



FORESTS OF Arkansas, 2015

This resource update is a brief look at some of the basic metrics that describe the status of and changes to forest resources in Arkansas. Estimates presented here are for the survey year 2015 with resource changes compared against the 2014 survey year. This information is based on field data collected using the Forest Inventory and Analysis (FIA) annualized sample design, and it is updated yearly. Arkansas has about 5,700 sample plots across the State; each year, 20 percent of these plots (one panel) are visited and measured by field crews, the data compiled, and new estimates produced. It is important that users keep in mind that each year of new estimates, and the subsequent resource changes, are influenced by the newest 20 percent of the sample; the older, and unchanged, data make up the remaining 80 percent of the sample. This small sample may result in some rather sharp spikes in estimates when comparing successive survey years, but in most instances the annualized design should give a reasonable indication of directional trends in the resource such as increasing, decreasing, or no change. After 5 years of measurements, the full sample complement (a cycle) is complete and a new survey cycle begins. Because the 20-percent panel sample size is rather small, the strongest and most reliable trend information (especially that concerning magnitude of

change) comes from comparing two full cycles of data.

Data used in this update were accessed from the FIA database on March 22, 2016 at <http://fia.fs.fed.us/tools-data/>. Some of the data may not match previously published reports because of changes made in reprocessing. Users can also access previously published Arkansas updates at <http://srsfia2.fs.fed.us/states/arkansas.shtml> to evaluate longer time spans: Resource Updates 2009, 2010, 2011, 2012, 2013, and 2014. Most of the tables throughout the updates are similar to facilitate comparisons.

Overview

The update includes estimates of various parameters along with descriptive statistics (table 1), forest land area (table 2), ownership (table 3), forest-type groups (table 4), forest plantation area (table 5), volume (tables 6 and 7), biomass (tables 8 and 9), species volumes (table 10), and shortleaf pine occurrence (tables 11 and 12) along with maps of Arkansas's survey units (fig. 1) and percent of county in forest area (fig. 2). The estimates are presented by survey unit so users can assess resource attributes and change in a specific region of interest.

Table 1—Arkansas forest statistics, change between 2014 and 2015

Forest statistics	2014 estimate	Sampling error (percent)	2015 estimate	Sampling error (percent)	Change since 2014
Forest land					
Area (thousand acres)	19,024.4	0.53	19,039.8	0.53	15.4
Number of live trees ≥1.0 inch d.b.h. (million trees)	11,771.6	1.34	11,836.1	1.34	64.5
Net volume of live trees ≥5.0 inches d.b.h. (million cubic feet)	31,089.3	1.21	31,564.4	1.20	475.1
Live tree aboveground biomass (thousand oven-dry tons)	807,089.4	1.06	817,027.4	1.05	9,938.0
Net annual growth of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	1,193.1	2.28	1,149.8	2.38	-43.3
Annual removals of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	718.7	5.18	694.0	5.39	-24.7
Annual mortality of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	329.2	3.95	370.3	3.69	41.1
Timberland					
Area (thousand acres)	18,488.2	0.60	18,492.4	0.60	4.2
Number of live trees ≥1.0 inch d.b.h. (million trees)	11,562.4	1.38	11,634.7	1.38	72.3
Net volume of live trees ≥5.0 inches d.b.h. (million cubic feet)	29,846.8	1.27	30,311.3	1.26	464.5
Live tree aboveground biomass (thousand oven-dry tons)	775,404.3	1.12	785,157.6	1.12	9,753.3
Net annual growth of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	1,201.2	2.39	1,147.9	2.48	-53.3
Annual removals of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	716.9	4.79	689.6	5.38	-27.3
Annual mortality of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	286.4	4.05	353.2	3.76	66.8



Forest Area

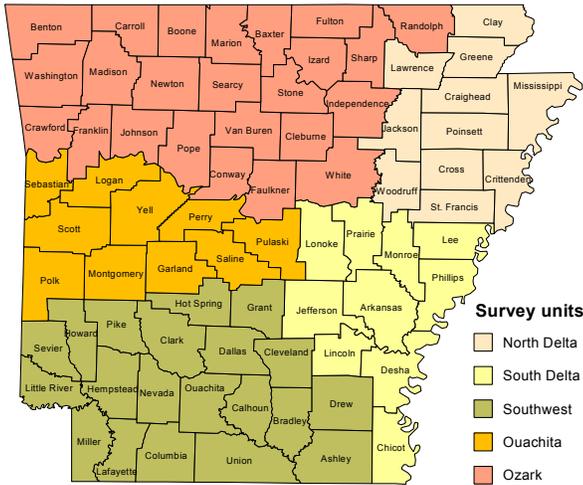


Figure 1—Forest survey units and counties in Arkansas.

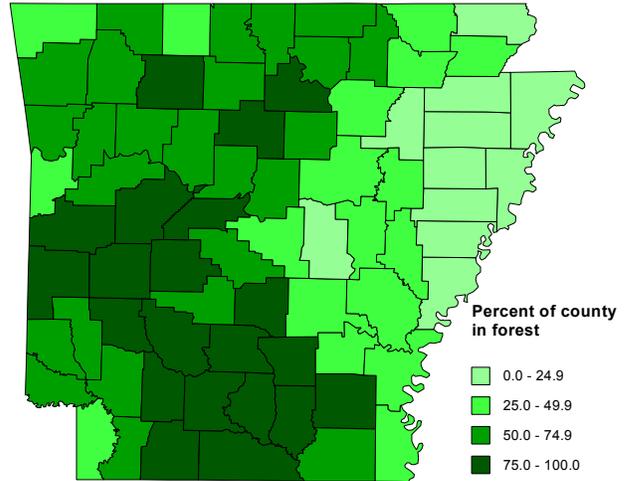


Figure 2—Percent of county area in forest land, 2015.

Table 2—Area of forest land and change, by survey unit, Arkansas, 2014 and 2015

Survey unit	2014	2015	Change
	<i>thousand acres</i>		
South Delta	1,450.9	1,472.9	22.0
North Delta	804.5	805.2	0.7
Southwest	6,949.9	6,945.2	-4.7
Ouachita	3,446.1	3,448.5	2.4
Ozark	6,373.0	6,368.0	-5.0
All units	19,024.4	19,039.8	15.4

Table 4—Area of forest land and change, by forest-type group, Arkansas, 2014 and 2015

Forest-type group	2014	2015	Change
	<i>thousand acres</i>		
Loblolly-shortleaf pine	5,827.1	5,858.2	31.1
Eastern redcedar	307.7	301.9	-5.8
Oak-pine	1,903.7	1,892.7	-11.0
Oak-hickory	7,885.6	7,805.9	-79.7
Bottomland	2,946.1	2,996.2	50.1
Miscellaneous types	19.4	25.6	6.2
Nontyped	134.8	159.3	24.5
All groups	19,024.4	19,039.8	15.4

Table 3—Area of forest land and change, by ownership, Arkansas, 2014 and 2015

Ownership	2014	2015	Change
	<i>thousand acres</i>		
National forest	2,537.3	2,537.6	0.3
Other public	1,158.7	1,158.6	-0.1
Forest industry	2,497.9	2,247.6	-250.3
NIPF	12,830.5	13,095.9	265.4
All owners	19,024.4	19,039.8	15.4

NIPF = nonindustrial private forest.

Table 5—Area of forest land in forest plantations and change, by survey unit, Arkansas, 2014 and 2015

Survey unit	2014	2015	Change
	<i>thousand acres</i>		
South Delta	183.8	208.0	24.2
North Delta	58.1	58.9	0.8
Southwest	2,368.0	2,460.1	92.1
Ouachita	645.6	643.3	-2.3
Ozark	233.6	220.0	-13.6
All units	3,489.0	3,590.3	101.3

Volume, Biomass, and Trends

Table 6—Volume of softwoods on forest land and change, by survey unit, Arkansas, 2014 and 2015

Survey unit	2014	2015	Change
<i>million cubic feet</i>			
South Delta	606.2	585.2	-21.0
North Delta	180.2	175.3	-4.9
Southwest	6,816.4	7,003.2	186.8
Ouachita	3,152.5	3,230.7	78.2
Ozark	1,875.7	1,926.4	50.7
All units	12,630.9	12,920.9	290.0

Table 8—Biomass dry weight of softwoods on forest land and change, by survey unit, Arkansas, 2014 and 2015

Survey unit	2014	2015	Change
<i>thousand tons</i>			
South Delta	12,344.4	11,933.9	-410.5
North Delta	3,589.2	3,495.1	-94.1
Southwest	145,094.1	148,939.4	3,845.3
Ouachita	65,404.5	67,023.9	1,619.4
Ozark	40,205.6	41,295.1	1,089.5
All units	266,637.9	272,687.4	6,049.5

Table 7—Volume of hardwoods on forest land and change, by survey unit, Arkansas, 2014 and 2015

Survey unit	2014	2015	Change
<i>million cubic feet</i>			
South Delta	2,476.3	2,554.1	77.8
North Delta	1,332.0	1,341.5	9.5
Southwest	4,698.2	4,732.0	33.8
Ouachita	2,452.2	2,496.3	44.1
Ozark	7,499.6	7,519.7	20.1
All units	18,458.4	18,643.5	185.1

Table 9—Biomass dry weight of hardwoods on forest land and change, by survey unit, Arkansas, 2014 and 2015

Survey unit	2014	2015	Change
<i>thousand tons</i>			
South Delta	64,727.5	66,563.1	1,835.6
North Delta	35,916.1	36,143.7	227.6
Southwest	139,878.8	140,418.8	540.0
Ouachita	75,964.3	76,917.6	953.3
Ozark	223,964.8	224,296.3	331.5
All units	540,451.5	544,339.6	3,888.1

Table 10—Volume of 15 most dominant species on forest land by 5-inch diameter classes, Arkansas, 2015

Species	Total	Diameter class (<i>inches</i>)					
		5.0-9.9	10.0-14.9	15.0-19.9	20.0-24.9	25.0-29.9	30+
<i>million cubic feet</i>							
Loblolly pine	7,913.5	2,344.2	2,993.6	1,630.6	702.5	233.0	9.5
Shortleaf pine	3,803.0	724.3	1,623.0	1,182.3	256.5	17.0	0.0
White oak	2,876.4	594.8	1,071.6	770.1	292.4	102.3	45.3
Sweetgum	2,127.8	580.9	708.4	484.1	201.5	89.0	63.8
Post oak	1,557.3	426.7	618.0	349.0	130.6	19.7	13.4
Northern red oak	951.0	136.9	350.1	290.1	138.2	30.2	5.5
Southern red oak	818.5	113.7	247.7	259.7	134.3	48.7	14.3
Black oak	809.0	127.9	306.4	226.7	104.1	28.3	15.6
Water oak	696.2	112.3	173.9	196.7	117.4	77.6	18.3
Cherrybark oak	690.6	58.9	105.4	177.1	145.3	96.1	107.9
Black hickory	646.4	306.9	253.2	71.6	10.8	3.8	0.0
Willow oak	644.6	72.5	115.7	179.1	178.8	62.0	36.5
Baldcypress	584.7	26.2	77.9	81.0	120.6	86.3	192.7
Overcup oak	583.7	42.0	88.8	118.0	165.0	111.1	58.8
Eastern redcedar	581.7	349.0	192.0	38.1	2.6	0.0	0.0
Other species	6,280.2	1,865.4	1,836.3	1,256.2	730.0	302.3	290.1
All species	31,564.5	7,882.6	10,762.0	7,310.4	3,430.6	1,307.4	871.7

Trends in Occurrence of Shortleaf Pine in Arkansas

Over the last 30 years there have been concerns about the downward trends in shortleaf pine populations throughout its range across the eastern U.S. Declines in Arkansas became apparent in the late 1970's and were most noted in the 1988 forest survey when loblolly pine volume surpassed that of shortleaf pine for the first time, thus becoming the number one tree in the State. Since a lowest recorded volume of 3.5 billion cubic feet in the 2005 survey, no change was evident in the 2010 survey. However the 2015 survey showed an increase to 3.8 billion cubic feet (table 10). Even though there has been an increase in volume, the 2015 survey also shows a downward trend in the amount of acreage occupied by shortleaf pine., i.e., increasing volume but on fewer acres.

Analyzing volume fluctuations is one way to track changes over time but this may provide an incomplete picture of population trends. Tracking areal increases or decreases where shortleaf pine occurs is another method that can be used to assess trends. Since the 2010 survey, Arkansas has shown a decrease of 142,728 acres in forest land where shortleaf pine occurs (table 11). Note that if a sample unit had at least one shortleaf pine present then that qualified the data for inclusion in table 11. The largest decline was in the Southwest unit followed by the Ozark unit. Together, these two units accounted for 97 percent of the decline in the State. Much of this decline can be attributed to the preference of loblolly pine for artificial regeneration after harvesting of natural stands, primarily on private forest land.

Detailed changes in stand-structure elements may also provide insights into shortleaf pine population trends.

Table 11—Area of forest land and change, by survey unit, where shortleaf pine ≥1.0 inch in d.b.h. occurs, Arkansas, 2010 and 2015

Survey unit	2010	2015	Change
<i>thousand acres</i>			
South Delta	22.3	19.1	-3.2
North Delta	38.8	41.0	2.2
Southwest	875.6	794.4	-81.2
Ouachita	1,980.7	1,977.3	-3.4
Ozark	1,589.5	1,532.2	-57.3
All units	4,506.8	4,364.0	-142.7

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

Between the 2010 and 2015 forest surveys Arkansas lost 198,616 acres of forest land where shortleaf pine had some degree of presence in the overstory (table 12). These lost stands were those where shortleaf pine made up somewhere between 20 to 80 percent of overstory basal area. There were actually slight increases in the area of forest land where shortleaf pine was a very minor component (0.01 to 20 percent) or a super dominant (≥80 percent) of the overstory (table 12). Also noteworthy, thirty-nine percent of the forests where shortleaf pine occurred were in stands where it was a very minor component, 1,629,000 acres.

As Arkansas's forests are cut, artificial regeneration (when applied) appears to overwhelmingly favor loblolly pine. The 2015 forest survey shows 3,302,034 acres have been planted in loblolly pine but only 80,547 acres in shortleaf pine. Loblolly pine is clearly the preferred plantation species in Arkansas, particularly in the Southwest unit where intense forest management practices are most prevalent. As natural stands containing shortleaf pine are cut, they will most likely be replaced with loblolly pine unless a shortleaf pine regeneration cut is implemented. This is an important factor that may further impact the occurrence of shortleaf pine over time, especially on the Coastal Plain.

Table 12—Area of forest land and change, by stand-proportion class, where shortleaf pine ≥5.0 inches in d.b.h. occurs, Arkansas, 2010 and 2015

Percent of overstory stand basal area in shortleaf pine	2010	2015	Change
<i>thousand acres</i>			
0.1 - 19.9	1,611.8	1,629.0	17.2
20.0 - 39.9	900.4	813.3	-87.1
40.0 - 59.9	647.2	589.0	-58.2
60.0 - 79.9	611.3	530.8	-80.5
≥80.0	612.1	622.0	9.9
All stands	4,382.7	4,184.1	-198.6

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

How to Cite This Publication

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