



FORESTS OF Arkansas, 2014

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 measurement year 2014 with resource changes compared against the 2013 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, is 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 April 7, 2015 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, and 2013. 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), pine plantation area (table 5), volume (tables 6 and 7), biomass (tables 8 and 9), species volumes (table 10), and species dominance (table 11) along with maps of Arkansas' 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 2013 and 2014

Forest statistics	2013 estimate	Sampling error (percent)	2014 estimate	Sampling error (percent)	Change since 2013
Forest land					
Area (thousand acres)	18,965.8	0.58	19,024.4	0.53	58.6
Number of live trees ≥1.0 inch d.b.h. (million trees)	11,503.0	1.37	11,771.6	1.34	268.6
Net volume of live trees ≥5.0 inches d.b.h. (million cubic feet)	31,029.2	1.33	31,089.3	1.21	60.1
Live tree aboveground biomass (thousand oven-dry tons)	806,898.6	1.19	807,089.4	1.06	190.8
Net annual growth of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	1,207.8	2.32	1,193.1	2.28	-14.7
Annual removals of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	716.8	4.80	718.7	5.18	1.9
Annual mortality of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	299.0	3.94	329.2	3.95	30.2
Timberland					
Area (thousand acres)	18,441.2	0.64	18,488.2	0.60	47.0
Number of live trees ≥1.0 inch d.b.h. (million trees)	11,503.0	1.41	11,562.4	1.38	59.4
Net volume of live trees ≥5.0 inches d.b.h. (million cubic feet)	29,739.5	1.39	29,846.8	1.27	107.3
Live tree aboveground biomass (thousand oven-dry tons)	774,199.5	1.25	775,404.3	1.12	1,204.8
Net annual growth of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	1,212.1	2.32	1,201.2	2.39	-10.9
Annual removals of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	716.9	4.79	714.8	5.16	-2.1
Annual mortality of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	286.4	4.05	313.8	4.06	27.4



Forest Area

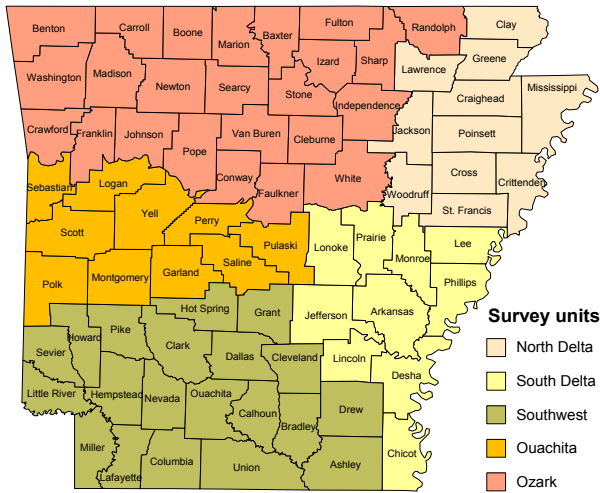


Figure 1—Forest survey units and counties in Arkansas.

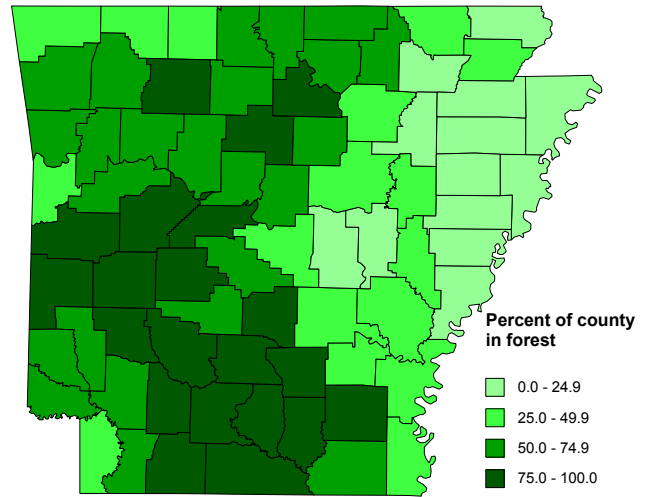


Figure 2—Percent of county area in forest land, 2014.

Table 2—Area of forest land and change, by survey unit, Arkansas, 2013 and 2014

Survey unit	2013	2014	Change
<i>thousand acres</i>			
South Delta	1,460.1	1,450.9	-9.2
North Delta	816.0	804.5	-11.5
Southwest	6,877.2	6,949.9	72.7
Ouachita	3,403.6	3,446.1	42.5
Ozark	6,408.9	6,373.0	-35.9
All units	18,965.8	19,024.4	58.6

Table 4—Area of forest land and change, by forest-type group, Arkansas, 2013 and 2014

Forest-type group	2013	2014	Change
<i>thousand acres</i>			
Loblolly-shortleaf pine	5,749.4	5,827.1	77.7
Eastern redcedar	296.1	307.7	11.6
Oak-pine	1,974.3	1,903.7	-70.6
Oak-hickory	7,826.7	7,885.6	58.9
Bottomland	2,964.7	2,946.1	-18.6
Miscellaneous types	21.3	19.4	-1.9
Nontyped	133.1	134.8	1.7
All groups	18,965.8	19,024.4	58.6

Table 3—Area of forest land and change, by ownership, Arkansas, 2013 and 2014

Ownership	2013	2014	Change
<i>thousand acres</i>			
National forest	2,499.0	2,537.3	38.3
Other public	1,158.5	1,158.7	0.2
Forest industry	2,796.1	2,497.9	-298.2
NIPF	12,512.1	12,830.5	318.4
All owners	18,965.8	19,024.4	58.6

NIPF = nonindustrial private forest.

Table 5—Area of forest land in pine plantations and change, by survey unit, Arkansas, 2013 and 2014

Survey unit	2013	2014	Change
<i>thousand acres</i>			
South Delta	191.8	183.8	-8.0
North Delta	60.9	58.1	-2.8
Southwest	2,215.6	2,368.0	152.4
Ouachita	637.1	645.6	8.5
Ozark	221.7	233.6	11.9
All units	3,327.1	3,489.0	161.9

Volume, Biomass, and Trends

Table 6—Volume of softwoods on forest land and change, by survey unit, Arkansas, 2013 and 2014

Survey unit	2013	2014	Change
<i>million cubic feet</i>			
South Delta	593.8	606.2	12.4
North Delta	186.9	180.2	-6.7
Southwest	6,670.7	6,816.4	145.7
Ouachita	3,100.7	3,152.5	51.8
Ozark	1,873.2	1,875.7	2.5
All units	12,425.2	12,630.9	205.7

Table 8—Biomass dry weight of softwoods on forest land and change, by survey unit, Arkansas, 2013 and 2014

Survey unit	2013	2014	Change
<i>thousand tons</i>			
South Delta	12,078.0	12,344.4	266.4
North Delta	3,726.5	3,589.2	-137.3
Southwest	141,616.1	145,094.1	3,478.0
Ouachita	64,451.2	65,404.5	953.3
Ozark	40,186.0	40,205.6	19.6
All units	262,057.8	266,637.9	4,580.1

Table 7—Volume of hardwoods on forest land and change, by survey unit, Arkansas, 2013 and 2014

Survey unit	2013	2014	Change
<i>million cubic feet</i>			
South Delta	2,491.4	2,476.3	-15.1
North Delta	1,354.1	1,332.0	-22.1
Southwest	4,745.6	4,698.2	-47.4
Ouachita	2,420.3	2,452.2	31.9
Ozark	7,592.6	7,499.6	-93.0
All units	18,604.0	18,458.4	-145.6

Table 9—Biomass dry weight of hardwoods on forest land and change, by survey unit, Arkansas, 2013 and 2014

Survey unit	2013	2014	Change
<i>thousand tons</i>			
South Delta	64,910.7	64,727.5	-183.2
North Delta	36,479.1	35,916.1	-563.0
Southwest	141,365.3	139,878.8	-1,486.5
Ouachita	75,046.0	75,964.3	918.3
Ozark	227,039.8	223,964.8	-3,075.0
All units	544,840.8	540,451.5	-4,389.3

Table 10—Volume of 15 most dominant species on forest land by 5-inch diameter classes, Arkansas, 2014

Species	Total	Diameter class (inches)					
		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	7,660.3	2,235.0	2,925.9	1,595.3	673.6	220.9	9.5
Shortleaf pine	3,769.7	735.7	1,600.3	1,175.4	241.2	17.0	0.0
White oak	2,849.2	602.3	1,065.8	754.4	289.6	93.7	43.3
Sweetgum	2,082.6	583.3	703.9	459.7	191.8	90.6	53.3
Post oak	1,542.9	428.2	613.5	346.3	122.1	19.4	13.3
Northern red oak	958.9	141.3	351.5	299.5	133.4	27.6	5.7
Southern red oak	834.3	118.1	255.3	262.5	131.6	52.5	14.3
Black oak	833.1	137.4	305.3	226.7	116.1	31.9	15.6
Water oak	685.0	105.8	179.2	185.7	125.8	74.1	14.4
Cherrybark oak	675.2	60.2	102.1	179.0	133.9	86.2	113.9
Black hickory	650.5	311.7	249.2	76.2	9.7	3.8	0.0
Willow oak	630.6	71.3	114.4	186.1	161.6	63.0	34.3
Baldcypress	610.2	24.7	77.7	74.6	134.8	75.4	222.9
Overcup oak	578.4	40.6	91.4	110.2	161.9	115.0	59.2
Eastern redcedar	555.5	341.0	180.9	30.9	2.6	0.0	0.0
Other species	6,172.9	1,844.8	1,817.1	1,233.9	712.5	297.8	267.2
All species	31,089.3	7,781.4	10,633.5	7,196.4	3,342.2	1,268.9	866.9

Species Dominance/Diversity in Arkansas

One way to assess a component of species diversity is through some type of dominance measure. A species dominance table gives some indication of species richness and evenness, two basic measures of species diversity. Here, dominance is defined by the degree of species occupancy on a sample unit. A higher amount of dominance in one species would indicate less diversity. The dominance threshold of ≥ 50 percent of basal area in one species was used to construct table 11.

There were 9.7 million acres of forest land in Arkansas with ≥ 50 percent of basal area in one species. This is 51 percent of all forest land in the State. Sixty-five of Arkansas' 104 tree species in the 2014 sample attained this level of dominance on at least one sample unit. The top 10 species accounted for 83 percent of forest land with ≥ 50 percent basal area in just one species.

Loblolly and shortleaf pine were clearly dominant in Arkansas. Loblolly pine was especially so in the Southwest

unit where it is favored in forest management practices. Shortleaf pine was heavily dominant in the Ouachita unit, the ecological center of its natural range. The Ozark unit showed a strong dominance in four species: white oak, post oak, shortleaf pine, and eastern redcedar. The North and South Delta units showed the highest amounts of evenness. Fewer stands had ≥ 50 percent of basal area in one species but even more important was that the diversity was spread among many more species.

It is not known what proportion of heavily dominated acres would be considered a healthy level for a State. Much depends on stand succession stages and specific habitat types. High dominance levels may indicate natural site/community characteristics and not necessarily ecological degradation. Even so, monitoring dominance levels at the State level, over time, is one way to provide valuable information about positive or negative changes in the State's forest resources.

Table 11—Forest land area by dominant species and survey unit, where the proportion of stand basal area in the dominant species is ≥ 50 percent, Arkansas, 2014

Species	State	Survey units				
		North Delta	South Delta	Southwest	Ouachita	Ozark
		<i>thousand acres</i>				
Loblolly pine	4,188.1	173.1	12.1	3,409.6	460.8	132.6
Shortleaf pine	1,227.2	1.3	0.0	49.5	821.7	354.6
White oak	636.1	3.1	7.8	61.0	160.5	403.7
Post oak	597.2	15.3	29.8	28.9	151.2	372.1
Sweetgum	450.5	35.3	23.1	273.3	67.6	51.3
Eastern redcedar	404.2	0.0	7.8	15.0	61.9	319.4
Willow oak	164.9	25.2	11.5	59.3	30.5	38.4
Northern red oak	126.4	0.0	0.0	1.5	27.2	97.7
Southern red oak	124.2	10.5	7.3	42.9	9.2	54.4
Winged elm	117.2	8.9	15.9	37.2	33.8	21.4
Total top 10 species	8,035.9	272.7	115.3	3,978.2	1,824.3	1,845.5
Total remaining 55 species	1,622.7	392.9	224.2	365.9	158.0	481.8
All species	9,658.6	665.5	339.4	4,344.1	1,982.3	2,327.3

How to Cite This Publication

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