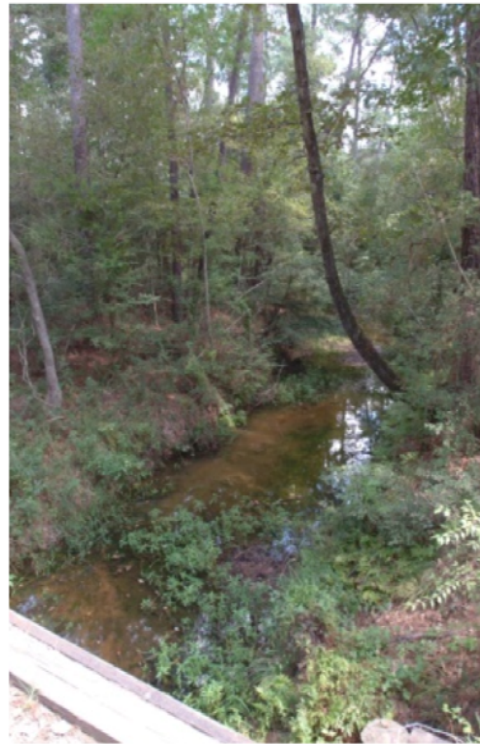


# East Texas Forestlands



## **2008 Report**

**T E X A S**  
**FOREST SERVICE**

The Texas A&M University System

**Published November 2009**

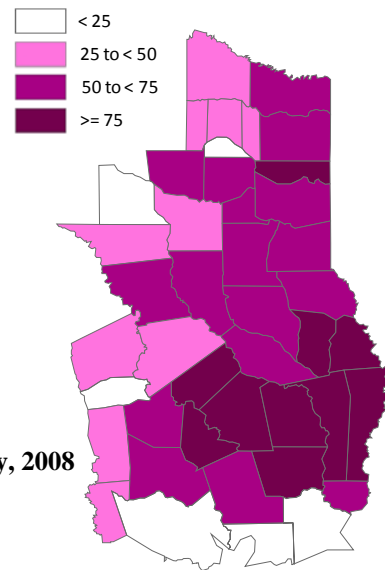
# East Texas Forestlands: 2008

## Texas Forest Service Forest Inventory and Analysis Program

In 2004, Texas Forest Service, in cooperation with the Southern Research Station's Forest Inventory and Analysis (FIA) Program launched an inventory of 43 counties in East Texas.

The information contained in the FIA database represents the full complement (all five panels) for the second cycle of annualized inventory data collected in East Texas.

The complete cycle consisted of 3,773 plots. About one-fifth of these plots were measured in each panel between 2004 and 2008.



Percent forestland by county, 2008

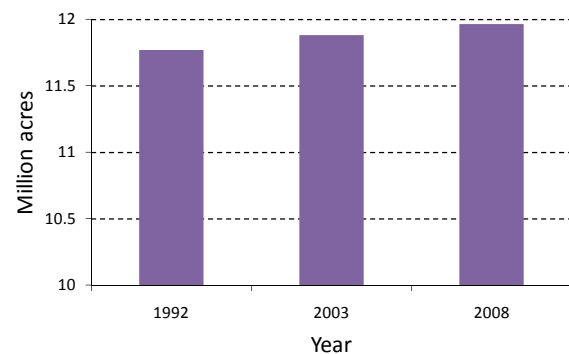
### Area

#### Forestland

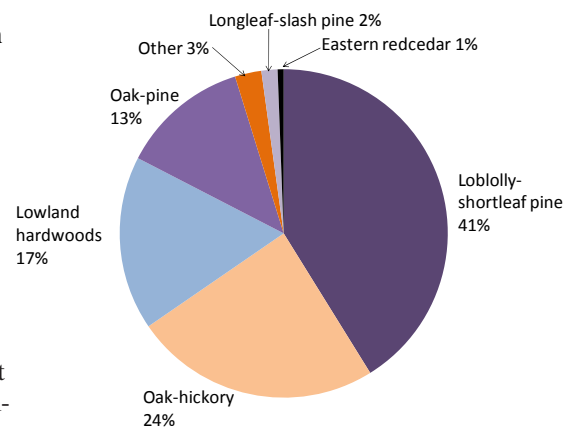
Forestland makes up about 54 percent of the East Texas region. Almost all of that forestland (99 percent) is timberland while the remaining area consists of limited timber productivity (< 20 cubic feet/acre/year) or land reserved by law from timber production.

Nearly 39 percent of the region's timberland is located in just 10 of the 43 counties, with the central southeastern counties the most densely forested.

#### Area of timberland, 1992-2008



#### Area of timberland, 2008



#### Timberland

There were 11,964,913 acres of timberland estimated in 2008, which is an 80,128 acre increase (< 1 percent) since the 2003 inventory. When considering sampling error, the relative change in timberland area likely is negligible.

#### Forest type

Southern pine forests consist primarily of loblolly pine and account for 43 percent of the timberland — about half planted and half occurring naturally. It's located primarily in the south and east (**Appendix I – Figure 1**).

The remaining timberland consists of oak-hickory mainly to the west and north, and oak-pine and lowland hardwood (12 percent oak-gum-cypress and 5 percent elm-ash-cottonwood) located throughout the region.

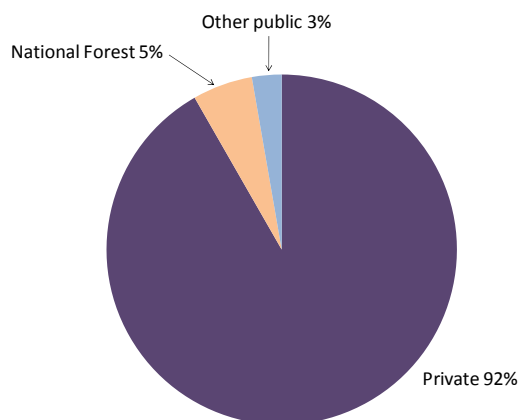
# East Texas Forestlands: 2008

## Ownership

Private owners control 92 percent of the timberland in East Texas, private owners include forest industry and other corporate owners — such as Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs) — as well as family forest owners. The USDA Forest Service operates another 5 percent of the timberland.

Questionnaires focusing on timber harvest and property size were sent out from 2002 to 2006 to an area weighted sample of 857 land owners. There was a 45 percent return rate.

According to survey results, timber was harvested on 74 percent of the family forest acreage. The survey also revealed that the vast majority of owners possess small tracts of land while just a few people hold large tracts.



**Major timberland owners, 2008**

## Response by family forest owner (formerly Non-Industrial Private Forest, or NIPF), 2006

Timber activity	Area	
	million acres	percent
Timber harvest		
Yes	4.8	74
No	1.5	24
No answer	0.1	2
Harvested past 5 years	2.3	36

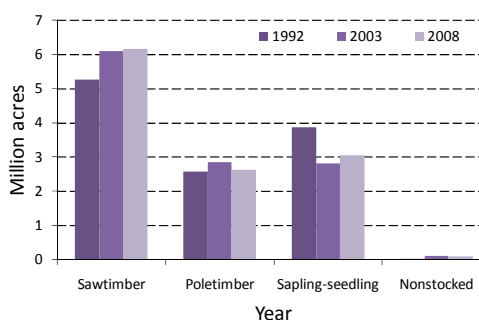
Size of forest	Area		Owners	
	thousand Acres	percent	thousand Number	percent
Acres				
1-9	346	5	94	45
10-19	680	11	55	26
20-49	914	14	31	15
50-99	1125	18	17	8
100-1000	2505	39	11	5
> 1000	841	13	~ 1	-

## Stand structure

Stand-product class, also known in timber reports as stand-size class, is largely calculated from all live tallied trees on timberland.

Sawtimber stands constitute 52 percent of the region while poletimber stands make up 22 percent. Sapling-seedling stands make up the remaining 26 percent.

## Stand-product class by survey year, timberland



Stand-product class	Area	Not Determined	Stand-diameter class (inches d.b.h.)			
			0 to < 5	5 to < 9	9 to < 20	20 to < 40
thousand acres						
Sawtimber	6163.4	-	122.8	876.3	4822.5	341.9
Poletimber	2636.9	6.1	103.5	2077.7	433.3	16.3
Sapling-seedling	3055.7	79.4	1933.0	807.0	213.6	22.7
Nonstocked	109.0	28.9	52.4	17.1	9.1	1.5
<b>Total</b>	<b>11964.9</b>	<b>114.3</b>	<b>2211.6</b>	<b>3778.1</b>	<b>5478.4</b>	<b>382.4</b>

## Stand-diameter by stand-product class, timberland, 2008

# East Texas Forestlands: 2008

## Trees Per Acre

Across all forest types, there is an average of 638 trees per acre. However, tree-per-acre values by county are not concentrated in any one area (**Appendix I – Figure 3**). That means caution should be used when viewing these numbers as a high tree-per-acre value may be observed even though there is only a small amount of forestland in the county.

## Volume

In 2008, softwood tree volume measured 9.5 billion cubic feet for live trees (9.3 billion for growing-stock trees). That’s an increase of 0.4 percent (1.2 percent for growing-stock trees) since 2003. Hardwood tree volume measured 7.8 billion cubic feet (6.6 billion for growing-stock trees), marking a 1.1 percent (4 percent for growing-stock trees) increase since 2003.

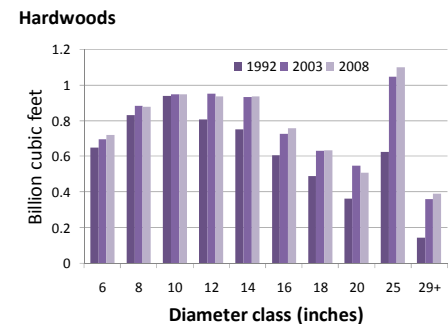
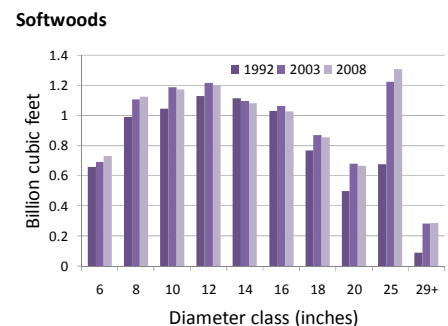
Pine is more heavily concentrated in the southern region of East Texas, while oak-hickory volume is more plentiful in the northern part of the region (**Appendix I – Figure 4**). In general, volume is greater in Southeast Texas (**Appendix I – Figure 5**).

The ratio of average annual net growth to average annual removals is important. If the ratio is greater than one, then wood volume is being added to the inventory. If the ratio is less than one, then inventory is declining.

The ratio for the 2003 to 2008 period varies by owner class:

- National forest land: 71.00 for live trees, 70.39 for growing-stock trees.
- Other public: 41.89 for live trees, 33.73 for growing stock trees.
- Private land: 1.33 for live trees, 1.31 for growing stock trees.

**Volume in live trees by dbh, timberland, 1992 to 2008**



**Growth to removals ratio and average annual live tree (growing stock) growth, removals and mortality for timberland, 2003 to 2008**

Item	Softwoods	Hardwoods
<b>Net growth-to-removals ratio</b>	1.17 (1.17)	1.62 (1.69)
<i>million ft<sup>3</sup></i>		
<b>Component of change</b>		
Gross growth	742.5 (729.4)	381.7 (325.3)
Mortality	74.9 (72.1)	74.8 (53.3)
Net growth	667.5 (657.3)	306.9 (272.0)
Removals	568.8 (560.2)	189.5 (161.1)

# East Texas Forestlands: 2008

## Estimates for East Texas, 2008; Components of change between 2003 and 2008

Item	Sample estimate
<b>Land area (1,000 acres)</b>	
<b>Forestland</b>	12128.7
Timberland	11964.9
Reserved forestland	126.7
Other forestland	37.1
<b>All live on timberland (million ft<sup>3</sup>)</b>	
Inventory	17292.3
Net annual growth	974.4
Annual mortality*	149.7
Annual removals	758.3
<b>Growing stock on timberland (million ft<sup>3</sup>)</b>	
Inventory	15982.9
Net annual growth	929.3
Annual mortality*	125.3
Annual removals	721.3
<b>Sawtimber on timberland (million fbm)</b>	
Inventory	62897.5
Net annual growth	3517.8
Annual mortality*	536.6
Annual removals	2616.0

\* Net annual growth includes annual mortality.

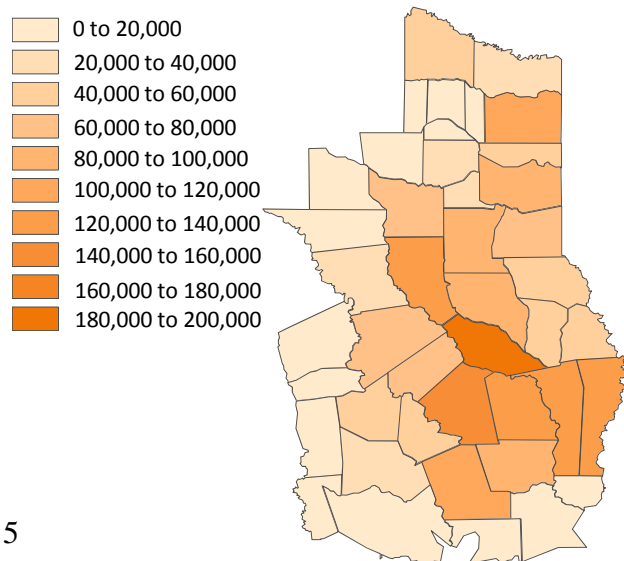
## Silvicultural Treatments

Since 2003, 18 percent of the timberland in East Texas has undergone at least one silvicultural treatment. The majority of the treatments involved some type of tree cutting (final harvest, partial harvest, commercial thinning, seed tree/shelterwood operation or timber stand improvement) and accounted for 15percent, or 1,847,156 acres, of the timberland.

## Logging Residue

Harvesting operations produce logging residue — or biomass — that potentially can be used to produce bioenergy and biofuel.

An estimated 2.3 million green tons of available logging residue (including tops, limbs and unutilized cull trees but excluding stumps) was generated during 2008 harvests.



# East Texas Forestlands: 2008

## Acres Planted by Year Trends

An annual survey is conducted by Texas Forest Service to determine how many acres of trees (across all species) have been planted. Both the number of family forest and the total number (also includes private companies and public agencies) of acres planted have declined over the past decade.

In the table to the right, 'Year' refers to fiscal year. For example, fiscal year 2006 begins on Oct. 1, 2005 and ends Sept. 30, 2006.

Year	Number of acres	
	Family forest	All
1999	48,358	147,089
2000	43,181	164,430
2001	48,438	156,875
2002	33,164	114,392
2003	26,358	90,193
2004	36,896	113,686
2005	33,296	103,601
2006	26,710	92,030
2007	37,229	105,936
2008	25,960	86,546

## Major Mill Shutdowns

Several large-scale mills in East Texas and the surrounding states of Arkansas and Louisiana have halted operations, resulting in an impact on the long term timber supply.

Company Name	Mill Location	Mill Type
Abitibi-Consolidated Inc.	Lufkin, TX	Paper mill
Clemsa Lumber Co.	Pollok, TX	Lumber mill
Georgia-Pacific	Logansport, LA	Plywood
Georgia-Pacific	Springhill, LA	Plywood
Louisiana-Pacific Corp.	Silsbee, TX	Oriented Strand Board (OSB)
Norbord Inc.	Jefferson, TX	Oriented Strand Board (OSB)
North American Procurement Co.	Moscow, TX	Chip mill
Pasadena Paper Co.	Livingston, TX	Paper mill
Potlatch Corp.	Prescott, AR	Lumber mill
Temple-Inland	Pineland, TX	Softwood Veneer
Weyerhaeuser	Mountain Pine, AR	Plywood

## Timber Stumpage Price Trends

Texas Forest Service conducts a bimonthly survey to determine average stumpage prices in East Texas. Prices do not account for site-specific harvest and haul costs and therefore revenue received for any particular timber sale may differ substantially from the prices reported below. The definition of sawtimber is not necessarily consistent with the definition used by FIA.

Current softwood sawtimber stumpage prices are at their lowest since the late 1990s (**Appendix I – Figure 9**). Hardwood sawtimber also has dropped after peaking in 2007-2008. Hardwood and softwood pulpwood prices also have dropped since peaking in 2007-2008. Chip-n-saw prices gradually have dropped following a peak period from 2004 to 2007.

# East Texas Forestlands: 2008

## Precautions

Estimates in this publication are calculated using samples obtained from the East Texas region. All estimates, including data generated by both the FIA and Texas Forest Service, have error associated with them.

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## Definition of Terms

**Component of change:** References change in the volume of trees averaged over the years of the intersurvey period. More specifically:

- **Average annual gross growth:** Change in the volume of trees in the absence of cutting and mortality.
- **Average annual mortality:** Volume of trees that died from natural causes.
- **Average net annual growth:** Net change in volume in the absence of removals; calculated as average annual gross growth minus average annual mortality.
- **Average annual removal:** Volume of trees removed from the inventory by harvesting, cultural operations (e.g., timber-stand improvement), land clearing or change in land use; averaged over the years of the intersurvey period.

**Dbh:** Tree stem diameter in inches measured outside the bark 4.5 feet above the ground (breast height).

**Family forest:** Private land owned by individuals and families — including farms — where the owner does not own a primary wood-using plant or is not a formally incorporated company or organization. Previously referred to as non-industrial private forest (NIPF) owners.

**Forestland:** Land that is at least 10 percent stocked by forest trees of any size, or land that has been at least 10 percent stocked in the past and not currently developed for nonforest use. To qualify, the tract must be at least one acre and 120 feet wide:

- **Timberland:** Forestland that is capable of annually producing 20 cubic feet of wood volume per acre and is not withdrawn from timber utilization.
- **Reserved forestland:** Public forestland that is capable of annually producing 20 cubic feet of wood volume per acre, but is withdrawn from timber utilization by statute or administrative regulation.
- **Other forestland:** Forestland that is incapable of annually producing 20 cubic feet of wood volume per acre under natural conditions due to adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness or rockiness. The term is synonymous with woodland, a term used in earlier FIA reports.

**Forest type:** Forestland classification of the species forming a plurality of live tree stocking, and largely based on an algorithm of tallied trees.

**Growing-stock trees:** Live trees that contain at least one 12-foot or two 8-foot logs in the saw-log portion, either currently or potentially, if too small to qualify as a sawlog. The log(s) must meet dimension and merchantability standards to qualify. Trees must have one-third of the gross board-foot volume in sound wood, either currently or potentially.

**Growth-to-removals ratio:** The ratio of net growth in volume divided by the volume removed by human activity, including harvesting, land clearing and changes in land use.

**Hardwoods:** Dicotyledonous trees, usually broadleaf and deciduous.

# East Texas Forestlands: 2008

**Logging residue:** Woody material that is not removed from sites during harvesting operations. Types of logging residue include stumps, tops, limbs and unutilized cull trees:

- **Stump residue:** Part of the tree that is lower than the cutting point and thus left after the harvesting operation, it generally isn't commercially available since the cost of obtaining the stump or root biomass likely is prohibitive.
- **Tops:** The tops of the trees that are broken during harvesting or cut off the central stem of the tree due to a merchantability standard.
- **Limbs:** Tree branches.
- **Cull trees:** Trees that can't be used to produce saw logs due to defects, rot or form. Some cull trees are used as pulpwood and others are left unutilized as a part of logging residue.

Tops, limbs and unutilized cull trees are potentially available as biomass for energy production and/or chemical extraction.

**Poletimber:** As defined by FIA, softwood species 5 to 8.9 inches dbh and hardwood species 5 to 10.9 inches dbh.

**Saplings:** As defined by FIA, live trees 1 to 4.9 inches dbh.

**Sawtimber:** As defined by FIA, softwood species 9 inches dbh and larger and hardwood species 11 inches dbh and larger.

**Seedlings:** As defined by FIA, live hardwood trees with a dbh less than or equal to one inch and height greater than or equal to one foot and live softwood trees with a dbh less than or equal to one inch and height greater than or equal to six inches.

**Softwoods:** Coniferous trees, usually evergreen, having needles or scale-like leaves.

**Stumpage:** Standing trees in the forest.

**Volume:** The amount of sound wood in live trees that are at least five inches dbh from a one-foot stump to a minimum four-inch top diameter outside bark of the central stem.

### For additional information, contact:

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Users can conduct their own analysis by going to the FIA web site:

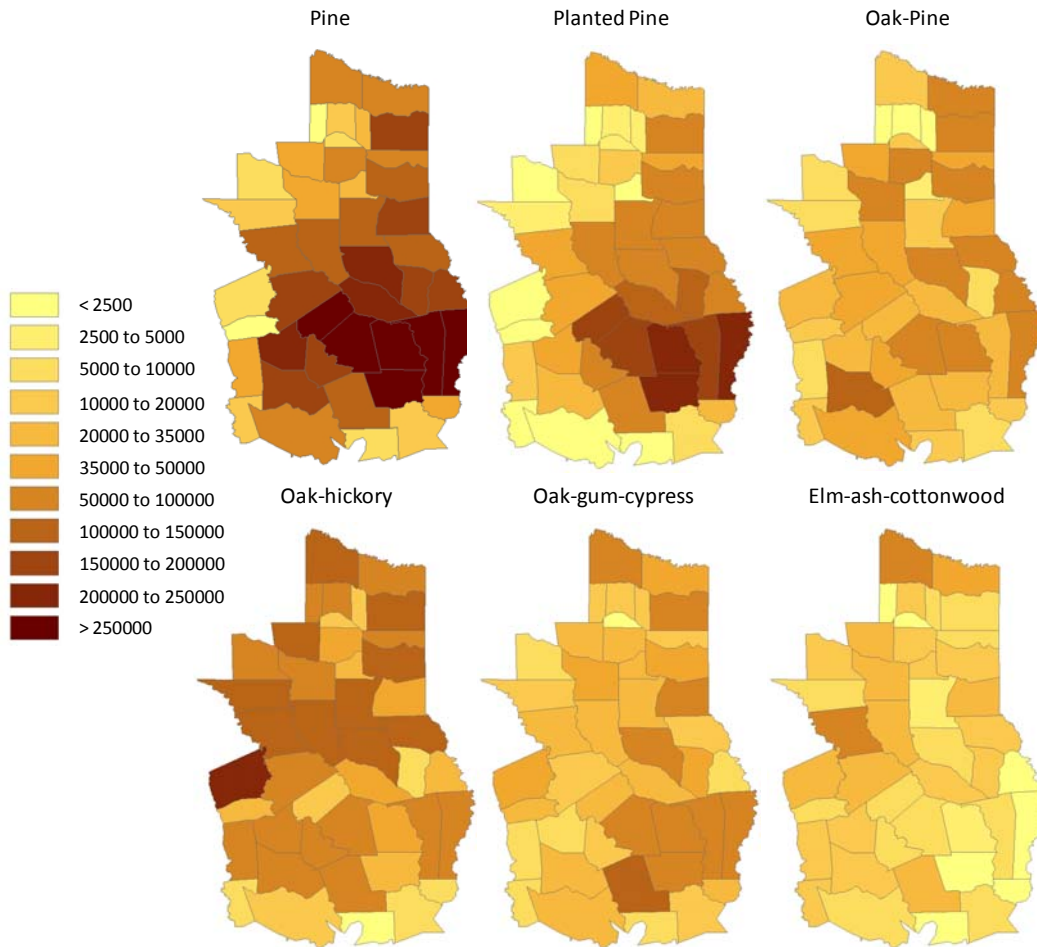
<http://www.fia.fs.fed.us/tools-data/default.asp>



# East Texas Forestlands: 2008

## Appendix I

**Figure 1: Area of timberland by forest type and county, 2008**

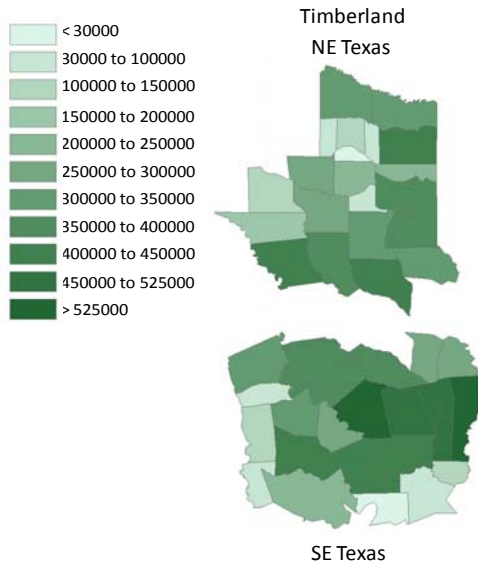


**Table 1: Acres of timberland planted by species,  
(Other includes bald cypress, cherrybark oak, longleaf pine, Scotch pine and Virginia pine)**

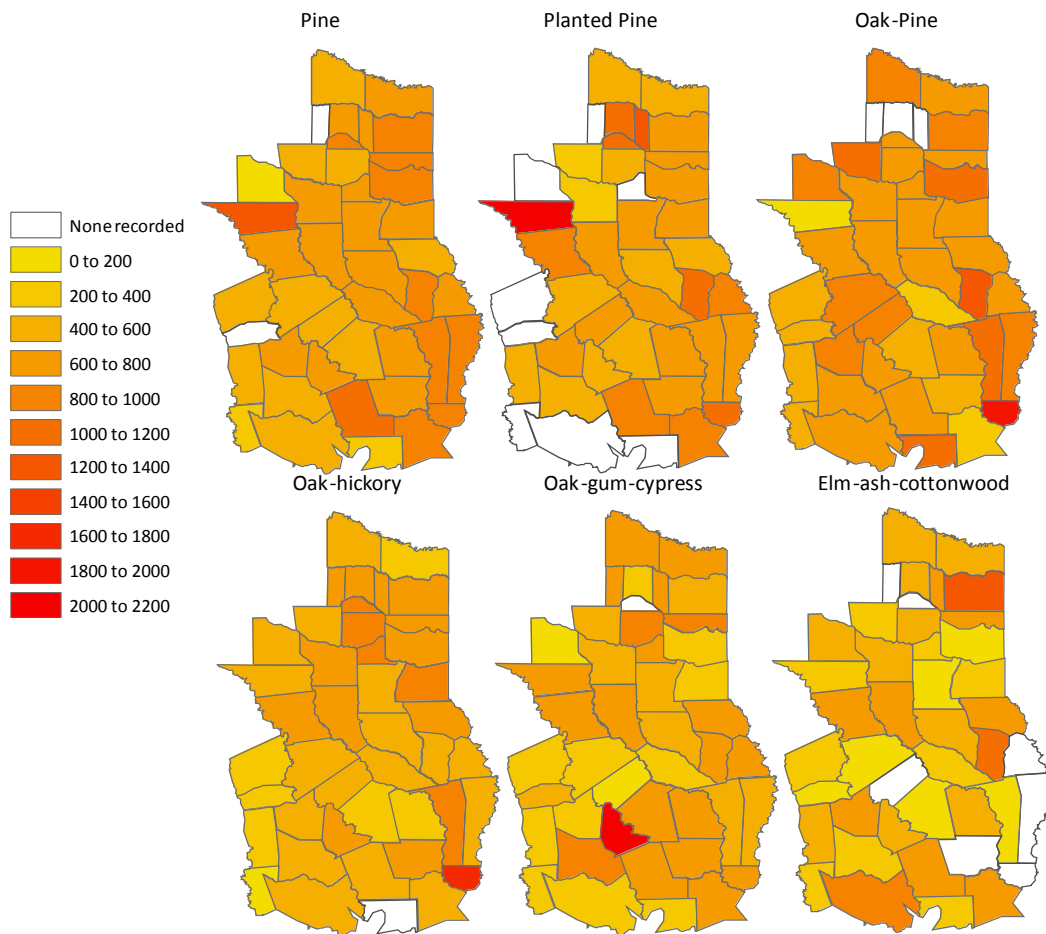
Region	Species	Acres
SE Texas	Loblolly pine	1,883,074
	Other	17,160
	Slash pine	104,097
NE Texas	Loblolly pine	882,616
	Other	18,256
	Slash pine	9,344

# East Texas Forestlands: 2008

**Figure 2: Area of timberland across all forest types by county, 2008**

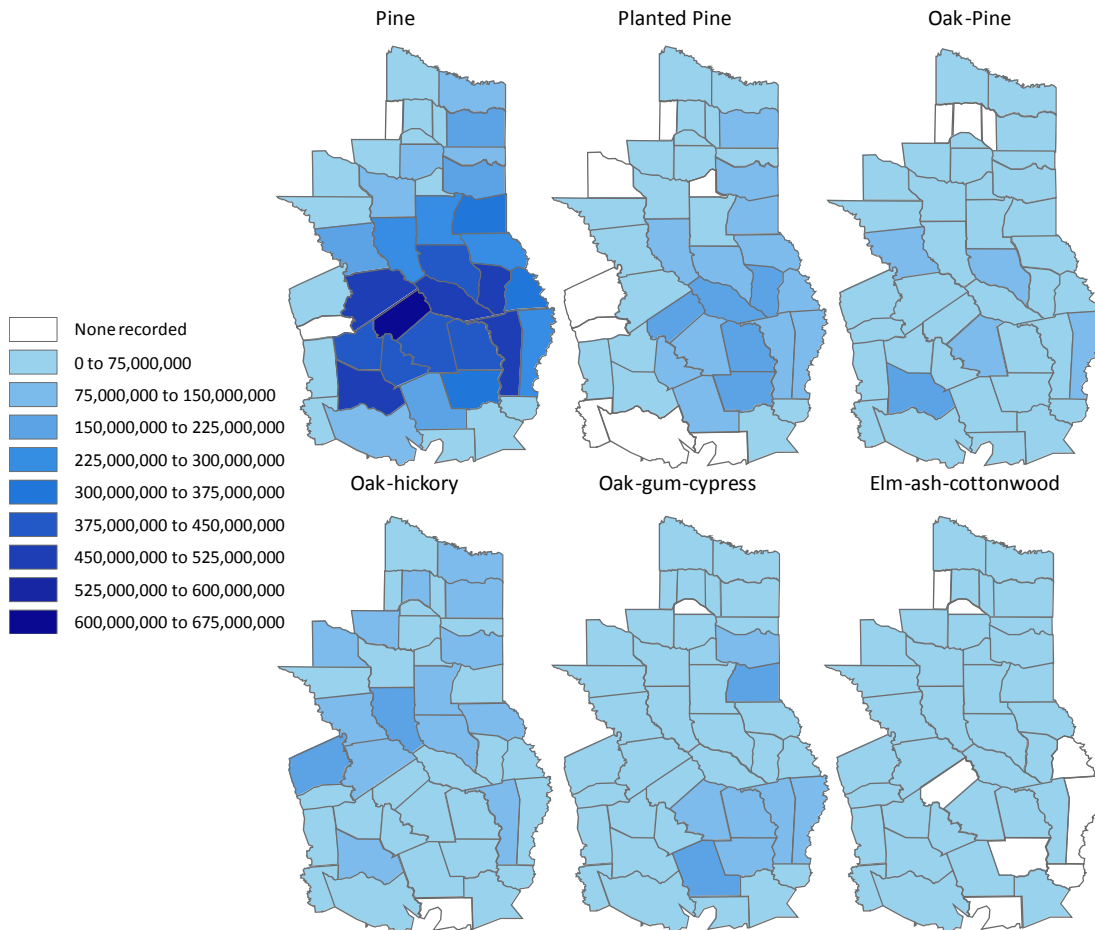


**Figure 3: Average trees per acre (both non-growing stock and growing stock trees) on forestland by forest type and county, 2008**



# East Texas Forestlands: 2008

**Figure 4: Growing stock volume (ft<sup>3</sup>) on timberland by forest type and county, 2008**

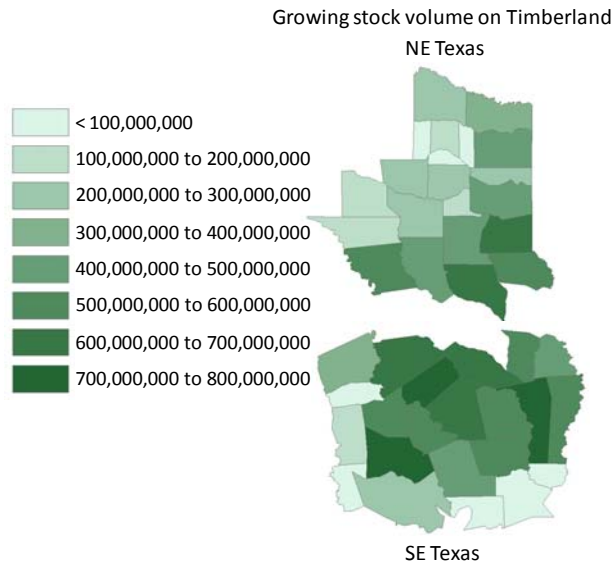


**Table 2: Growing stock volume of plantation timberland by species**  
(Other includes baldcypress, cherrybark oak, longleaf pine, Scotch pine and Virginia pine)

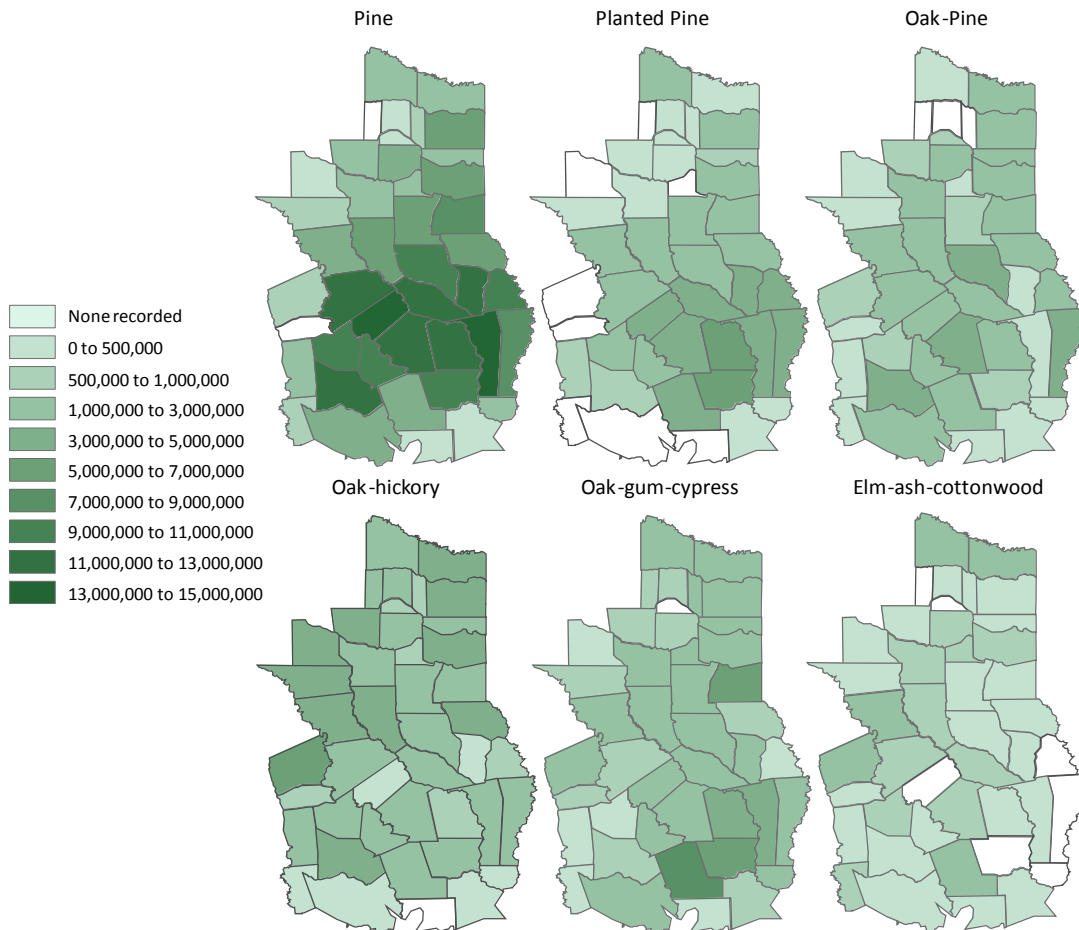
Region	Species	ft <sup>3</sup>
SE Texas	Loblolly pine	1,642,423,818
	Other	7,602,450
	Slash pine	148,559,642
NE Texas	Loblolly pine	812,981,142
	Other	23,063,621
	Slash pine	10,254,287

# East Texas Forestlands: 2008

**Figure 5: Growing stock volume of timberland across all forest types by county, 2008**



**Figure 6: Standing biomass (oven-dry tons) of all trees on forestland by forest type and county, 2008**

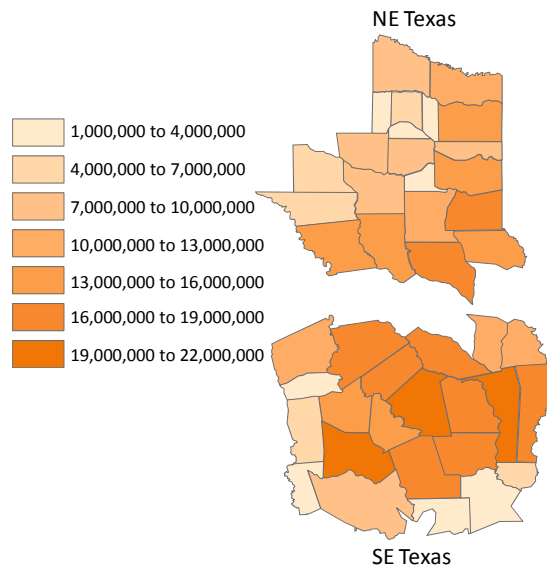


# East Texas Forestlands: 2008

**Table 3: Biomass of all trees on plantation forestland by species**  
(Other includes baldcypress, cherrybark oak, longleaf pine, Scotch pine and Virginia pine)

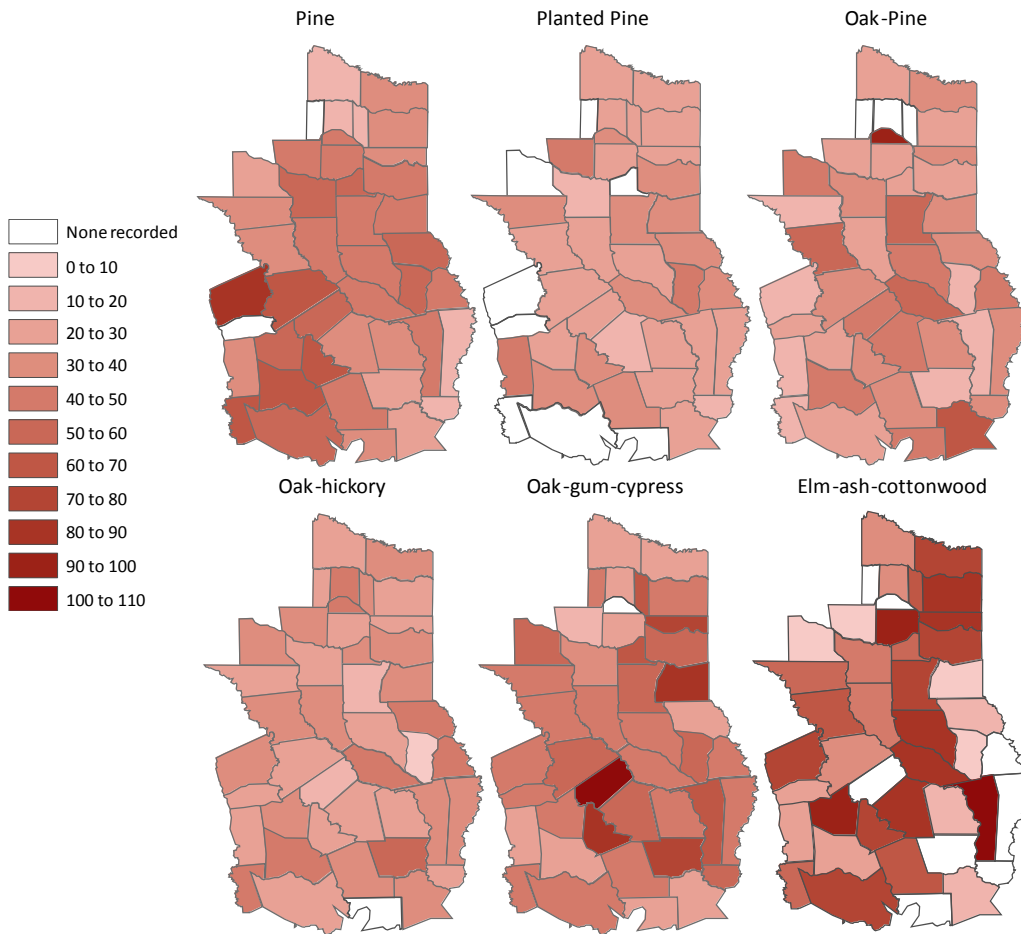
Region	Species	Oven-dry tons
SE Texas	Loblolly pine	46,488,146
	Other	221,687
	Slash pine	4,464,736
NE Texas	Loblolly pine	22,924,925
	Other	539,690
	Slash pine	278,597

**Figure 7: Standing biomass (oven-dry tons) of all trees on forestland by county, 2008**



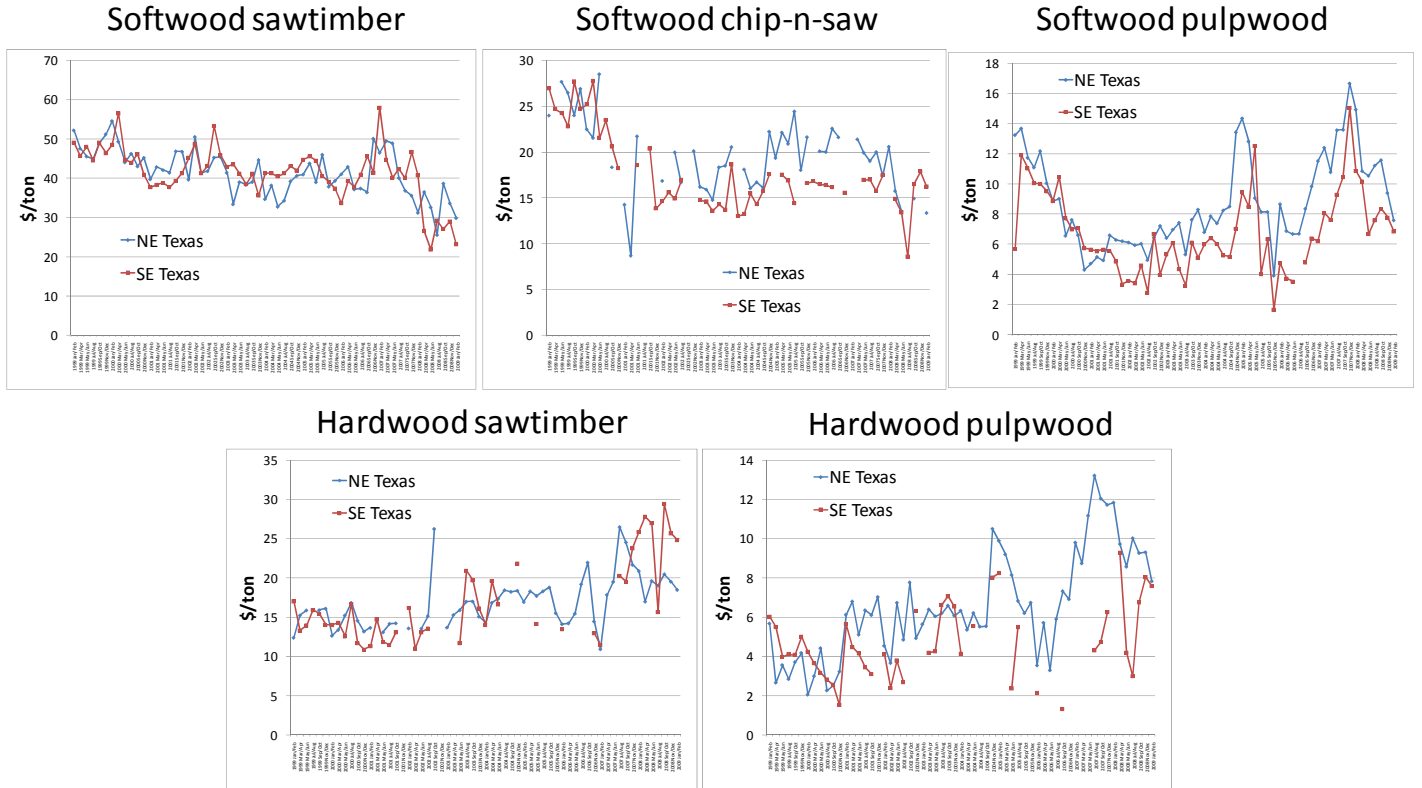
# East Texas Forestlands: 2008

**Figure 8: Average standing biomass (oven-dry tons) per acre of all trees on forestland by forest type and county, 2008**



# East Texas Forestlands: 2008

**Figure 9: Stumpage prices for the period from January/February 1999 to January/February 2009**



# East Texas Forestlands: 2008

## Appendix II

Acre, tree, volume (growing-stock only) and biomass (all trees) estimates for the Pine forest type by county

County	Acres (Forest)	Acres (Timber)	Trees (Forest)	Trees (Timber)	Trees Per Acre	Trees Per Acre	Volume	Volume Per Acre	Biomass	Biomass Per Acre
Anderson	117,646	117,646	92,023,251	68,967,784	782	586	172,756,817	1,468	4,675,315	39.7
Angelina	253,132	241,121	157,486,659	112,752,998	622	468	458,084,123	1,900	12,630,368	49.9
Bowie	69,948	69,948	49,456,540	28,639,591	707	409	90,251,109	1,290	2,417,492	34.6
Camp	7,219	7,219	6,886,686	4,464,822	954	618	11,478,768	1,590	310,969	43.1
Cass	165,041	165,041	139,214,558	95,688,001	844	580	221,799,571	1,344	6,202,073	37.6
Chambers	7,507	7,507	1,695,482	1,442,498	226	192	10,730,597	1,429	287,233	38.3
Cherokee	144,302	144,302	100,827,777	65,700,157	699	455	230,406,268	1,597	5,881,330	40.8
Franklin	.	.	.	.	.	.	.	.	.	.
Gregg	22,925	22,925	13,847,987	5,363,536	604	234	50,684,774	2,211	1,177,372	51.4
Grimes	39,506	39,506	16,960,260	11,911,403	429	302	48,684,057	1,232	1,309,692	33.2
Hardin	313,369	301,359	207,620,373	97,005,994	663	322	345,254,354	1,146	9,890,372	31.6
Harris	61,081	61,081	26,304,885	13,963,414	431	229	131,123,189	2,147	3,422,806	56.0
Harrison	106,325	106,325	86,440,529	42,200,851	813	397	199,410,996	1,875	5,014,474	47.2
Henderson	13,661	13,661	18,670,326	10,022,618	1,367	734	18,100,593	1,325	522,668	38.3
Houston	193,121	187,115	97,347,588	57,365,983	504	307	482,635,945	2,579	12,460,298	64.5
Jasper	324,495	318,977	264,929,910	152,870,391	816	479	455,266,694	1,427	13,394,810	41.3
Jefferson	10,365	10,365	8,950,323	3,370,960	864	325	8,866,252	855	302,712	29.2
Leon	6,005	6,005	3,354,823	1,984,606	559	330	18,338,013	3,054	519,361	86.5
Liberty	122,418	122,418	124,404,282	69,086,312	1,016	564	160,343,775	1,310	4,981,776	40.7
Madison	.	.	.	.	.	.	.	.	.	.
Marion	77,676	77,676	68,818,422	49,482,342	886	637	98,867,989	1,273	2,849,262	36.7
Montgomery	189,747	188,246	96,558,545	59,087,952	509	314	502,661,848	2,670	12,565,635	66.2
Morris	22,976	22,976	17,802,922	11,123,085	775	484	20,160,244	877	595,840	25.9
Nacogdoches	203,557	203,557	140,471,024	92,441,752	690	454	393,646,322	1,934	9,894,986	48.6
Newton	314,372	314,372	276,065,614	179,674,105	878	572	272,598,362	867	8,233,725	26.2
Orange	46,283	46,283	45,331,320	21,919,180	979	474	39,251,343	848	1,249,721	27.0
Panola	171,718	171,718	135,854,001	86,347,945	791	503	313,347,244	1,825	8,094,926	47.1
Polk	302,234	302,234	176,310,960	100,409,105	583	332	433,269,655	1,434	11,115,897	36.8
Red River	59,431	59,431	33,943,779	12,875,259	571	217	59,930,796	1,008	1,602,150	27.0
Rusk	114,448	114,448	70,033,385	42,638,706	612	373	231,456,911	2,022	5,709,731	49.9
Sabine	189,725	183,720	149,009,993	84,102,464	785	458	358,236,205	1,950	9,386,429	49.5
San Augustine	192,241	192,241	160,597,836	107,363,772	835	558	450,042,479	2,341	11,143,639	58.0
San Jacinto	164,426	164,426	103,901,440	63,205,753	632	384	401,462,664	2,442	10,073,007	61.3
Shelby	134,459	134,459	67,310,756	45,846,721	501	341	278,705,299	2,073	6,843,759	50.9
Smith	43,542	43,542	31,323,360	18,507,300	719	425	102,282,770	2,349	2,579,624	59.2
Titus	13,530	13,530	9,421,025	5,377,969	696	397	9,644,914	713	355,114	26.2
Trinity	273,503	273,503	160,302,638	97,447,622	586	356	609,792,242	2,230	14,980,602	54.8
Tyler	321,196	316,801	235,172,288	153,711,143	732	485	375,777,697	1,186	11,029,938	34.3
Upshur	72,036	72,036	41,576,682	22,034,455	577	306	134,714,178	1,870	3,386,102	47.0
Van Zandt	7,054	7,054	1,144,038	221,237	162	31	9,582,792	1,358	211,499	30.0
Walker	212,897	212,897	135,769,751	89,828,415	638	422	443,197,281	2,082	10,956,379	51.5
Waller	13,618	13,618	3,449,020	1,867,081	253	137	37,401,021	2,746	890,238	65.4
Wood	43,124	43,124	19,537,139	8,882,577	453	206	72,398,080	1,679	1,748,648	40.5



# East Texas Forestlands: 2008

## Appendix III

**Acre, tree, volume (growing-stock only) and biomass (all trees) estimates for the Planted Pine forest type by county**

County	Acres (Forest)	Acres (Timber)	Trees (Forest)	Trees (Timber)	Trees Per Acre	Trees Per Acre	Volume	Volume Per Acre	Biomass	Biomass Per Acre
Anderson	47,477	47,477	41,758,506	31,211,542	880	657	47,262,222	995	1,415,947	29.8
Angelina	111,042	111,042	70,851,105	57,058,320	638	514	173,519,354	1,563	4,294,034	38.7
Bowie	22,768	22,768	13,494,597	4,282,133	593	188	18,412,103	809	479,499	21.1
Camp	2,666	2,666	3,079,545	2,169,260	1,155	814	2,569,238	964	80,655	30.3
Cass	93,106	93,106	66,574,789	48,640,109	715	522	89,844,211	965	2,582,017	27.7
Chambers	.	.	.	.	.	.	.	.	.	.
Cherokee	78,924	78,924	63,007,994	44,058,719	798	558	86,010,509	1,090	2,359,014	29.9
Franklin	.	.	.	.	.	.	.	.	.	.
Gregg	.	.	.	.	.	.	.	.	.	.
Grimes	15,013	15,013	6,315,225	4,028,113	421	268	24,275,197	1,617	603,975	40.2
Hardin	209,894	209,894	146,340,689	66,764,757	697	318	189,962,377	905	5,387,866	25.7
Harris	.	.	.	.	.	.	.	.	.	.
Harrison	61,006	61,006	47,672,723	23,128,473	781	379	92,629,401	1,518	2,365,972	38.8
Henderson	4,554	4,554	9,963,070	6,777,072	2,188	1,488	3,628,738	797	155,476	34.1
Houston	49,370	49,370	25,007,103	14,690,627	507	298	55,844,784	1,131	1,431,066	29.0
Jasper	170,995	170,995	129,182,539	75,215,781	755	440	145,811,715	853	4,421,699	25.9
Jefferson	5,996	5,996	4,971,771	397,547	829	66	3,108,082	518	152,342	25.4
Leon	.	.	.	.	.	.	.	.	.	.
Liberty	83,833	83,833	81,987,689	43,263,180	978	516	93,870,200	1,120	3,032,060	36.2
Madison	.	.	.	.	.	.	.	.	.	.
Marion	40,536	40,536	30,363,129	20,998,255	749	518	32,005,212	790	962,931	23.8
Montgomery	23,540	23,540	13,822,208	12,850,398	587	546	30,092,803	1,278	852,049	36.2
Morris	3,077	3,077	3,842,572	2,882,730	1,249	937	1,539,136	500	71,651	23.3
Nacogdoches	97,718	97,718	55,173,983	42,146,752	565	431	97,834,370	1,001	2,718,078	27.8
Newton	223,710	223,710	147,684,889	105,405,876	660	471	149,615,609	669	4,607,730	20.6
Orange	21,152	21,152	23,944,060	12,446,472	1,132	588	9,935,779	470	421,348	19.9
Panola	95,616	95,616	62,211,340	38,610,226	651	404	109,928,004	1,150	2,929,803	30.6
Polk	190,539	190,539	88,335,468	57,392,387	464	301	125,702,660	660	3,481,004	18.3
Red River	44,446	44,446	25,928,535	9,921,896	583	223	42,737,597	962	1,173,624	26.4
Rusk	56,117	56,117	36,578,202	20,444,913	652	364	72,744,271	1,296	1,958,858	34.9
Sabine	99,822	99,822	85,817,575	54,297,435	860	544	113,989,323	1,142	3,332,464	33.4
San Augustine	101,965	101,965	102,487,518	67,140,187	1,005	658	190,476,285	1,868	4,944,359	48.5
San Jacinto	56,125	56,125	27,981,919	14,399,626	499	257	83,874,739	1,494	2,124,946	37.9
Shelby	66,569	66,569	38,217,310	28,842,105	574	433	78,333,378	1,177	2,033,697	30.6
Smith	5,426	5,426	2,021,596	2,021,596	373	373	1,745,724	322	68,549	12.6
Titus	4,081	4,081	4,189,208	1,239,126	1,027	304	2,886,687	707	90,624	22.2
Trinity	155,774	155,774	96,612,276	67,998,931	620	437	164,389,272	1,055	4,461,731	28.6
Tyler	208,941	208,941	133,945,612	93,562,833	641	448	187,123,101	896	5,283,518	25.3
Upshur	13,713	13,713	8,167,078	5,317,325	596	388	9,288,865	677	299,038	21.8
Van Zandt	.	.	.	.	.	.	.	.	.	.
Walker	46,517	46,517	32,765,496	25,057,278	704	539	32,237,029	693	1,009,762	21.7
Waller	.	.	.	.	.	.	.	.	.	.
Wood	7,480	7,480	1,686,852	550,077	226	74	13,495,358	1,804	310,512	41.5

# East Texas Forestlands: 2008

## Appendix IV

Acre, tree, volume (growing-stock only) and biomass (all trees) estimates for the Oak-Pine forest type by county

County	Acres (Forest)	Acres (Timber)	Trees (Forest)	Trees (Timber)	Trees Per Acre	Trees Per Acre	Volume	Volume Per Acre	Biomass	Biomass Per Acre
Anderson	49,951	49,951	35,559,781	20,028,547	712	401	96,970,829	1,941	2,578,680	51.6
Angelina	29,414	29,414	8,456,272	4,786,108	287	163	56,335,619	1,915	1,473,199	50.1
Bowie	58,300	58,300	39,489,193	19,907,345	677	341	56,918,480	976	1,784,495	30.6
Camp	10,690	10,690	8,198,887	4,448,133	767	416	38,181,871	3,572	979,736	91.6
Cass	57,882	57,882	48,081,486	31,079,453	831	537	60,507,897	1,045	1,692,574	29.2
Chambers	10,022	10,022	10,339,549	5,512,996	1,032	550	9,983,457	996	436,488	43.6
Cherokee	37,413	37,413	25,753,840	14,088,373	688	377	34,120,869	912	1,092,062	29.2
Franklin	.	.	.	.	.	.	.	.	.	.
Gregg	3,077	3,077	2,290,086	111,121	744	36	1,912,392	621	88,143	28.6
Grimes	9,481	9,481	3,792,442	1,458,349	400	154	4,299,702	454	174,435	18.4
Hardin	27,969	21,963	16,505,499	5,336,303	590	243	9,685,573	441	520,396	18.6
Harris	36,020	36,020	23,483,846	8,360,468	652	232	30,791,989	855	1,017,430	28.2
Harrison	92,450	92,450	101,531,336	46,919,474	1,098	508	69,577,877	753	2,471,244	26.7
Henderson	9,114	9,114	885,951	774,831	97	85	6,383,758	700	175,902	19.3
Houston	42,316	42,316	40,470,913	23,221,787	956	549	43,909,931	1,038	1,426,535	33.7
Jasper	34,448	34,448	41,136,247	13,894,974	1,194	403	7,931,202	230	394,487	11.5
Jefferson	6,005	6,005	2,109,535	956,163	351	159	14,151,404	2,356	392,010	65.3
Leon	28,878	28,878	12,814,681	4,827,989	444	167	16,359,508	566	504,526	17.5
Liberty	30,283	30,283	18,178,220	6,003,341	600	198	43,134,623	1,424	1,195,508	39.5
Madison	10,686	10,686	4,949,638	1,029,725	463	96	4,650,437	435	262,587	24.6
Marion	49,678	49,678	33,514,714	8,962,125	675	180	58,698,734	1,182	1,976,187	39.8
Montgomery	111,177	106,673	84,014,749	37,846,265	756	355	151,106,505	1,417	4,987,070	44.9
Morris	.	.	.	.	.	.	.	.	.	.
Nacogdoches	67,276	67,276	53,427,488	28,718,814	794	427	127,285,608	1,892	3,356,471	49.9
Newton	91,702	91,702	83,335,534	43,730,576	909	477	103,978,428	1,134	3,184,824	34.7
Orange	12,011	12,011	21,885,070	4,866,475	1,822	405	10,160,608	846	467,467	38.9
Panola	36,986	36,986	29,349,805	17,161,676	794	464	38,242,575	1,034	1,181,119	31.9
Polk	98,737	87,214	55,297,576	26,368,858	560	302	119,941,162	1,375	4,025,023	40.8
Red River	18,094	18,094	16,411,327	9,711,919	907	537	10,414,916	576	392,398	21.7
Rusk	15,670	15,670	9,909,315	3,037,772	632	194	29,900,237	1,908	811,742	51.8
Sabine	50,363	50,363	34,624,543	18,105,859	688	360	70,824,688	1,406	2,029,395	40.3
San Augustine	6,005	6,005	8,014,709	6,213,932	1,335	1,035	1,761,457	293	97,163	16.2
San Jacinto	42,658	42,658	32,899,450	20,320,082	771	476	43,090,501	1,010	1,351,869	31.7
Shelby	52,636	52,636	31,690,290	22,414,424	602	426	66,000,960	1,254	1,881,495	35.7
Smith	68,457	68,457	53,285,036	21,475,800	778	314	62,878,847	919	2,153,573	31.5
Titus	.	.	.	.	.	.	.	.	.	.
Trinity	26,381	26,381	24,201,183	14,212,299	917	539	26,570,239	1,007	1,164,022	44.1
Tyler	62,977	62,977	40,486,803	11,377,817	643	181	63,835,336	1,014	2,002,159	31.8
Upshur	54,812	54,812	35,798,867	10,158,034	653	185	52,895,917	965	1,537,609	28.1
Van Zandt	9,149	9,149	7,651,169	4,394,761	836	480	9,416,894	1,029	385,731	42.2
Walker	27,847	27,847	23,946,845	15,582,868	860	560	17,126,198	615	675,146	24.2
Waller	10,144	10,144	4,225,336	2,702,843	417	266	6,369,540	628	199,894	19.7
Wood	36,055	36,055	39,126,090	18,759,979	1,085	520	20,611,280	572	834,679	23.2

# East Texas Forestlands: 2008

## Appendix V

**Acre, tree, volume (growing-stock only) and biomass (all trees) estimates for the Oak-hickory forest type by county**

County	Acres (Forest)	Acres (Timber)	Trees (Forest)	Trees (Timber)	Trees Per Acre	Trees Per Acre	Volume	Volume Per Acre	Biomass	Biomass Per Acre
Anderson	148,876	148,876	105,162,966	59,305,570	706	398	140,215,876	942	4,965,297	33.4
Angelina	44,286	44,286	22,431,595	8,361,662	507	189	65,317,028	1,475	1,910,624	43.1
Bowie	84,456	84,456	29,684,192	10,778,373	351	128	109,823,756	1,300	3,214,967	38.1
Camp	12,523	12,523	10,406,214	3,445,940	831	275	19,017,848	1,519	591,659	47.2
Cass	130,886	130,886	95,057,192	41,584,450	726	318	114,726,213	877	3,681,805	28.1
Chambers	.	.	.	.	.	.	.	.	.	.
Cherokee	140,918	140,918	85,883,946	39,579,171	609	281	158,057,932	1,122	4,718,294	33.5
Franklin	62,711	62,711	41,277,621	12,684,192	658	202	47,842,129	763	1,786,679	28.5
Gregg	24,317	24,317	20,618,977	7,891,675	848	325	19,445,486	800	742,516	30.5
Grimes	67,957	64,271	16,626,488	4,615,885	245	72	32,730,414	509	1,808,876	26.6
Hardin	38,759	32,753	23,316,941	4,895,194	602	149	56,696,817	1,731	2,045,631	52.8
Harris	11,994	11,994	5,741,601	3,538,418	479	295	7,911,770	660	329,176	27.4
Harrison	133,917	133,917	98,733,623	33,745,841	737	252	125,343,414	936	4,531,130	33.8
Henderson	136,544	130,472	56,908,118	11,080,143	417	85	67,326,558	516	3,938,700	28.8
Houston	94,696	94,696	44,449,354	19,846,822	469	210	85,819,226	906	2,751,891	29.1
Jasper	72,089	72,089	59,509,972	26,839,202	826	372	89,914,825	1,247	2,734,674	37.9
Jefferson	7,825	7,825	3,411,968	812,198	436	104	7,777,812	994	279,213	35.7
Leon	220,985	214,980	54,146,109	28,303,543	245	132	176,867,767	823	6,893,903	31.2
Liberty	54,559	54,559	32,051,119	8,405,310	587	154	42,587,766	781	1,668,742	30.6
Madison	26,892	26,892	5,902,894	1,740,813	220	65	22,208,386	826	789,820	29.4
Marion	61,086	61,086	40,035,526	14,268,138	655	234	44,339,976	726	1,601,880	26.2
Montgomery	69,091	69,091	28,317,437	9,763,124	410	141	108,753,101	1,574	3,180,768	46.0
Morris	16,780	16,780	12,489,080	2,924,471	744	174	18,137,398	1,081	590,018	35.2
Nacogdoches	101,080	101,080	50,905,172	20,820,377	504	206	79,333,307	785	2,959,866	29.3
Newton	64,736	64,736	36,063,547	12,678,920	557	196	67,297,128	1,040	2,146,534	33.2
Orange	6,005	6,005	10,590,946	5,566,527	1,764	927	2,421,909	403	142,120	23.7
Panola	45,606	45,606	42,834,266	22,331,138	939	490	50,308,370	1,103	1,754,296	38.5
Polk	94,179	82,168	34,820,725	10,651,598	370	130	45,660,051	556	2,306,917	24.5
Red River	105,953	105,953	51,574,054	24,769,403	487	234	70,649,951	667	2,703,191	25.5
Rusk	140,439	140,439	74,113,093	33,354,099	528	237	80,639,550	574	2,634,492	18.8
Sabine	23,770	23,770	14,007,635	6,358,274	589	267	32,423,723	1,364	980,108	41.2
San Augustine	6,005	6,005	2,467,815	667,038	411	111	391,577	65	19,490	3.2
San Jacinto	61,630	61,630	40,064,385	13,568,611	650	220	57,733,927	937	1,787,705	29.0
Shelby	101,453	101,453	70,808,067	38,484,915	698	379	129,986,258	1,281	4,134,370	40.8
Smith	78,333	78,333	51,072,907	16,344,210	652	209	37,158,312	474	1,603,042	20.5
Titus	67,801	67,801	52,965,080	14,494,543	781	214	81,154,174	1,197	2,721,980	40.1
Trinity	16,120	16,120	7,188,651	3,411,414	446	212	3,523,344	219	183,729	11.4
Tyler	37,868	37,868	13,800,643	7,243,281	364	191	27,253,265	720	986,446	26.0
Upshur	44,910	44,910	42,529,905	14,673,430	947	327	24,119,288	537	1,051,541	23.4
Van Zandt	87,367	87,367	44,616,150	13,236,719	511	152	101,048,190	1,157	3,342,033	38.3
Walker	65,155	65,155	38,653,461	15,244,241	593	234	57,520,081	883	2,108,732	32.4
Waller	8,365	8,365	907,414	635,876	108	76	12,642,664	1,511	394,207	47.1
Wood	120,819	120,819	60,343,230	25,560,806	499	212	143,360,867	1,187	4,591,380	38.0

# East Texas Forestlands: 2008

## Appendix VI

Acre, tree, volume (growing-stock only) and biomass (all trees) estimates for the Oak-gum-cypress forest type by county

County	Acres (Forest)	Acres (Timber)	Trees (Forest)	Trees (Timber)	Trees Per Acre	Trees Per Acre	Volume	Volume Per Acre	Biomass	Biomass Per Acre
Anderson	28,800	28,800	18,556,532	11,063,445	644	384	36,145,580	1,255	1,164,510	40.4
Angelina	29,778	29,778	10,167,860	3,774,640	341	127	41,526,834	1,395	1,212,986	40.7
Bowie	41,724	41,724	28,137,639	8,319,926	674	199	39,514,191	947	1,432,749	34.3
Camp	.	.	.	.	.	.	.	.	.	.
Cass	54,166	54,166	32,147,845	11,125,944	594	205	68,931,784	1,273	2,244,900	41.4
Chambers	6,005	6,005	1,245,287	795,093	207	132	7,853,223	1,308	219,359	36.5
Cherokee	33,455	33,455	20,688,378	9,734,182	618	291	43,033,617	1,286	1,408,860	42.1
Franklin	17,667	17,667	11,570,735	5,853,259	655	331	30,967,293	1,753	873,756	49.5
Gregg	22,698	22,698	16,568,223	3,325,502	730	147	39,483,511	1,739	1,385,254	61.0
Grimes	5,518	5,518	1,159,462	232,467	210	42	6,099,557	1,105	196,791	35.7
Hardin	78,551	67,779	57,284,208	17,103,597	729	252	130,639,963	1,927	5,609,291	71.4
Harris	27,795	27,795	10,638,293	2,233,381	383	80	41,748,416	1,502	1,322,939	47.6
Harrison	37,750	37,750	12,975,010	6,008,460	344	159	80,129,600	2,123	2,090,662	55.4
Henderson	12,143	12,143	8,836,719	3,082,706	728	254	17,304,184	1,425	574,129	47.3
Houston	13,611	13,611	4,415,000	2,107,788	324	155	25,598,519	1,881	768,273	56.4
Jasper	73,618	66,351	40,208,449	16,858,677	546	254	132,198,827	1,992	4,783,753	65.0
Jefferson	18,016	18,016	12,092,344	9,588,388	671	532	17,558,218	975	607,576	33.7
Leon	38,450	38,450	10,194,501	3,677,538	265	96	57,546,708	1,497	1,734,839	45.1
Liberty	141,273	138,510	89,328,087	25,897,537	632	187	190,131,475	1,373	7,002,402	49.6
Madison	23,049	23,049	9,420,235	3,877,896	409	168	29,677,909	1,288	966,242	41.9
Marion	19,581	19,581	16,158,698	3,903,226	825	199	54,055,859	2,761	1,501,137	76.7
Montgomery	24,812	24,812	22,883,408	11,290,027	922	455	17,627,049	710	859,364	34.6
Morris	18,480	18,480	11,447,409	4,501,768	619	244	33,634,349	1,820	1,164,696	63.0
Nacogdoches	53,333	53,333	21,594,993	10,117,486	405	190	70,410,619	1,320	2,174,907	40.8
Newton	64,980	64,980	38,290,769	21,717,565	589	334	92,658,364	1,426	2,987,359	46.0
Orange	34,863	28,857	25,051,284	4,457,595	719	154	20,765,120	720	1,853,396	53.2
Panola	75,203	75,203	27,659,808	11,987,320	368	159	220,623,661	2,934	6,592,749	87.7
Polk	51,251	51,251	40,675,805	13,285,695	794	259	75,922,327	1,481	2,577,404	50.3
Red River	62,238	62,238	44,016,620	14,436,362	707	232	69,779,042	1,121	2,247,700	36.1
Rusk	29,471	29,471	15,394,047	7,792,451	522	264	55,454,601	1,882	1,628,967	55.3
Sabine	5,628	5,628	3,962,960	811,600	704	144	7,943,768	1,411	243,866	43.3
San Augustine	35,244	35,244	21,399,286	10,016,897	607	284	61,580,012	1,747	1,816,107	51.5
San Jacinto	17,121	17,121	35,488,290	8,152,091	2,073	476	53,614,996	3,132	1,529,327	89.3
Shelby	17,422	17,422	11,672,717	5,546,062	670	318	21,185,492	1,216	610,154	35.0
Smith	36,465	36,465	20,607,315	7,525,286	565	206	26,863,160	737	1,416,879	38.9
Titus	17,488	17,488	4,258,582	2,265,822	244	130	21,874,244	1,251	642,267	36.7
Trinity	22,906	22,906	4,331,311	1,830,656	189	80	65,107,850	2,842	2,439,407	106.5
Tyler	77,231	71,225	50,219,954	18,234,490	650	256	105,466,370	1,481	3,524,994	45.6
Upshur	24,853	24,853	24,829,131	9,710,244	999	391	26,060,439	1,049	900,383	36.2
Van Zandt	9,107	9,107	1,531,428	1,275,663	168	140	5,104,832	561	482,398	53.0
Walker	5,663	5,663	1,402,164	649,642	248	115	4,577,114	808	231,364	40.9
Waller	7,507	7,507	1,784,270	252,984	238	34	9,132,964	1,217	324,467	43.2
Wood	29,326	29,326	13,263,405	4,078,773	452	139	23,056,810	786	748,690	25.5

# East Texas Forestlands: 2008

## Appendix VII

Acre, tree, volume (growing-stock only) and biomass (all trees) estimates for the Elm-ash-cottonwood forest type by county

County	Acres (Forest)	Acres (Timber)	Trees (Forest)	Trees (Timber)	Trees Per Acre (Forest)	Trees Per Acre (Timber)	Volume	Volume Per Acre	Biomass	Biomass Per Acre
Anderson	57,122	57,122	39,619,626	11,885,769	694	208	67,119,596	1,175	2,192,689	38.4
Angelina	11,031	11,031	4,022,394	1,371,625	365	124	16,365,724	1,484	525,404	47.6
Bowie	48,570	48,570	22,618,361	7,199,219	466	148	70,818,139	1,458	2,005,019	41.3
Camp	.	.	.	.	.	.	.	.	.	.
Cass	7,471	7,471	9,446,695	5,038,609	1,264	674	10,471,334	1,402	400,585	53.6
Chambers	4,857	.	1,690,262	.	348	.	.	.	22,521	4.6
Cherokee	21,450	21,450	13,530,810	2,357,837	631	110	12,335,937	575	640,411	29.9
Franklin	.	.	.	.	.	.	.	.	.	.
Gregg	15,304	15,304	3,078,508	1,142,721	201	75	17,235,980	1,126	539,566	35.3
Grimes	16,298	16,298	6,943,627	627,008	426	38	881,883	54	341,922	21.0
Hardin	.	.	.	.	.	.	.	.	.	.
Harris	9,927	9,927	8,074,836	4,614,682	813	465	12,979,478	1,307	407,817	41.1
Harrison	14,087	14,087	2,245,501	584,605	159	41	23,049,709	1,636	633,869	45.0
Henderson	9,840	9,840	3,308,318	970,691	336	99	8,762,906	891	332,579	33.8
Houston	30,353	30,353	4,518,894	1,586,280	149	52	23,843,805	786	769,645	25.4
Jasper	5,707	5,707	517,266	257,344	91	45	14,105,780	2,472	434,277	76.1
Jefferson	7,667	7,667	5,296,237	492,339	691	64	759,200	99	106,718	13.9
Leon	24,940	24,940	9,073,423	3,313,679	364	133	30,879,879	1,238	1,043,320	41.8
Liberty	33,162	33,162	23,185,779	9,659,903	699	291	30,599,189	923	1,268,379	38.2
Madison	14,076	9,541	2,307,270	535,099	164	56	5,396,061	566	259,057	18.4
Marion	6,071	6,071	4,082,755	1,096,135	672	181	9,450,122	1,557	281,137	46.3
Montgomery	14,415	14,415	3,328,727	748,961	231	52	8,169,684	567	320,051	22.2
Morris	6,071	6,071	4,737,275	1,787,193	780	294	8,517,686	1,403	242,800	40.0
Nacogdoches	5,722	5,722	2,937,830	1,077,556	513	188	10,338,158	1,807	288,755	50.5
Newton	.	.	.	.	.	.	.	.	.	.
Orange	.	.	.	.	.	.	.	.	.	.
Panola	34,822	34,822	12,624,208	7,048,787	363	202	12,923,924	371	440,012	12.6
Polk	10,269	6,005	1,228,780	578,250	120	96	14,958,862	2,491	529,295	51.5
Red River	71,088	71,088	38,802,234	22,241,988	546	313	54,701,481	769	1,812,952	25.5
Rusk	3,036	3,036	219,227	219,227	72	72	5,243,472	1,727	123,062	40.5
Sabine	.	.	.	.	.	.	.	.	.	.
San Augustine	11,493	11,493	11,504,508	3,366,722	1,001	293	2,886,479	251	128,462	11.2
San Jacinto	7,262	7,262	3,652,064	3,069,402	503	423	10,028,125	1,381	309,720	42.6
Shelby	13,661	13,661	10,800,280	6,866,837	791	503	3,817,958	279	196,779	14.4
Smith	20,722	20,722	11,224,175	3,800,647	542	183	19,127,024	923	648,017	31.3
Titus	13,030	13,030	5,987,683	697,233	460	54	7,366,931	565	363,142	27.9
Trinity	6,005	6,005	.	.	.	.	.	.	.	.
Tyler	3,904	3,904	1,718,099	111,155	440	28	1,524,373	390	66,351	17.0
Upshur	15,434	15,434	7,819,981	4,321,831	507	280	30,538,112	1,979	942,619	61.1
Van Zandt	13,584	13,584	6,963,337	715,851	513	53	529,226	39	162,947	12.0
Walker	12,314	12,314	7,525,796	3,897,834	611	317	23,737,637	1,928	725,721	58.9
Waller	19,018	19,018	7,572,499	394,122	398	21	15,054,242	792	682,169	35.9
Wood	33,138	33,138	7,076,098	2,240,446	214	68	10,439,761	315	352,906	10.6

# East Texas Forestlands: 2008



**In Appendices II through VII, the following applies:**

'Acres (Forest)' refers to the total number of acres on forestland, while 'Acres (Timber)' refers to the number of acres on timberland. 'Trees (Forest)' refers to the total number of living trees with a dbh larger than one inch on forestland, while 'Trees (Timber)' refers to the number of growing-stock trees on timberland. Average volume per acre was calculated using 'Acres (Timber)' while average biomass per acre was calculated using 'Acres (Forest).' The information in the tables can be used to estimate "harvesting areas" for biofuel/bioenergy facilities. Volume is ft<sup>3</sup> and biomass is oven-dry tons.