United States
Department of
Agriculture

Forest Service

**Southern Forest
Experiment Station**

New Orleans,
Louisiana

Resource Bulletin
SO-I 76
January 1993

Forest Statistics for Southeast Oklahoma Counties- I993

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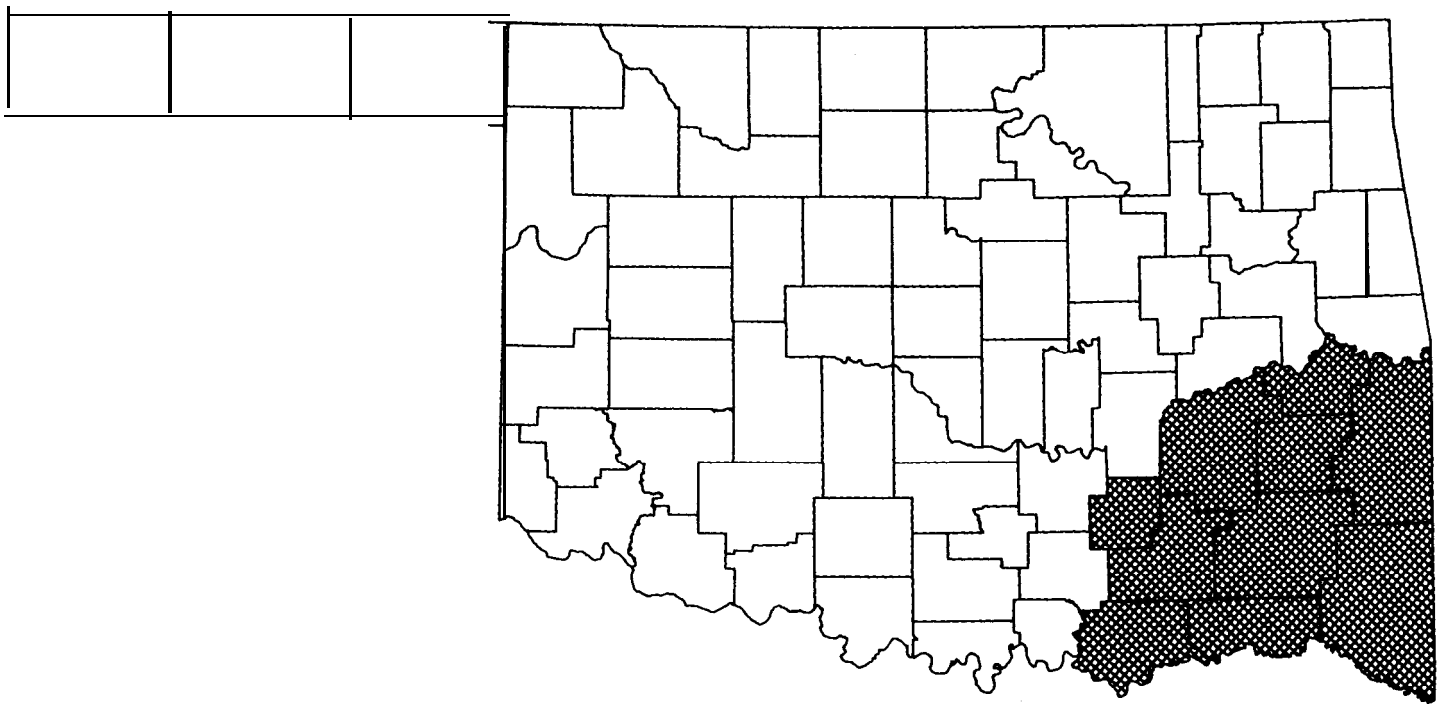

FOREWORD

The USDA-Forest Service, Southern Forest Experiment Station, Forest Inventory and Analysis unit (SO-FIA), conducts forest inventories covering the States of Alabama, Arkansas, Louisiana, Mississippi, east Oklahoma, Tennessee, and east Texas and the Commonwealth of Puerto Rico.

The SO-FIA forest inventories are part of a nationwide effort originally authorized by the McSweeney–McNary Act of 1928. More recent legislation pertinent to the SO-FIA mission includes the Forest and Rangeland Renewable Resources Planning Act of 1974 and the Forest and Rangeland Renewable Resources Research Act of 1978. The SO-FIA mission is to develop, analyze, and maintain forest resource information that is essential for formulation of forest policies and programs.

ACKNOWLEDGMENTS

The SO-FJA gratefully acknowledges the cooperation and excellent assistance provided by the Oklahoma Division of Forestry and Georgia-Pacific Corporation.

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*Core tables are presented in response to the Southern Industrial Forestry Research Council's recommendations. These tables are identical among Forest Inventory and Analysis units in the eastern United States.

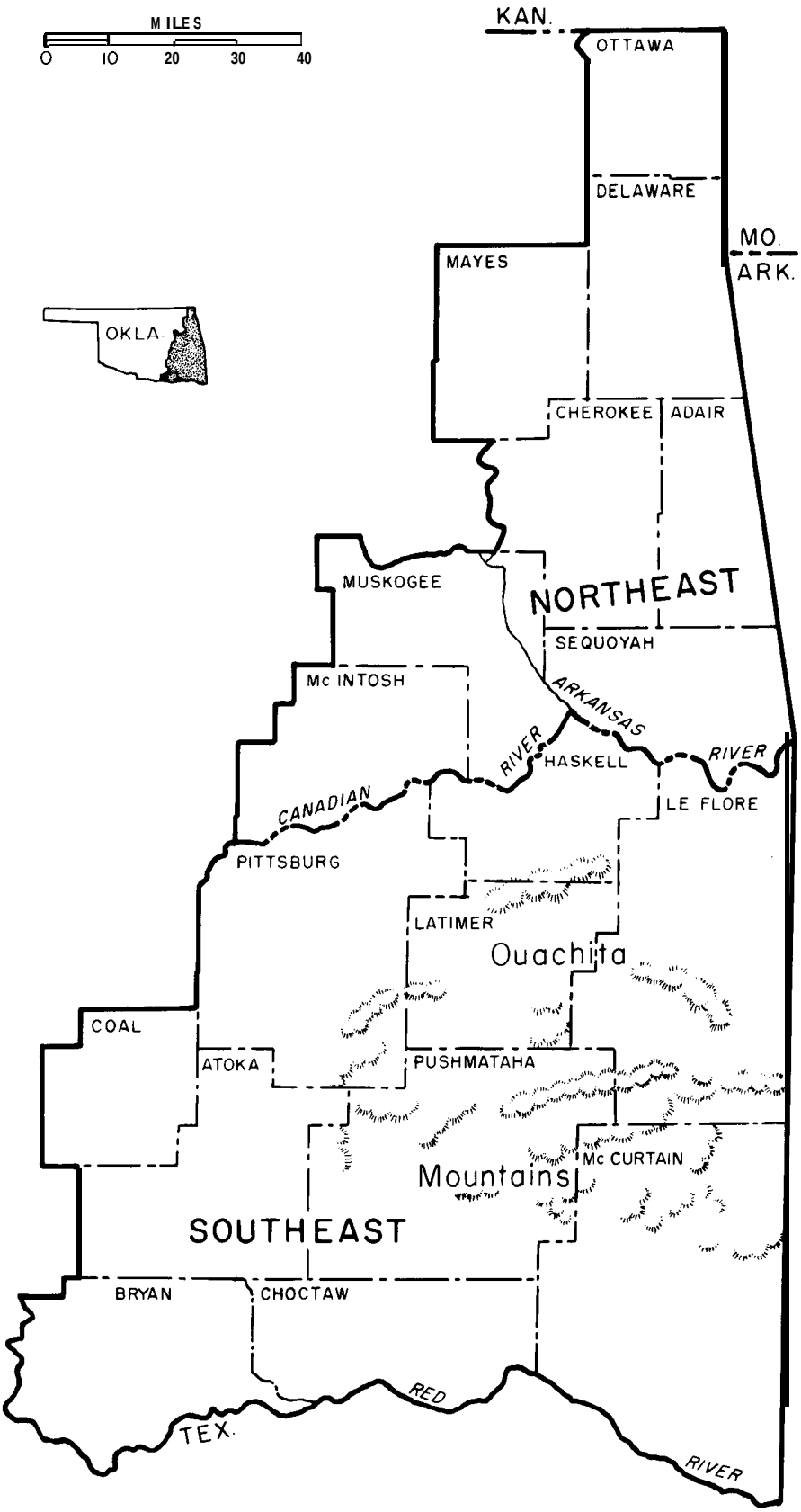

Figure *I.- Forest survey regions in Oklahoma.*

Forest Statistics for Southeast Oklahoma Counties-1993

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INTRODUCTION

Tabulated results were derived from data obtained during the 1993 forest inventory of southeast Oklahoma counties (fig. I). Field work for the southeastern unit was completed in late 1992. Core tables (1 through 25) are compatible among Forest Inventory and Analysis units in the Eastern United States. Supplemental tables (26 through 43) provide information beyond that provided by the core tables. Comparisons are made between results of the 1993 inventory and previous inventories conducted in 1986 and 1975.

METHODS

The Southern Forest Experiment Station, Forest Inventory and Analysis unit (SO-FIA) uses a two-phase sample of temporary aerial-photo points and a systematic grid of permanent ground plots. The area of forested land was determined by photointerpretation of temporary points and field checks of permanent plots. Field measurements were conducted on a subset of permanent plots spaced 3 miles apart. Trees were measured on plots that were forested at the time of the current inventory or were forested at the time of the previous inventory.

Each plot consisted of 10 satellite points spread over about 1 acre. At each point, trees 5.0 inches in diameter at breast height (d.b.h.) and larger were selected for measurement on a variable-radius plot defined by a 37.5-factor prism. Thus each tree selected with the prism represented 3.75 square feet of basal area per acre. Trees from 1 .0 to 4.9 inches in d.b.h. were tallied on a 1/275-acre fixed plot at each of the first three points and at any remaining points where fewer than two trees 5.0 inches in d.b.h. or larger were tallied. If no trees greater than 1 .O inch were tallied at a point, then seedlings were tallied. Several plot-level measurements relating to timber and other forest resources were also collected.

Tree data were used to estimate volumes, basal area, number of trees, and other plot-level variables. Ownership information was obtained for each measurement plot using tax records and other sources. Plot-level estimates were expanded using county-level factors derived as part of the forest area determination.

Over successive inventories, techniques have evolved so that some changes have been instituted. In recent inventories these changes have been mostly minor in scale and have been instituted because of the availability of better methods or to achieve greater compatibility among Forest Inventory and Analysis units. These changes may, in some cases, affect the ability to discern minor shifts in resource trends.

The major change affecting the 1993 inventory is the modified tree classification system that has been in effect since the 1988 inventory of Arkansas. Tree grade 5 is used to designate trees capable of producing at least one 12-foot log or two 8-foot logs in the sawlog portion, but not capable of producing a gradable 12-foot log in the butt 16-foot section. These trees-formerly classed as rough or rotten culls-are now included in growing stock. In previous States where this revision has been in effect, these trees have increased softwood growing-stock volume 1 to 2 percent, and hardwood 6 to 8 percent. Comparisons of current inventory with previous estimates of growing stock are based on data that has been reprocessed to account for the change in definition as far as possible.

Another change affecting the classification of growing-stock trees is the requirement that at least one-third of the sawlog volume (or prospective volume, in the case of smaller-than-sawtimber size trees) has to be utilizable. Previously, one-half the volume had to be utilizable. In the previous States where this revision in utilizable volume has been in effect, few trees have been affected.

Because of the revised definitions, and to better assess trends, analysis of trends in inventory volume, growth, removals, and mortality will focus on live trees.

STATISTICAL RELIABILITY

The sampling methods were designed to achieve suitable sampling errors for estimates of area and volume at the State level. Sampling error increases as the area or volume considered decreases. The sampling errors presented in table I are equal to one standard deviation for the sample estimates and may be used to compute confidence intervals for population data.

As an example, the 95-percent confidence interval for growing-stock volume in southeast Oklahoma counties is computed as follows:

$$2313.4 \pm 1.96(0.036 \times 2313.4) = 2313.4 \pm 163.2$$

where 1.96 is the number of standard deviations. The 95-percent confidence interval is thus 2150.2 to 2476.6 million cubic feet. This interval captures the true growing-Stock inventory volume for the region unless a l-in-20 chance of a random event has occurred.

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Table *I.-Sampling errors* for timberland, live trees, growing stock, and sawtimber, southeast Oklahoma counties, 1993*

county	Timberland	Live trees			Growing stock			Sawtimber volume
		Volume	Growth	Removals	Volume	Growth	Removals	
	Percent							
Atoka	2.5	10.0	12.3	41.0	13.3	13.6	41.4	18.8
Bryan	1.9	17.2	15.7	†	28.7	27.1	†	30.4
Choctaw	2.9	12.8	15.3	45.2	15.8	19.4	46.6	21.0
Coal	5.4	26.8	23.4	†	37.9	†	†	47.3
Haskell	3.7	19.7	40.4	†	25.7	40.5	†	48.2
Latimer	3.2	9.6	14.2	†	13.3	15.9	†	18.8
Le Flore	1.2	7.0	11.2	32.5	8.3	11.4	32.2	13.1
McCurtain	0.9	5.4	8.0	18.3	5.7	8.1	18.4	10.2
Pittsburg	4.5	14.5	26.1	49.6	21.7	31.5	†	26.8
Pushmataha	1.1	5.6	6.8	25.4	6.6	7.3	25.8	11.3
All counties	0.8	3.0	4.3	11.9	3.6	4.6	12.1	5.8

*By random-sampling formula.
†Sampling error greater than 50.

The results are reported for individual counties, thereby allowing computation of statistical confidence for any combination of counties. Values for individual counties are subject to high sampling errors; users are cautioned about using data for single counties. Sampling error may be estimated for any group of counties by the following formula:

$$SE_g = SE_t \frac{\sqrt{X_t}}{\sqrt{X_g}}$$

where

SE_g = standard error of estimate (expressed as a percent) for the group of counties desired
SE_t = standard error of estimate (expressed as a percent) for the unit
X_g = sum of values for the variable of interest (area or volume) for group of counties to be combined
X_t = total area or volume for the unit.

For example, the estimate of sampling error for growing-stock volume in Haskell, Latimer, and Le Flore Counties is computed as:

$$SE_g = 3.6 \frac{\sqrt{2313.4}}{\sqrt{767.1}} = 6.3$$

Thus, the sampling error is 6.3 percent and the resulting 95-percent confidence interval for growing-stock volume in the three-county area is 767.1 ± 94.7 million cubic feet.

HIGHLIGHTS

Area

The southeastern region of Oklahoma has experienced a 2.5 percent increase in forest land since 1985. The region is currently 59 percent forested, with 90 percent of the 3,971,900 forested acres classified as timberland. Woodland acreage remains virtually the same, showing only a 1 percent drop to 362,700 acres. Reserved timberland has almost doubled to 45,000 acres since the previous survey. A small 2.4 percent increase in timberland to 3,564,200 acres is primarily the result of additions from cropland and pasture.

There has been practically no change in timberland ownership patterns in southeastern Oklahoma since 1986. About 88 percent of the timberland acreage remains in private ownership. Farmers and other private individuals are still the two single largest ownership groups, together owning 55 percent or roughly 2 million acres of timberland. Forest industry ranks second with just over 1 million timberland acres. The remaining 12 percent of southeast Oklahoma's timberland acreage is publicly owned, including 222,700 acres on the Ouachita National Forest in Le Flore and McCurtain counties.

The oak-hickory forest type continues to dominate southeast Oklahoma, covering 40 percent of the timberland. However, the amount of oak-hickory forest type has decreased by 5 percent since the 1986 survey. The oak-pine forest type has also shown a comparable 4 percent decrease. The most notable change has been a 16 percent increase in pine forest types over the past 6 years. Pine forest types now cover 30 percent of timberland in southeast Oklahoma. Although natural pine stands have decreased by 12 percent, planted stands have almost doubled since 1986. These planted pine stands currently represent 44 percent of the pine forest type. Bottomland hardwood types have also increased by 9 percent, mostly due to a 12 percent increase in the oak-gum-cypress type.

Table II.—*Components of annual change in the volume of live trees by inventory period and species group, southeast Oklahoma counties, 1993*

Inventory period and species group	Gross growth		Removals
	Net growth	Mortality	
	Million cubic feet		
1976 to 1985			
Softwoods	46.0	3.2	51.8
Hardwoods	31.4	24.4	37.2
Total	77.4	27.6	89.0
1986 to 1993			
Softwoods	109.3	3.5	54.5
Hardwoods	52.8	14.3	23.2
Total	162.1	17.8	77.7

Trends in timberland acreage by stand size reveal a large shift from sapling-seedling stands toward poletimber stands and a less prominent transition from poletimber stands into sawtimber-size stands. A 26 percent decrease in sapling-seedling stands was accompanied by a 26 percent increase in poletimber stands. Sawtimber-size stands also increased but by a smaller amount, and now occupy 1.1 million acres of timberland. Poletimber stands, covering over 1.5 million acres, now predominate and occupy 43 percent of the timberland acreage. Sapling-seedling and sawtimber-size stands are about equally distributed over the timberland area.

Stand structure

The total number of live trees (including sapling-size trees) is up 6 percent since the **1986** survey. Contributing to this was an 8 percent increase in the number of live hardwoods, along with a slight (less than 1 percent) decrease in the number of live softwoods. The most notable trend for softwoods was the pronounced shifting of trees out of the sub-merchantable diameter classes into the merchantable diameter classes. The number of softwood trees in the 2- and 4-inch diameter classes is 19 percent less than in 1986, while the number in the 6-inch class is 76 percent greater. Furthermore, sub-merchantable softwoods comprised 79 percent of all live softwoods in the previous survey, but now represent only 64 percent of all live softwoods. Sub-merchantable hardwoods were previously and still remain 83 percent of all live hardwoods.

The number of live merchantable-size trees has increased by 30 percent, primarily due to a 69 percent increase in the softwood component. Live merchantable-size hardwoods showed a 9 percent increase. Softwoods currently represent 45 percent of all live merchantable-size trees, as compared to 35 percent in 1986.

The most notable change in number of trees by size class is an almost two-fold increase in the number of poletimber-size softwood trees. The number of sawtimber-size softwoods also showed an appreciable increase of 22 percent. For hardwoods, both these size classes showed nominal increases of less than 10 percent.

Softwood basal area increased by 29 percent, while hardwood basal area increased by 8 percent. Average basal area of all species is up 15 percent to 76.2 square feet per acre, with 62 percent of this being hardwood.

Inventory

Softwood live-tree volume has shown a significant 40 percent jump from 1986 to almost 1.4 billion cubic feet. Most of this change is attributable to loblolly pine whose volume has more than tripled over the past 6 years. Shortleaf pine, the major component of the softwood inventory, experienced a 15 percent gain in volume to 987.7 million cubic feet. Redcedar and cypress both show very significant increases as well, but remain minor components of the inventory.

Hardwood live-tree volume showed a substantial 25 percent increase. Oaks, particularly white oaks, and hickories accounted for most of this change, boosting the total live hardwood inventory to over 1.5 billion cubic feet. Other species showing appreciable increases of 9 million or more cubic feet are the ashes, soft maples, elms, and sweetgum.

The average acre in southeast Oklahoma has 808 cubic feet of live-tree volume, with slightly more than half of this being hardwood (52 percent). The average acre now carries 26 percent more volume than the 641 cubic feet reported in 1986.

Components of change

Live-tree net annual growth for the 1986-1993 period has more than doubled since the prior survey period (1976–1985), averaging over 45 cubic feet per acre per year. Softwoods account for the bulk of this increase, with their net annual growth rising sharply from 46 to over 109 million cubic feet over all timberland. Hardwood net annual growth, up 68 percent over the previous period, stands at almost 53 million cubic feet. The sharp increase in softwood growth is largely due to the number of softwood trees reaching the 5-inch merchantability threshold. Current net growth of softwoods is 31 cubic feet per acre per year averaged over all timberland, compared to 15 cubic feet per acre per year for hardwoods. Moreover, net annual growth of softwoods is 3.8 percent of total live-tree inventory volume, while net annual growth of hardwoods is 1.8 percent of total live-tree inventory volume.

Average annual removal volume of live trees is down 13 percent from the 89 million cubic feet reported for the previous survey period. This decrease is the result of a 38 percent drop in hardwood removals to the current level of 23.2 million cubic feet. The removal volume of live softwoods rose slightly by 5 percent.

Average annual live-tree mortality showed a sizeable decline of 36 percent to 17.8 million cubic feet for this period. This was effected by a 41 percent decrease in hardwood mortality. Average annual mortality of softwoods was relatively unchanged, showing only a negligible increase of 300,000 cubic feet.

Net annual growth exceeds average annual removals for both softwoods and hardwoods, but by a greater margin for softwoods. Net annual growth volume of softwoods is currently about twice that of hardwoods, while average annual removal volume of softwoods is about two and one-third times that of hardwoods. Growth figures for the 1976-1985 period indicated a net decrease of almost 6 million cubic feet annually from each of the hardwood and softwood inventories. The net change for this period, however, is an accretion of almost 55 million cubic feet annually to the softwood inventory and an accretion of almost 30 million cubic feet annually to the hardwood inventory. These figures indicate the softwood inventory to be increasing about 1.7 times faster than the hardwood inventory for southeastern Oklahoma.

APPENDIX

Definition of Terms

Dimension Classes of Trees

Pole timber trees-Softwoods 5.0 inches to ***8.9*** inches in diameter at breast height (d.b.h.) and hardwoods 5.0 to 10.9 inches in d.b.h.

Rough, rotten, and salvable dead trees-See "tree classes,"

Saplings-Trees 1.0 inches to 4.9 inches in d.b.h.

Saw timber trees-Trees 9.0 inches and larger in d.b.h. for softwoods, and 11 .O inches and larger for hardwoods.

Seedlings-Trees less than 1.0 inch in d.b.h. and greater than 1 foot tall for hardwoods, greater than 6 inches tall for softwoods, and greater than 0.5 inch in diameter at ground level for longleaf pine.

Forest Land Classes

Forest land-Land at least 16.7-percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest uses. Minimum area considered for classification is 1 acre. Forest land is divided into timberland, reserved timberland, and woodland.

Reserved timberland-Productive public forest land withdrawn from timber utilization through statute or administrative regulations.

Timberland-Forest land that is producing or is capable of producing, crops of industrial wood and not withdrawn from timber utilization. Timberland is synonymous with "commercial forest land" in prior reports.

Woodland-Forest land incapable of yielding crops of industrial wood because of adverse site conditions.

Forest Types

Elm-ash-cottonwood-Forests in which elms, ashes, or cottonwoods, singly or in combination, comprise a plurality of the stocking. Common associates include willows, sycamore, American beech, and maples.

Loblolly–shortleaf pine-Forest in which pines (except longleaf and slash pine) and eastern redcedar, singly or in combination, comprise a plurality of the stocking. Common associates include oaks, hickories, and gums.

Longleaf-slash pine-Forests in which longleaf or slash pine, singly or in combination, comprise a plurality of the stocking. Common associates include other southern pines, oaks, and gums.

Nontyped-Timberland currently unoccupied by any live trees or seedlings; for example, very recent clearcut areas.

Oak-gum-cypress-Bottomland forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, comprise a plurality of the stocking except where pines comprise 25 to 49 percent, in which case the stand would be classified oak-pine. Common associates include cottonwoods, willows, ashes, elms, hackberry, and maples.

Oak-hickory-Forests in which upland oaks or hickories, singly or in combination, comprise a plurality of the stocking, except where pines comprise 25 to 49 percent, in which case the stand would be classified oak-pine. Common associates include yellow-poplar, elms, maples, and black walnut.

Oak-pine-Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking, but in which softwoods, except cypress, comprise 25 to 49 percent of the stocking. Common associates include gums, hickories, and yellow-poplar.

Growth Classes

Gross growth-Total increase in stand volume computed on growing-stock trees or live trees at least 5.0 inches in d.b.h. Gross growth equals survivor growth, plus ingrowth, plus growth on removals, plus growth on mortality, plus cull increment (for growing stock computations). Gross growth includes mortality.

Net change-Increase or decrease in stand volume computed on growing-stock trees or live trees at least 5.0 inches in d.b.h. Net change is equal to net growth minus removals.

Net growth—Increase in stand volume computed on growing-stock trees or live trees at least 5.0 inches in d.b.h. Net growth is equal to gross growth minus mortality.

Miscellaneous Definitions

Average annual mortality-Average annual sound-wood volume of growing-stock or live trees dying from natural causes for the intersurvey period.

Average annual removals-Average net annual volume of growing-stock or live trees removed from the inventory by harvesting, cultural operations (such as timber-stand improvement), land clearing, or changes in land use for the intersurvey period.

Average net annual growth-Average net annual volume increase of growing-stock or live trees for the intersurvey period.

Basal area-The area in square feet of the cross section at breast height of a single tree or of all the trees in a stand, usually expressed in square feet per acre.

Cull increment-The change in growing-stock volume due to growing-stock, rough, or rotten trees changing tree class between surveys.

D.b.h. (diameteratbreastheight)-Treediameter in inches, outside bark, usually measured at 4.5 feet above ground.

Diameter classes-The 2-inch diameter classes extend from 1.0 inch below to 0.9 inch above the stated midpoint. Thus, the 12-inch class includes trees 11 .O inches through 12.9 inches in d.b.h.

D.o.b. (diameter outside bark)-Stem diameter including bark.

Log *grades-A* classification of logs based on external characteristics as indicators of quality or value.

Mortality-Number or sound-wood volume of growing-stock trees or live trees dying from natural causes during a specified period.

Natural stands-Stands with no evidence of artificial regeneration. This includes those stands established by seed-tree regeneration methods.

Plantations-Planted or artificially seeded stands.

Removals-The net volume of growing-stock or live trees removed from the inventory by harvesting, cultural operations (such as timber stand improvement), land clearing, or changes in land use.

Sawlog portion-That portion of the bole of a sawtimber tree between a l-foot stump and the sawlog top.

Sawlog top-The point on the bole of a sawtimber tree above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches d.o.b. for softwoods and 9.0 inches d.o.b. for hardwoods.

Select red oaks-A group of several red oak species composed of cherrybark, Shumard, and northern red oaks. Other red oak species are included in the "other red oaks" group.

Select white oaks-A group of several white oak species composed of white, swamp chestnut, swamp white, chinkapin, Durand, and bur oaks. Other white oak species are included in the "other white oaks" group.

Site class-A classification of forest land in terms of potential capacity to grow crops of industrial wood.

Tree grade-A classification of the sawlog portion of sawtimber trees based on: (1) the grade of the butt log or (2) the ability to produce at least one 12-foot or two 8-foot logs in the upper section of the sawlog portion.

Upper-stem portion-That part of the main stem of a sawtimber tree above the sawlog top to a diameter outside bark of 4.0 inches or to the point where the main stem breaks into limbs.

Ownership Classes

Farmer-owned land-Lands operated as a unit of 10 acres or more and from which the sale of agricultural products totals $1,000 or more annually.

Forest industry land-Lands owned by companies or individuals operating wood-using plants (either primary or secondary).

National forest land-Federal lands that have been legally designated as national forests or purchase units and other lands under the administration of the Forest Service, including experimental areas.

Nonindustrial private land {corporate)-Lands privately owned by private corporations other than forest industries and incorporated farms.

Nonindustrial private land (individual)-Lands privately owned by individuals other than forest industries or farmers.

Other Federal land-Federal lands other than National Forests.

State, county, and municipal land-Lands owned by States, counties, and local public agencies or municipalities or lands leased to these governmental units for 50 years or more.

Stand-size Classes

Nonstocked stands-Stands less than 16.7 percent stocked with live trees.

Poletimber stands-Stands at least 16.7 percent stocked with live trees, with half or more of this stocking in sawtimber or poletimber trees, and with poletimber stocking exceeding that of sawtimber stocking.

Sapling-seedling stands-Stands at least 16.7 percent stocked with live trees, with more than half of this stocking in saplings or seedlings.

Sawtimber stands-Stands at least 16.7 percent stocked with live trees, with half or more of this stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Stocking

Stocking is a measure of the extent to which the growth potential of the site is utilized by trees or preempted by vegetative cover. Stocking is determined by comparing the stand density in terms of number of trees or basal area with a specified standard. Therefore, full stocking is 100 percent of the stocking standard.

The tabulation below shows the density standard in terms of trees per acre by size class required for full stocking.

D.b.h. (Inches)	Number of trees	D.b.h. (Inches)	Number of trees
Seedlings	600	16	72
2	560	18	60
4	460	20	51
6	340	22	42
8	240	24	36
10	155	26	31
12	115	28	27
14	90	30	24

Arbitrarily defined stocking categories are defined as follows.

Optimally stocked-Stands 61 to 100 percent stocked with growing-stock trees. These stands are growing toward a fully stocked condition (ideal space required for each tree increases with age). Optimum growth and bole form occur in this range.

Overstocked-Stands greater than 100 percent stocked with growing-stock trees. These stands will become stagnant with mortality of individuals increasing as stocking increases over 100 percent.

Understocked-Stands 0 to 60 percent stocked with growing-stock trees. These stands will take a very long time to reach full stocking. Meanwhile, poor bole form will result, and much of the productivity will be placed on heavy limbs instead of on the bole.

Tree Classes

Commercial species-Tree species currently or potentially suitable for industrial wood products.

Cull trees-Rough or rotten trees.

Growing-stock trees-Living trees of commercial species classified as sawtimber, poletimber, saplings, and seedlings. Trees must contain at least one 12-foot or two 8-foot logs in the sawlog portion currently or potentially (if too small to qualify) to be classed as growing stock. The log(s) must meet dimension and merchantability standards to qualify. Trees must also have currently or potentially one-third of the gross board-foot volume in sound wood.

Hardwoods-Dicotyledonous trees, usually broad leaved and deciduous.

Live trees-All trees that are alive. Included are all size classes, all tree classes, and both commercial and noncommercial species.

Noncommemial species-Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Rotten rrees-Live trees of commercial species that are unmerchantable for sawlogs currently or potentially because of rot deduction in the sawlog section. See definition of growing-stock trees.

Rough trees-Live trees of commercial species that are unmerchantable for sawlogs currently or potentially because of roughness or poor form in the sawlog section. Also included are all live trees of noncommercial species. See definition of growing-stock trees.

Salvable dead trees-Standing or downed dead trees that were formerly growing stock and are considered merchantable. Trees must be at least 5.0 inches in d.b.h. to qualify.

Softwoods—Coniferous trees, usually evergreen, having leaves that are needles or scalelike.

Volume

Volume of cull-The cubic-foot volume of sound wood in rough and rotten trees at least 5.0 inches in d.b.h. from a l-foot stump to a minimum 4.0-inch top d.o.b. of the central stem or to the point where the central stem breaks into limbs.

Volume of growing stock-The cubic-foot volume of sound wood in growing-stock trees at least 5.0 inches in d.b.h. from a l-foot stump to a minimum 4.0-inch top d.o.b. of the central stem or to the point where the central stem breaks into limbs.

Volume of live trees-The cubic-foot volume of sound wood in growing-stock, rough, and rotten trees at least 5.0 inches in d.b.h. from a l-foot stump to a minimum 4.0-inch top d.o.b. of the central stem or to the point where the central stem breaks into limbs.

Volume of sawlog portion of sawtimber trees-The cubic-foot volume of sound wood in the sawlog portion of sawtimber trees. Volume is net of deductions for rot, sweep, and other defects that affect use for lumber.

Volume of sawtimber-The board-foot volume (International 1/4-inch Rule) of sound wood in the sawlog portion of sawtimber trees. Volume is net of deductions for rot, sweep, and other defects that affect use for lumber.

Volume of timber-The cubic-foot volume of sound wood in growing-stock, rough, rotten, and salvable dead trees at least 5.0 inches in d.b.h. from a l-foot stump to a minimum 4.0-inch top d.o.b. of the central stem or to the point where the central stem breaks into limbs.

Table 1 .-*Area by county and land class, southeast Oklahoma counties. 1993*

County	All land*	Forest land				Nonforest land
		Total	Timberland	Woodland	Reserved timberland	
	Thousand acres					
Atoka	627.2	343.8	309.1	25.8	8.9	283.4
Bryan	577.6	156.3	156.3			421.2
Choctaw	487.9	208.4	191.9	16.5		279.5
Coal	333.1	99.7	58.2	41.6	.	233.3
Haskell	364.1	180.9	157.5	23.3		183.8
Latimer	466.0	320.2	291.6	28.6		145.8
Le Flore	1.014.3	674.8	652.8		22.0	339.5
McCurtain	1,168.9	850.9	831.7	5.1	14.1	318.0
Pittsburg	800.4	391.3	175.4	215.9		409.1
Pushmataha	906.6	745.6	739.6	6.1		161.0
All counties	6,746.6	3,971.9	3.564.2	362.7	45.0	2,774.7

'From the U.S. Bureau of the Census.

Table 2.—*Area of timberland by county and ownership class, southeast Oklahoma counties, 1993*

County	All Ownerships	National forest	Misc. federal	State	County and municipal	Forest industry*	Farmer	Corporate†	Individual†
	Thousand acres								
Atoka	309.1		32.2	6.4			25.8	19.3	225.4
Bryan	156.3		6.0				120.3	18.0	12.0
Choctaw	191.9		21.9				109.7	5.5	54.8
Coal	58.2						41.6		16.6
Haskell	157.5		11.7			17.5	5.8		122.5
Latimer	291.6			34.3			51.5	11.4	194.4
Le Flore	652.8	180.6	24.9			118.1	43.5	6.2	279.6
McCurtain	831.7	42.1	33.4			578.3	72.3	5.6	100.1
Pittsburg	175.4		6.7	6.7			60.7	20.2	81.0
Pushmataha	739.6			30.3	...	333.4	103.1	30.3	242.5
All counties	3,564.2	222.7	136.8	77.8		1,047.3	634.1	116.6	1.329.0

*Includes land leased to forest industry.
†Indian land will be classed as corporate or individual as defined by the Bureau of Indian Affairs.

Table 3.—*Area of timberland by county and forest type group. southeast Oklahoma counties. 1993*

County	Total	Forest type group					
		Loblolly-shortleaf pine		Oak–pine	Oak–hickory	Oak–gum–cypress	Elm–ash–cottonwood
		Planted	Natural				
				Thousand acres			
Atoka	309.1		51.5	38.6	128.8	70.8	19.3
Bryan	156.3				120.3	30.1	6.0
Choctaw	191.9	11.0	11.0	11.0	120.7	38.4	
Coal	58.2				33.2	24.9	
Haskell	157.5		11.7	29.2	81.7	29.2	5.8
Latimer	291.6		62.9	91.5	131.5	5.7	
Le Flore	652.8	19.2	118.4	133.2	272.3	43.5	6.2
McCurtain	831.7	293.2	109.8	133.6	237.4	52.1	5.6
Pittsburg	175.4		13.5	33.7	101.2	27.0	
Pushmataha	739.6	90.9	224.3	206.1	200.1	18.2	
All counties	3,564.2	474.3	603.1	676.9	1,427.0	339.9	42.9

Table 4.—*Area of timberland by county and stand-size class, southeast Oklahoma counties, 1993*

county	All classes	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling-seedling	
	Thousand acres				
Atoka	309.1	90.2	135.3	83.7	
Bryan	156.3	60.1	36.1	60.1	
Choctaw	191.9	71.3	43.9	76.8	
Coal	58.2	24.9	8.3	24.9	
Haskell	157.5	40.8	75.8	40.8	
Latimer	291.6	108.6	131.5	51.5	
Le Flore	652.8	163.1	313.4	176.3	
McCurtain	831.7	199.4	374.7	257.7	.
Pittsburg	175.4	60.7	41.2	67.5	
Pushmataha	739.6	181.9	369.8	187.9	.
All counties	3,564.2	1,001.0	1.535.9	1,027.3	...

Table 5.—*Area of timberland by county and site class, southeast Oklahoma counties, 1993*

County	All classes	Site Class *(Cubic feet/acre/year)*				
		>165	120-165	85-120	50-85	<50
	Thousand acres					
Atoka	309.1			32.2	167.5	109.5
Bryan	156.3		12.0		36.1	108.2
Choctaw	191.9		16.5	38.4	82.3	54.8
Coal	58.2		8.3		24.9	24.9
Haskell	157.5	5.8	11.7	5.8	46.7	87.5
Latimer	291.6		5.7	5.7	165.8	114.3
Le Flore	652.8		12.4	73.4	395.3	171.7
McCurtain	831.7	28.0	91.6	224.5	409.8	77.8
Pittsburg	175.4			6.7	87.7	81.0
Pushmataha	739.6		18.2	121.2	436.5	163.7
All counties	3,564.2	33.8	176.4	508.1	1,852.5	993.5

Table 6.—Area of timberland by county and stocking class of growing-stock trees, southeast Oklahoma counties, 1993

County	All classes	Stocking class (Percent)				
		>130	100-130	60-100	16.760	<16.7
		Thousand acres				
Atoka	309.1		6.4	90.2	180.3	32.2
Bryan	156.3		6.0	12.0	90.2	48.1
Choctaw	191.9		5.5	38.4	142.6	5.5
Coal	58.2				41.6	16.6
Haskell	157.5		5.8	46.7	99.2	5.8
Latimer	291.6		28.6	125.8	137.2	...
Le Flore	652.8	6.2	95.9	292.4	258.3	
McCurtain	831.7	35.3	128.6	471.3	196.5	...
Pittsburg	175.4		6.1	20.2	128.2	20.2
Pushmataha	739.6	12.1	84.9	381.9	236.4	24.2
All counties	3.564.2	53.6	368.5	1.478.9	1.510.5	152.7

Table 7.—*Area of timberland by forest type and ownership class, southeast Oklahoma counties, 1993*

Forest type	All ownerships	National forest	Other public	Forest industry	Forest industry leased	Other private
	Thousand acres					
Loblolly-shortleaf pine	1,077.4	135.5	47.6	595.8	.	298.4
Softwood total	1.077.4	135.5	47.6	595.8		298.4
Oak-pine	676.9	58.2	48.1	232.7		338.0
Oak-hickory	1.427.0	21.3	89.0	201.6		1,115.1
Oak–gum–cypress	339.9	7.7	24.0	17.2		291.0
Elm–ash–cottonwood	42.9		5.8			37.1
Hardwood total	2,486.8	87.1	167.0	451.5		1,781.3
All types	3,564.2	222.7	214.6	1.047.3	.	2,079.7

Table *8.-Area of timberland by ownership and stocking class of growing-stock trees, southeast Oklahoma counties. 1993*

Ownership class	All classes	Stocking class (Percent)				
		>130	100-130	60-100	16.7–60	<16.7
	Thousand acres					
National forest	222.7	1.9	75.4	102.7	42.7	...
Other public	214.6		5.8	87.5	121.2	
Forest industry	1,047.3	40.6	168.4	613.2	213.0	12.1
Other private	2,079.7	11.1	118.9	675.5	1,133.5	140.6
All ownershios	3.564.2	53.6	368.5	1.478.9	1.5105	152.7

Table 9.—*Area of timberland by forest type and stand-size class, southeast Oklahoma counties, 1993*

Forest type	All classes	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling-seedling	
	Thousand acres				
Loblolly-shortleaf pine	1,077.4	378.3	522.7	176.4	
Softwood total	1,077.4	378.3	522.7	176.4	
Oak-pine	676.9	177.5	269.1	230.3	
Oak-hickory	1,427.0	255.5	639.9	531.6	.
Oak-gum-cypress	339.9	165.2	85.8	88.9	.
Elm–ash–cottonwood	42.9	24.5	18.4	.	.
Hardwood total	2,486.8	622.8	1.013.3	850.8	.
All types	3,564.2	1,001.0	1,535.9	1,027.3	

Table Ill-Number of live trees on timberland by detailed species and diameter class, southeast Oklahoma counties, 1993

Species	All classes	Diameter class (Inches at breast height) 1.0–2.9	3.0–4.9	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	≥29.0
	Thousand trees												
Shortleaf-loblolly pines	586,641	232,746	125,692	109,120	67,183	26,470	13.505	7,143	2,860	1,260	467	188	9
Cypress	245			99		82		39		12	9		4
Other softwoods	67,210	43,780	16,405	4.701	1,358	449	302	120	67	12	9	8	
Total softwoods	654,097	276,526	142,097	113,920	68,540	27,001	13,806	7,302	2,927	1.283	485	196	13
Select white oaks	77,316	42,356	16,713	7,854	4,697	*2,660*	1,180	700	562	290	152	137	13
Select red oaks	40,829	21,183	9,943	3,762	3,195	*990*	492	462	323	193	81	163	43
Other white oaks	357,923	156,805	109,308	41,911	21,620	*12,025*	6,896	5.316	2,100	1.069	430	432	11
Other red oaks	141,842	87,857	28,455	10,500	6,059	*2,832*	2,270	1,336	1,050	593	377	464	49
Hickory	232,616	129,623	59,670	21,825	11,035	*5,228*	2,689	1,222	729	311	130	122	31
Hard maple	3,802	3,119	510			*115*	.	44	15	...			...
Soft maple	58,168	40,443	12,848	2,302	1,190	*418*	174	314	175	159	64	82	
Sweetgum	49,978	33,620	10,533	3,145	1,301	*384*	482	206	187	79	10	21	10
Tupelo-blackgum	35,763	28,627	3,994	1,239	916	*391*	208	124	177	36	22	29	.
Ash	53,257	27,282	13,639	5,305	3,061	*1.814*	958	448	389	167	102	92	
Cottonwood-aspen	1,301				67	*447*	172	323	65	15	20	183	10
Basswood	691	503			125		49		15				
Black walnut	266			118		*120*			18			10	
Other hardwoods	361,391	254,001	64,993	23,943	9,618	*4,390*	2,039	1,073	606	354	164	185	23
Total hardwoods	1,415,143	825,421	330,605	121,904	62,883	31.814	17.609	11.568	6.411	3.265	1.552	1.920	191
Noncommercial	231,469	170.866	35,980	13,057	5,851	3,396	1.367	532	288	82	23	26	.
All species	2,300,708	1,272,813	508,682	248,882	137,275	62,211	32,782	19,401	9,625	4.631	2,060	2,142	204

Table 11.-Number of growing-stock trees on timberland by species and diameter class, southeast Oklahoma counties, 1993

Species	All classes	Diameter class (Inches at breast height) 1.0–2.9	3.0–4.9	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	≥29.0
	Thousand trees												
Shortleaf-loblolly pines	458,187	137,108	102,821	103,242	65,226	25,154	13,104	6,950	2,759	1,193	434	188	9
Cypress	103				..	38		39	.	12	9		4
Other softwoods	63,569	41,063	16,405	4,314	1,025	343	204	120	67	12	9	8	.
Total softwoods	521,859	178.171	119,226	107,556	66,252	25,535	13,308	7.109	2,826	1,216	452	196	13
Select white oaks	49,868	25,568	11,407	5,774	3,920	1,909	572	255	237	66	89	65	4
Select red oaks	24,184	11,265	5,976	2,923	2,478	573	265	265	135	127	46	101	30
Other white oaks	153.321	45,147	50,505	30,594	14,897	6.716	2,586	1,659	685	259	144	130	
Other red oaks	83,249	46,748	18,540	7,585	4,542	1,992	1,411	872	678	363	246	255	19
Hickory	78,205	33,454	20,345	12,874	6,280	2,772	1,152	688	370	149	36	59	26
Hard maple	1,137	1,080		---	...	35		23				---	...
Soft maple	14,339	7,667	4.416	1,134	691	45	30	132	73	84	22	46	
Sweetgum	33,067	21,563	6,863	2,324	1,068	350	447	206	155	56	10	21	3
Tupelo–blackgum	13,699	10,570	1,301	928	560	143	52	38	79	24	3	2	.
Ash	19,699	5,299	7,008	2,893	1,908	1,326	640	204	235	63	78	43	.
Cottonwood-aspen	1,175		.		67	321	172	323	65	15	20	183	10
Basswood	83			.	57	.	25			...	.	.	.
Black walnut	63	.	.		..	35	.		18	..	...	10	
Other hardwoods	62,787	30,690	14,465	8,958	4,361	2,301	922	514	277	146	66	88	
Total hardwoods	534,875	239,051	140,827	75,987	40,829	18,518	8,273	5,178	3,006	1.351	760	1,004	93
All species	1,056,734	417,221	260,053	183,543	107,081	44,052	21,581	12,286	5,831	2,567	1,212	1,199	106

Table 12.—*Volume* of *growing stock on timberland by species and diameter class, southeast Oklahoma counties, 1993*

Species	All classes	Diameter class *(Inches at breast height)* 5.0–6.9	7.0–8.9	9.0-10.9	11.&12.9	13.0-14.9	15.0-16.9	17.0–18.9	19.0-20.9	21.0-28.9	≥29.0
		Million cubic feet									
Shortleaf-loblolly pines	1,318.0	215.6	306.5	247.1	214.1	158.2	88.2	48.5	22.1	16.8	1.0
Cypress	3.1			0.3		0.9		0.3	0.4	.	1.2
Other softwoods	*23.9*	*8.6*	*4.0*	*3.1*	*3.1*	*2.6*	*1.4*	*0.4*	*0.5*	*0.2*	...
Total softwoods	1,345.0	224.3	310.5	250.5	217.1	161.7	89.6	49.3	22.9	17.0	2.2
Select white oaks	89.3	15.6	21.3	19.7	9.5	5.4	7.3	2.5	3.7	3.9	0.4
Select red oaks	53.5	8.4	12.3	5.2	3.4	5.3	3.2	4.4	1.7	6.0	3.7
Other white oaks	275.4	66.8	66.8	50.2	30.5	27.9	15.8	7.1	4.8	5.3	
Other red oaks	155.9	16.6	22.7	17.3	19.9	18.2	19.0	13.9	10.6	16.0	1.7
Hickory	123.2	23.4	27.4	22.2	14.3	13.5	9.7	5.4	1.4	3.6	2.0
Hard maple	0.9		...	0.5		0.4	.	...	.		...
Soft maple	19.7	3.0	4.5	0.6	0.6	3.3	1.6	2.8	0.7	2.5	
Sweetgum	36.6	5.6	5.7	3.5	7.9	4.8	4.9	2.1	0.5	1.5	0.1
Tupelo-blackgum	10.1	1.9	2.4	1.3	0.7	0.8	2.0	0.7	0.2	0.2	
Ash	60.2	7.2	11.2	14.2	9.4	4.6	6.6	2.1	2.6	2.4	.
Cottonwood-aspen	39.8		0.2	2.8	3.0	7.4	2.6	0.5	1.3	20.2	1.8
Basswood	0.7	...	0.3		0.4		.	.		...	..
Black walnut	1.2			0.3	.	...	0.5	...	.	0.4	...
Other hardwoods	101.9	19.0	20.8	19.8	12.6	10.2	7.4	4.4	2.1	5.0	
Total hardwoods	968.4	167.6	195.9	157.7	112.2	101.8	80.4	45.8	30.3	67.0	9.8
All species	2,313.4	391.9	506.4	408.2	329.3	263.5	170.0	95.1	53.2	84.0	12.0

Table 13.—*Volume of growing stock in the sawlog portion of sawtimber trees on timberland by species and diameter class, southeast Oklahoma counties, 1993*

Species	All classes	Diameter class (Inches *at breast height)* 9.0–10.9	11.0–12.9	13.0-14.9	15.0-16.9	17.0–18.9	19.0-20.9	21.0-28.9	≥29.0
				Million cubic feet					
Shortleaf-loblolly pines	676.4	204.0	185.6	135.2	75.9	41.4	18.6	14.8	0.9
Cypress	2.1	0.2		0.8		0.3	0.3		0.5
Other softwoods	10.0	2.5	2.6	2.5	1.4	0.4	0.5	0.2	
Total softwoods	688.5	206.7	188.2	138.4	77.3	42.1	19.4	15.0	1.4
Select white oaks	26.0		7.2	4.4	5.9	2.1	2.9	3.1	0.4
Select red oaks	24.1		*2.8*	*4.3*	*2.6*	*3.9*	*1.5*	*5.6*	*3.5*
Other white oaks	75.1		*24.8*	*23.1*	*12.8*	*6.0*	*3.9*	*4.6*	
Other red oaks	81.6	...	*15.0*	*15.1*	*16.1*	11.1	8.8	13.9	1.6
Hickory	41.8		11.1	11.0	8.2	4.9	1.2	3.5	1.9
Hard maple	0.3		.	0.3	.	.	.	.	...
Soft maple	8.7	.	0.4	2.5	1.3	2.0	0.6	1.9	.
Sweetgum	17.5	.	5.8	3.8	4.2	1.8	0.4	1.3	0.1
Tupelo–blackgum	3.9		0.6	0.7	1.7	0.6	0.1	0.2	...
Ash	22.4		7.0	3.8	5.5	2.0	2.1	2.1	...
Cottonwood-aspen	33.4		2.0	6.1	2.2	0.4	1.3	19.6	1.8
Basswood	0.2		0.2		.				
Black walnut	0.7			.	0.4		.	0.3	
Other hardwoods	35.1		9.7	8.4	6.4	3.7	2.5	4.3	
Total hardwoods	370.8		86.5	83.4	67.3	38.5	25.5	60.3	9.2
All species	1,059.3	206.7	274.7	221.8	144.6	80.6	44.9	75.3	10.7

Table 14.-Volume *of sawtimber on timberland by species and diameter class, southeast Oklahoma counties, 1993*

Species	All classes	Diameter class (Inches at breast height) 9.0–10.9	11.0–12.9	13.0-14.9	15&16.9	17.0-18.9	19.0-20.9	21.0–28.9	≥29.0
	Million board feet								
Shortleaf-loblolly pines	3,928.3	1,051.1	1,061s	820.7	485.7	275.7	126.5	102.5	4.7
Cypress	11.5		0.8	4.1		1.4	1.0		4.2
Other softwoods	50.7	11.9	13.3	13.0	7.3	2.2	2.3	0.8	.
Total softwoods	3,990.6	1,063.8	1,074.9	837.8	492.9	279.3	129.8	103.3	8.9
Select white oaks	156.2	...	40.9	25.3	36.3	12.0	19.0	20.7	2.0
Select red oaks	146.0		15.0	25.2	14.8	23.7	8.5	36.9	22.0
Other white oaks	433.9		135.3	132.3	76.8	35.3	24.6	29.7	...
Other red oaks	475.6		80.0	84.2	94.7	69.6	54.3	83.8	8.8
Hickory	237.3		59.8	65.2	47.9	26.4	7.5	19.5	11.0
Hard maple	1.6			1.6	.	...		.	..
Soft maple	51.5		2.2	14.4	7.6	12.1	3.6	11.7	
Sweetgum	100.4		32.1	21.7	25.1	10.3	3.0	7.8	0.6
Tupelo-blackgum	22.3		3.1	3.9	9.7	3.8	0.8	1.0	...
Ash	125.5		37.3	21.6	30.8	11.7	12.0	12.1	
Cottonwood-aspen	205.1		10.8	32.7	14.1	2.4	7.3	127.8	10.1
Basswood	1.3		1.3						...
Black walnut	4.4	...			2.2		...	2.2	.
Other hardwoods	196.7		52.1	48.4	33.9	22.4	15.2	24.7	.
Total hardwoods	2,157.9	...	469.9	476.6	393.6	229.7	155.8	377.8	54.6
All species	6,148.5	1,063.8	1,544.7	1,314.4	886.6	509.0	285.6	481.1	63.4

Table 15.—*Volume of growing stock and sawtimber on timberland by county and species group. southeast Oklahoma counties, 1993*

County	Growing stock: All species	Softwood: Pine: Planted	Softwood: Pine: Natural	Softwood: Other	Hardwood: Soft'	Hardwood: Hard†	Sawtimber: All species	Softwood: Pine: Planted	Softwood: Pine: Natural	Softwood: Other	Hardwood: Soft'	Hardwood: Hard+
	Million cubic feet						*Million board feet*					
Atoka	140.8	...	49.9	0.5	16.4	74.0	415.9	..	158.7	1.0	29.3	226.9
Bryan	51.5		.	1.1	14.2	36.2	137.1	.		0.9	49.8	86.4
Choctaw	97.8	10.8	15.7	5.9	15.6	49.9	300.2	45.7	47.7	25.5	32.5	148.9
Coal	25.3			0.2	6.7	18.4	87.4			.	16.8	70.6
Haskell	100.5		22.4	0.8	35.0	42.2	312.9		66.3	2.2	161.9	82.5
Latimer	157.0		106.4	2.4	1.9	46.3	407.4	...	357.1	1.0		49.3
Le Flore	509.6	54.4	240.6	5.1	46.5	163.0	1.286.0	46.3	860.7	6.5	113.7	258.9
McCurtain	662.9	223.9	203.2	3.3	46.7	185.8	1,769.7	351.0	832.6	11.5	126.7	448.0
Pittsburg	54.1		23.5	1.3	4.2	25.1	166.9		70.6	1.3	11.0	84.0
Pushmataha	513.9	54.2	313.0	6.4	13.9	126.4	1,264.9	18.5	1,073.2	12.4	28.0	132.8
All counties	2,313.4	343.2	974.8	27.0	201.1	767.3	6,148.5	461.5	3,466.9	62.3	569.7	1,588.2

*Hardwood species with an average specific gravity of 0.50 or less such as gums, yellow-poplar, cottonwood. red maple, basswood, aspen, and willow.
†Hardwood species with an average specific gravity greater than 0.50 such as oaks, hard maple, hickories, and green and white ash.

Table 16.-Volume *of timber on timberland by class of timber and species group, southeast Oklahoma counties, 1993*

Class of timber	All species	Softwood			Hardwood	
		Pine				
		Planted	Natural	Other	Soft*	Hard+
	Million cubic feet					
Sawtimber trees						
Sawlog portion	1,059.3	85.1	591.3	12.1	91.3	213.5
Upper-stem portion	198.3	17.1	102.4	2.2	17.9	58.6
Total	1,257.5	102.2	693.7	14.3	115.2	332.1
Poletimber trees	1,055.9	241.0	281.1	12.7	85.9	435.2
All growing-stock trees	2,313.4	343.2	974.8	27.0	201.1	767.3
Rough trees						
Sawtimber size	258.9	4.1	11.6	1.4	30.8	210.4
Poletimber size	244.8	8.0	6.3	1.5	45.9	183.0
Total	503.7	12.7	17.9	2.9	76.7	393.4
Rotten trees						
Sawtimber size	51.6		1.2	0.2	7.0	43.2
Poletimber size	12.9		0.1		2.7	10.1
Total	64.4		1.2	0.2	9.7	53.3
Salvable dead trees						
Sawtimber size	5.3	0.7	2.4	.	1.1	1.1
Poletimber size	1.5		0.3	.	0.4	0.8
Total	6.8	0.7	2.7		1.5	1.9
All classes	2,888.3	356.6	996.6	30.1	289.0	1,216.0

*Hardwood species with an average specific gravity of 0.50 or less such as gums, yellow-poplar, cottonwood, red maple, basswood, aspen, and willow.

†Hardwood species with an average specific gravity greater than 0.50 such as oaks, hard maple, hickories, and green and white ash.

Table 17.—*Volume of live trees and growing stock on timberland by ownership class and species group, southeast Oklahoma counties, 1993*

Ownership class	Live trees						Growing stock					
	All species	Softwood			Hardwood		All species	Softwood			Hardwood	
		Pine						Pine				
		Planted	Natural	Other	Soft*	Hard†		Planted	Natural	Other	Soft*	Hard+
	Million cubic feet											
National forest	328.3	24.6	204.9	3.7	12.5	82.6	294.2	24.6	200.4	3.4	7.2	58.6
Other public	180.1		63.5	3.0	39.7	74.0	138.6	.	60.6	2.7	35.2	40.2
Forest industry	831.3	303.5	283.9	3.9	31.6	208.4	747.5	291.1	219.5	3.4	20.6	152.8
Other private	1,541.8	27.9	441.7	19.6	203.7	849.0	1,133.1	27.5	434.2	17.5	138.2	515.7
All ownerships	2,881.5	356.0	993.9	30.1	287.5	1,214.1	2,313.4	343.2	974.8	27.0	201.1	767.3

*Hardwood species with an average specific gravity of 0.50 or less such as gums, yellow-poplar, cottonwood, red maple, basswood, aspen, and willow.

†Hardwood species with an average specific gravity greater than 0.50 such as oaks, hard maple, hickories, and green and white ash.

Table 18.—*Average net annual growth of growing stock and sawtimber on timberland by county and species group, southeast Oklahoma counties, 19861993*

	Growing stock						Sawtimber					
		Softwood			Hardwood			Softwood			Hardwood	
		Pine						Pine				
county	All species	Planted	Natural	Other	Soft'	Hard+	All species	Planted	Natural	Other	Soft'	Hard†
	Million cubic feet						*Million board feet*					
Atoka	10.2		3.4	0.1	1.0	5.7	33.6	...	8.9	0.2	2.5	22.0
Bryan	3.2		...	0.2	0.8	2.2	8.2	...	_	0.2	2.5	5.6
Choctaw	4.3		1.4	0.4	0.9	1.6	14.3	...	5.6	2.4	2.2	4.1
Coal	1.1				0.3	0.7	2.4	...			0.8	1.6
Haskell	3.6		1.4	0.1	–0.5	2.6	-0.7	.	3.7	0.4	-7.5	2.7
Latimer	7.3		6.1	...		1.2	20.9	..	23.1	0.2		-2.4
Le Flore	28.6	6.1	13.5	0.4	2.5	6.0	82.2	5.3	55.7	0.4	9.3	11.5
McCurtain	52.0	30.3	12.2	0.2	1.1	8.3	111.4	38.2	46.2	0.7	1.9	24.3
Pittsburg	1.6	...	0.9	0.2	0.2	0.3	4.9	..I	2.6	0.2		2.0
Pushmataha	35.9	8.0	21.1	0.4	0.7	5.7	85.3	2.2	80.4	0.3	1.6	0.9
All counties	147.7	44.4	60.0	2.1	7.0	34.2	362.4	45.7	226.3	4.9	13.3	72.4

*Hardwood species with an average specific gravity of 0.50 or less such as gums, yellow-poplar, cottonwood, red maple, basswood, aspen, and willow.
†Hardwood species with an average specific gravity greater than 0.50 such as oaks, hard maple, hickories, and green and white ash.

Table 19.—*Average annual removals of growing stock and sawtimber on timberland by county and species group, southeast Oklahoma counties, 19861993*

	Growing stock						Sawtimber					
		Softwood			Hardwood			Softwood			Hardwood	
		Pine						Pine				
County	All species	Planted	Natural	Other	Soft'	Hard†	All species	Planted	Natural	Other	Soft'	Hard†
	Million cubic feet						*Million board feet*					
Atoka	4.9		2.8		0.1	2.0	11.8	.	7.5	.	0.5	3.8
Bryan	1.3				0.3	1.0	7.3	.	.		1.7	5.6
Choctaw	1.9		0.6	_	0.3	0.9	7.3		2.5	0.1	0.9	3.8
Coal	0.3					0.3	1.9					1.9
Haskell	0.3				0.1	0.3	1.2				0.3	0.9
Latimer	3.4		2.8		0.1	0.5	12.6		11.6	.		1.0
Le Flore	9.8	...	7.3		0.3	2.2	33.3		27.9			5.9
McCurtain	29.1	4.8	16.5		0.9	6.8	98.7	4.6	71.6		1.6	20.8
Pittsburg	0.8		0.4			0.4	4.0		2.0	.		2.0
Pushmataha	19.6	0.3	17.5		0.4	1.4	84.4		80.3	.	1.0	3.1
All counties	71.5	5.2	47.8	0.1	2.5	15.9	262.4	4.6	203.4	0.1	6.0	48.8

*Hardwood species with an average specific gravity of 0.50 or less such as gums, yellow-poplar, cottonwood, red maple, basswood, aspen, and willow.
†Hardwood species with an average specific gravity greater than 0.50 such as oaks, hard maple, hickories, and green and white ash.

Table 20.—*Average net annual growth and average annual removals of growing stock on timberland by species, southeast Oklahoma counties, 19861993*

Species	Growth	Removals
	– – – – Million cubic feet – – – –	
Yellow pines	104.4	52.9
Other softwoods	2.1	0.1
Total softwoods	106.5	53.0
Select white-red oaks	6.5	2.6
Other white-red oaks	19.3	9.5
Hickory	4.6	2.1
Hard maple	0.1	
Sweetgum	1.5	0.7
Ash-walnut-black cherry	3.3	0.8
Other hardwoods	6.0	2.0
Total hardwoods	41.2	18.4
All species	141.1	71.5

Table 21 .-*Average net annual growth and average annual removals of sawtimber on timberland by species, southeast Oklahoma counties. 1986-1993*

Species	Growth	Removals
	– – – – Million board feet – – – –	
Yellow pines	***272.0***	***208.0***
Other softwoods	***4.9***	0.1
Total softwoods	***276.8***	***208.1***
Select white-red oaks	18.0	7.3
Other white-red oaks	38.1	29.3
Hickory	10.5	9.0
Hard maple	0.3	
Sweetgum	4.2	2.0
Ash-walnut-black cherry	5.0	2.4
Other hardwoods	9.6	4.1
Total hardwoods	***85.6***	***54.9***
All species	***362.4***	***262.4***

Table *22.-Average annual mortality of growing stock and sawtimber on timberland by species, southeast Oklahoma counties, 19861993*

Species	Growing stock	Sawtimber
	Million cubic feet	***Million board feet***
Yellow pines	***3.0***	***10.3***
Total softwoods	3.0	10.3
Select white-red oaks	0.6	1.2
Other white-red oaks	2.0	4.4
Hickory	0.5	1.0
Sweetgum	0.2	0.6
Ash-walnut-black cherry	0.5	2.4
Other hardwoods	3.1	13.7
Total hardwoods	6.9	23.2
All species	10.0	33.5

Table 23.—*Average net annual growth and average annual removals of growing stock on timberland by ownership class and species group, southeast Oklahoma counties, 19861993*

Ownership class	Growth						Removals					
		Softwood			Hardwood			Softwood			Hardwood	
		Pine						Pine				
	All species	Planted	Natural	Other	Soft'	Hard†	All species	Planted	Natural	Other	Soft'	Hard+
	Million cubic feet											
National forest	9.2	0.7	9.0	0.2	–0.5	-0.2	8.5		7.0			1.4
Other public	4.2		2.3	0.2	-0.6	2.3	0.1		0.1		...	
Forest industry	68.4	41.5	20.1	0.1	0.6	6.1	29.3	4.9	22.4		0.4	1.7
Other private	66.0	2.1	28.6	1.7	7.6	26.0	34.4	0.3	18.8	.	2.1	13.1
All ownerships	147.7	44.4	60.0	2.1	7.0	34.2	72.4	5.2	48.4	0.1	2.5	16.2

*Hardwood species with an average specific gravity of 0.50 or less such as gums, yellow-poplar, cottonwood, red maple, basswood, aspen, and willow.
†Hardwood species with an average specific gravity greater than 0.50 such as oaks, hard maple, hickories, and green and white ash.

Table 24.—*Average net annual growth and average annual removals of sawtimber on timberland by ownership class and species group, southeast Oklahoma counties, 1986-l 993*

Ownership class	Growth						Removals					
		Softwood			Hardwood			Softwood			Hardwood	
		Pine						Pine				
	All species	Planted	Natural	Other	Soft'	Hard†	All species	Planted	Natural	Other	Soft*	Hard+
	Million cubic feet											
National forest	58.9	4.1	48.6	0.3	0.5	5.4	28.7	0.2	25.6			2.9
Other public	7.5		9.1	0.4	-6.2	4.2	0.3		0.3			
Forest industry	110.7	37.5	66.8		-0.2	6.7	103.8	3.0	97.3	...	0.3	3.2
Other private	185.3	4.1	101.7	4.2	19.2	56.1	129.7	1.5	80.1	0.1	5.8	42.1
All ownerships	362.4	45.7	226.3	4.9	13.3	72.4	262.4	4.6	203.4	0.1	6.0	48.2

*Hardwood species with an average specific gravity of 0.50 or less such as gums, yellow-poplar, cottonwood, red maple, basswood, aspen, and willow.
†Hardwood species with an average specific gravity greater than 0.50 such as oaks, hard maple, hickories, and green and white ash.

Table 25.—*Volume of sawtimber on timberland by species and tree grade, southeast Oklahoma counties, 1993*

Species	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	Million board feet					
Yellow pines	3,928.3	641.2	764.6	2,492.4		30.2
Cypress	11.5		3.2	4.9		3.3
Redcedar	50.7	45.9			.	4.8
Total softwoods	3.990.6	687.2	767.8	2.497.3		38.3
Select white-red oaks	302.3	49.4	60.1	139.2	41.7	11.8
Other white-red oaks	909.4	70.8	153.3	331.3	284.8	69.3
Hickory	237.3	12.4	46.7	90.8	64.2	23.3
Hard maple	1.6		...	1.6	. .	...
Sweetgum	100.4	2.6	21.2	54.0	11.7	10.9
Tupelo and blackgum	22.3		5.2	9.2	6.9	1.0
Ash-walnut-black cherry	137.1	31.6	45.7	38.5	4.6	16.8
Other hardwoods	447.3	158.0	81.1	121.1	46.5	40.7
Total hardwoods	2,157.9	324.7	413.3	785.7	460.5	173.7
All species	6,148.5	1,011.9	1,181.1	3,283.0	460.5	212.0

Table 26.-Area *of timberland by stand age, forest type group, and stand origin, southeast Oklahoma counties, 1993*

Stand age class	Pine		Oak-pine		Other hardwood types	
	Planted	Natural	Planted	Natural	Planted	Natural
Years			*Thousand acres*			
1-10	111.3	5.8	40.4	.	16.7	56.8
11-20	273.2	5.6	22.7	.	11.1	..
21-30	46.9	5.6	...	...	...	.
31-40	1.9	1.9	.		.	...
41-50			.	.	...	...
>50				...		...
Mixed	40.9	584.3	33.9	580.0	11.1	1,714.2
Total	*474.3*	*603.1*	*97.0*	*580.0*	*38.9*	1,771.0

Table *27.-Volume of softwood growing stock on timberland by county andforest type group. southeast Oklahoma counties, 1993*

County	Total	Forest type. group				
		Loblolly-shortleaf pine		Oak-pine	Oak-hickory	Oak-gum-cypress
		Planted	Natural			
			Million cubic feet			
Atoka	50.4		40.7	9.5	0.2	...
Bryan	1.1		.		1.1	...
Choctaw	32.3	10.8	11.1	4.9	5.6	...
Coal	0.2				0.2	
Haskell	23.3		5.2	15.7	2.1	0.2
Latimer	108.8		69.1	34.5	5.3	...
Le. Flore	300.1	51.4	162.9	53.6	32.2	.
McCurtain	430.4	204.0	131.0	63.7	26.8	4.9
Pittsburg	24.8	.	13.2	8.3	3.3	..
Pushmataha	373.6	51.5	219.9	87.8	14.4	...
All counties	1,345.0	317.7	653.2	277.8	91.2	5.1

Table *28.-Volume of hardwood growing stock on timberland by county andforest type group, southeast Oklahoma counties, 1993*

County	Total	Forest type group					
		Loblolly-shortleaf pine		Oak-pine	Oak-hickory	Oak-gum-cypress	Elm-ash-cottonwood
		Planted	Natural				
				Million cubic feet			
Atoka	90.5	.	3.5	0.9	40.3	40.0	5.7
Bryan	50.4	...	...	...	32.4	17.6	0.4
Choctaw	65.5	.	2.6	1.3	48.0	13.6	...
Coal	25.1	.		...	3.6	21.5	...
Haskell	77.2		1.1	5.9	23.0	21.9	25.3
Latimer	48.2		6.2	14.5	21.8	5.6	.
Le Flore	209.5	2.4	14.8	17.0	126.5	36.3	12.6
McCurtain	232.5	3.1	24.1	33.3	118.6	46.9	6.5
Pittsburg	29.3	.	0.1	0.6	17.4	11.2	...
Pushmataha	140.3	0.6	29.7	37.8	64.2	8.0	...
All counties	968.4	6.1	82.1	111.3	495.6	222.7	50.6

Table *29.-Volume of softwood growing stock in the sawlogportion ojsawtimber trees on timberland by forest type group, southeast Oklahoma counties, 1993*

County	Total	Forest type group				
		Loblolly-shortleaf pine		Oak–pine	Oak-hickory	Oak-gum-cypress
		Planted	Natural			
	Million cubic feet					
Atoka	28.7		24.0	4.8		...
Bryan	0.2				*0.2*	
Choctaw	20.9	8.0	5.6	4.2	*3.2*	
Coal				.		...
Haskell	12.0		4.0	7.0	1.0	
Latimer	63.9		39.0	21.5	3.4	..
Le Flore	156.2	8.4	99.1	30.1	18.1	.
McCurtain	203.1	57.5	88.7	35.9	17.3	3.7
Pittsburg	13.4		6.8	5.2	1.5	
Pushmataha	189.9	3.6	128.9	50.0	1.4	
All counties	688.5	17.4	396.7	158.6	52.1	3.7

Table *30.-Volume of hardwood growing stock in the sawlog portion of sawtimber trees on timberland by forest type group, southeast Oklahoma counties, 1993*

County	Total	Forest type group					
		Loblolly-shortleaf pine		Oak pine	Oak–hickory	Oak-gum-cypress	Elm-ash cottonwood
		Planted	Natural				
	Million cubic feet						
Atoka	43.8		2.2		14.7	*25.5*	*1.3*
Bryan	23.3				14.5	*8.7*	*0.2*
Choctaw	32.3		1.0	1.1	23.0	*1.2*	...
Coal	15.5				0.9	*14.5*	.
Haskell	39.6		0.5	1.3	3.0	*11.4*	*23.3*
Latimer	8.4		1.5	0.9	3.0	*3.0*	
Le Flore	64.3	0.9	3.5	4.8	32.4	*15.3*	*7.5*
McCurtain	98.9	0.9	8.6	14.7	44.8	*28.1*	*1.7*
Pittsburg	17.1			0.3	8.9	*7.9*	.
Pushmataha	21.5	0.2	6.4	5.4	12.0	*3.4*	
All counties	370.8	2.0	23.8	28.5	157.3	125.1	34.1

Table 3 1 *.-Volume of timber on timberland by county, class of timber, and species group, southeast Oklahoma counties, 1993*

County	All classes	Growing stock		Rough		Rotten	
		Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
	Million cubic feet						
Atoka	193.6	50.4	90.5	1.6	44.1	0.5	6.5
Bryan	99.1	1.1	50.4	0.6	43.4		3.6
Choctaw	131.5	32.3	65.5	0.2	27.8	0.2	5.6
Coal	47.7	0.2	25.1		19.5		2.9
Haskell	132.1	23.3	77.2		29.2		2.4
Latimer	211.1	108.8	48.2	1.8	44.9	0.2	7.2
Le Flore	630.8	300.1	209.5	7.8	101.2	0.3	11.9
McCurtain	728.6	430.4	232.5	13.3	43.8	...	8.7
Pittsburg	87.1	24.8	29.3	0.5	28.2	0.2	4.2
Pushmataha	619.9	373.6	140.3	7.8	88.1	.	10.1
All counties	2.881.5	1.345.0	968.4	33.6	470.1	1.4	63.0

Table 32.—*Number of live trees on timberland by detailed species and diameter class, southeast Oklahoma counties. 1993*

Species	All classes	Diameter class *(Inches at breast height)* 1.0–2.9	3.0–4.9	5.0–6.9	7.0–8.9	9.0–10.9	11.0–12.9	13.0–14.9	15.0–16.9	17.0–18.9	19.0–20.9	21.0–28.9	229.0
	Thousand trees												
Shortleaf pine	419,800	201,131	92,459	51,167	32,748	19,473	12,145	6,458	2,595	1,144	390	90	...
Loblolly pine	166,841	31,615	33,233	57,953	34,435	6,998	1,360	685	265	116	76	98	9
Redcedar	67,210	43,780	16,405	4,701	1,358	449	302	120	67	12	9	8	...
Cypress	245			99		82	...	39		12	9	...	4
Total softwoods	654,097	276,526	142,097	113,920	68,540	27,001	13,806	7,302	2,927	1,283	485	1%	13
Select white oaks	77,316	42,356	16,713	7,854	4,697	2,660	1,180	700	562	290	152	137	13
Select red oaks	40,829	21,183	9,943	3,762	3,195	990	492	462	323	193	81	163	43
Other white oaks	357,923	156,805	109,308	41,911	21,620	12.025	6,896	5,316	2,100	1,069	430	432	11
Other red oaks	141,842	87,857	28,455	10,500	6,059	2,832	2,270	1,336	1,050	593	377	464	49
Sweet pecan	1,566	...	551		219	132	208	162	62	80	47	76	28
Water hickory	3,541	2,549	510	272	63	46	28	25	17	.	25	5	
Other hickories	227,508	127,074	58,609	21,553	10,753	5,049	2,453	1,035	650	231	58	41	3
Persimmon	17,051	14,879	1,038	855	137	91	50		.				...
Hard maple	3,802	3,119	510			115		44	15		.	.	...
Soft maple	55,586	39,892	12,292	1,865	808	227	80	218	75	40	41	48	.
Boxelder	2,582	551	556	437	382	191	94	96	100	119	22	35	.
Sweetgum	49,978	33,620	10,533	3,145	1,301	384	482	206	187	79	10	21	10
Blackgum	35.763	28,627	3,994	1,239	916	391	208	124	177	36	22	29	...
White ash	21,799	12,782	4,788	1,643	995	553	469	222	186	50	58	55	...
Other ashes	31,458	14,500	8.850	3,662	2,067	1,261	489	226	203	117	44	37	...
Sycamore	3,530	1,073	1,080	313	333	184	192	156	90	25	33	45	7
Cottonwood	1,301				67	447	172	323	65	15	20	183	10
Basswood	691	503			125	...	49	...	15	.	...	...	.
Willow	2,462	1,578		324	314	106	100	.		26	.	14	...
Black walnut	266			118		120			18	.	.	10	...
Black cherry	5,852	4,616	510	251	196	120	86	43	30		..		...
American elm	23,084	17,330	2,526	1,172	1,139	278	245	236	58	57	21	13	11
Other elms	182,112	125.242	36,776	12,181	4,703	1,810	802	331	115	88	43	20	...
River birch	2,930		1,530	738	215	273	...	22	90	26	9	28	...
Hackberry	26,769	16,696	4,709	2,761	1,151	911	168	110	139	49	46	25	5
Other hoousts	4,074	1,115	1,115	781	413	281	217	23	66	45	..	19	.
Sassafras	3,151	3,017	...	134	.	...	.	...	...	.	...	.	...
Dogwood	44.014	37.310	6,114	590	...	...	...	...	..	...	...	...	...
Holly	5,464	4,861	534	.	...	36	...	20	...	12	...	...	...
Other commercial	40,898	26,286	9,063	3,842	1.017	301	179	133	18	25	12	22	.
Total hardwoods	1,415,143	825,421	330,605	121,904	62,883	31,814	17,609	11,568	6,411	3,265	1,552	1,920	191
Noncommercial	231,469	170,866	35,980	13,057	5,851	3,396	1.367	532	288	82	23	26	. . .
All species	2,300,708	1,272,813	508,682	248,882	137,275	62,211	32,782	19,401	9,625	4,631	2,060	2.142	204

Table 33.-Number of *growing-stock trees on timberland by detailed species and diameter class. southeast Oklahoma counties, 1993*

Species	All classes	Diameter class *(Inches at breast height)*									
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0–28.9	≥29.0
	Thousand trees										
Shortleaf pine	121,519	48,380	32,119	18,913	11,803	6,285	2,494	1,077	358	90	..
Loblolly pine	96.740	54,862	33.107	6,241	1.302	664	265	116	76	98	9
Redcedar	6.101	4,314	1,025	343	204	120	67	12	9	8	...
cypress	103	...		38	..	39	...	12	9	...	4
Total softwoods	224,462	107,556	66,252	25,535	13.308	7,109	2,826	1,216	452	196	13
Select white oaks	12,892	5,774	3,920	1,909	572	255	237	66	89	65	4
Select red oaks	6,943	2,923	2,478	573	265	265	135	127	46	101	30
Other white oaks	57,669	30,594	14,897	6.716	2,586	1,659	685	259	144	130	.
Other red oaks	17,961	7,585	4,542	1,992	1,411	872	678	363	246	255	19
Sweet pecan	287	.	66		58	69	24	...	11	35	23
Water hickory	460	272	63	46	28	25	17	...	3	5	...
Other hickories	23,659	12,602	6,152	2,726	1,066	593	328	149	21	19	3
Persimmon	689	480	137	44	27	...		.	...	.	...
Hard maple	57		...	35	.	23		.	...	.	...
Soft maple	1,768	929	549	45	30	112	30	13	22	38	...
Boxelder	488	206	142	.	.	20	42	71	...	7	...
Sweetgum	4,641	2,324	1,068	350	447	206	155	56	10	21	3
Blackgum	1,828	928	560	143	52	38	79	24	3	2	...
White ash	2,285	932	402	316	306	113	146	.	45	26	...
Other ashes	5,106	1,962	1,506	1.011	334	91	89	63	33	17	.
Sycamore	1,073	111	333	184	161	113	75	25	33	37	.
Cottonwood	1,175		67	321	172	323	65	15	20	183	10
Basswood	83		57		25		...		.		.
Willow	580	226	185	68	66			26		9	.
Black walnut	63			35		...	18		.	10	...
Black cherry	340	119	57	76	30	43	15		.		...
American elm	1.572	697	528	152	49	89	.	44	..	13	.
Other elms	8,963	4.805	2,417	1,004	426	197	71	24	12	8	...
River birch	884	552	74	154	...	22	34	26	.	21	...
Hackberry	2,125	1,001	406	503	99	27	68	.	21	.	...
Other locusts	834	429	224	114	29	23	14	.	...	.	...
Other commercial	572	538			34				.		...
Total hardwoods	154,998	75,987	40,829	18.518	8,273	5,178	3.006	1.351	760	1.004	93
All species	379.460	183.543	107,081	44,052	21,581	12,286	5,831	2,567	1,212	1.199	106

Table 34.-*Volume of growing stock on timberland by detailed species and diameter class, southeast Oklahoma* counties, *1993*

Species	All classes	Diameter class *(Inches at breast height)* 5.0–6.9	7.0-a.9	9.0-10.9	11.0–12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0–28.9	≥29.0
	Million cubic feet										
Shortleaf pine	968.3	113.2	179.2	199.5	195.5	138.8	76.7	41.8	17.2	6.4	...
Loblolly pine	349.7	102.5	127.3	47.6	18.5	19.4	11.5	6.7	4.9	10.4	1.0
Redcedar	23.9	8.6	4.0	3.1	3.1	2.6	1.4	0.4	0.5	0.2	...
Cypress	3.1			0.3	...	0.9	...	0.3	0.4	...	1.2
Total softwoods	1,345.0	224.3	310.5	250.5	217.1	161.7	89.6	49.3	22.9	17.0	2.2
Select white oaks	89.3	15.6	21.3	19.7	9.5	5.4	7.3	2.5	3.7	3.9	0.4
Select red oaks	53.5	a.4	12.3	5.2	3.4	5.3	3.2	4.4	1.7	6.0	3.7
Other white oaks	275.4	66.8	66.8	50.2	30.5	27.9	15.8	7.1	4.8	5.3	...
Other red oaks	155.9	16.6	22.7	17.3	19.9	18.2	19.0	13.9	10.6	16.0	1.7
Sweet pecan	6.8	...	0.3	...	0.8	1.3	0.8	...	0.4	1.6	1.6
Water hickory	3.5	0.6	0.3	0.3	0.5	0.6	0.4	...	0.2	0.5	...
Other hickories	112.8	22.9	26.8	21.9	12.9	11.6	8.5	5.4	0.8	1.5	0.4
Persimmon	2.5	1.2	0.6	0.2	0.5		.	..	...	.	...
Hard maple	0.9		.	0.5	...	0.4		.	.	...	...
Soft maple	14.2	2.4	3.6	0.6	0.6	3.0	0.7	0.5	0.7	2.1	...
Boxelder	5.4	0.7	0.9			0.4	0.8	2.2	...	0.4	...
Sweetgum	36.6	5.6	5.7	3.5	7.9	4.8	4.9	2.1	0.5	1.5	0.1
Blackgum	10.1	1.9	2.4	1.3	0.7	0.8	2.0	0.7	0.2	0.2	...
White ash	21.3	2.3	1.9	2.9	4.1	2.7	4.3		1.4	1.5	...
Other ashes	39.0	4.9	9.3	11.2	5.3	1.9	2.2	2.1	1.2	0.9	...
Sycamore	16.9	0.3	2.6	2.0	2.3	2.9	2.3	0.9	1.3	2.3	...
Cottonwood	39.8		0.2	2.8	3.0	7.4	2.6	0.5	1.3	20.2	1.8
Basswood	0.7	.	0.3	.	0.4	..	.		...	...	.
Willow	4.7	0.6	1.4	0.7	0.9	.	...	0.7	...	0.4	...
Black walnut	1.2	.		0.3	...	..	0.5	...	.	0.4	..
Black cherry	2.9	0.3	0.3	0.7	0.5	0.7	0.5	...	...	...	..
American elm	9.9	1.3	2.1	2.0	0.9	1.6	.	1.2	.	0.8	...
Other elms	42.0	10.5	10.8	8.1	5.8	3.5	1.6	0.7	0.7	0.4	...
River birch	6.6	1.4	0.3	1.6	.	0.5	0.8	0.9	...	1.0	...
Hackberry	11.3	1.7	1.9	3.4	1.0	0.7	1.8	...	0.7	...	...
Other bcusts	3.7	0.7	0.8	1.1	0.5	0.3	0.4		.	...	.
Other commercial	1.4	1.0			0.4	.	.		..		
Total hardwoods	968.4	167.6	195.9	157.7	112.2	101.8	80.4	45.8	30.3	67.0	9.8
All species	2,313.4	391.9	506.4	408.2	329.3	263.5	170.0	95.1	53.2	84.0	12.0

Table 35.—*Volume of growing stock in the sawlog portion of sawtimber trees on timberland by derailed species and diameter* class, *southeast Oklahoma* counties. *1993*

Species	All classes	Diameter class *(Inches at breast height)* 9.0–10.9	11.0–12.9	13.0-14.9	15.@-16.9	17.0-18.9	19.0-20.9	21.0–28.9	≥29.0
	Million cubic feet								
Shortleaf pine	575.1	167.1	169.7	117.6	65.6	35.4	14.2	5.5	
Loblolly pine	101.3	37.0	15.8	17.6	10.3	6.0	4.4	9.3	0.9
Redcedar	10.0	2.5	2.6	2.5	1.4	0.4	0.5	0.2	
Cypress	2.1	0.2		0.8		0.3	0.3		0.5
Total softwoods	688.5	206.7	188.2	138.4	77.3	42.1	19.4	15.0	1.4
Select white oaks	26.0		7.2	4.4	5.9	2.1	2.9	3.1	0.4
Select red oaks	24.1		2.8	4.3	2.6	3.9	1.5	5.6	3.5
Other white oaks	75.1		24.8	23.1	12.8	6.0	3.9	4.6	
Other red oaks	81.6		15.0	15.1	16.1	11.1	8.8	13.9	1.6
sweet pecan	5.5		0.5	1.0	0.6	...	0.3	1.5	1.6
Water hickory	2.0		0.4	0.6	0.3		0.2	0.5	...
Other hickories	34.3		10.2	9.5	7.3	4.9	0.7	1.5	0.4
Persimmon	0.4		0.4						
Hard maple	0.3			0.3					
Soft maple	5.8		0.4	2.2	0.5	0.3	0.6	1.7	
Boxelder	3.0		...	0.3	0.8	1.7		0.2	
Sweetgum	17.5		5.8	3.8	4.2	1.8	0.4	1.3	0.1
Blackgum	3.9		0.6	0.7	1.7	0.6	0.1	0.2	..
White ash	11.3	.	3.0	2.2	3.5		1.2	1.4	
Other ashes	11.0		3.9	1.6	1.9	2.0	0.9	0.7	...
Sycamore	9.9		1.8	2.2	2.0	0.7	1.2	2.0	
Cottonwood	33.4		2.0	6.1	2.2	0.4	1.3	19.6	1.8
Basswood	0.2		0.2						
Willow	1.7		0.6			0.6		0.4	.
Black walnut	0.7				0.4			0.3	...
Black cherry	1.4		0.4	0.6	0.4				
American elm	3.7		0.7	1.5		0.9		0.5	
Other elms	10.2		4.4	2.8	1.4	0.6	0.6	0.4	
River birch	3.0			0.4	0.8	0.9		1.0	...
Hackberry	3.6		0.8	0.7	1.5	...	0.6		
Other locusts	0.9	...	0.3	0.2	0.4	...			
Other commercial	0.2	...	0.2		.			...	.
Total hardwoods	370.8	...	86.5	83.4	67.3	38.5	25.5	60.3	9.2
All species	1,059.3	206.7	274.7	221.8	144.6	80.6	44.9	75.3	10.7

Table 36.—*Volume of live trees on timberland by detailed species and class of timber; southeast Oklahoma counties, 1993*

Species	All live	Growing stock	Rough	Rotten
		Million cubic feet		
Shortleaf pine	987.7	968.3	18.2	1.2
Loblolly pine	362.2	349.7	12.5	.
Redcedar	26.6	23.9	2.5	0.2
Cypress	3.5	3.1	0.4	.
Total softwoods	1,380.0	1,345.0	33.6	1.4
Select white oaks	122.5	89.3	28.4	4.8
Select red oaks	69.9	53.5	13.3	3.1
Other white oaks	454.0	275.4	156.3	22.3
Other red oaks	205.0	155.9	38.7	10.4
Sweet pecan	14.6	6.8	7.4	0.4
Water hickory	3.8	3.5	.	0.3
Other hickories	171.1	112.8	51.2	7.1
Persimmon	3.4	2.5		0.9
Hard maple	1.6	0.9	0.5	0.3
Soft maple	19.7	14.2	4.3	1.2
Boxelder	13.6	5.4	7.7	0.5
Sweetgum	40.5	36.6	2.6	1.3
Blackgum	17.7	10.1	5.9	1.7
White ash	31.0	21.3	8.5	1.2
Other ashes	51.6	39.0	11.1	1.5
Sycamore	20.8	16.9		4.0
Cottonwood	41.0	39.8	1.2	.
Basswood	1.2	0.7	0.4	0.2
Willow	5.6	4.7	0.9	.
Black walnut	1.7	1.2		0.5
Black cherry	4.4	2.9	1.1	0.4
American elm	18.4	9.9	6.9	1.5
Other elms	71.7	42.0	28.6	1.1
River birch	10.3	6.6	3.4	0.2
Hackberry	22.5	11.3	9.7	1.5
Other locusts	9.9	3.7	5.5	0.7
Sassafras	0.1	.	0.1	.
Dogwood	0.7	0	.	7
Holly	0.7	.	0.5	0.2
Other commercial	9.8	1.4	7.4	1.0
Total hardwoods	1,438.7	968.4	407.3	63.0
Noncommercial	62.8	.	.	62.8 .
All species	2.881.5	2.313.4	503.7	64.4

Table 37.-Volume *of sawtimberfor tree grade I on timberland by &tailed species and diameter class. southeast Oklahoma counties. 1993*

Species	All classes	Diameter class (Inches *at breast height*) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	229.0
	Million board feet								
Shortleaf pine	545.3	91.1	119.7	130.5	109.8	60.6	20.2	13.4	...
Loblolly pine	95.9		2.3	4.6	7.7	11.4	13.2	54.5	2.1
Redcedar	45.9	10.5	13.3	11.2	6.4	2.2	2.3		
Total softwoods	687.2	101.6	135.4	146.3	124.0	74.2	35.7	67.8	2.1
Select white oaks	20.4		...		4.8	4.2	5.5	4.8	1.0
Select red oaks	29.0		. .		0.8	2.4		22.8	3.1
Other white oaks	25.8				5.3	3.1	8.7	8.8	
Other red oaks	44.9		.		2.3	10.8	13.5	18.3	
Sweet pecan	2.1							2.1	.
Water hickory	4.5				. .		1.0	3.4	
Other hickories	5.8							3.3	2.5
Sweetgum	2.6				2.6				
White ash	17.4				8.0	.	2.0	7.3	
Other ashes	12.0			.	1.4	5.6	2.5	2.5	
Sycamore	10.5						4.4	6.1	
Cottonwood	138.0						7.3	121.3	9.4
Black walnut	2.2				.			2.2	
River birch	3.1		.					3.1	
Hackberry	6.3			...	3.8		2.5		...
Total hardwoods	324.1				29.1	26.2	47.4	206.0	16.0
All species	1,011.9	101.6	135.4	146.3	153.1	100.4	83.1	273.8	18.1

Table *38.-Volume of sawtimberfor tree grade 2 on timberland by detailed species and diameter class, southeast Oklahoma counties, 1993*

Species	All classes	Diameter class *(Inches at breast height)* 9.0-10.9	11 & 12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.& 20.9	21.0-28.9	≥29.0
	Million board feet								
Shortleaf pine	715.4	171.7	230.6	153.9	83.3	46.9	18.1	10.9	
Loblolly pine	49.2	4.0	5.7	13.7	4.1	7.1	7.0	7.4	
Cypress	3.2			3.2		.			...
Total softwoods	767.8	175.7	236.3	170.9	87.4	54.0	25.2	18.4	
Select white oaks	31.7			6.4	14.1	1.8	2.1	7.4	.
Select red oaks	28.4	...		8.3	5.5		2.7	9.2	2.7
Other white oaks	55.9			20.7	14.3	12.7	4.0	4.2	
Other red oaks	97.4			15.3	28.8	17.3	11.4	22.0	2.5
sweet pecan	13.9				3.6		2.4	1.9	6.0
Other hickories	32.8			14.9	10.5	7.3			...
Soft maple	13.2			10.2				3.0	
Sweetgum	21.2			6.2	6.9	0.7	3.0	4.4	
Blackgum	5.2			1.9	1.7	1.6			
White ash	24.4			11.2	10.7	.	2.4		
Other ashes	15.4			6.1	4.8	4.5	.	.	.
Sycamore	16.1			5.4	8.7	2.1		.	
Cottonwood	26.4			10.1	11.2			5.2	
Black walnut	2.2				2.2	.			
Black cherry	3.6			3.6					
American elm	1.7							1.7	
Other elms	8.9			6.2	2.7	.			
River birch	9.1			2.5	3.6	3.0			
Hackberry	5.6			3.8	1.9		.		
Total hardwoods	413.3			132.8	131.3	51.0	28.0	59.0	11.1
All species	1.181.1	175.7	236.3	303.7	218.7	105.0	53.2	77.3	11.1

Table 39.-Volume of sawtimber for tree grade 3 on timberland by detailed species and diameter class, southeast Oklahoma counties, 1993

Species	All classes	Diameter class (Inches at breast height) 9.0–10.9	11.0–12.9	13.0-14.9	15.0-16.9	17.0–18.9	19.0-20.9	21.0-28.9	≥29.0
	Million board feet								
Shortleaf pine	2,063.3	610.3	616.1	422.4	218.2	125.9	57.7	12.5	...
Loblolly pine	429.1	171.2	78.2	87.7	54.0	21.5	10.1	3.8	2.6
Cypress	4.9	0.8		.	.	..	..	..	4.2
Total softwoods	2497.3	182.2	694.3	510.1	272.2	147.4	67.9	16.4	6.8
Select white oaks	73.0		23.7	15.8	14.9	2.7	11.4	4.4	.
Select red oaks	66.2		12.4	7.3	5.7	18.1	3.7	2.7	16.3
Other white oaks	198.6		69.0	61.7	37.8	10.1	7.6	12.4	.
Other red oaks	132.7		44.7	27.6	26.2	13.9	11.8	7.6	0.8
Sweet pecan	5.6		1.2	1.4	. . . . .			2.9	...
Water hickory	7.3	...	2.3	3.3	1.8	. . . . .			
Other hickories	77.9		21.5	18.6	25.5	8.2	4.1	...	.
Persimmon	2.2		2.2	. . . . .					
Hard maple	1.6		...	1.6	. . . . .				...
Soft maple	9.4		2.2	....	1.8	2.0	...	3.4	
Boxelder	3.0		. . . . .			3.0	. . . . .		...
Sweetgum	54.0		27.4	9.6	9.7	3.9	...	3.4	
Blackgum	9.2		3.1	...	6.1	. . . . .			
White ash	14.5		11.4	1.8	1.3	. . . . .			
Other ashes	21.9		15.3	...	1.6	...	3.2	1.8	...
Sycamore	13.8		6.4	2.8	. . . . .		3.2	1.5	
Cottonwood	31.6		10.8	16.7	2.8	. . . . .		1.3	...
Basswood	1.3		1.3	. . . . .					
Willow	5.4		3.7	. . . . .		1.8	. . . . .		.
Black cherry	2.0		2.0	. . . . .					
American elm	9.4		4.4	2.8	...	2.2	. . . . .		...
Other elms	37.9		20.3	6.9	1.2	3.3	3.6	2.5	
River birch	1.4		. . . . .					1.4	...
Hackberry	5.5		2.7	...	2.8	. . . . .			...
Total hardwoods	785.7		287.9	177.9	139.4	69.2	48.7	45.5	17.1
All species	3,283.0	782.2	982.2	688.0	411.6	216.6	116.6	61.8	23.9

Table *40.-Volume of sawtimber for tree grade 4 on timberland by detailed species and diameter class, southeast Oklahoma counties, 1993*

Species	All classes	Diameter class *(Inches at breast height)* 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	≥29.0
	Million board feet								
Select white oaks	22.8		17.2	3.2	2.4			.	.
Select red oaks	19.0		2.6	9.6	2.0	2.5		2.3	...
Other white oaks	130.1		62.8	42.8	16.4	5.9	2.2		.
Other red oaks	154.7		31.5	34.7	32.8	24.0	12.8	19.0	...
Sweet pecan	2.8		1.2	1.5					
Other hickories	61.4		33.6	20.1	3.6	4.2	...		
Soft maple	5.0				1.4	.	3.6	.	.
Boxelder	6.8		..		.	5.4		1.4	...
Sweetgum	11.7		2.9	3.1	.	5.7		...	
Blackgum	6.9			2.1	1.9	2.2	0.8	.	.
White ash	2.4		2.4		.	.			
Other ashes	2.2		2.2			..		...	...
Sycamore	5.1		1.2	3.9		...	...	...	...
Cottonwood	6.8			4.4		2.4			
Willow	4.9					2.3		2.6	...
American elm	8.3			4.8		1.5		2.0	
Other elms	6.9		3.0	1.9	1.5	.	0.5		.
Other locusts	1.7		1.7				...		.
Other commercial	1.1		1.1	...		.			..
Total hardwoods	460.5		163.4	132.0	61.9	56.1	19.8	27.3	
All species	460.5		163.4	132.0	61.9	56.1	19.8	27.3	...

Table 41 .-Volume *of sawtimber on timberland by species and* ownership class, *southeast* Oklahoma *counties.* I993

Species	All ownerships	National forest	Other public	Forest industry	Forest industry-leased	Other private
	Million board feet					
Yellow pines	3,928.3	924.5	226.3	1,247.7	.	1,529.8
cypress	11.5	...	2.2	6.1		3.2
Redcedar	50.7	5.4	1.0	2.2	.	42.1
Total softwoods	3,990.6	929.9	229.5	1,256.0		1,575.2
Select white-red oaks	302.3	52.9	7.5	94.0		147.9
Other white-red oaks	909.4	102.1	62.9	90.5		653.9
Hickory	237.3	18.8	17.9	41.2		159.5
Hard maple	1.6		.			1.6
Sweetgum	100.4	12.1	5.8	11.9		70.6
Tupelo and blackgum	22.3	4.0	..	4.7	.	13.6
Ash-walnut-black cherry	137.1	1.8	19.7	10.5		105.2
Other hardwoods	447.3	2.3	169.4	25.9	...	249.8
Total hardwoods	2.157.9	193.8	283.2	278.7		1.402.1
All species	6,148.5	1,123.7	512.8	1,534.8		2,977.2

Table 42.—*Average net annual growth, average annual removals, and average annual mortality of live trees by county and species group, southeast Oklahoma counties, 1993*

County	Net Growth			Removals			Mortality		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet								
Atoka	10.1	3.1	6.3	5.2	2.8	2.4	1.3	0.1	1.2
Bryan	6.0	0.3	5.7	1.4		1.4	0.8		0.8
Choctaw	5.5	1.9	3.6	2.2	0.6	1.6	1.2	0.1	1.1
Coal	2.1		2.0	0.3		0.3	0.7		0.7
Haskell	3.6	1.4	2.2	0.8		0.8	2.8		2.7
Latimer	8.6	6.1	2.5	3.8	2.9	0.9	1.0	0.4	0.6
Le Flore	31.5	20.7	10.9	12.2	8.0	4.2	2.6	0.4	2.2
McCurtain	54.2	44.5	9.7	30.3	21.8	8.5	3.8	1.2	2.5
Pittsburg	1.9	1.0	0.9	1.2	0.5	0.7	1.5	0.1	1.4
Pushmataha	38.7	29.8	8.9	20.4	17.9	2.5	2.1	1.2	1.0
All counties	162.1	109.3	52.8	77.7	54.5	23.2	17.8	3.5	14.3

Table 43.—*Average net annual growth, average annual removals, and average annual mortality of live trees by ownership class and species group, southeast Oklahoma counties, 1993*

Ownership class	Net Growth			Removals			Mortality		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet								
National forest	10.1	10.3	-0.2	9.9	7.1	2.8	0.9	0.5	0.4
Other public	5.4	2.7	2.7	0.1	0.1	.	3.1	0.5	2.6
Forest industry	71.9	63.8	8.1	30.7	27.8	2.9	2.7	1.3	1.4
Other private	74.7	32.6	42.1	37.0	19.5	17.5	11.1	1.2	9.9
All ownerships	162.1	109.3	52.8	77.7	54.5	23.2	17.8	3.5	14.3

Figures 1 through 8

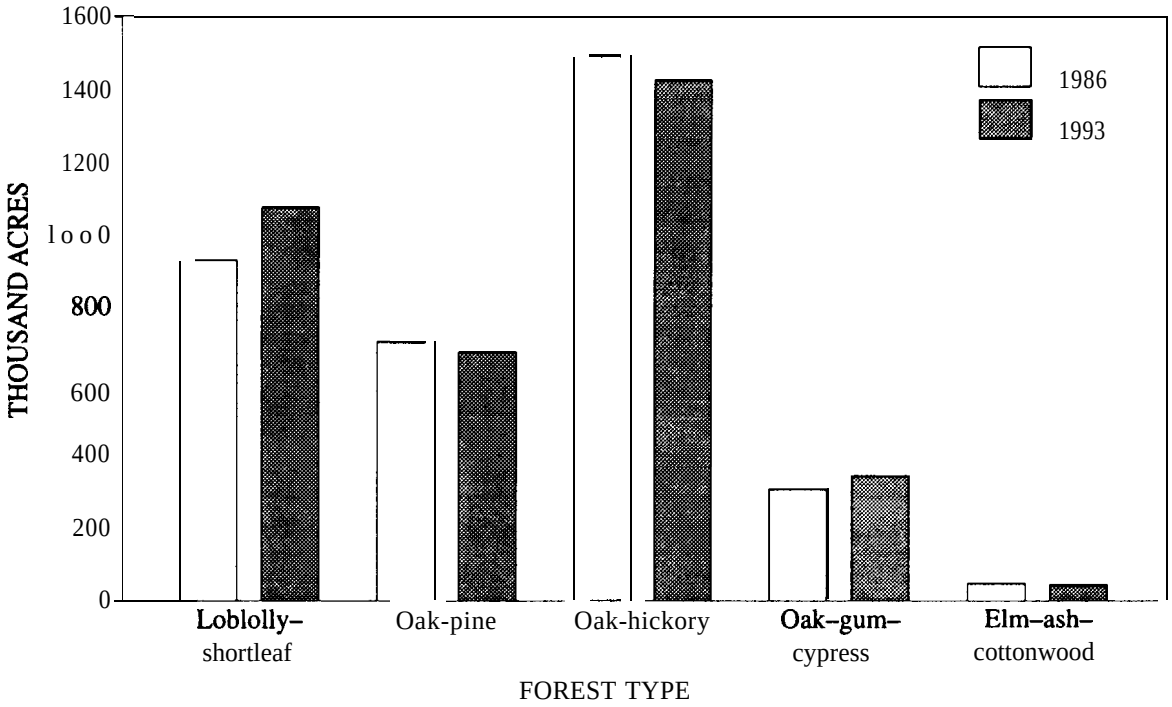

Figure 1 .-*Area of timberland by forest type, southeast Oklahoma, 1986 and 1993.*

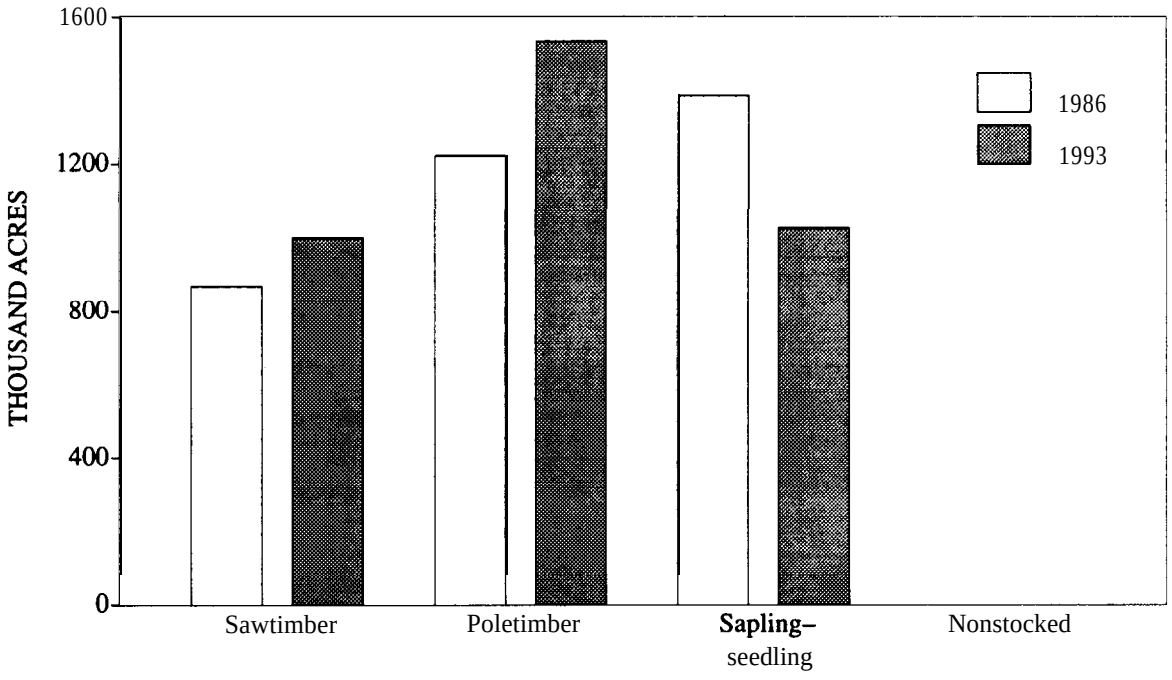

Figure *2.-Area of timberland by stand-size class, southeast Oklahoma, 1986 and 1993.*

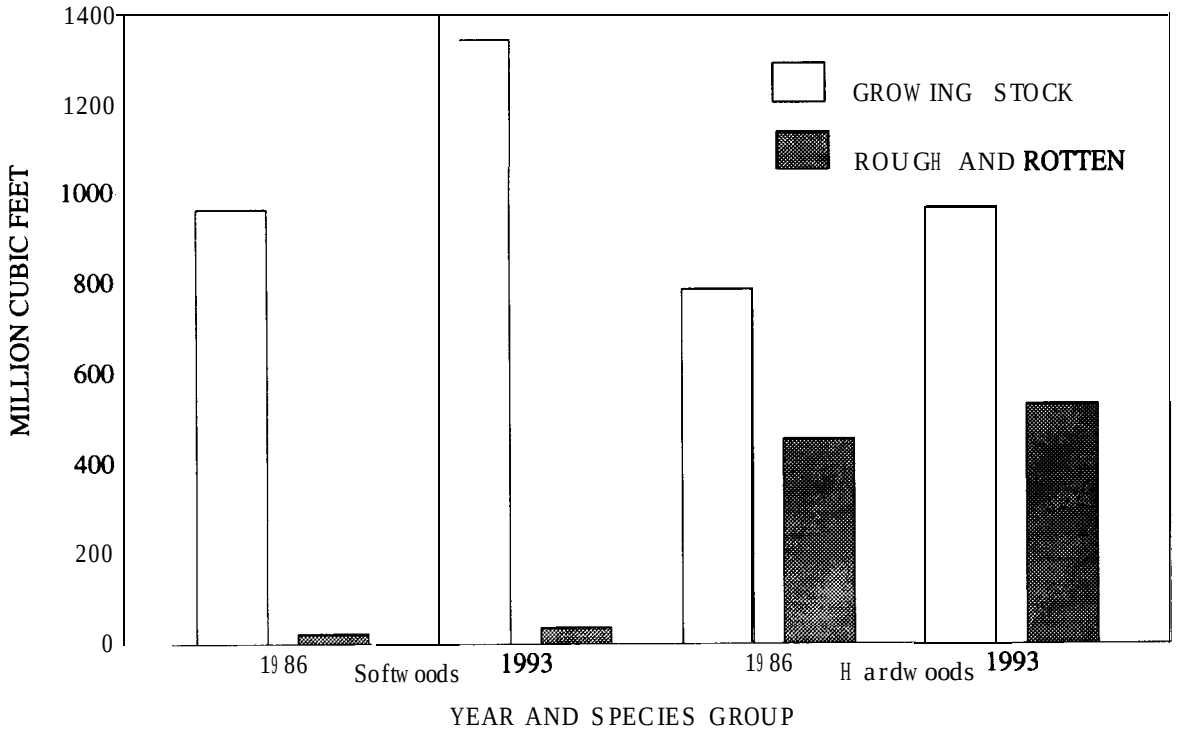

Figure *3.-Volume of live trees on timberland by species group and class of timber; southeast Oklahoma, 1986 and 1993.*

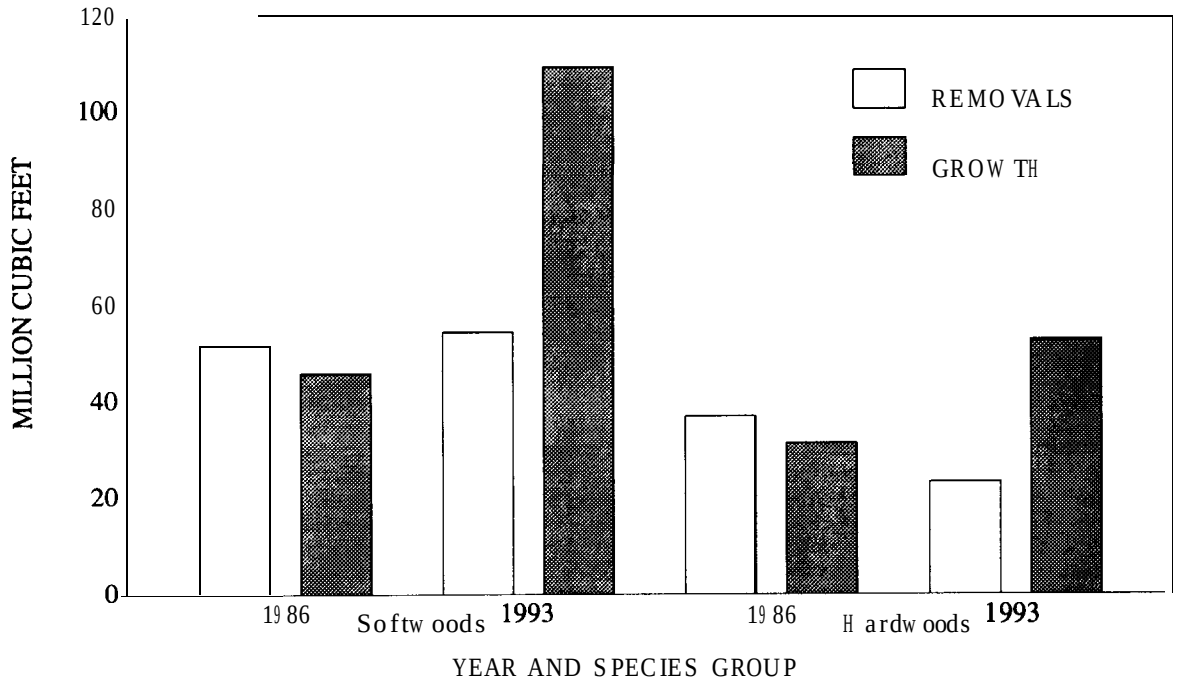

Figure *4.-Average net annual growth and average annual removals of live trees on timberland by species group, southeast Oklahoma, 1986 and 1993.*

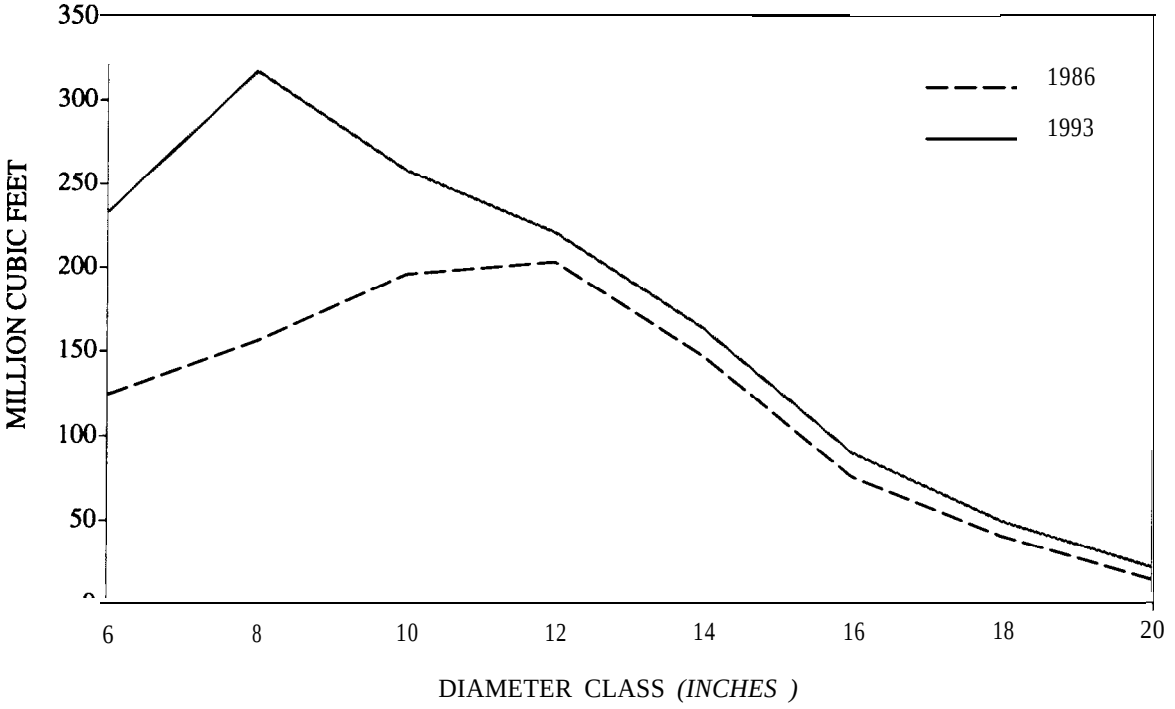

Figure 5.— *Volume of live softwood trees on timberland by diameter class, southeast Oklahoma, 1986 and 1993.*

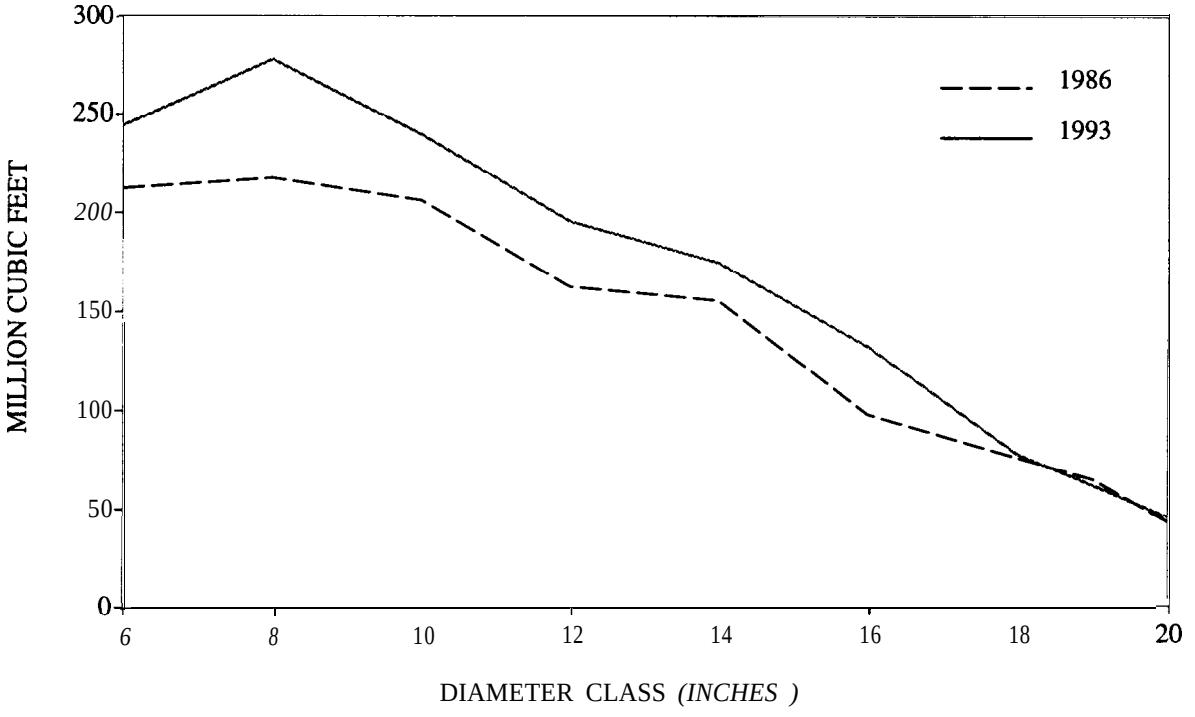

Figure 6.-Volume *of live hardwood trees on timberland by diameter class, southeast Oklahoma, 1986 and 1993.*

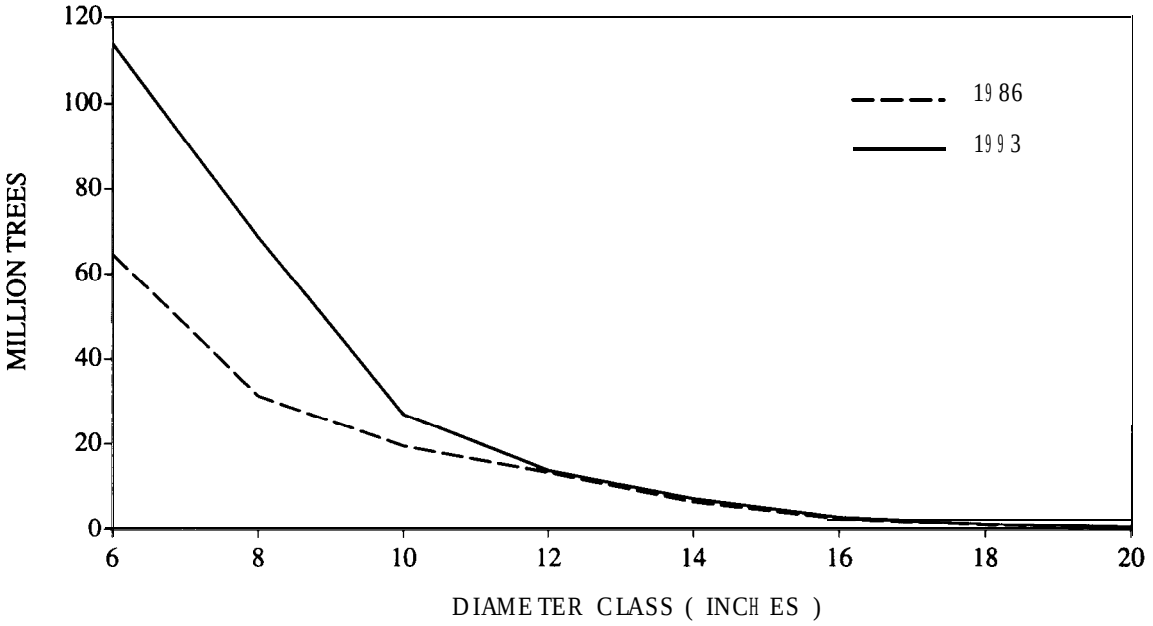

Figure *I.-Number of live softwood trees on timberland by diameter class, southeast Oklahoma, 1986 and 1993.*

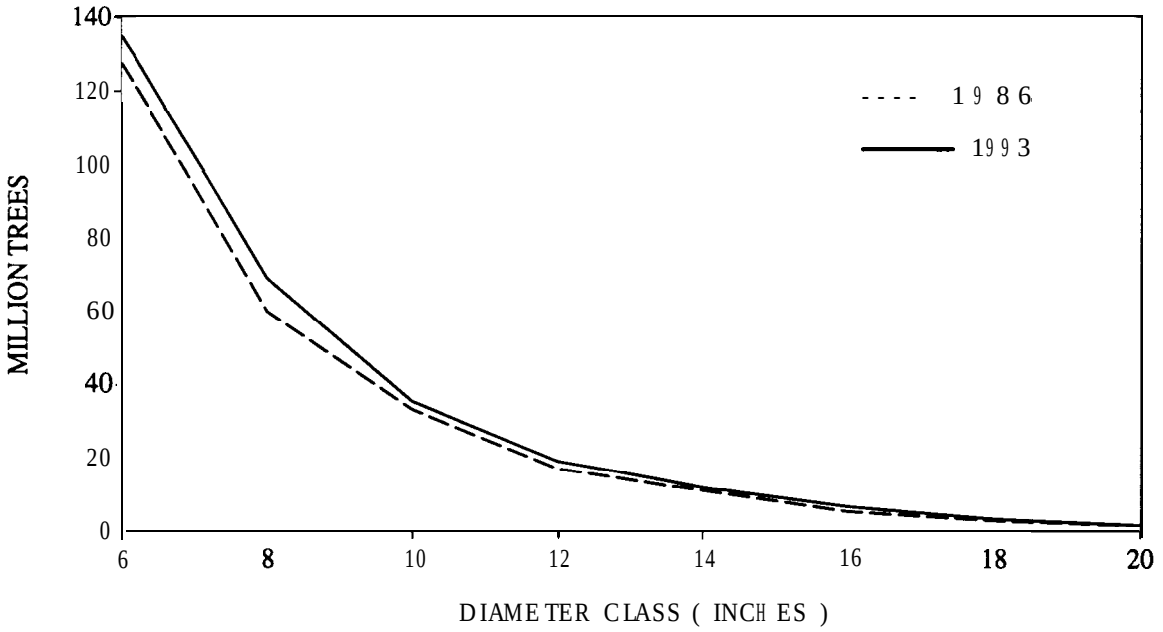

Figure *8.-Number of live hardwood trees on timberland by diameter class, southeast Oklahoma, 1986 and 1993.*

Franco, Peter A.; Miller, Patrick E.; Hartsell, Andrew J. 1993. Forest statistics for southeast Oklahoma counties-1993. Resour. Bull. SO-176. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. 31 p.

Tabulates forest resource information from a new inventory of the southeast counties of Oklahoma.

Keywords: Area, forest type, ownership, stand size, volume.

*U.S.GPO:1995-665-017/00035