



FORESTS OF Arkansas, 2013

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 2013 with resource changes compared against the 2012 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 March 4, 2014 at <http://fia.fs.fed.us/tools-data/>

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 land-use changes (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 2012 and 2013

Forest statistics	2012 estimate	Sampling error (percent)	2013 estimate	Sampling error (percent)	Change since 2012
Forest land					
Area (thousand acres)	18,943.7	0.58	18,965.7	0.58	22.0
Number of live trees ≥1.0 inch d.b.h. (million trees)	11,643.5	1.38	11,503.0	1.37	-140.5
Net volume of live trees ≥5.0 inches d.b.h. (million cubic feet)	30,618.2	1.34	31,029.7	1.33	411.6
Live tree aboveground biomass (thousand oven-dry tons)	798,967.6	1.20	806,908.6	1.19	7,941.0
Net annual growth of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	1,242.8	2.15	1,207.8	2.32	-35.0
Annual removals of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	759.0	4.74	716.8	4.80	-42.2
Annual mortality of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	267.4	4.31	299.0	3.94	31.7
Timberland					
Area (thousand acres)	18,396.8	0.65	18,441.2	0.64	44.4
Number of live trees ≥1.0 inch d.b.h. (million trees)	11,412.0	1.42	11,503.0	1.41	91.0
Net volume of live trees ≥5.0 inches d.b.h. (million cubic feet)	29,258.3	1.40	29,739.5	1.39	481.2
Live tree aboveground biomass (thousand oven-dry tons)	764,502.2	1.25	774,199.5	1.25	9,697.3
Net annual growth of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	1,234.7	2.15	1,212.1	2.32	-22.6
Annual removals of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	766.2	4.73	716.9	4.79	-49.3
Annual mortality of live trees ≥5.0 inches d.b.h. (million cubic feet per year)	253.7	4.44	286.4	4.05	32.7



Forest Area

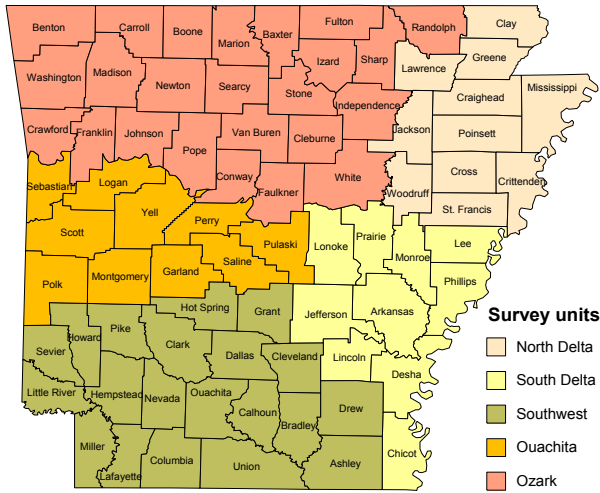


Figure 1—Forest survey units and counties in Arkansas.

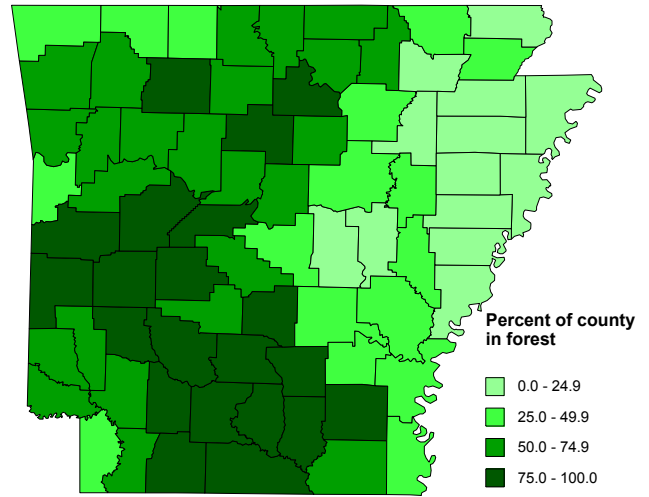


Figure 2—Percent of county area in forest land, 2013.

Table 2—Area of forest land and change, by survey unit, Arkansas, 2012 and 2013

Survey unit	2012	2013	Change
<i>thousand acres</i>			
South Delta	1,445.1	1,460.1	15.0
North Delta	793.3	816.0	22.7
Southwest	6,870.9	6,877.2	6.3
Ouachita	3,407.7	3,403.6	-4.1
Ozark	6,426.8	6,408.9	-17.9
All units	18,943.7	18,965.7	22.0

Table 4—Area of forest land and change, by forest-type group, Arkansas, 2012 and 2013

Forest-type group	2012	2013	Change
<i>thousand acres</i>			
Loblolly-shortleaf pine	5,668.0	5,749.4	81.4
Eastern red cedar	295.8	296.1	0.3
Oak-pine	2,015.3	1,974.3	-41.0
Oak-hickory	7,891.6	7,826.7	-64.9
Bottomland	2,913.3	2,964.7	51.4
Miscellaneous types	20.0	21.3	1.3
Nontyped	139.7	133.1	-6.6
All groups	18,943.7	18,965.7	22.0

Table 3—Area of forest land and change, by ownership, Arkansas, 2012 and 2013

Ownership	2012	2013	Change
<i>thousand acres</i>			
National forest	2,515.8	2,499.0	-16.8
Other public	1,147.1	1,158.5	11.4
Forest industry	3,082.4	2,796.1	-286.3
NIPF	12,198.4	12,512.1	313.7
All owners	18,943.7	18,965.7	22.0

NIPF = nonindustrial private forest.

Table 5—Area of forest land in pine plantations and change, by survey unit, Arkansas, 2012 and 2013

Survey unit	2012	2013	Change
<i>thousand acres</i>			
South Delta	212.10	191.80	-20.30
North Delta	41.30	60.90	19.60
Southwest	2,285.40	2,215.60	-69.80
Ouachita	616.10	637.10	21.00
Ozark	227.40	221.70	-5.70
All units	3,382.30	3,327.10	-55.20

Volume, Biomass, and Trends

Table 6—Volume of softwoods on forest land and change, by survey unit, Arkansas, 2012 and 2013

Survey unit	2012	2013	Change
<i>million cubic feet</i>			
South Delta	570.1	593.8	23.7
North Delta	186.8	186.9	0.1
Southwest	6,407.8	6,670.7	262.9
Ouachita	3,047.0	3,100.7	53.7
Ozark	1,836.8	1,873.6	36.8
All units	12,048.5	12,425.7	377.2

Table 8—Biomass dry weight of softwoods on forest land and change, by survey unit, Arkansas, 2012 and 2013

Survey unit	2012	2013	Change
<i>thousand tons</i>			
South Delta	11,548.3	12,078.0	529.7
North Delta	3,722.5	3,726.5	4.0
Southwest	136,157.7	141,616.1	5,458.4
Ouachita	63,345.8	64,451.2	1,105.4
Ozark	39,555.7	40,196.0	640.3
All units	254,330.0	262,067.8	7,737.8

Table 7—Volume of hardwoods on forest land and change, by survey unit, Arkansas, 2012 and 2013

Survey unit	2012	2013	Change
<i>million cubic feet</i>			
South Delta	2,454.8	2,491.4	36.6
North Delta	1,352.6	1,354.1	1.5
Southwest	4,757.0	4,745.6	-11.4
Ouachita	2,402.8	2,420.3	17.5
Ozark	7,602.5	7,592.6	-9.9
All units	18,569.6	18,604.0	34.4

Table 9—Biomass dry weight of hardwoods on forest land and change, by survey unit, Arkansas, 2012 and 2013

Survey unit	2012	2013	Change
<i>thousand tons</i>			
South Delta	64,066.2	64,910.7	844.5
North Delta	36,398.4	36,479.1	80.7
Southwest	141,726.7	141,365.3	-361.4
Ouachita	74,714.2	75,046.0	331.8
Ozark	227,730.8	227,039.8	-691.0
All units	544,636.3	544,840.8	204.5

Table 10—Volume of 15 most dominant species on forest land by 5-inch diameter classes, Arkansas, 2013

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	7,448.1	2,207.3	2,769.7	1,551.9	703.7	205.9	9.6
Shortleaf pine	3,793.7	765.2	1,624.4	1,145.7	243.0	15.4	0.0
White oak	2,887.7	624.2	1,081.0	761.9	296.0	88.7	36.0
Sweetgum	2,136.8	591.0	715.2	481.5	195.6	100.2	53.2
Post oak	1,556.0	433.1	618.0	343.0	125.4	17.3	19.4
Northern red oak	973.3	148.5	367.1	289.7	135.5	27.9	4.6
Black oak	881.5	144.8	322.8	237.0	122.4	45.9	8.6
Southern red oak	840.1	119.3	263.4	261.0	125.7	56.6	14.2
Cherrybark oak	683.9	59.1	106.8	190.4	137.0	82.7	107.8
Water oak	682.4	107.2	183.6	172.9	136.4	68.6	13.7
Black hickory	665.8	321.7	253.7	77.3	9.1	4.1	0.0
Willow oak	636.0	70.1	116.7	188.7	166.6	51.1	42.7
Baldcypress	612.3	23.4	74.3	80.3	122.1	84.2	227.9
Overcup oak	570.2	41.7	94.2	109.4	163.8	107.1	54.0
Mockernut hickory	540.5	212.4	201.8	103.7	22.6	0.0	0.0
Other species	6,121.4	1,962.1	1,785.7	1,127.6	713.2	279.8	252.8
All species	31,029.7	7,831.1	10,578.4	7,122.0	3,418.1	1,235.5	844.5

Land-use Changes in Arkansas

Arkansas has simultaneously gained and lost forest land in a dynamic on-going cycle of change. In this update, gains in forest land (land previously in a nonforest condition reverting to forest) are referred to as additions, losses of forest land (land previously in a forest status diverting to a nonforest status) as diversions. Land-use changes in table 11 incorporate the changes denoted from two full cycles of sample data. For the most part, the 2013 data includes sample data collected in 2009 through 2013; the 2008 data includes sample data collected in 2004 through 2008. A small portion of the sample data may have a longer period between re-measurement than the normal 5-year cycle due to logistic issues.

Between the 2008 and 2013 inventory years, Arkansas had a net-change increase in forest land of 327,300 acres (table 11). This resulted from 644,500 acres of additions being offset by 317,300 acres lost to diversions. The substantial gains (68 percent) in forest land came from abandoned farmland or conversions of farmland to forest (table 11). Abandoned farmland usually reverts naturally through normal avenues of forest succession.

Deliberately converted farmland may be allowed to follow this same natural pathway or in some cases a forest management plan may be implemented which may incorporate the planting of specific target species to address ownership wishes or concerns. Regarding diversions, the losses of forest land were almost evenly split between agriculture and other nonagriculture entities.

The Ozark unit accounted for most of the additions, 43 percent. This unit also accounted for 56 percent of the diversions to nonforest. Both agriculture additions and diversions were highest in the Ozark unit. Addition and diversion acreage from the nonagriculture categories were more evenly distributed among the five survey units.

Economic conditions and personal ownership situations strongly influence the amount of land-use changes. This makes it particularly difficult to predict future gains or losses in forest land across Arkansas, especially for the long term.

Table 11—Changes in forest land by forest survey unit, Arkansas, 2008 to 2013

Survey unit	Change ^a	Additions			Diversions		
		Total additions	Agri-culture ^b	Other ^c	Total diversions	Agri-culture ^b	Other ^c
<i>thousand acres</i>							
South Delta	34.3	56.2	31.7	24.5	-21.9	-7.0	-14.9
North Delta	82.6	92.8	70.1	22.7	-10.2	-0.4	-9.8
Southwest	61.3	116.9	74.9	42.0	-55.7	-28.8	-26.9
Ouachita	48.3	100.1	42.0	58.1	-51.8	-11.0	-40.9
Ozark	100.8	278.5	220.2	58.3	-177.7	-107.5	-70.2
All units	327.3	644.5	438.9	205.6	-317.3	-154.6	-162.6

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

^a Change is the difference between diversions (a loss) and additions (a gain) of forest land.

Change based upon remeasured plots, only.

^b Agriculture includes cropland, pasture, idle farmland, orchards, Christmas tree plantations, maintained wildlife openings, and rangeland.

^c Other includes businesses, residential, rights-of-way (roads, railways, power lines, canals), recreation areas (parks, skiing, golf courses, etc.), mining, and water.

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