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RESOURCE UPDATE FS-60

FORESTS OF east Texas, 2014

This resource update provides an overview of forest resources in east Texas derived from an inventory conducted by the U.S. Forest Service, Forest Inventory and Analysis (FIA) Program at the Southern Research Station in cooperation with the Texas A&M Forest Service. These estimates are based on field data collected using the FIA annualized sample design and are updated yearly.
The 254 counties of Texas are consolidated into seven FIA survey units—Southeast (unit 1), Northeast (unit 2), North Central (unit 3), South (unit 4), West Central (unit 5), Northwest (unit 6), and West (unit 7). East Texas, the focus of this report, is made up of units 1 and 2 with a total of 43 counties, while central and west Texas consist of units 3 through 7 covering the remaining 211 counties (fig. 1).

The estimates presented in this update are for the measurement year 2014 with comparisons made to data reported in previous years. These estimates are limited to the Southeast and Northeast survey units of the State (units 1 and 2). The data used in this publication were accessed from the FIA Database on April 22, 2015.

Overview

The forest resources of east Texas have remained stable or increased slightly in recent years, with minor changes in the amount of forest land or timberland (a subset of productive forest land not reserved from potential timber harvesting) (table 1). Total numbers of trees and the amount of wood volume they hold have changed slightly. This short-term stability reflects the longer term trends reported in Brandeis and others (2014) and Dooley and Brandeis (2014); studies which have shown that forest area remained stable, and wood volumes increased from 1975 to 2003, then changed relatively little in more recent years.

Table 1—East Texas 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)*	12,086.4	0.89	12,157.7	0.74	71.3
Number of live trees ≥1 inch d.b.h. (*million trees)*	7,593.1	1.95	7,396.4	1.79	-196.7
Net volume live trees ≥5 inches d.b.h. (*million cubic feet per year)*	17,714.7	2.00	17,467.2	1.66	-247.5
Live trees aboveground biomass (*thousand oven-dry tons)*	443,347.0	1.76	437,599.1	1.45	-5,747.9
Net growth live trees ≥5 inches d.b.h. *(million cubic feet per year)*	614.4	4.53	571.0	4.70	-43.4
Annual removals of live trees ≥5 inches d.b.h. *(million cubic feet per year)*	571.9	5.86	575.9	5.58	4.0
Annual mortality of live trees ≥5 inches d.b.h. *(million cubic feet per year)*	343.7	5.64	365.8	5.23	22.1
Timberland					
Area (*thousand acres)*	11,906.5	0.93	11,974.2	0.78	67.6
Number of live trees ≥1 inch d.b.h. (*million trees)*	7,494.7	1.99	7,283.5	1.82	-211.2
Net volume live trees ≥5 inches d.b.h. (*million cubic feet per year)*	17,320.3	2.04	17,080.2	1.71	-240.1
Live trees aboveground biomass (*thousand oven-dry tons)*	433,926.9	1.80	428,183.5	1.49	-5,743.4
Net growth live trees ≥5 inches d.b.h. *(million cubic feet per year)*	623.0	4.48	577.5	4.66	-45.5
Annual removals of live trees ≥5 inches d.b.h. *(million cubic feet per year)*	577.2	5.82	582.7	5.53	5.5
Annual mortality of live trees ≥5 inches d.b.h. *(million cubic feet per year)*	332.2	5.78	357.0	5.33	24.8

Forest Area

The total forest area in Southeast and Northeast Texas in 2014 was 12.2 million acres. Increases in acreage since 2013 were small and may represent fluctuations around the true value due to sampling error. The Southeast survey unit was 56 percent forested while the Northeast survey unit was 57 percent forested (fig. 2).

Figure 1—Forest survey regions in Texas.

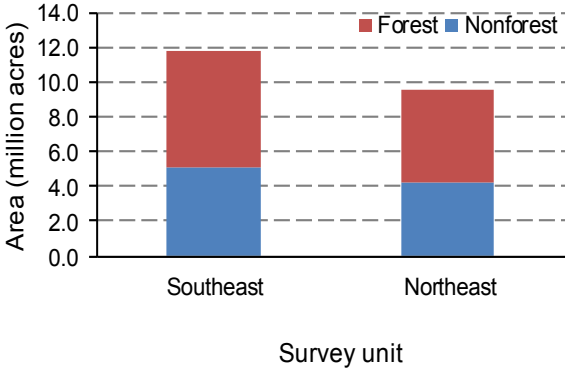

Figure 2—Distribution of forest and nonforest land by survey unit, east Texas, 2014.

Two characteristics describe much of the forests of east Texas: the prevalence of loblolly pine and private ownership. Forty-four percent of the timberland is in the loblolly-shortleaf pine forest-type group. These softwood forests are a mix of planted (55 percent) and naturally regenerated (45 percent) stands. The next nearest forest-type group in terms of acreage is oak-hickory (24 percent), followed by oak-pine mixed forest (12 percent) and oak-gum-cypress forest (11 percent). The hardwood forests are almost entirely naturally regenerated (95 percent). The remaining 5 percent of artificially regenerated hardwood stands are generally hardwood-softwood mixed stands that were pine plantations with a considerable number of naturally regenerated hardwood trees.

Ninety percent of east Texas' timberland is owned by nonindustrial landowners (fig. 3). The ongoing divestiture of timberland by forest industry and acquisition of most of

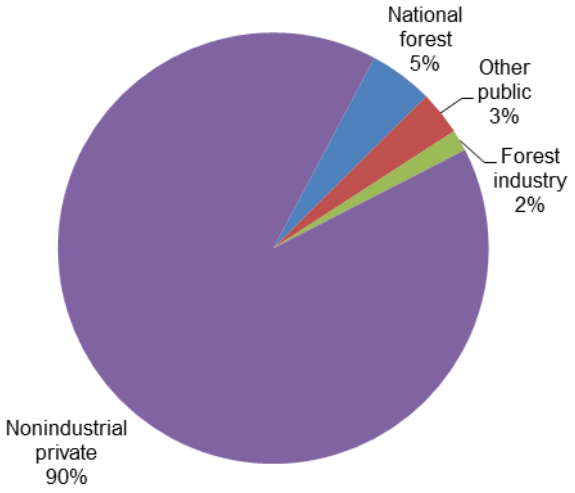

Figure 3—Distribution of timberland area by ownership class, east Texas, 2014.

those same acres by Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs) [described previously in Brandeis and others (2014) and Dooley and Brandeis (2014)] has left only 2 percent of timberland under forest industry ownership. This same trend has been observed across most of the Southern States (Brandeis and others 2012).

Volume, Biomass, and Trends

Total all-live volume on timberland was 17.1 billion cubic feet. As mentioned previously, inventory volume has been relatively stable since the start of the annualized forest inventory in 2003 until 2014 when it showed a slight decrease. The distribution of volume on timberland by species group has remained the same as in previous years, with loblolly pine first in both volume and number of live trees (table 2), followed by sweetgum.

Table 2—Number and volume of all live trees on timberland, East Texas, 2014

Species	Number (million trees)	Volume (million ft^3)
Loblolly pine	1,839.54	8,062.91
Sweetgum	1,037.27	1,377.70
Shortleaf pine	98.36	1,038.96
Water oak	507.03	1,038.96
Post oak	166.42	749.26
Southern red oak	155.84	593.07
Willow oak	158.43	394.89
White oak	97.40	328.93
Blackgum	158.94	260.36
Baldcypress	16.02	254.06
Cherrybark oak	68.81	241.24
Winged elm	141.86	237.57
Slash pine	34.68	223.98
Overcup oak	11.55	190.94
Other	2,791.36	2,087.35
Total	7,283.52	17,080.18

Average annual softwood harvest removals remain below 2010 levels (fig. 4). Recovery from the economic downturn has been slow but increases in harvest volumes are expected in the coming years as housing construction and other wood-using industries increase production. A closer look at the data shows that final harvest by clearcutting has decreased slightly in recent years, while stand tending and salvage cutting have remained the same or increased (fig. 5).

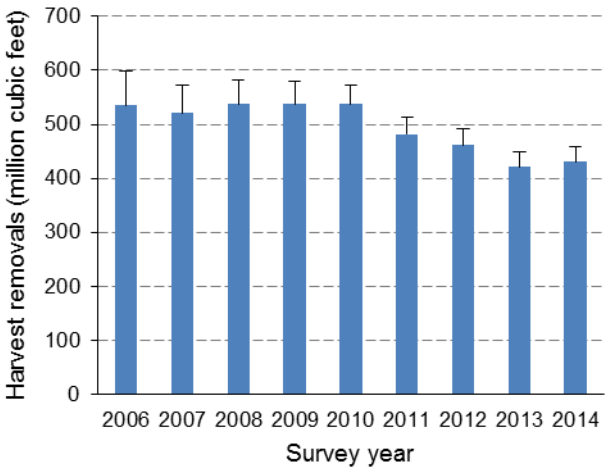

Figure 4—All-live harvested removals of softwoods on timberland, east Texas, 2006–14.

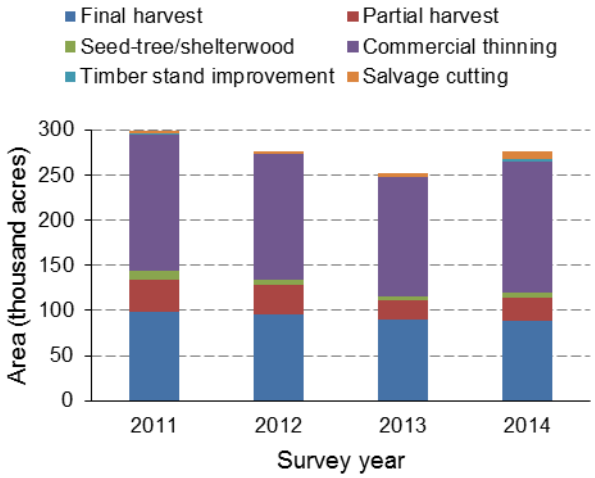

Figure 5—Softwood timberland acres treated annually by cutting class, east Texas, 2011–14.

Increased hardwood mortality and decreased hardwood growth appear to be primarily responsible for the negative values for numbers of live trees, volume, and biomass seen in table 1 (fig. 6).

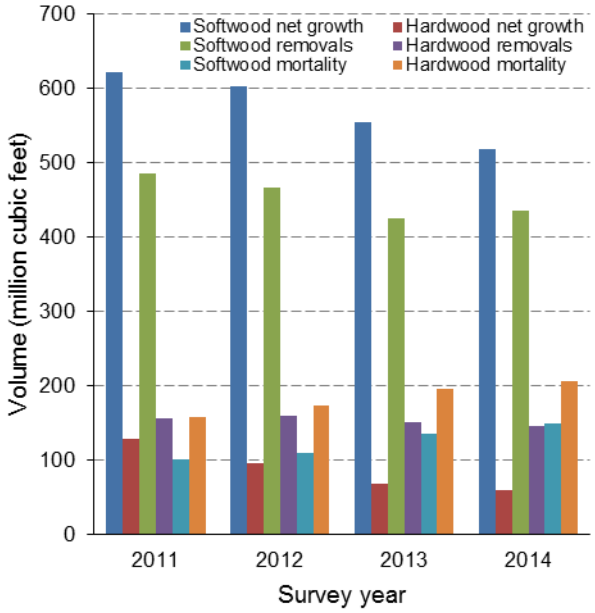

Figure 6—All-live average growth, removals, and mortality on timberland by survey year, east Texas, 2011–14.

Land Use Change

Every year, a relatively small amount of forest is cleared for development, agriculture, rangeland, and other nonforest uses. At the same time, formerly nonforest land is planted with trees or naturally reverts back to forest. We track this forest conversion and reversion in the FIA data and can estimate the numbers of acres changing annually. As shown in figure 7, east Texas tended to gain more forest land acres than it lost to urban development or conversion to agriculture until recently, when gains and losses began to approach parity. In 2014, the number of forest acres converted to nonforest land uses (375,323 acres, or 3.1 percent of total forest land) is very nearly balanced by the number of acres that were planted or reverted to forest (387,435 acres, or 3.2 percent of total forest land).

Remember, however, that the numbers of FIA plots that change land uses each year is small (comparable to the numbers of plots used to make estimates of harvest removals) so the uncertainty associated with these estimates is usually greater than that associated with most of the other forest land estimates. Continued monitoring will help us assess if the trends in forest land use change are positive or negative.

Literature Cited

Brandeis, T.J.; Cooper, J.A.; Bentley, J.W. 2014. East Texas, 2012. e-Science Update SRS–086. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 4 p. http://www.treesearch.fs.fed.us/pubs/45412. [Date accessed: April 22, 2015].

Brandeis, T.J.; Hartsell, A.J.; Bentley, J.W.; Brandeis, C. 2012. Economic dynamics of forests and forest industries in the Southern United States. e-Gen. Tech. Rep. SRS–152. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 77 p. http://www.treesearch.fs.fed.us/pubs/40452. [Date accessed: April 22, 2015].

Dooley, K.J.W.; Brandeis, T.J. 2014. Forests of east Texas, 2013. Resource Update FS–31. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 4 p.

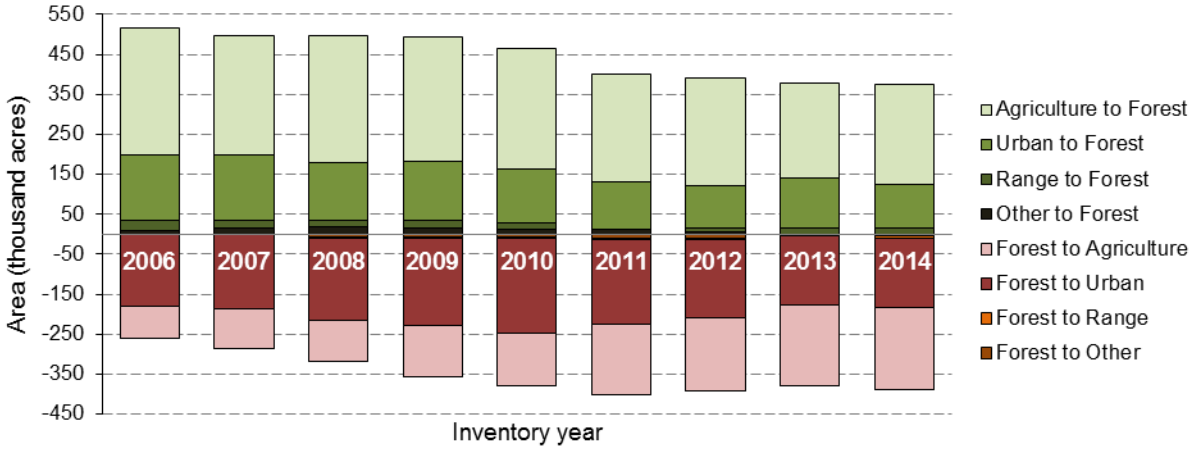

Figure 7—Forest land area gain and loss in east Texas, 2006–14.

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Contact Information

Thomas J. Brandeis, Research Forester
Forest Inventory and Analysis
Southern Research Station, USDA Forest Service
4700 Old Kingston Pike
Knoxville, TN 37919
Phone: 865-862-2030 / Fax: 865-862-0262
Email: tjbrandeis@fs.fed.us
Southern FIA: http://srsfia2.fs.fed.us
National FIA: http://fia.fs.fed.us

Chris Brown, FIA Coordinator
Texas A&M Forest Service
John B. Connally Bldg.
301 Tarrow, Suite 364
College Station, TX 77840
Phone: 979-458-6666 / Fax: 979-458-6633
Email: cbrown@tfs.tamu.edu
http://www.texasforestservice.tamu.edu

www.fia.fs.fed.us

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