.2

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

Table created:03-FEB-22

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

¹ Excludes rotten, missing, and form cull defects volume.

FLORIDA'S FORESTS, 2018

Table A4.18—Net ¹ volume of growing-stock trees on timberland by species group and ownership group, Florida, 2018

Species group		Ownership group					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million cubic feet					
Softwood	Longleaf and slash pines	6,774.0	955.1	249.6	1,266.4	94.0	4,208.9
	Loblolly and shortleaf pines	2,008.5	45.1	3.1	282.7	110.9	1,566.7
	Other yellow pines	666.0	185.4	71.8	89.2	1.0	318.6
	Cypress	2,530.2	105.9	38.1	917.2	20.6	1,448.4
	Other eastern softwoods	71.8	5.8	17.9	19.3	0.1	28.8
	Total softwoods	12,050.4	1,297.3	380.5	2,574.8	226.5	7,571.3
Hardwood	Select white oaks	26.5	0.0	0.0	1.3	0.2	25.0
	Select red oaks	5.0	0.0	0.0	5.0	0.0	0.0
	Other white oaks	205.5	6.1	3.5	79.2	0.9	115.9
	Other red oaks	1,413.0	24.8	42.8	298.7	40.5	1,006.2
	Hickory	136.6	3.1	1.0	44.5	0.8	87.3
	Hard maple	0.2	0.0	0.0	0.1	0.0	0.2
	Soft maple	228.4	10.7	1.0	62.3	6.3	148.1
	Beech	3.5	0.0	0.0	0.0	0.0	3.5
	Sweetgum	530.2	16.1	0.0	103.3	4.6	406.2
	Tupelo and blackgum	1,291.9	119.8	9.7	370.3	30.2	761.9
	Ash	257.6	9.7	0.3	150.3	3.2	94.1
	Cottonwood and aspen	0.2	0.0	0.0	0.0	0.0	0.2
	Basswood	18.9	0.0	0.0	2.3	0.0	16.6
	Yellow-poplar	100.5	5.6	0.0	16.8	0.8	77.3
	Other eastern soft hardwoods	328.6	37.3	3.9	36.6	18.9	232.0
	Other eastern hard hardwoods	13.0	0.1	0.1	3.3	0.0	9.5
	Total hardwoods	4,559.5	233.1	62.3	1,173.9	106.3	2,983.9
All species	16,609.9	1,530.4	442.8	3,748.7	332.9	10,555.2	

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

Table created:03-FEB-22

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

¹ Excludes rotten, missing, and form cull defects volume.

FLORIDA'S FORESTS, 2018

Table A4.19—Net ¹ volume of sawtimber trees on timberland by species group and diameter class, Florida, 2018

Species group		Diameter class (inches)											
		All classes	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</i>													
Softwood	Longleaf and slash pines	23,222.1	4,841.1	5,026.7	4,925.8	3,433.8	2,594.3	1,410.9	784.5	154.1	50.9	0.0	0.0
	Loblolly and shortleaf pines	8,053.3	1,015.0	1,085.1	1,190.0	1,154.2	912.7	805.3	1,224.7	414.3	251.9	0.0	0.0
	Other yellow pines	1,809.2	449.3	350.9	266.7	222.2	179.6	94.0	202.1	44.5	0.0	0.0	0.0
	Cypress	9,267.9	1,135.0	1,496.4	1,585.8	1,594.8	1,124.6	774.5	959.0	367.0	192.2	38.6	0.0
	Other eastern softwoods	281.3	37.8	50.0	67.4	43.6	33.5	20.1	28.9	0.0	0.0	0.0	0.0
	Total softwoods	42,633.8	7,478.1	8,009.1	8,035.7	6,448.7	4,844.7	3,104.8	3,199.3	980.0	495.0	38.6	0.0
Hardwood	Select white oaks	99.3	0.0	14.1	8.7	19.4	9.3	0.0	13.0	0.0	34.9	0.0	0.0
	Select red oaks	21.4	0.0	0.0	4.2	0.0	0.0	0.0	17.3	0.0	0.0	0.0	0.0
	Other white oaks	867.0	0.0	37.5	63.0	93.2	39.8	66.9	166.7	171.8	83.6	91.4	53.3
	Other red oaks	4,950.0	0.0	545.8	665.9	676.6	720.5	602.1	915.6	400.5	374.6	48.3	0.0
	Hickory	556.0	0.0	35.4	71.2	76.7	52.8	112.5	121.3	33.8	52.2	0.0	0.0
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	530.0	0.0	122.8	124.6	50.7	90.9	20.6	82.1	38.1	0.0	0.0	0.0
	Beech	11.1	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	0.0	0.0
	Sweetgum	1,974.9	0.0	239.1	249.7	253.2	360.8	259.6	253.4	359.1	0.0	0.0	0.0
	Tupelo and blackgum	3,507.5	0.0	552.5	698.5	571.4	597.7	359.0	407.2	251.7	13.2	56.2	0.0
	Ash	894.5	0.0	103.8	164.1	120.5	105.3	92.9	138.8	98.5	70.6	0.0	0.0
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	69.6	0.0	17.3	0.0	7.4	9.3	9.9	25.7	0.0	0.0	0.0	0.0
	Yellow-poplar	438.3	0.0	40.2	35.3	26.0	41.5	74.5	96.7	75.6	48.6	0.0	0.0
	Other eastern soft hardwoods	742.8	0.0	151.8	97.2	75.1	140.2	83.0	137.1	58.4	0.0	0.0	0.0
	Other eastern hard hardwoods	16.5	0.0	5.3	0.0	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	14,678.8	0.0	1,865.6	2,182.4	1,970.3	2,179.2	1,681.0	2,385.9	1,487.5	677.7	196.0	53.3
All species		57,312.6	7,478.1	9,874.7	10,218.1	8,419.0	7,023.9	4,785.7	5,585.2	2,467.5	1,172.7	234.5	53.3

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

Table created:03-FEB-22

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

¹ Excludes rotten, missing, and form cull defects volume.

FLORIDA'S FORESTS, 2018

Table A4.20—Net ¹ volume of sawtimber trees on timberland by species group and ownership group, Florida, 2018

Species group		All ownerships	Ownership group				
			USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million board feet					
Softwood	Longleaf and slash pines	23,222.1	3,917.5	1,056.5	4,837.3	215.4	13,195.4
	Loblolly and shortleaf pines	8,053.3	267.7	8.9	1,257.4	403.9	6,115.4
	Other yellow pines	1,809.2	443.4	278.6	245.9	2.2	839.1
	Cypress	9,267.9	378.8	177.9	3,655.0	52.1	5,004.1
	Other eastern softwoods	281.3	21.7	84.2	65.6	0.0	109.8
	Total softwoods	42,633.8	5,029.2	1,606.2	10,061.2	673.6	25,263.8
Hardwood	Select white oaks	99.3	0.0	0.0	3.4	0.0	95.8
	Select red oaks	21.4	0.0	0.0	21.4	0.0	0.0
	Other white oaks	867.0	23.8	6.4	363.6	3.6	469.7
	Other red oaks	4,950.0	99.9	136.8	1,189.1	130.0	3,394.3
	Hickory	556.0	10.8	0.0	200.6	0.0	344.6
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	530.0	38.5	1.9	145.6	7.6	336.4
	Beech	11.1	0.0	0.0	0.0	0.0	11.1
	Sweetgum	1,974.9	73.5	0.0	394.7	7.7	1,499.0
	Tupelo and blackgum	3,507.5	333.1	35.1	1,288.6	89.7	1,760.9
	Ash	894.5	38.7	0.0	569.4	5.7	280.7
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	69.6	0.0	0.0	9.9	0.0	59.6
	Yellow-poplar	438.3	33.8	0.0	94.1	3.3	307.2
	Other eastern soft hardwoods	742.8	99.5	2.0	62.1	71.7	507.5
	Other eastern hard hardwoods	16.5	0.0	0.0	0.0	0.0	16.5
	Total hardwoods	14,678.8	751.5	182.1	4,342.4	319.3	9,083.5
All species	57,312.6	5,780.7	1,788.3	14,403.6	992.9	34,347.3	

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

Table created:03-FEB-22

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

¹ Excludes rotten, missing, and form cull defects volume.

FLORIDA'S FORESTS, 2018

Table A4.21—Aboveground green weight ¹ of live trees on forest land by ownership class and land status, Florida, 2018

Ownership class		All forest land	Unreserved			Reserved		
			Total	Timberland	Unproductive	Total	Productive	Unproductive
thousand tons								
USDA Forest Service	National forest	94,313.0	91,108.3	90,731.3	377.0	3,204.7	3,053.2	151.5
	Total	94,313.0	91,108.3	90,731.3	377.0	3,204.7	3,053.2	151.5
Other Federal	National Park Service	40,314.3	0.0	0.0	0.0	40,314.3	37,075.2	3,239.1
	Bureau of Land Management	467.2	0.0	0.0	0.0	467.2	467.2	0.0
	U.S. Fish and Wildlife Service	21,627.4	0.0	0.0	0.0	21,627.4	20,885.0	742.4
	Dept. of Defense/Dept. of Energy	32,118.8	32,118.8	30,958.3	1,160.5	0.0	0.0	0.0
	Other Federal	2,430.1	2,430.1	2,430.1	0.0	0.0	0.0	0.0
	Total	96,957.8	34,548.9	33,388.4	1,160.5	62,408.9	58,427.4	3,981.4
State and local government	State	271,428.7	244,032.7	243,359.6	673.0	27,396.0	25,481.9	1,914.1
	Local	37,157.2	24,738.2	24,166.2	572.0	12,419.0	12,063.5	355.5
	Other nonfederal public	52.4	52.4	36.9	15.5	0.0	0.0	0.0
	Total	308,638.3	268,823.2	267,562.8	1,260.5	39,815.1	37,545.5	2,269.6
Forest industry	Corporate	22,051.7	22,051.7	22,051.7	0.0	0.0	0.0	0.0
	Individual	653.4	653.4	653.4	0.0	0.0	0.0	0.0
	Total	22,705.1	22,705.1	22,705.1	0.0	0.0	0.0	0.0
Nonindustrial private	Corporate	451,203.7	451,203.7	448,132.6	3,071.0	0.0	0.0	0.0
	Conservation/natural resources organization	2,800.1	2,800.1	2,800.1	0.0	0.0	0.0	0.0
	Unincorporated local partnership/association/club	1,784.5	1,784.5	1,784.5	0.0	0.0	0.0	0.0
	Native American	4,053.4	4,053.4	4,039.2	14.2	0.0	0.0	0.0
	Individual	325,157.4	325,157.4	323,640.9	1,516.5	0.0	0.0	0.0
	Total	784,999.1	784,999.1	780,397.3	4,601.7	0.0	0.0	0.0
All classes		1,307,613.3	1,202,184.7	1,194,784.8	7,399.8	105,428.6	99,026.1	6,402.5

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

Table created:03-FEB-22

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

¹ Calculations based on TREE_REGIONAL_BIOMASS.REGIONAL_DRYBIOT.

TableA4.22—Aboveground dry weight¹ of live trees on timberland by species group and diameter class, Florida, 2018

Species group	All classes	Diameter class (inches)																33.0–36.9	37.0+
		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					
		thousand tons																	
Softwood	Longleaf and slash pines	178,638.6	1,848.4	10,688.0	20,930.9	32,744.1	31,401.3	25,829.5	22,222.9	14,127.8	10,136.3	5,156.0	2,907.3	489.9	156.3	0.0	0.0		
	Loblolly and shortleaf pines	50,824.7	444.3	1,837.3	5,430.3	7,747.1	6,905.9	5,769.1	5,386.0	4,658.8	3,473.1	2,813.2	4,262.5	1,350.2	746.9	0.0	0.0		
	Other yellow pines	19,918.6	687.7	2,030.1	3,396.1	4,606.7	3,188.2	1,961.8	1,337.7	968.2	634.6	322.9	646.7	137.9	0.0	0.0	0.0		
	Cypress	67,396.9	1,097.7	2,887.8	4,250.5	6,328.2	8,504.4	9,159.3	8,967.2	8,116.2	5,805.0	3,810.8	4,636.6	1,730.2	799.2	338.3	965.4		
	Other eastern softwoods	3,620.6	182.7	348.5	320.6	332.6	429.2	425.6	399.7	338.0	258.3	126.1	386.3	73.1	0.0	0.0	0.0		
	Total softwoods	320,399.3	4,260.8	17,791.7	34,328.5	51,758.6	50,428.9	43,145.2	38,313.5	28,209.0	20,307.4	12,229.0	12,839.3	3,781.3	1,702.4	338.3	965.4		
Hardwood	Select white oaks	911.0	11.0	28.7	68.9	67.8	42.4	108.0	149.9	117.6	54.2	0.0	69.7	0.0	192.9	0.0	0.0		
	Select red oaks	157.0	0.0	0.0	0.0	5.6	15.0	0.0	29.8	0.0	0.0	0.0	106.6	0.0	0.0	0.0	0.0		
	Other white oaks	46,698.8	869.5	1,621.1	2,084.9	2,470.9	2,805.5	2,859.2	3,110.1	3,850.2	2,933.1	3,223.7	6,049.0	4,514.4	3,568.0	2,235.9	4,503.5		
	Other red oaks	75,049.0	2,855.2	4,681.4	5,815.4	7,181.8	8,070.7	7,423.2	7,485.1	6,817.2	6,120.6	4,639.3	7,403.1	3,206.1	2,207.5	744.0	398.3		
	Hickory	5,516.4	98.2	224.9	129.3	266.1	483.8	428.1	582.2	541.3	550.4	606.1	701.2	642.2	262.5	0.0	0.0		
	Hard maple	96.5	2.5	0.0	10.5	3.8	19.8	0.0	0.0	0.0	0.0	59.9	0.0	0.0	0.0	0.0	0.0		
	Soft maple	15,680.5	999.3	1,822.1	2,082.8	2,030.1	2,061.3	1,716.2	1,526.8	1,085.1	745.1	434.0	714.6	163.4	107.8	192.1	0.0		
	Beech	264.8	3.3	12.0	2.6	16.7	19.6	0.0	36.0	0.0	0.0	0.0	174.7	0.0	0.0	0.0	0.0		
	Sweetgum	17,483.5	584.3	1,130.2	1,156.7	1,581.2	1,785.1	1,995.3	1,781.9	1,715.2	1,727.9	1,240.7	1,204.4	1,580.3	0.0	0.0	0.0		
	Tupelo and blackgum	48,283.0	1,482.4	3,831.6	3,812.4	5,090.0	5,707.6	5,693.5	5,964.7	4,738.2	4,273.5	2,458.9	2,921.8	1,502.1	187.9	413.1	205.3		
	Ash	9,844.5	410.2	1,137.9	1,194.5	1,231.3	866.4	950.5	1,140.7	783.7	546.7	406.9	720.0	276.1	179.5	0.0	0.0		
	Cottonwood and aspen	26.9	0.0	0.0	7.9	3.3	0.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Basswood	814.2	5.2	55.8	38.3	49.5	60.4	146.6	51.8	66.6	165.2	64.9	109.8	0.0	0.0	0.0	0.0		
	Yellow-poplar	2,731.6	15.9	68.0	119.9	239.0	219.4	259.9	235.2	134.2	327.4	309.6	385.6	260.7	156.7	0.0	0.0		
	Other eastern soft hardwoods	16,206.4	1,279.9	2,226.6	2,040.3	2,157.4	1,990.1	1,754.9	954.0	828.8	893.6	630.5	992.5	457.7	0.0	0.0	0.0		
	Other eastern hard hardwoods	1,369.6	342.8	347.7	243.7	199.3	87.7	66.9	17.7	0.0	63.8	0.0	0.0	0.0	0.0	0.0	0.0		
	Eastern noncommercial hardwoods	35,859.4	1,521.3	2,683.7	2,661.7	3,761.1	6,269.2	6,699.5	4,799.9	3,055.8	1,617.4	916.6	1,116.3	648.5	108.2	0.0	0.0		
	Total hardwoods	276,993.1	10,480.8	19,871.8	21,469.9	26,355.0	30,503.9	30,101.8	27,881.4	23,733.9	20,019.0	14,991.2	22,669.4	13,251.6	6,971.0	3,585.2	5,107.2		
All species		597,392.4	14,741.6	37,663.5	55,798.4	78,113.6	80,932.9	73,247.1	66,194.9	51,942.9	40,326.4	27,220.2	35,508.7	17,032.9	8,673.4	3,923.5	6,072.6		

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

Table created: 03-FEB-22

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

¹ Calculations based on TREE_REGIONAL_BIOMASS_REGIONAL_DRYBIOT.

Table A4.23—Aboveground green weight¹ of live trees on timberland by species group and diameter class, Florida, 2018

Species group	Diameter class (inches)															
	1.0– 2.9	3.0– 4.9	5.0– 6.9	7.0– 8.9	9.0– 10.9	11.0– 12.9	13.0– 14.9	15.0– 16.9	17.0– 18.9	19.0– 20.9	21.0– 24.9	25.0– 28.9	29.0– 32.9	33.0– 36.9	37.0+	
	thousand tons															
Softwood	357,277.2	3,696.8	21,376.0	41,861.9	65,488.1	62,802.5	51,658.9	44,445.9	28,255.5	20,272.7	10,312.1	5,814.5	979.7	312.6	0.0	0.0
Loblolly and shortleaf pines	101,649.3	888.5	3,674.7	10,860.6	15,494.2	13,811.8	11,538.2	10,771.9	9,317.7	6,946.2	5,626.4	8,524.9	2,700.3	1,493.9	0.0	0.0
Other yellow pines	39,837.2	1,375.4	4,060.3	6,792.3	9,213.3	6,376.3	3,923.6	2,675.4	1,936.4	1,269.2	645.8	1,293.4	275.9	0.0	0.0	0.0
Cypress	134,793.7	2,195.4	5,775.5	8,501.1	12,656.3	17,008.9	18,318.5	17,934.4	16,232.4	11,610.1	7,621.6	9,273.3	3,460.5	1,598.4	676.7	1,930.7
Other eastern softwoods	7,241.3	365.3	697.1	641.2	665.3	858.3	851.2	799.4	676.0	516.6	252.2	772.5	146.2	0.0	0.0	0.0
Total softwoods	640,798.7	8,521.5	35,583.5	68,656.9	103,517.2	100,857.8	86,290.5	76,627.0	56,418.0	40,614.8	24,458.0	7,562.6	3,404.8	676.7	1,930.7	
Hardwood	1,822.0	22.0	57.3	137.7	135.7	84.7	216.0	299.7	235.2	108.4	0.0	139.4	0.0	385.9	0.0	0.0
Select white oaks	313.9	0.0	0.0	0.0	11.2	30.0	0.0	59.5	0.0	0.0	0.0	213.2	0.0	0.0	0.0	0.0
Other white oaks	93,397.7	1,739.1	3,242.2	4,169.7	4,941.8	5,610.9	5,718.3	6,220.3	7,700.3	5,866.1	6,447.3	12,098.0	9,028.8	7,135.9	4,471.8	9,007.0
Other red oaks	150,098.0	5,710.4	9,362.9	11,630.9	14,363.6	16,141.3	14,846.4	14,970.1	13,634.4	12,241.2	9,278.6	14,806.2	6,412.2	4,415.0	1,488.1	796.7
Hickory	11,032.8	196.4	449.9	258.7	532.2	967.5	856.2	1,164.4	1,082.6	1,100.8	1,212.2	1,402.5	1,284.4	525.0	0.0	0.0
Hard maple	193.1	5.0	0.0	20.9	7.6	39.6	0.0	0.0	0.0	0.0	119.9	0.0	0.0	0.0	0.0	0.0
Soft maple	31,361.0	1,998.5	3,644.1	4,165.6	4,060.2	4,122.5	3,432.4	3,053.7	2,170.1	1,490.1	868.0	1,429.2	326.7	215.6	384.3	0.0
Beech	529.7	6.5	24.0	5.1	33.3	39.2	0.0	72.0	0.0	0.0	0.0	349.5	0.0	0.0	0.0	0.0
Sweetgum	34,966.9	1,168.5	2,260.4	2,313.5	3,162.5	3,570.3	3,990.7	3,563.8	3,430.4	3,455.8	2,481.4	2,408.9	3,160.7	0.0	0.0	0.0
Tupelo and blackgum	96,566.0	2,964.7	7,663.2	7,624.9	10,180.0	11,415.1	11,387.0	11,929.3	9,476.4	8,547.0	4,917.7	5,843.7	3,004.2	375.8	826.3	410.7
Ash	19,689.1	820.4	2,275.9	2,389.0	2,462.7	1,732.9	1,901.0	2,281.4	1,567.4	1,093.4	813.8	1,440.1	552.1	359.0	0.0	0.0
Cottonwood and aspen	53.9	0.0	0.0	15.9	6.7	0.0	0.0	31.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Basswood	1,628.4	10.5	111.6	76.6	98.9	120.8	293.3	103.7	133.2	330.5	129.8	219.6	0.0	0.0	0.0	0.0
Yellow-poplar	5,463.1	31.8	136.0	239.9	478.0	438.7	519.7	470.4	268.5	654.9	619.3	771.2	521.4	313.4	0.0	0.0
Other eastern soft hardwoods	32,412.9	2,559.7	4,453.3	4,080.6	4,314.9	3,980.3	3,509.9	1,908.1	1,657.6	1,787.1	1,261.0	1,985.0	915.5	0.0	0.0	0.0
Other eastern hard hardwoods	2,739.1	685.6	695.3	487.5	398.5	175.4	133.9	35.3	0.0	127.7	0.0	0.0	0.0	0.0	0.0	0.0
Eastern noncommercial hardwoods	71,718.8	3,042.5	5,367.5	5,323.4	7,522.3	12,538.4	13,399.0	9,599.9	6,111.7	3,234.9	1,833.2	2,232.5	1,297.1	216.5	0.0	0.0
Total hardwoods	553,986.1	20,961.7	39,743.5	42,939.9	52,710.0	61,007.9	60,203.7	55,762.9	47,467.8	40,038.0	29,982.3	45,338.8	26,503.1	13,942.0	7,170.4	10,214.4
All species	1,194,784.8	29,483.2	75,327.0	111,596.8	156,227.2	161,865.7	146,494.2	132,389.9	103,885.8	80,652.8	54,440.3	71,017.4	34,065.7	17,346.8	7,847.1	12,145.1

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

Table created:03-FEB-22

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

¹ Calculations based on TREE_REGIONAL_BIOMASS_REGIONAL_DRYBIOT.

FLORIDA'S FORESTS, 2018

Table A4.24—Merchantable dry weight ¹ of live trees on timberland by species group and diameter class, Florida, 2018

Species group		Diameter class (inches)													
		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>thousand tons</i>															
Softwood	Longleaf and slash pines	140,592.1	15,127.3	26,965.7	26,982.6	22,595.9	19,618.5	12,540.1	9,014.9	4,584.5	2,582.4	439.8	140.5	0.0	0.0
	Loblolly and shortleaf pines	41,204.3	3,889.3	6,360.0	5,908.6	5,018.1	4,736.7	4,089.7	3,061.8	2,501.8	3,768.6	1,203.2	666.7	0.0	0.0
	Other yellow pines	14,114.7	2,380.6	3,743.5	2,717.9	1,700.7	1,174.1	852.6	563.4	287.2	572.6	122.2	0.0	0.0	0.0
	Cypress	50,585.6	2,888.9	4,892.5	6,835.6	7,470.8	7,375.7	6,704.0	4,824.4	3,150.5	3,864.3	1,449.7	670.7	244.1	214.5
	Other eastern softwoods	2,598.4	244.9	274.5	361.6	362.5	343.8	290.3	221.0	109.0	327.4	63.3	0.0	0.0	0.0
	Total softwoods	249,095.1	24,530.9	42,236.2	42,806.2	37,148.0	33,248.8	24,476.7	17,685.4	10,633.0	11,115.3	3,278.2	1,477.8	244.1	214.5
Hardwood	Select white oaks	673.6	46.8	51.3	33.5	86.8	120.1	95.5	44.0	0.0	54.1	0.0	141.6	0.0	0.0
	Select red oaks	116.6	0.0	4.4	11.9	0.0	23.6	0.0	0.0	0.0	76.7	0.0	0.0	0.0	0.0
	Other white oaks	34,632.4	1,394.5	1,853.5	2,180.7	2,273.8	2,466.0	3,050.8	2,334.4	2,534.5	4,830.1	3,621.7	2,883.4	1,770.3	3,438.8
	Other red oaks	51,006.0	3,698.4	5,275.5	6,144.1	5,706.2	5,827.7	5,329.3	4,837.4	3,660.8	5,760.3	2,282.4	1,633.0	537.0	314.0
	Hickory	4,215.6	81.5	202.3	380.6	345.2	476.4	443.8	456.5	505.0	576.4	528.0	219.9	0.0	0.0
	Hard maple	47.5	7.0	2.8	15.7	0.0	0.0	0.0	0.0	22.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	9,998.6	1,469.1	1,578.1	1,636.6	1,353.0	1,251.2	890.3	600.3	311.9	568.4	136.3	41.0	162.6	0.0
	Beech	197.3	1.7	12.4	15.4	0.0	29.1	0.0	0.0	0.0	138.7	0.0	0.0	0.0	0.0
	Sweetgum	13,300.3	791.6	1,271.2	1,488.6	1,713.9	1,532.4	1,490.8	1,522.1	1,088.3	1,004.8	1,396.6	0.0	0.0	0.0
	Tupelo and blackgum	35,078.5	2,709.4	4,063.7	4,718.2	4,747.0	4,991.4	3,992.2	3,579.1	2,039.0	2,429.5	1,244.8	93.7	346.3	124.1
	Ash	6,619.4	822.7	964.8	706.1	775.9	955.6	641.6	434.2	321.8	597.2	241.0	158.6	0.0	0.0
	Cottonwood and aspen	21.9	5.8	2.7	0.0	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	623.6	27.4	40.1	50.4	119.9	44.0	53.4	143.0	51.8	93.6	0.0	0.0	0.0	0.0
	Yellow-poplar	2,249.9	89.4	198.3	183.7	225.5	199.1	119.2	275.1	271.8	322.1	225.4	140.2	0.0	0.0
	Other eastern soft hardwoods	10,312.3	1,464.0	1,739.2	1,650.8	1,474.1	799.0	690.6	763.8	535.6	838.3	356.8	0.0	0.0	0.0
	Other eastern hard hardwoods	493.7	157.7	147.6	68.9	53.2	14.3	0.0	51.9	0.0	0.0	0.0	0.0	0.0	0.0
	Eastern noncommercial hardwoods	25,688.6	1,897.5	3,004.8	5,085.3	5,486.3	3,956.1	2,525.8	1,368.7	769.1	930.2	568.0	96.9	0.0	0.0
	Total hardwoods	195,275.8	14,664.6	20,412.3	24,370.4	24,361.0	22,699.4	19,323.2	16,410.5	12,111.5	18,220.3	10,601.0	5,408.4	2,816.1	3,876.9
All species		444,370.9	39,195.5	62,648.6	67,176.6	61,509.0	55,948.2	43,799.9	34,096.0	22,744.5	29,335.6	13,879.2	6,886.2	3,060.2	4,091.4

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

Table created:03-FEB-22

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

¹ Calculations based on TREE_REGIONAL_BIOMASS.REGIONAL_DRYBIOM.

FLORIDA'S FORESTS, 2018

Table A4.25—Total carbon ¹ of live trees on forest land by ownership class and land status, Florida, 2018

Ownership class		All forest land	Unreserved			Reserved		
			Total	Timberland	Unproductive	Total	Productive	Unproductive
thousand tons								
USDA Forest Service	National forest	23,578.3	22,777.1	22,682.8	94.3	801.2	763.3	37.9
	Total	23,578.3	22,777.1	22,682.8	94.3	801.2	763.3	37.9
Other Federal	National Park Service	10,078.6	0.0	0.0	0.0	10,078.6	9,268.8	809.8
	Bureau of Land Management	116.8	0.0	0.0	0.0	116.8	116.8	0.0
	U.S. Fish and Wildlife Service	5,406.9	0.0	0.0	0.0	5,406.9	5,221.3	185.6
	Dept. of Defense/Dept. of Energy	8,029.7	8,029.7	7,739.6	290.1	0.0	0.0	0.0
	Other Federal	607.5	607.5	607.5	0.0	0.0	0.0	0.0
	Total	24,239.5	8,637.2	8,347.1	290.1	15,602.2	14,606.9	995.4
State and local government	State	67,857.2	61,008.2	60,839.9	168.3	6,849.0	6,370.5	478.5
	Local	9,289.3	6,184.5	6,041.6	143.0	3,104.8	3,015.9	88.9
	Other nonfederal public	13.1	13.1	9.2	3.9	0.0	0.0	0.0
	Total	77,159.6	67,205.8	66,890.7	315.1	9,953.8	9,386.4	567.4
Forest industry	Corporate	5,512.9	5,512.9	5,512.9	0.0	0.0	0.0	0.0
	Individual	163.3	163.3	163.3	0.0	0.0	0.0	0.0
	Total	5,676.3	5,676.3	5,676.3	0.0	0.0	0.0	0.0
Nonindustrial private	Corporate	112,800.9	112,800.9	112,033.2	767.8	0.0	0.0	0.0
	Conservation/natural resources organization	700.0	700.0	700.0	0.0	0.0	0.0	0.0
	Unincorporated local partnership/association/club	446.1	446.1	446.1	0.0	0.0	0.0	0.0
	Native American	1,013.4	1,013.4	1,009.8	3.5	0.0	0.0	0.0
	Individual	81,289.3	81,289.3	80,910.2	379.1	0.0	0.0	0.0
	Total	196,249.8	196,249.8	195,099.3	1,150.4	0.0	0.0	0.0
All classes		326,903.3	300,546.2	298,696.2	1,850.0	26,357.2	24,756.5	1,600.6

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

Table created:03-FEB-22

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

¹ Estimates of carbon calculated by multiplying aboveground dry tree biomass by 0.5. Calculations based on TREE_REGIONAL_BIOMASS.REGIONAL_DRYBIOT.

FLORIDA'S FORESTS, 2018

Table A4.26—Average annual net growth of live trees on timberland by forest-type group and stand-size class, Florida, 2018 (2009–2013 to 2014–2018)

Forest-type group ¹		All size classes	Stand-size class ¹			
			Large diameter	Medium diameter	Small diameter	Nonstocked
million cubic feet per year						
Softwood types	Longleaf-slash pine	373.4	88.9	208.0	76.4	0.0
	Loblolly-shortleaf pine	162.0	43.9	85.1	32.9	0.0
	Other eastern softwoods	0.3	0.3	0.0	0.0	0.0
	Total softwoods	535.6	133.2	293.2	109.3	0.0
Hardwood types	Oak-pine	78.1	38.6	19.8	19.7	0.0
	Oak-hickory	93.8	49.9	25.4	18.6	0.0
	Oak-gum-cypress	136.6	85.6	37.6	13.4	0.0
	Elm-ash-cottonwood	3.1	0.9	1.2	1.1	0.0
	Other hardwoods	0.5	0.2	0.2	0.1	0.0
	Tropical hardwoods	10.5	8.0	1.8	0.7	0.0
	Exotic hardwoods	0.8	0.3	0.1	0.4	0.0
	Total hardwoods	323.4	183.4	86.0	54.0	0.0
Nonstocked		5.6	0.0	0.0	0.0	5.6
All groups		864.6	316.6	379.1	163.3	5.6

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

Table created:03-FEB-22

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

¹ Based on past conditions.

FLORIDA'S FORESTS, 2018

Table A4.27—Average annual net growth of live trees on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group		Ownership group ¹					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million cubic feet per year					
Softwood	Longleaf and slash pines	395.8	20.3	4.9	54.6	9.5	306.5
	Loblolly and shortleaf pines	154.2	1.2	0.4	14.8	10.6	127.1
	Other yellow pines	45.5	8.7	3.3	7.1	0.1	26.3
	Cypress	56.8	1.4	0.6	18.7	1.1	35.1
	Other eastern softwoods	4.2	0.2	0.7	0.5	0.0	2.8
	Total softwoods	656.5	31.7	10.0	95.7	21.3	497.8
Hardwood	Select white oaks	0.2	0.0	0.0	0.0	0.0	0.1
	Select red oaks	0.0	0.0	0.0	0.0	0.0	0.0
	Other white oaks	32.0	0.7	1.2	6.3	0.1	23.7
	Other red oaks	74.0	0.4	2.0	9.4	2.0	60.1
	Hickory	4.2	0.2	0.0	1.0	0.0	2.9
	Hard maple	0.0	0.0	0.0	0.0	0.0	-0.1
	Soft maple	6.3	-0.4	0.1	0.9	0.2	5.5
	Beech	0.2	0.0	0.0	0.0	0.0	0.2
	Sweetgum	15.8	0.1	0.0	1.7	0.4	13.7
	Tupelo and blackgum	29.6	3.5	0.2	5.5	0.4	20.0
	Ash	5.5	0.4	0.0	3.9	-0.9	2.1
	Cottonwood and aspen	0.1	0.0	0.0	0.0	0.0	0.1
	Basswood	-0.6	0.0	0.0	0.0	0.0	-0.6
	Yellow-poplar	3.3	0.2	0.0	0.5	0.0	2.6
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	5.8	-1.7	0.2	-1.3	-0.3	9.0
	Other eastern hard hardwoods	0.6	0.0	0.0	0.0	0.0	0.5
	Eastern noncommercial hardwoods	31.1	1.2	0.8	4.7	0.5	23.8
	Total hardwoods	208.1	4.8	4.5	32.6	2.5	163.6
All species		864.6	36.5	14.5	128.4	23.8	661.4

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

Table created:03-FEB-22

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

¹ Based on current conditions.

FLORIDA'S FORESTS, 2018

Table A4.28—Average annual net growth of growing-stock trees on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group			Ownership group ¹				
			All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry
million cubic feet per year							
Softwood	Longleaf and slash pines	378.0	19.9	4.7	52.2	8.4	292.8
	Loblolly and shortleaf pines	143.2	1.1	0.4	14.2	10.2	117.3
	Other yellow pines	39.3	7.0	2.8	7.0	0.0	22.5
	Cypress	53.9	1.1	0.5	17.4	0.9	34.0
	Other eastern softwoods	2.5	0.2	0.5	0.5	0.0	1.3
	Total softwoods	616.8	29.4	9.0	91.2	19.4	467.9
Hardwood	Select white oaks	0.4	0.0	0.0	0.0	0.0	0.4
	Select red oaks	0.0	0.0	0.0	0.0	0.0	0.0
	Other white oaks	5.2	0.2	0.1	1.6	0.0	3.3
	Other red oaks	50.6	0.0	1.1	8.3	1.8	39.3
	Hickory	3.7	0.2	0.0	1.1	0.0	2.4
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	5.9	0.1	0.0	0.5	0.2	5.1
	Beech	0.1	0.0	0.0	0.0	0.0	0.1
	Sweetgum	13.3	0.1	0.0	1.7	0.2	11.3
	Tupelo and blackgum	22.3	2.4	0.2	4.7	0.3	14.8
	Ash	5.4	0.2	0.0	3.5	0.0	1.7
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	0.6	0.0	0.0	0.1	0.0	0.5
	Yellow-poplar	3.1	0.2	0.0	0.4	0.0	2.5
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	7.1	-0.7	0.1	-0.3	0.1	8.0
	Other eastern hard hardwoods	0.4	0.0	0.0	0.1	0.0	0.2
	Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	118.2	2.7	1.6	21.7	2.7	89.5
All species		735.0	32.0	10.5	112.9	22.1	557.4

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

Table created:03-FEB-22

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

¹ Based on current conditions.

FLORIDA'S FORESTS, 2018

Table A4.29—Average annual net growth of sawtimber on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group		Ownership group ¹					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million board feet per year					
Softwood	Longleaf and slash pines	1,218.7	96.6	19.0	218.6	22.4	862.1
	Loblolly and shortleaf pines	527.6	7.0	1.3	69.5	31.6	418.3
	Other yellow pines	101.7	18.6	11.0	16.4	0.1	55.7
	Cypress	242.1	5.5	2.8	88.1	3.0	142.6
	Other eastern softwoods	9.3	0.9	2.5	1.6	0.0	4.3
	Total softwoods	2,099.4	128.6	36.6	394.2	57.1	1,482.9
Hardwood	Select white oaks	1.2	0.0	0.0	0.1	0.0	1.1
	Select red oaks	0.1	0.0	0.0	0.1	0.0	0.0
	Other white oaks	23.4	1.3	0.3	6.3	0.1	15.5
	Other red oaks	177.6	0.9	3.6	36.4	6.4	130.4
	Hickory	18.9	0.7	0.0	6.1	0.0	12.2
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	14.6	0.5	0.1	-0.4	0.8	13.7
	Beech	0.1	0.0	0.0	0.0	0.0	0.1
	Sweetgum	48.1	0.4	0.0	7.7	0.6	39.4
	Tupelo and blackgum	80.7	6.8	0.7	23.4	1.9	47.8
	Ash	29.2	1.4	0.0	19.3	0.3	8.2
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	2.5	0.0	0.0	0.3	0.0	2.2
	Yellow-poplar	16.6	1.4	0.0	3.2	0.0	12.0
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	4.7	-2.4	0.1	-4.4	1.2	10.3
	Other eastern hard hardwoods	0.1	0.0	0.0	0.0	0.0	0.1
	Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	417.9	11.0	4.7	98.1	11.3	292.8
All species		2,517.3	139.6	41.3	492.3	68.4	1,775.8

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

Table created:03-FEB-22

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

¹ Based on current conditions.

Table A4.30—Average annual mortality of live trees on timberland by forest-type group and stand-size class, Florida, 2018 (2009–2013 to 2014–2018)

Forest-type group ¹		Stand-size class ¹				
		All classes	Large diameter	Medium diameter	Small diameter	Nonstocked
<i>million cubic feet per year</i>						
Softwood types	Longleaf-slash pine	61.4	35.4	23.7	2.2	0.0
	Loblolly-shortleaf pine	22.2	13.2	7.8	1.2	0.0
	Other eastern softwoods	0.3	0.3	0.0	0.0	0.0
	Total softwoods	83.9	49.0	31.5	3.4	0.0
Hardwood types	Oak-pine	19.2	15.1	3.2	1.0	0.0
	Oak-hickory	32.9	25.3	5.1	2.5	0.0
	Oak-gum-cypress	80.5	66.6	11.6	2.3	0.0
	Elm-ash-cottonwood	1.5	1.0	0.2	0.2	0.0
	Other hardwoods	1.4	1.3	0.1	0.0	0.0
	Tropical hardwoods	5.9	4.2	1.7	0.0	0.0
	Exotic hardwoods	1.1	0.0	1.0	0.1	0.0
	Total hardwoods	142.3	113.4	22.8	6.1	0.0
Nonstocked		0.4	0.0	0.0	0.0	0.4
All groups		226.7	162.4	54.4	9.5	0.4

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

Table created:03-FEB-22

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

¹ Based on past conditions.

FLORIDA'S FORESTS, 2018

Table A4.31—Average annual mortality of live trees on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group			Ownership group ¹				
			All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry
million cubic feet per year							
Softwood	Longleaf and slash pines	58.0	5.3	1.6	9.6	0.2	41.4
	Loblolly and shortleaf pines	14.6	0.0	0.0	3.0	0.8	10.8
	Other yellow pines	12.2	5.9	0.5	1.8	0.0	4.0
	Cypress	8.6	1.0	0.0	3.3	0.0	4.3
	Other eastern softwoods	2.1	0.0	0.0	1.1	0.0	1.0
	Total softwoods	95.6	12.2	2.1	18.8	1.0	61.5
Hardwood	Select white oaks	1.0	0.0	0.0	0.0	0.0	0.9
	Select red oaks	0.1	0.0	0.0	0.1	0.0	0.0
	Other white oaks	7.1	0.2	0.2	0.5	0.2	6.0
	Other red oaks	34.4	0.7	0.2	8.2	0.5	24.7
	Hickory	0.6	0.0	0.0	0.2	0.0	0.4
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	16.6	0.6	0.0	5.6	0.2	10.1
	Beech	0.0	0.0	0.0	0.0	0.0	0.0
	Sweetgum	9.6	0.1	0.0	2.2	0.2	7.1
	Tupelo and blackgum	13.9	1.3	0.0	4.0	0.2	8.4
	Ash	5.6	0.1	0.0	2.8	1.0	1.7
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	1.5	0.0	0.0	0.0	0.0	1.4
	Yellow-poplar	0.8	0.0	0.0	0.1	0.0	0.7
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	22.9	3.9	0.1	6.3	1.3	11.2
	Other eastern hard hardwoods	0.5	0.0	0.0	0.2	0.0	0.3
	Eastern noncommercial hardwoods	16.6	1.7	0.1	4.4	0.1	10.3
	Total hardwoods	131.1	8.5	0.7	34.7	3.7	83.4
All species		226.7	20.7	2.8	53.5	4.7	145.0

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

Table created:03-FEB-22

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

¹ Based on current conditions.

FLORIDA'S FORESTS, 2018

Table A4.32—Average annual mortality of growing-stock trees on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group		Ownership group ¹					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million cubic feet per year					
Softwood	Longleaf and slash pines	54.5	4.9	1.6	8.5	0.2	39.3
	Loblolly and shortleaf pines	12.9	0.0	0.0	2.2	0.7	10.0
	Other yellow pines	7.7	3.6	0.3	0.7	0.0	3.0
	Cypress	6.6	1.0	0.0	2.9	0.0	2.8
	Other eastern softwoods	1.0	0.0	0.0	0.4	0.0	0.6
	Total softwoods	82.7	9.5	1.9	14.7	0.9	55.7
Hardwood	Select white oaks	0.6	0.0	0.0	0.0	0.0	0.6
	Select red oaks	0.0	0.0	0.0	0.0	0.0	0.0
	Other white oaks	0.6	0.0	0.0	0.0	0.0	0.6
	Other red oaks	17.6	0.5	0.1	3.3	0.1	13.6
	Hickory	0.4	0.0	0.0	0.0	0.0	0.4
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	5.6	0.0	0.0	2.6	0.1	3.0
	Beech	0.0	0.0	0.0	0.0	0.0	0.0
	Sweetgum	6.7	0.1	0.0	1.3	0.0	5.2
	Tupelo and blackgum	8.7	0.8	0.0	2.2	0.1	5.5
	Ash	1.8	0.0	0.0	1.1	0.1	0.6
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	0.0	0.0	0.0	0.0	0.0	0.0
	Yellow-poplar	0.6	0.0	0.0	0.1	0.0	0.5
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	10.1	2.2	0.0	3.1	0.8	4.0
	Other eastern hard hardwoods	0.2	0.0	0.0	0.0	0.0	0.2
	Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	52.9	3.7	0.1	13.7	1.2	34.1
All species		135.6	13.1	2.0	28.4	2.2	89.8

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

Table created:03-FEB-22

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

¹ Based on current conditions.

FLORIDA'S FORESTS, 2018

Table A4.33—Average annual mortality of sawtimber on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group		Ownership group ¹					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million board feet per year					
Softwood	Longleaf and slash pines	144.8	11.2	6.2	23.2	0.4	103.7
	Loblolly and shortleaf pines	54.6	0.0	0.0	6.9	3.1	44.6
	Other yellow pines	23.9	11.4	1.2	1.2	0.0	10.1
	Cypress	19.8	3.5	0.0	9.0	0.0	7.3
	Other eastern softwoods	3.4	0.0	0.0	0.6	0.0	2.8
	Total softwoods	246.5	26.1	7.4	40.9	3.5	168.6
Hardwood	Select white oaks	2.8	0.0	0.0	0.0	0.0	2.8
	Select red oaks	0.0	0.0	0.0	0.0	0.0	0.0
	Other white oaks	0.5	0.0	0.0	0.0	0.0	0.5
	Other red oaks	59.4	1.2	0.0	9.5	0.5	48.2
	Hickory	0.8	0.0	0.0	0.0	0.0	0.8
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	17.7	0.0	0.0	8.4	0.0	9.3
	Beech	0.0	0.0	0.0	0.0	0.0	0.0
	Sweetgum	23.6	0.0	0.0	6.1	0.0	17.5
	Tupelo and blackgum	24.1	3.3	0.0	6.7	0.0	14.2
	Ash	4.2	0.0	0.0	3.6	0.0	0.6
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	0.0	0.0	0.0	0.0	0.0	0.0
	Yellow-poplar	0.0	0.0	0.0	0.0	0.0	0.0
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	29.0	7.4	0.0	8.3	3.0	10.3
	Other eastern hard hardwoods	0.3	0.0	0.0	0.0	0.0	0.3
	Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	162.5	11.9	0.0	42.5	3.5	104.6
All species		409.0	38.0	7.4	83.4	7.0	273.2

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

Table created:03-FEB-22

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

¹ Based on current conditions.

Table A4.34—Average annual removals of live trees on timberland by forest-type group and stand-size class, Florida, 2018 (2009–2013 to 2014–2018)

Forest-type group ¹		Stand-size class ¹				
		All classes	Large diameter	Medium diameter	Small diameter	Nonstocked
<i>million cubic feet per year</i>						
Softwood types	Longleaf-slash pine	332.6	102.6	224.7	5.2	0.0
	Loblolly-shortleaf pine	125.5	53.1	70.5	1.9	0.0
	Other eastern softwoods	0.3	0.3	0.0	0.0	0.0
	Total softwoods	458.3	156.0	295.2	7.1	0.0
Hardwood types	Oak-pine	29.8	16.8	8.1	4.8	0.0
	Oak-hickory	35.6	22.0	8.3	5.3	0.0
	Oak-gum-cypress	30.7	25.6	4.3	0.7	0.0
	Elm-ash-cottonwood	3.5	2.4	0.7	0.4	0.0
	Other hardwoods	0.0	0.0	0.0	0.0	0.0
	Tropical hardwoods	3.0	1.2	1.6	0.2	0.0
	Exotic hardwoods	0.8	0.0	0.4	0.4	0.0
	Total hardwoods	103.3	68.0	23.3	11.9	0.0
Nonstocked		0.6	0.0	0.0	0.0	0.6
All groups		562.1	224.1	318.5	19.0	0.6

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Table created:03-FEB-22

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

¹ Based on past conditions.

FLORIDA'S FORESTS, 2018

Table A4.35—Average annual removals of live trees on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group		Ownership group ¹					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million cubic feet per year					
Softwood	Longleaf and slash pines	335.2	7.3	3.8	25.2	7.1	291.9
	Loblolly and shortleaf pines	82.5	0.0	0.0	2.0	4.5	76.0
	Other yellow pines	49.7	4.7	2.5	10.8	0.0	31.6
	Cypress	7.3	0.0	0.0	2.6	0.9	3.8
	Other eastern softwoods	0.8	0.0	0.0	0.1	0.0	0.7
	Total softwoods	475.5	12.0	6.3	40.8	12.4	404.0
Hardwood	Select white oaks	0.1	0.0	0.0	0.0	0.0	0.1
	Select red oaks	0.1	0.0	0.0	0.0	0.0	0.1
	Other white oaks	12.5	0.0	0.3	0.2	0.0	12.0
	Other red oaks	33.6	0.0	0.0	0.6	1.2	31.8
	Hickory	1.6	0.0	0.0	0.0	0.0	1.6
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	5.9	0.2	0.0	2.6	0.5	2.6
	Beech	0.0	0.0	0.0	0.0	0.0	0.0
	Sweetgum	7.9	0.0	0.0	0.2	1.0	6.6
	Tupelo and blackgum	7.3	0.0	0.0	2.0	0.6	4.7
	Ash	4.7	0.0	0.0	2.4	1.9	0.3
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	0.0	0.0	0.0	0.0	0.0	0.0
	Yellow-poplar	0.1	0.1	0.0	0.0	0.0	0.0
	Black walnut	0.3	0.0	0.0	0.0	0.0	0.3
	Other eastern soft hardwoods	6.0	0.1	0.0	0.3	0.2	5.5
	Other eastern hard hardwoods	0.1	0.0	0.0	0.0	0.0	0.1
	Eastern noncommercial hardwoods	6.3	0.4	0.2	0.5	0.0	5.3
	Total hardwoods	86.6	0.8	0.5	8.9	5.4	71.0
All species		562.1	12.9	6.8	49.7	17.8	475.0

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

Table created:03-FEB-22

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

¹ Based on current conditions.

FLORIDA'S FORESTS, 2018

Table A4.36—Average annual removals of growing-stock trees on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group		Ownership group ¹					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million cubic feet per year					
Softwood	Longleaf and slash pines	327.3	7.0	3.8	24.7	6.9	284.9
	Loblolly and shortleaf pines	79.8	0.0	0.0	1.9	4.5	73.4
	Other yellow pines	42.5	2.6	2.2	9.9	0.0	27.8
	Cypress	6.7	0.0	0.0	2.5	0.9	3.3
	Other eastern softwoods	0.5	0.0	0.0	0.1	0.0	0.4
	Total softwoods	456.7	9.6	6.0	39.2	12.2	389.7
Hardwood	Select white oaks	0.0	0.0	0.0	0.0	0.0	0.0
	Select red oaks	0.1	0.0	0.0	0.0	0.0	0.1
	Other white oaks	1.7	0.0	0.0	0.0	0.0	1.7
	Other red oaks	24.9	0.0	0.0	0.3	1.2	23.3
	Hickory	1.1	0.0	0.0	0.0	0.0	1.1
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	3.6	0.0	0.0	2.5	0.0	1.1
	Beech	0.0	0.0	0.0	0.0	0.0	0.0
	Sweetgum	7.6	0.0	0.0	0.2	1.0	6.4
	Tupelo and blackgum	5.0	0.0	0.0	1.4	0.6	3.0
	Ash	2.4	0.0	0.0	2.1	0.2	0.1
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	0.0	0.0	0.0	0.0	0.0	0.0
	Yellow-poplar	0.1	0.1	0.0	0.0	0.0	0.0
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	3.5	0.0	0.0	0.1	0.2	3.2
	Other eastern hard hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	50.0	0.2	0.0	6.6	3.1	40.0
All species		506.7	9.8	6.0	45.8	15.4	429.7

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

Table created:03-FEB-22

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

¹ Based on current conditions.

FLORIDA'S FORESTS, 2018

Table A4.37—Average annual removals of sawtimber on timberland by species group and ownership group, Florida, 2018 (2009–2013 to 2014–2018)

Species group		Ownership group ¹					
		All ownerships	USDA Forest Service	Other Federal	State and local government	Forest industry	Nonindustrial private
		million board feet per year					
Softwood	Longleaf and slash pines	640.6	13.4	20.6	54.7	25.6	526.2
	Loblolly and shortleaf pines	242.7	0.0	0.0	8.1	15.4	219.2
	Other yellow pines	67.5	6.6	9.0	16.9	0.0	35.1
	Cypress	23.7	0.1	0.0	9.1	4.6	10.0
	Other eastern softwoods	1.8	0.0	0.0	0.5	0.0	1.2
	Total softwoods	976.3	20.1	29.6	89.3	45.7	791.7
Hardwood	Select white oaks	0.0	0.0	0.0	0.0	0.0	0.0
	Select red oaks	0.0	0.0	0.0	0.0	0.0	0.0
	Other white oaks	4.6	0.0	0.0	0.0	0.0	4.6
	Other red oaks	70.7	0.0	0.0	0.0	4.8	65.9
	Hickory	5.2	0.0	0.0	0.0	0.0	5.2
	Hard maple	0.0	0.0	0.0	0.0	0.0	0.0
	Soft maple	14.6	0.0	0.0	13.2	0.0	1.4
	Beech	0.0	0.0	0.0	0.0	0.0	0.0
	Sweetgum	30.2	0.0	0.0	0.6	4.0	25.7
	Tupelo and blackgum	15.7	0.0	0.0	4.6	1.8	9.3
	Ash	5.0	0.0	0.0	4.4	0.6	0.0
	Cottonwood and aspen	0.0	0.0	0.0	0.0	0.0	0.0
	Basswood	0.0	0.0	0.0	0.0	0.0	0.0
	Yellow-poplar	0.5	0.5	0.0	0.0	0.0	0.0
	Black walnut	0.0	0.0	0.0	0.0	0.0	0.0
	Other eastern soft hardwoods	4.8	0.0	0.0	0.0	0.6	4.1
	Other eastern hard hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Eastern noncommercial hardwoods	0.0	0.0	0.0	0.0	0.0	0.0
	Total hardwoods	151.3	0.5	0.0	22.8	11.8	116.2
All species	1,127.6	20.6	29.6	112.1	57.4	907.9	

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

Table created:03-FEB-22

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

¹ Based on current conditions.

Brown, M.J.; Nowak, J.; Lambert, S.G. 2026. Florida's Forests, 2018. Resour. Bull. SRS-249. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 100 p.

The principal findings from the five panels of the 10th forest survey of Florida are presented. In 2018, forests covered more than 16.9 million acres of the State, of which 14.9 million were classified as timberland. Longleaf-slash pine was the most common forest-type group and covered 5.1 million acres of timberland. The second most common forest-type group was oak-gum-cypress, which covered 3.1 million acres of timberland. Nonindustrial private forest ownerships controlled 69 percent of the State's timberland. Softwood tree species accounted for 57 percent of the 22.8 billion cubic feet of all-live wood volume that occurred on the State's timberland. Total net growth of all-live trees on timberland averaged 865 million cubic feet and removals averaged 562 million cubic feet.

Keywords: FIA, forest health, forest ownership, timber growth, timber removals, timber volume, timberland.



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