FOREST SURVEY RELEASE 70

FOREST STATISTICS FOR
TENNESSEE

A REPORT OF THE SOUTHERN FOREST SURVEY
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New Orleans, La.

FOREST SERVICE, U. S. DEPT. OF AGRICULTURE
June 1952

THE SOUTHERN FOREST SURVEY

The Southern Forest Survey, an activity of the Southern Forest Experiment Station, covers the seven States of the Station's territory--Alabama, Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas. This Survey is a part of the nation-wide Forest Survey authorized by the McSweeney-McNary Forest Research Act of 1928. Its five-fold purpose is (1) to take inventory of the supply of standing timber and other forest products; (2) to ascertain the rate at which this supply is being increased through growth; (3) to determine the rate at which this supply is being diminished through industrial and local use, and by fire, insects, disease, and other agencies; (4) to estimate the present requirements and the probable future trend in the requirements for timber and other forest products; and (5) to correlate these findings with existing and anticipated economic conditions, in order that policies may be formulated for the effective use of lands suitable for forest production.

The Forest Survey of Tennessee is the first intensive inventory to be made of the State's forest land and timber resources. An earlier estimate was made by the Forest Service in its 1945 Reappraisal of the forest situation. Because of complex differences in mensurational standards and procedures and the greater sampling intensity of the Forest Survey, changes in forest conditions in Tennessee cannot be measured by comparing Survey figures with those of the Reappraisal. A valid comparison will be possible only when an intensive resurvey is made in the future.

Supplement to Forest Survey Release 70 June 1952

Southern Forest Experiment Station; Harold L. Mitchell, Director;
New Orleans, La.

TIMBER VOLUME BY COUNTY IN TENNESSEE, 1948-50

The accompanying data on total and sawlog growing-stock volume in Tennessee counties are intended for use in compiling timber volumes for groups of counties other than those recognozed in Forest Survey Release 70.

Since the sampling procedure used by the Southern Forest Survey in Tennessee was intended primarily to provide inventory estimates for the State as a whole, individual county estimates have limited and variable accuracy. In some cases, they may be highly unreliable.

Generally speaking, combinations of county volume estimates are good only for groups of counties including at least a million acres of forest land.

Sawlog and total growing stock by species group and county in Tennessee, 1948-50

County	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	- - Million cubic feet -			- Million board feet - -		
Anderson	72.7	17.4	55.3	279.2	61.2	218.0
Bedford	17.4	4.4	13.0	35.8	3.6	32.2
Benton	55.7	1.2	54.5	132.7	2.5	130.2
Bledsoe	46.7	4.7	42.0	107.3	9.0	98.3
Blount	56.4	34.2	22.2	209.7	120.4	89.3
Bradley	41.2	26.6	14.6	113.4	56.4	57.0
Campbell	93.6	28.4	65.2	366.7	112.3	254.4
Cannon	33.9	.3	33.6	125.0	...	125.0
Carroll	65.8	.9	64.9	228.0	3.0	225.0
Carter	60.8	21.3	39.5	152.5	66.4	86.1
Cheatham	59.3	.5	58.8	212.1	.5	211.6
Chester	22.5	4.5	18.0	66.8	13.0	53.8
Claiborne	46.8	7.1	39.7	157.4	22.3	135.1
Clay	28.3	1.3	27.0	101.2	3.2	98.0
Cocke	64.9	33.7	31.2	220.1	129.6	90.5
Coffee	54.0	.4	53.6	158.8	.6	158.2
Crockett	26.9	3.7	23.2	128.0	20.6	107.4
Cumberland	96.1	23.1	73.0	185.2	54.6	130.6
Davidson	49.7	1.3	48.4	144.9	1.2	143.7
Decatur	43.9	1.4	42.5	126.0	5.0	121.0
DeKalb	36.4	1.9	34.5	96.8	5.4	91.4
Dickson	75.0	.1	74.9	217.2	...	217.2
Dyer	14.1	...	14.1	60.0	...	60.0
Fayette	28.9	2.4	26.5	130.7	4.7	126.0
Fentress	87.3	32.7	54.6	308.1	97.6	210.5
Franklin	98.8	1.1	97.7	347.4	.8	346.6
Gibson	38.7	2.1	36.6	182.1	11.0	171.1
Giles	62.3	1.7	60.6	260.3	4.3	256.0

Sawlog and total growing stock by species group and county in Tennessee, 1948-50 (continued)

County	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	Million cubic feet			Million board feet		
Grainger	41.4	11.6	29.8	135.0	37.6	97.4
Greene	65.7	23.4	42.3	288.0	97.6	190.4
Grundy	75.2	11.8	63.4	251.7	48.5	203.2
Hamblen	13.6	4.2	9.4	57.2	15.5	41.7
Hamilton	82.3	31.8	50.5	281.3	103.9	177.4
Hancock	19.4	3.3	16.1	71.9	7.9	64.0
Hardeman	71.7	10.3	61.4	246.0	37.5	208.5
Hardin	117.7	19.6	98.1	312.2	55.7	256.5
Hawkins	55.1	6.5	48.6	230.8	18.2	212.6
Haywood	46.4	1.1	45.3	231.3	5.8	225.5
Henderson	41.4	1.5	39.9	111.7	...	111.7
Henry	67.9	2.9	65.0	238.7	14.4	224.3
Hickman	67.6	.5	67.1	150.8	1.2	149.6
Houston	30.0	1.7	28.3	83.0	2.8	80.2
Humphreys	59.5	.3	59.2	149.8	.9	148.9
Jackson	34.6	1.2	33.4	117.6	.8	116.8
Jefferson	24.1	1.1	23.0	102.8	3.4	99.4
Johnson	43.4	11.9	31.5	128.6	46.9	81.7
Knox	61.8	8.0	53.8	241.7	20.8	220.9
Lake	3.8	1.0	2.8	20.5	4.7	15.8
Lauderdale	73.5	9.8	63.7	334.6	61.9	272.7
Lawrence	64.2	.9	63.3	120.2	1.7	118.5
Lewis	34.0	1.4	32.6	84.8	1.7	83.1
Lincoln	50.7	2.4	48.3	151.5	6.1	145.4
Loudon	49.3	11.6	37.7	219.4	46.2	173.2
McMinn	50.8	33.0	17.8	128.0	82.8	45.2
McNairy	40.1	11.1	29.0	98.6	20.8	77.8
Macon	19.2	.2	19.0	48.9	.6	48.3

Sawlog and total growing stock by species group and county in Tennessee, 1948-50 (continued)

County	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	- Million cubic feet -			- -Million board feet - -		
Madison	49.8	5.2	44.6	205.6	28.3	177.3
Marion	114.0	27.7	86.3	454.9	99.3	355.6
Marshall	18.2	4.0	14.2	48.5	1.1	47.4
Maury	41.1	1.1	40.0	109.9	...	109.9
Meigs	18.6	5.7	12.9	51.5	12.5	39.0
Monroe	135.5	74.0	61.5	451.8	272.5	179.3
Montgomery	44.4	2.3	42.1	173.6	3.8	169.8
Moore	7.0	.2	6.8	22.0	...	22.0
Morgan	108.3	31.5	76.8	276.0	74.8	201.2
Obion	53.3	9.2	44.1	195.7	48.1	147.6
Overton	47.8	3.5	44.3	159.0	9.3	149.7
Perry	55.7	.5	55.2	140.7	...	140.7
Pickett	24.7	2.7	22.0	99.3	7.6	91.7
Polk	121.0	59.5	61.5	440.0	245.3	194.7
Putnam	37.6	3.6	34.0	101.8	10.3	91.5
Rhea	54.6	17.3	37.3	121.8	49.3	72.5
Roane	45.3	14.8	30.5	115.5	42.2	73.3
Robertson	42.2	2.0	40.2	191.5	1.6	189.9
Rutherford	17.6	5.6	12.0	25.1	5.3	19.8
Scott	117.4	26.3	91.1	362.6	73.9	288.7
Sequatchie	45.6	12.8	32.8	165.4	35.7	129.7
Sevier	49.1	18.3	30.8	153.0	48.8	104.2
Shelby	62.8	3.4	59.4	280.4	17.4	263.0
Smith	25.2	4.5	20.7	67.6	8.5	59.1
Stewart	100.0	1.4	98.6	262.2	4.0	258.2
Sullivan	49.7	11.9	37.8	188.2	46.7	141.5
Sumner	55.8	.7	55.1	183.9	3.0	180.9
Tipton	37.5	...	37.5	162.0	...	162.0

Sawlog and total growing stock by species group and county in Tennessee, 1948-50 (continued)

County	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	--Million cubic feet--			--Million board feet--		
Trousdale	5.7	...	5.7	6.7	...	6.7
Unicoi	31.8	16.0	15.8	104.1	64.1	40.0
Union	41.6	13.2	28.4	157.0	49.9	107.1
Van Buren	39.0	3.0	36.0	133.7	4.6	129.1
Warren	52.7	6.8	45.9	186.8	27.8	159.0
Washington	31.5	14.6	16.9	130.5	66.5	64.0
Wayne	107.2	11.7	95.5	220.8	22.5	198.3
Weakley	57.6	9.2	48.4	250.5	35.3	215.2
White	47.6	8.2	39.4	164.9	28.2	136.7
Williamson	33.0	2.8	30.2	105.4	1.4	104.0
Wilson	26.2	8.5	17.7	80.1	10.1	70.1
All counties	4,936.2	926.2	4,010.0	16,240.0	3,014.8	13,225.2

FOREST STATISTICS FOR TENNESSEE

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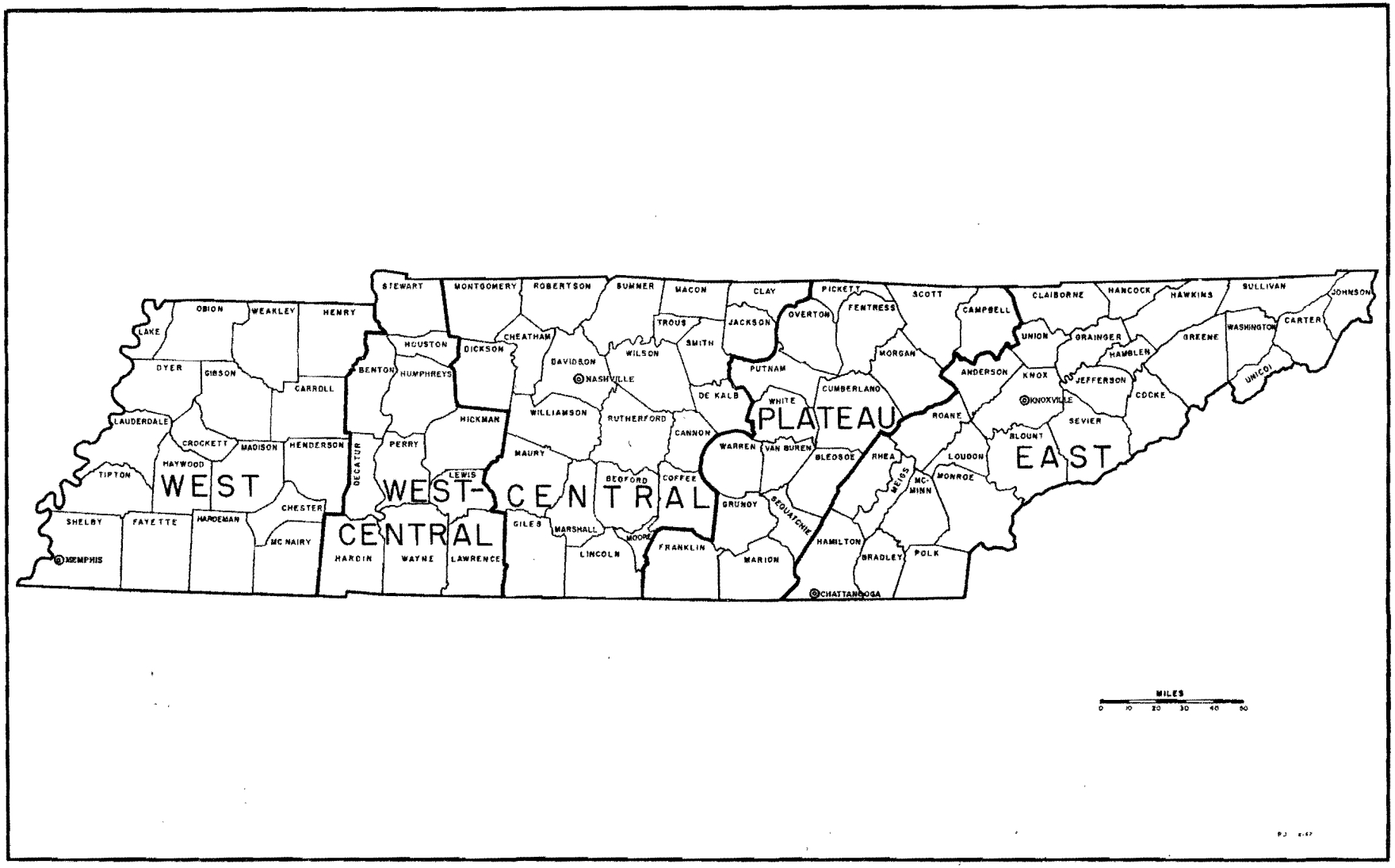

Figure 1.--Forest Survey regions in Tennessee.

FOREST STATISTICS FOR TENNESSEE

This report of forest acreage, timber volume, growth, and drain [1] for Tennessee is based on data collected by the Southern Forest Survey between July 1948 and November 1950. [2] A more comprehensive analysis of Tennessee's forest resources and industries will be published later.

Highlights of the Forest Situation

State almost half forested

Extending from the Mississippi River to the Appalachian Mountains, Tennessee has a land area of 26.9 million acres, of which 12.6 million acres or 47 percent is in forest. Virtually all of the forest is capable of producing commercial timber. About 2 percent, chiefly in the Great Smoky Mountains National Park, is withdrawn from commercial timber use. Of the commercial forest acreage, 91 percent is privately owned; the remainder is almost entirely in State and Federal ownership.

Tennessee has considerable physiographic variation, and the proportion of forest (table 1) ranges from 30 to 69 percent within the five Survey regions (fig. 1) into which the State is divided.

West Tennessee has predominantly an agricultural economy and is only 30 percent forested. Geologically it is a part of the Gulf Coastal Plain, which rises gently in elevation from the Mississippi River to its eastern margin overlooking the Tennessee River.

Table 1.--Forest-land area by Survey region, 1948-50

Survey region	Forest land	Percent of total land forested
	Thousand acres	
West	1,794.2	30
West-central	2,111.4	62
Central	2,345.1	37
Plateau	3,056.7	69
East	3,300.2	49
State	12,607.6	47

1/ Definitions of technical terms will be found on pp. 44-48.

2/ The regional data on forest area and timber volume which are incorporated in this report were first published in Forest Survey Releases 63 and 66.

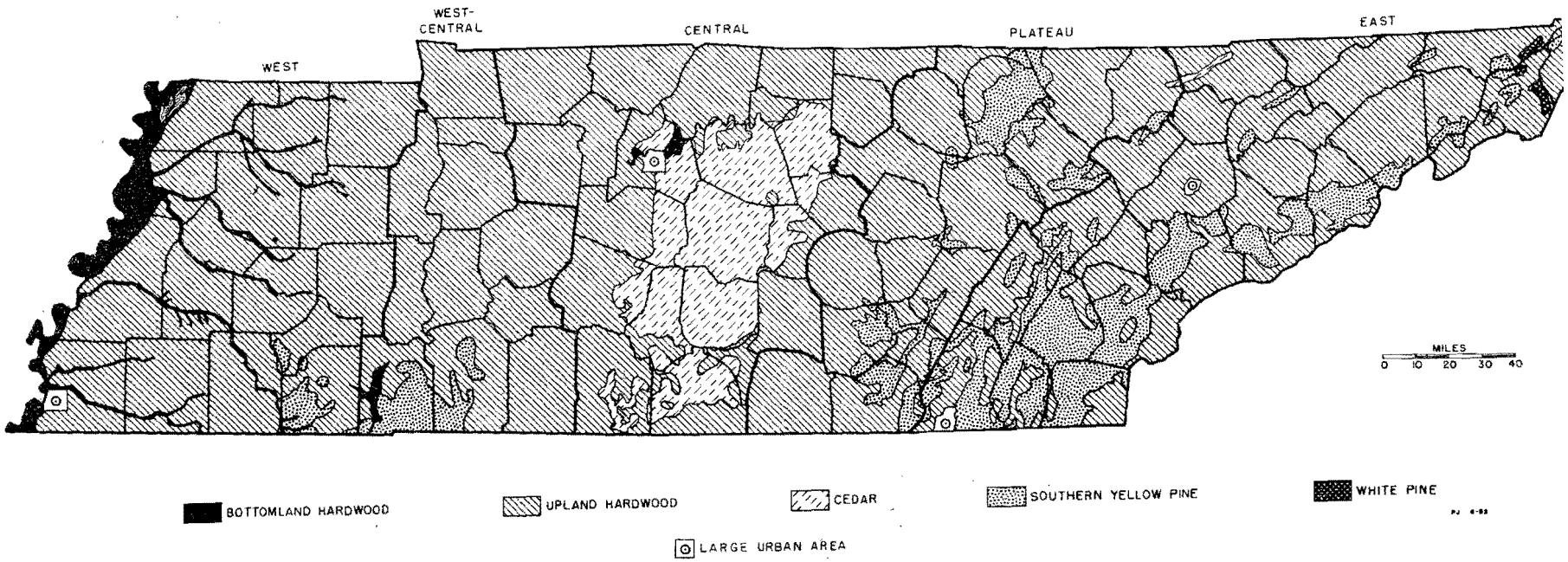

Figure 2.--Generalized forest types in Tennessee. The upland hardwood-pine type is not shown.

The west-central part, bordering the Tennessee River, is hilly and broken. Though 62 percent forested, it also is characterized by a largely agricultural economy.

The central portion, around Nashville, has fertile limestone soils and some poorer shales and sandstones. Here again farming is the chief form of livelihood, and no more than 37 percent of the land is in forest.

The eastern Highland Rim and Cumberland Plateau sections, grouped in this report into the Plateau region, have the highest proportion of forest land--69 percent. The Highland Rim has a flat to rolling topography. Some of its soils are suited to crops, but others are among the least fertile in the State. The Cumberland Plateau averages about 2,000 feet in elevation. Its soils are mainly thin, porous, and unproductive for farming.

East Tennessee, with 49 percent of its land in forest, is made up of two physiographic areas--the Great Valley and the Unaka and Smoky Mountains. The Valley is 30 to 60 miles wide and is composed of a succession of minor valleys and ridges. Some deep soils and many prosperous farms are found in the valleys. The Mountains, rough and rugged, extend along the North Carolina line in a strip 2 to 20 miles wide.

Hardwood forests predominate

Tennessee is a transition zone where characteristically southern species meet and intermingle with species whose greatest occurrence is farther north. Southern species of oaks and gums are mixed with northern oaks and sugar maple. On the Cumberland Plateau and Appalachian Mountains, the ranges of shortleaf and Virginia pine overlap those of white pine and hemlock. In the higher parts of the Appalachians, spruce and fir also extend their range southward into Tennessee.

Two-thirds of the commercial forest acreage is in upland hardwood forest types (fig. 2). Upland hardwoods are conspicuously predominant in the west-central and central portions of the State. Southern yellow pine types compose 16 percent and occur mainly in the Plateau region and east Tennessee. Bottomland hardwoods are important only in the extreme western part of the State. Cedar types

are widely distributed, but are of principal importance in the central region.

Stands largely cordwood size

Less than one-fourth of Tennessee's commercial forest acreage (fig. 3) is still in saw-timber stands--that is, has a volume of 1,500 board feet per acre in merchantable sawlog-size trees. By far the greatest part, about three-fifths, is in cordwood stands. Most of the remaining acreage is in seedlings and saplings. There are only minor denuded areas.

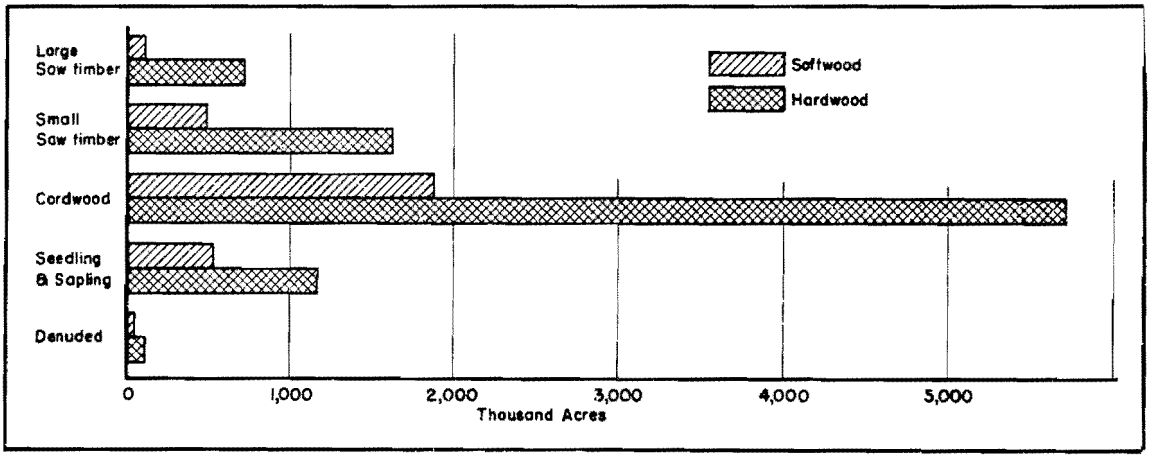

Figure 3.--Forest types by stand size, 1948-50.

As is indicated by figure 3, 25 percent of the area in hardwood types and 20 percent of that in softwood types is in saw-timber stands. Cordwood stands comprise some 60 percent of the area in both hardwood and softwood types. The smaller stand sizes--principally seedlings and saplings--occupy 14 percent of the hardwood types, 19 percent of the softwoods.

Three-fifths of stands well stocked

Considering all well-formed trees, including well-established seedlings, 58 percent of the commercial forest in the State (fig. 4) can be said to be well stocked, i.e., has 70 percent or more of the number of good trees required for full stocking. Thirty-three percent is medium stocked, or has 40 to 69 percent of the number of trees required for full stocking. About 8 percent is poorly stocked, and only 1 percent is nonstocked. Best stocking occurs in east Tennessee and the Plateau region.

In addition to the stocking of good trees, however, there is a large accumulation of cull trees occupying growing space that could better be used by trees of good form and quality. Culls make up three-tenths of the total basal area of all trees five inches d. b. h. and larger. If the basal area in sound, well-formed 2- and 4-inch trees is added to the basal area of all trees 5 inches d. b. h. and larger, the proportion of cull is one-fourth. On the same basis, the proportion of cull averages almost four-tenths in bottomland hardwoods; one-quarter in upland hardwoods; and only one-sixth in softwood types.

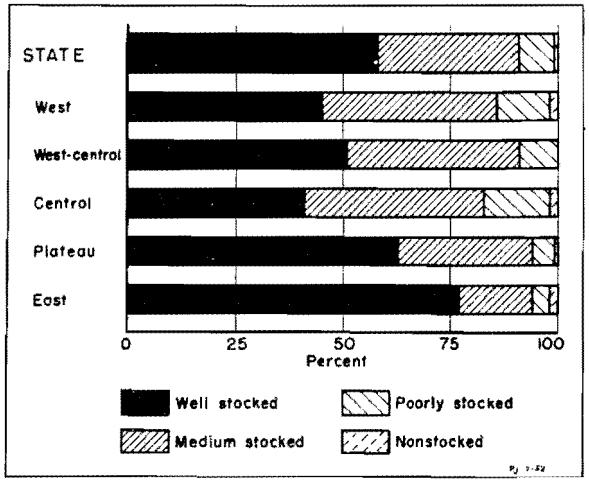

Figure 4. --Tree stocking in commercial forests by Survey region, 1948-50.

Total growing stock 5 billion cubic feet

Total growing stock (which includes sawlog growing stock, tops of softwood sawlog trees, and entire stems of cordwood trees to a top diameter of 4 inches inside bark) amounts to 4.9 billion cubic feet. Thus the average for the State is 400 cubic feet or about 6 cords per acre of commercial forest land. Hardwood volume exceeds softwood in all sections of the State (fig. 5). Softwoods are important only in the east and Plateau regions. Over half of the total growing stock (54 percent) is in sawlog trees (fig. 6).

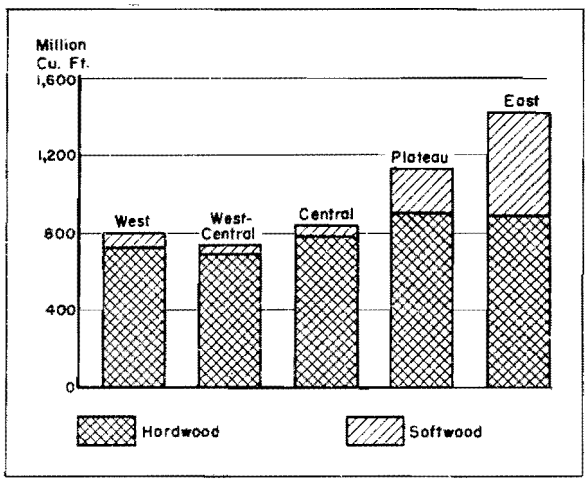

Figure 5. --Total growing stock by Survey region, 1948-50.

Not included in the growing stock is an additional 3.1 billion cubic feet of sound volume that for the most part has little current economic value except for fuel wood. Of this, 39 percent is in tops and limbs of sawlog-size hardwoods, 58 percent is in cull trees, and 3 percent is in salvageable dead trees, mostly chestnut.

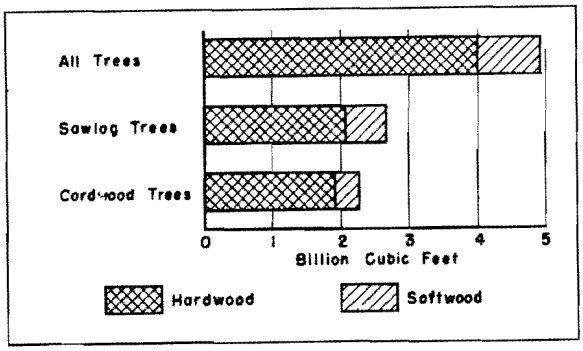

Figure 6.--Total growing stock in cordwood and sawlog trees, 1948-50.

Sawlog volume 16 billion board feet

Sawlog growing stock in the State totals 16.2 billion board feet, International 1/4-inch rule, [3/] of which four-fifths is in hardwoods and one-fifth is in softwoods (fig. 7). Red and white oaks together account for 54 percent of the hardwood volume, hickories for 12 percent, yellow-poplar for 9 percent, gums and other hardwoods for the remaining 25 percent (fig. 8). Southern pines make up 71 percent of the softwood sawlog volume. Other softwoods are cedar, white pine, hemlock, and cypress.

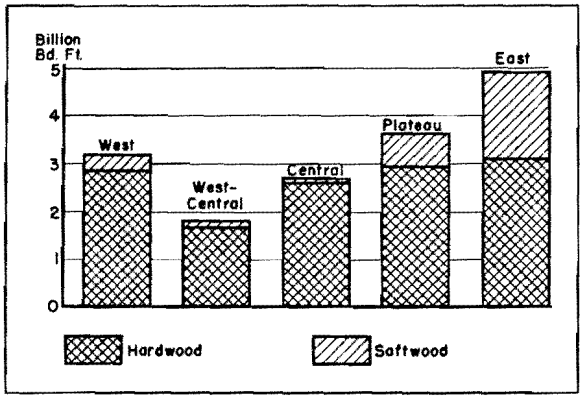

Figure 7.--Sawlog growing stock by Survey region, 1948-50.

The sawlog volume per acre averages about 1,300 board feet for the State. Upland types, both softwood and hardwood, average less than 1,300 board feet per acre, while bottomland hardwoods average more than 2,100. Saw-timber stands of all forest types average 3,500 board feet per acre.

3/ All board-foot volumes quoted in this report are net volume, International 1/4-inch kerf rule. Volume by the Doyle rule would total about three-fifths as much for the State.

The highest average sawlog volumes per acre occur in west and east Tennessee. The west-central region averages the lowest.

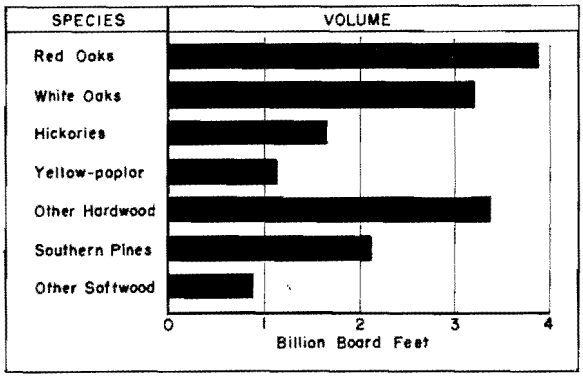

Figure 8.--Sawlog growing stock by species, 1948-50.

Quality of large hardwood sawlogs is good

A quarter of the hardwood sawlog volume is in trees 20 inches d. b. h. and larger. Over half is in trees 14 to 18 inches and slightly less than a quarter is in 12-inch trees (table 2). The softwood sawlog volume is equally divided between 10- and 12-inch trees and those 14 inches d. b. h. and larger; only a seventh is in trees 20 inches d. b. h. and larger.

Table 2.--Sawlog volume by softwood tree grade, hardwood log grade, and tree diameter

Species group and d. b. h. class (inches)	All grades	Grade 1 1/	Grade 2	Grade 3
		Million board feet		
Softwood:				
10 to 12	1,511.6	158.1	206.9	1,146.6
14 to 18	1,075.9	182.6	224.0	669.3
20 and up	427.3	103.5	89.9	233.9
Total	3,014.8	444.2	520.8	2,049.8
Hardwood:				
12	2,965.0	...	...	2,965.0
14 to 18	6,916.4	73.2	1,465.8	5,377.4
20 and up	3,343.8	1,098.0	1,154.8	1,091.0
Total	13,225.2	1,171.2	2,620.6	9,433.4
All classes	16,240.0	1,615.4	3,141.4	11,483.2

1/ All cedar sawlogs were graded as No. 1.

Quality is closely related to tree size. Almost seven-tenths of the hardwood sawlog volume in trees 20 inches d. b. h. and larger is in grades 1 and 2--that is, logs which yield at least 65 and 40 percent respectively of their net volume in No. 1 Common and better grades of

lumber. Even in the 14- to 18-inch tree size-class, some two-tenths of the sawlog volume is in grades 1 and 2. The 12-inch class is entirely grade 3, which yields less than 40 percent No. 1 Common and better.

As for softwoods, grade 1 and 2 trees comprise 45 percent of the sawlog volume in trees 20 inches d. b. h. and larger; 38 percent of the volume in 14- to 18-inch trees; and 24 percent in 10- and 12-inch trees. (Grade 1 and 2 softwood trees have at least 12 feet of clear bole and 25 percent of the merchantable length clear of limbs and knots in sections not less than 8 feet in length.)

One-quarter of the grade 3 hardwood material and one-sixth of the grade 3 softwood is in fair or better stands--that is, stands with at least four grade 2 hardwood logs or softwood trees per acre.

Of the acreage in saw-timber stands, 42 percent of the area in hardwood types and 33 percent of the area in softwood types is in fair or better stands.

Annual total growth, 244 million cubic feet; sawlog growth, 877 million board feet

Current net annual growth of the present timber stands is estimated at 244 million cubic feet for all growing stock, including sawlog trees; and 877 million board feet for sawlog growing stock alone. These estimates include allowances for advance of small trees into cubic- and board-foot volume sizes, and deductions for mortality due to causes other than cutting, such as suppression, fire, disease, insects, and wind throw.

Net annual growth per acre averages 20 cubic feet (about 3/10 cord) for all growing stock and 71 board feet for sawlog growing stock. These averages are far below the full potentiality of the State's forest lands.

Total 1949 drain, 209 million cubic feet; sawlog drain, 1 billion board feet

In 1949, logging removed an estimated 209 million cubic feet from all growing stock. Of this, lumber made up 48 percent; fuel wood 34 percent; pulpwood 3 percent; other products 15 percent (fig. 9). Seven-tenths of the total drain was from hardwoods.

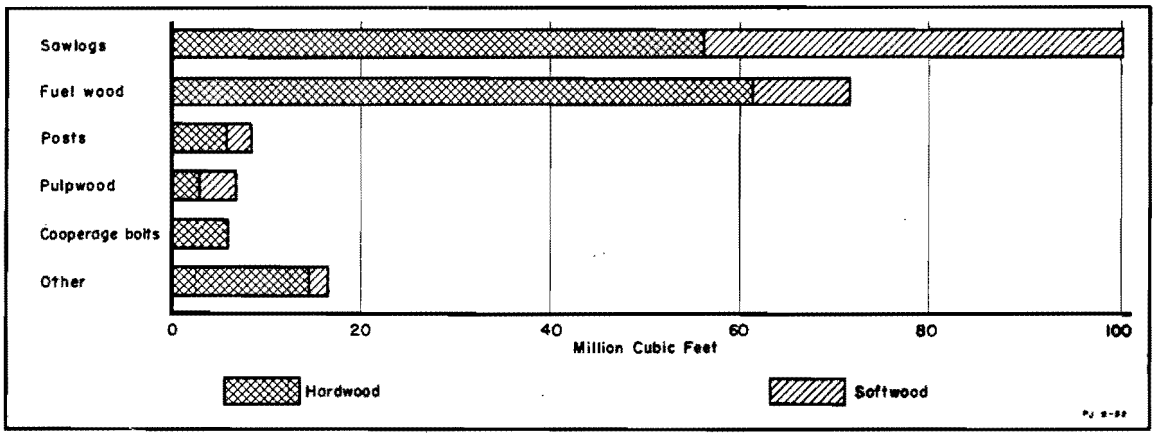

Figure 9.--Drain on total growing stock by commodity, 1949.

The timber cut from sawlog growing stock totaled 1,013 million board feet. This drain on sawlog trees alone differs from total drain chiefly in that sawlogs for lumber make up 58 percent; fuel wood 28 percent; pulpwood 1 percent; other products 13 percent.

The 1949 sawlog drain exceeded annual growth of sawlog growing stock, but total annual growth of all growing stock was greater than total drain. Softwoods, principally southern pines, were seriously overcut: drain exceeded growth by 57 percent for sawlog trees and by 17 percent for all growing stock trees. The hardwood situation is decidedly more favorable--sawlog drain exceeded growth by only 4 percent while the growth on total growing stock exceeded the total 1949 drain by 30 percent.

The production from this drain fed Tennessee's primary forest industries, which include some 2,700 sawmills, 4 pulp mills, and 191 non-lumber establishments manufacturing handle- and cooperage-stock, hardwood dimension, veneer, and other products. The sawmills are chiefly of small size except for a group of larger mills in the Memphis area. There is considerable use of wood for fuel, fence posts, and miscellaneous farm timbers.

Accuracy of the Survey

The estimates of forest acreage and timber volume are based upon a systematic sampling system involving a forest-nonforest classification on aerial photographs and on-the-ground measurement of quarter-acre sample plots. The sample plots were taken in pairs at and near the intersections of a grid of east-west and north-south lines spaced three miles apart.

Accuracy of the estimates may be affected by two types of error. The first type stems from the use of a sample to estimate the whole and from variability of the item being sampled. This type is termed sampling error; it is susceptible to a mathematical evaluation of the probability of error. The second type of error derives from human mistakes in measurement, judgment, arithmetic, or recording, and from limitations of method or equipment. Effects of this second type of error--often referred to as reporting and estimating error--are not susceptible to a mathematical appraisal, but the Forest Survey constantly attempts to hold such errors to a minimum by proper training and good supervision, and by emphasis on careful work.

Statistical analysis of the data, using random-sampling formulas, indicates a sampling error of 0.4 percent for the State estimate of total forest area, 1.7 percent for total cubic-foot volume, and 2.3 percent for total board-foot volume. However, because a systematic sample is generally more efficient than a random sample of the same size, these estimates of sampling error may be considered as setting an upper limit of error, rather than as expressing the actual probability of error.

As the State total acreage and volumes are broken down by Survey region, county, forest type, species, and other subdivisions of the data, the possibility of error increases and is greatest for the smallest items. The order of this increase is suggested in the following tabulation, which shows the sampling error to which the estimates may be liable on a probability of two chances out of three.

Maximum sampling error in forest area		Maximum sampling error in cubic-foot volume		Maximum sampling error in board-foot volume	
Thousand acres	Percent error	Million cu. ft.	Percent error	Million bd. ft.	Percent error
12,500	0.4	5,000	1.7	16,000	2.3
5,000	.6	2,000	2.7	10,000	2.9
2,000	1.0	1,000	3.8	3,000	5.4
500	2.0	400	6.0	1,000	9.3
50	6.4	40	18.9	100	29.3

Growth estimates are based on radial-growth measurements and mortality data taken on the sample plots. No attempt was made to calculate sampling error in the growth estimates.

Drain estimates are conversions of production estimates. Lumber production was estimated from a survey conducted by the U. S. Bureau of Census. For other commodities a canvass of timber production was conducted by the Forest Service, with some assistance from the Division of Forestry Relations of the Tennessee Valley Authority. Commercial log and bolt production, other than for lumber, was obtained by a 100-percent canvass of establishments or producers. Production of fuel wood and fence posts, and for miscellaneous domestic use on farms was estimated from an area sample. The data on production of each commodity were converted to drain upon growing stock by using drain-to-production ratios derived from measurements taken on sample cutting areas. The sampling errors to which the State cubic-foot drain estimates are liable, on a probability of two chances out of three, are found in the tabulation to the right.

Commodity	Sampling error of cubic-foot drain
	Percent error
Sawlogs	12.2
Veneer logs	5.2
Cooperage bolts	10.0
Pulpwood	2.2
Fuel wood	22.5
Chemical wood	4.1
Poles and piling	1.9
Posts	18.6
Hewn ties	6.0
Mine timbers	1.3
Misc. logs and bolts	5.4
All commodities	9.0

Table 3.--Forest and nonforest land by Survey region, 1948-50

Land use	State of Tennessee	West	West-central	Central	Plateau	East
			Thousand acres			
Forest: 1/						
Commercial	12,353.8	1,787.7	2,107.1	2,344.8	3,056.7	3,057.5
Reserved-commercial	253.8	6.5	4.3	.3	...	242.7
Total	12,607.6	1,794.2	2,111.4	2,345.1	3,056.7	3,300.2
Non-forest	14,247.4	4,216.7	1,286.4	3,958.9	1,373.3	3,412.1
All land	26,855.0	6,010.9	3,397.8	6,304.0	4,430.0	6,712.3

1/ The acreage of forest land incapable of producing commercial timber is negligible.

Table 4.--Forest land by class of ownership, 1948-50

Class of ownership	Commercial forest	
	Thousand acres	Percent
Private:		
Farm[1/]	5,053.1	40.9
Other	6,187.0	50.1
Total private	11,240.1	91.0
Public: [2/]		
National forest	563.3	4.6
T. V. A.	172.8	1.4
Other federal	79.9	.6
State	287.7	2.3
County and municipal	10.0	.1
Total public	1,113.7	9.0
All ownership	12,353.8	100.0

1/ Based on 1945 Census of Agriculture.
2/ Compiled in 1949.

Table 5. --Land area and commercial forest by county, 1948-50[1/]

County	All land	Commercial forest	
	Thousand acres	Thousand acres	Percent
Anderson	216.3	136.4	63.1
Bedford	308.5	77.7	25.2
Benton	275.2	146.0	53.1
Bledsoe	258.6	186.9	72.3
Blount	373.8	119.4	31.9
Bradley	216.3	94.8	43.8
Campbell	286.1	216.8	75.8
Cannon	173.4	78.5	45.3
Carroll	381.4	133.4	35.0
Carter	227.2	138.7	61.0
Cheatham	195.2	126.4	64.8
Chester	182.4	67.8	37.2
Claiborne	284.8	160.4	56.3
Clay	169.0	78.6	46.5
Cocke	277.8	127.4	45.9
Coffee	278.4	131.7	47.3
Crockett	172.2	26.8	15.6
Cumberland	434.5	360.9	83.1
Davidson	340.5	126.3	37.1
Decatur	221.4	125.5	56.7
DeKalb	202.9	100.4	49.5
Dickson	311.0	141.2	45.4
Dyer	337.3	105.3	31.2
Fayette	450.5	117.5	26.1
Fentress	319.4	229.2	71.8
Franklin	359.0	184.1	51.3
Gibson	388.5	66.4	17.1
Giles	396.1	120.4	30.4
Grainger	198.4	83.3	42.0
Greene	394.8	134.7	34.1
Grundy	229.1	188.9	82.5
Hamblen	111.4	29.2	26.2
Hamilton	368.6	174.9	47.4
Hancock	147.8	78.7	53.2
Hardeman	419.2	178.4	42.6
Hardin	380.8	221.9	58.3
Hawkins	316.2	142.1	44.9
Haywood	332.2	89.3	26.9
Henderson	329.6	119.2	36.2
Henry	383.4	130.0	33.9
Hickman	392.3	249.3	63.5
Houston	132.5	86.3	65.1
Humphreys	355.2	223.1	62.8
Jackson	209.3	87.5	41.8
Jefferson	203.5	54.3	26.7
Johnson	191.4	115.5	60.3
Knox	330.9	112.4	34.0
Lake	105.0	25.1	23.9
Lauderdale	311.7	108.5	34.8

Table 5.--Land area and commercial forest by county, 1948-50[1/] (continued)

County	All land	Commercial forest	
	Thousand acres	Thousand acres	Percent
Lawrence	405.8	174.0	42.9
Lewis	182.4	137.4	75.3
Lincoln	371.8	139.8	37.6
Loudon	153.6	54.9	35.7
McMinn	278.4	106.7	38.3
McNairy	364.2	139.0	38.2
Macon	194.6	79.4	40.8
Madison	359.0	113.4	31.6
Marion	324.4	249.5	76.9
Marshall	241.3	78.2	32.4
Maury	392.9	117.5	29.9
Meigs	136.3	58.9	43.2
Monroe	425.6	252.4	59.3
Montgomery	347.5	125.1	36.0
Moore	78.1	30.2	38.7
Morgan	344.9	285.8	82.9
Obion	352.0	94.0	26.7
Overton	282.9	144.8	51.2
Perry	268.2	192.2	71.7
Pickett	111.4	68.7	61.7
Polk	279.0	202.7	72.7
Putnam	261.2	127.3	48.7
Rhea	214.4	119.9	55.9
Roane	242.6	114.6	47.2
Robertson	303.4	76.8	25.3
Rutherford	403.2	123.9	30.7
Scott	351.3	297.4	84.7
Sequatchie	174.7	139.8	80.0
Sevier	385.9	123.3	32.0
Shelby	480.6	113.6	23.6
Smith	208.0	88.4	42.5
Stewart	309.8	208.7	67.4
Sullivan	273.9	94.3	34.4
Sumner	353.3	124.4	35.2
Tipton	293.1	73.4	25.0
Trousdale	74.2	24.7	33.3
Unicoi	118.4	87.9	74.2
Union	135.7	71.8	52.9
Van Buren	163.2	134.7	82.5
Warren	282.9	120.3	42.5
Washington	209.3	67.9	32.4
Wayne	474.2	342.7	72.3
Weakley	368.6	86.6	23.5
White	246.4	121.6	49.4
Williamson	380.2	134.5	35.4
Wilson	371.2	133.2	35.9
All counties	26,855.0	12,353.8	46.0

1/ County data on sawlog and total growing stock, suitable for combining into county groups, are available as a supplement to this release.

Table 6.--Commercial forest land by stand size and forest type, by Survey region, 1948-50

Forest type	All stand sizes	Large saw timber	Small saw timber	Cordwood	Seedling and sapling	Denuded
			Thousand acres			
			STATE			
Softwood types:						
Southern yellow pine	2,033.5	69.5	445.2	1,255.7	235.0	28.1
Cedar	893.8	10.4	14.6	565.4	282.2	21.2
Other softwood	108.1	26.5	27.8	46.1	7.7	...
Total	3,035.4	106.4	487.6	1,867.2	524.9	49.3
Hardwood types:						
Bottomland hardwood	921.9	107.5	273.1	458.8	76.9	5.6
Upland hardwood	6,334.3	477.9	1,085.2	3,896.7	807.3	67.2
Upland hardwood-pine	2,062.2	125.9	264.9	1,363.0	272.8	35.6
Total	9,318.4	711.3	1,623.2	5,718.5	1,157.0	108.4
All types	12,353.8	817.7	2,110.8	7,585.7	1,681.9	157.7
			WEST			
Softwood types:						
Southern yellow pine	67.6	...	10.6	52.4	4.6	...
Cedar	15.8	...	3.0	9.5	3.3	...
Total	83.4	...	13.6	61.9	7.9	...
Hardwood types:						
Bottomland hardwood	733.4	76.1	229.0	365.4	57.3	5.6
Upland hardwood	867.0	57.5	223.9	428.5	134.8	22.3
Upland hardwood-pine	103.9	6.2	2.1	78.6	13.7	3.3
Total	1,704.3	139.8	455.0	872.5	205.8	31.2
All types	1,787.7	139.8	468.6	934.4	213.7	31.2
			WEST-CENTRAL			
Softwood types:						
Southern yellow pine	74.8	...	20.2	51.9	2.7	...
Cedar	64.6	...	...	44.2	20.4	...
Total	139.4	...	20.2	96.1	23.1	...
Hardwood types:						
Bottomland hardwood	66.8	2.5	20.7	37.8	5.8	...
Upland hardwood	1,651.8	19.6	231.4	1,146.2	251.9	2.7
Upland hardwood-pine	249.1	2.5	41.4	180.7	24.5	...
Total	1,967.7	24.6	293.5	1,364.7	282.2	2.7
All types	2,107.1	24.6	313.7	1,460.8	305.3	2.7

Table 6.--Commercial forest land by stand size and forest type, by Survey region, 1948-50 (continued)

Forest type	All stand sizes	Large saw timber	Small saw timber	Cordwood	Seedling and sapling	Denuded
	Thousand acres					
CENTRAL						
Softwood types:						
Southern yellow pine	...	...	...	...	...	...
Cedar	646.0	2.6	8.1	407.1	213.0	15.2
Total	646.0	2.6	8.1	407.1	213.0	15.2
Hardwood types:						
Bottomland hardwood	71.9	10.5	15.1	35.0	11.3	...
Upland hardwood	1,591.0	118.2	279.4	964.2	206.4	22.8
Upland hardwood-pine	35.9	...	2.7	20.5	12.7	...
Total	1,698.8	128.7	297.2	1,019.7	230.4	22.8
All types	2,344.8	131.3	305.3	1,426.8	443.4	38.0
PLATEAU						
Softwood types:						
Southern yellow pine	787.4	17.4	145.7	527.1	85.7	11.5
Cedar	97.7	7.8	...	72.4	17.5	...
Other softwood	38.7	8.3	8.2	16.9	5.3	...
Total	923.8	33.5	153.9	616.4	108.5	11.5
Hardwood types:						
Bottomland hardwood	37.3	13.4	5.8	18.1	...	...
Upland hardwood	1,367.5	144.7	254.9	857.6	100.5	9.8
Upland hardwood-pine	728.1	22.5	89.1	494.8	105.4	16.3
Total	2,132.9	180.6	349.8	1,370.5	205.9	26.1
All types	3,056.7	214.1	503.7	1,986.9	314.4	37.6
EAST						
Softwood types:						
Southern yellow pine	1,103.7	52.1	268.7	624.3	142.0	16.6
Cedar	69.7	...	3.5	32.2	28.0	6.0
Other softwood	69.4	18.2	19.6	29.2	2.4	...
Total	1,242.8	70.3	291.8	685.7	172.4	22.6
Hardwood types:						
Bottomland hardwood	12.5	5.0	2.5	2.5	2.5	...
Upland hardwood	857.0	137.9	95.6	500.2	113.7	9.6
Upland hardwood-pine	945.2	94.7	129.6	588.4	116.5	16.0
Total	1,814.7	237.6	227.7	1,091.1	232.7	25.6
All types	3,057.5	307.9	519.5	1,776.8	405.1	48.2

Table 7.--Commercial forest land by degree of tree stocking and forest type, by Survey region, 1948-50

Forest type	All stocking	Well stocked	Medium stocked	Poorly stocked	Non-stocked
			Thousand acres		
			STATE		
Softwood types:					
Southern yellow pine	2,033.5	1,428.3	482.8	94.3	28.1
Cedar	893.8	306.3	406.0	160.3	21.2
Other softwood	108.1	60.5	32.7	14.9	...
Total	3,035.4	1,795.1	921.5	269.5	49.3
Hardwood types:					
Bottomland hardwood	921.9	414.0	394.7	107.6	5.6
Upland hardwood	6,334.3	3,526.6	2,210.0	530.5	67.2
Upland hardwood-pine	2,062.2	1,387.8	534.9	103.9	35.6
Total	9,318.4	5,328.4	3,139.6	742.0	108.4
All types	12,353.8	7,123.5	4,061.1	1,011.5	157.7
			WEST		
Softwood types:					
Southern yellow pine	67.6	26.0	37.4	4.2	...
Cedar	15.8	6.3	3.0	6.5	...
Total	83.4	32.3	40.4	10.7	...
Hardwood types:					
Bottomland hardwood	733.4	313.3	316.7	97.8	5.6
Upland hardwood	867.0	431.8	325.0	87.9	22.3
Upland hardwood-pine	103.9	22.3	59.9	18.4	3.3
Total	1,704.3	767.4	701.6	204.1	31.2
All types	1,787.7	799.7	742.0	214.8	31.2
			WEST-CENTRAL		
Softwood types:					
Southern yellow pine	74.8	63.3	11.5	...	...
Cedar	64.6	8.1	50.9	5.6	...
Total	139.4	71.4	62.4	5.6	...
Hardwood types:					
Bottomland hardwood	66.8	30.6	30.5	5.7	...
Upland hardwood	1,651.8	800.1	677.8	171.2	2.7
Upland hardwood-pine	249.1	181.7	61.7	5.7	...
Total	1,967.7	1,012.4	770.0	182.6	2.7
All types	2,107.1	1,083.8	832.4	188.2	2.7

Table 7.--Commercial forest land by degree of tree stocking and forest type, by Survey region, 1948-50 (continued)

Forest type	All stocking	Well stocked	Medium stocked	Poorly stocked	Non-stocked
	Thousand acres				
			CENTRAL		
Softwood types:					
Cedar	646.0	199.0	298.3	133.5	15.2
Hardwood types:					
Bottomland hardwood	71.9	41.5	26.3	4.1	...
Upland hardwood	1,591.0	700.5	647.0	220.7	22.8
Upland hardwood-pine	35.9	18.2	15.4	2.3	...
Total	1,698.8	760.2	688.7	227.1	22.8
All types	2,344.8	959.2	987.0	360.6	38.0
			PLATEAU		
Softwood types:					
Southern yellow pine	787.4	495.2	236.4	44.3	11.5
Cedar	97.7	53.3	32.0	12.4	...
Other softwood	38.7	13.8	18.7	6.2	...
Total	923.8	562.3	287.1	62.9	11.5
Hardwood types:					
Bottomland hardwood	37.3	18.6	18.7	...	...
Upland hardwood	1,367.5	913.1	413.4	31.2	9.8
Upland hardwood-pine	728.1	433.3	237.7	40.8	16.3
Total	2,132.9	1,365.0	669.8	72.0	26.1
All types	3,056.7	1,927.3	956.9	134.9	37.6
			EAST		
Softwood types:					
Southern yellow pine	1,103.7	843.8	197.5	45.8	16.6
Cedar	69.7	39.6	21.8	2.3	6.0
Other softwoods	69.4	46.7	14.0	8.7	...
Total	1,242.8	930.1	233.3	56.8	22.6
Hardwood types:					
Bottomland hardwood	12.5	10.0	2.5	...	...
Upland hardwood	857.0	681.1	146.8	19.5	9.6
Upland hardwood-pine	945.2	732.3	160.2	36.7	16.0
Total	1,814.7	1,423.4	309.5	56.2	25.6
All types	3,057.5	2,353.5	542.8	113.0	48.2

Table 8.--Area of saw-timber stands by stand quality and forest type, by Survey region, 1948-50

Forest type	All qualities	Fair or better	Poor
		Thousand acres	
		STATE	
Softwood types:			
Southern yellow pine	514.7	170.1	344.6
Cedar	25.0	14.3	10.7
Other softwood	54.3	14.2	40.1
Total	594.0	198.6	395.4
Hardwood types:			
Bottomland hardwood	380.6	152.8	227.8
Upland hardwood	1,563.1	655.5	907.6
Upland hardwood-pine	390.8	177.3	213.5
Total	2,334.5	985.6	1,348.9
All types	2,928.5	1,184.2	1,744.3
		WEST	
Softwood types:			
Southern yellow pine	10.6	6.4	4.2
Cedar	3.0	3.0	...
Total	13.6	9.4	4.2
Hardwood types:			
Bottomland hardwood	305.1	130.1	175.0
Upland hardwood	281.4	106.8	174.6
Upland hardwood-pine	8.3	4.1	4.2
Total	594.8	241.0	353.8
All types	608.4	250.4	358.0
		WEST-CENTRAL	
Softwood types:			
Southern yellow pine	20.2	5.0	15.2
Hardwood types:			
Bottomland hardwood	23.2	2.5	20.7
Upland hardwood	251.0	46.0	205.0
Upland hardwood-pine	43.9	15.7	28.2
Total	318.1	64.2	253.9
All types	338.3	69.2	269.1

Table 8.--Area of saw-timber stands by stand quality and forest type, by Survey region, 1948-50 (continued)

Forest type	All qualities	Fair or better	Poor
	Thousand acres		
		CENTRAL	
Softwood types:			
Cedar	10.7	2.6	8.1
Hardwood types:			
Bottomland hardwood	25.6	6.4	19.2
Upland hardwood	397.6	147.5	250.1
Upland hardwood-pine	2.7	...	2.7
Total	425.9	153.9	272.0
All types	436.6	156.5	280.1
		PLATEAU	
Softwood types:			
Southern yellow pine	163.1	52.8	110.3
Cedar	7.8	5.2	2.6
Other softwood	16.5	5.6	10.9
Total	187.4	63.6	123.8
Hardwood types:			
Bottomland hardwood	19.2	11.3	7.9
Upland hardwood	399.6	196.9	202.7
Upland hardwood-pine	111.6	31.2	80.4
Total	530.4	239.4	291.0
All types	717.8	303.0	414.8
		EAST	
Softwood types:			
Southern yellow pine	320.8	105.9	214.9
Cedar	3.5	3.5	...
Other softwood	37.8	8.6	29.2
Total	362.1	118.0	244.1
Hardwood types:			
Bottomland hardwood	7.5	2.5	5.0
Upland hardwood	233.5	158.3	75.2
Upland hardwood-pine	224.3	126.3	98.0
Total	465.3	287.1	178.2
All types	827.4	405.1	422.3

Table 9.--Total volume by class of timber and species, by Survey region, 1948-50

Species	All timber[1/]	Growing stock				Tops and limbs	Cull trees
		Total growing stock	Sawlog trees		Cordwood trees		
			Sawlog portions	Tops			
	Thousand cords						
STATE							
Softwood:							
Southern pine	9,341	9,195	5,026	672	3,497	...	146
Cedar	1,300	1,070	311	56	703	...	230
White pine	737	710	511	68	131	...	27
Hemlock	782	716	548	71	97	...	66
Cypress	798	658	531	69	58	...	140
Total	12,958	12,349	6,927	936	4,486	...	609
Hardwood:							
Red oaks	25,481	15,686	9,067	...	6,619	5,311	4,484
White oaks	25,033	15,171	7,622	...	7,549	4,691	5,171
Hickories	12,681	8,540	3,917	...	4,623	2,120	2,021
Yellow-poplar	6,233	4,508	2,617	...	1,891	1,160	565
Sweetgum	3,658	2,501	1,326	...	1,175	670	487
Black and tupelo gums	4,043	1,921	1,115	...	806	676	1,446
Other hardwoods	26,477	11,521	5,542	...	5,979	3,342	11,614
Total	103,606	59,848	31,206	...	28,642	17,970	25,788
All species	116,564	72,197	38,133	936	33,128	17,970	26,397
WEST							
Softwood:							
Southern pines	304	303	127	20	156	...	1
Cedar	102	89	48	9	32	...	13
Cypress	792	652	527	68	57	...	140
Total	1,198	1,044	702	97	245	...	154
Hardwood:							
Red oaks	4,301	2,536	1,751	...	785	1,072	693
White oaks	2,570	1,534	949	...	585	630	406
Hickories	1,702	981	597	...	384	352	369
Yellow-poplar	796	561	364	...	197	160	75
Sweetgum	2,306	1,520	901	...	619	458	328
Black and tupelo gums	1,141	509	299	...	210	187	445
Other hardwoods	7,755	3,170	1,816	...	1,354	1,073	3,512
Total	20,571	10,811	6,677	...	4,134	3,932	5,828
All species	21,769	11,855	7,379	97	4,379	3,932	5,982
WEST - CENTRAL							
Softwood:							
Southern pines	446	442	199	32	211	...	4
Cedar	102	93	21	4	68	...	9
Cypress	6	6	4	1	1	...	...
Total	554	541	224	37	280	...	13
Hardwood:							
Red oaks	4,660	3,147	1,337	...	1,810	694	819
White oaks	5,263	3,653	1,337	...	2,316	731	879
Hickories	115	1,506	467	...	1,039	237	372
Yellow-poplar	709	495	296	...	199	121	93
Sweetgum	606	436	191	...	245	94	76
Black and tupelo gums	503	252	122	...	130	66	185
Other hardwoods	2,100	882	322	...	560	191	1,027
Total	15,956	10,371	4,072	...	6,299	2,134	3,451
All species	16,510	10,912	4,296	37	6,579	2,134	3,464

Table 9.--Total volume by class of timber and species, by Survey region, 1948-50 (continued)

Species	All timber 1/	Growing stock				Tops and limbs	Cull trees
		Total growing stock	Sawlog trees		Cordwood trees		
			Sawlog portions	Tops			
	Thousand cords						
CENTRAL							
Softwood:							
Southern pines	1	1	...	...	1	...	...
Cedar	822	631	148	27	456	...	191
Cypress	...	...	...	...	...	...	...
Total	823	632	148	27	457	...	191
Hardwood:							
Red oaks	4,438	2,747	1,801	...	946	1,090	601
White oaks	3,608	2,248	1,239	...	1,009	778	582
Hickories	2,705	1,970	755	...	1,215	410	325
Yellow-poplar	1,508	1,040	652	...	388	299	169
Sweetgum	433	325	152	...	173	69	39
Black and tupelo gums	429	263	103	...	160	60	106
Other hardwoods	7,531	3,194	1,439	...	1,755	904	3,433
Total	20,652	11,787	6,141	...	5,646	3,610	5,255
All species	21,475	12,419	6,289	27	6,103	3,610	5,446
PLATEAU							
Softwood:							
Southern pines	2,567	2,498	1,264	173	1,061	...	69
Cedar	120	112	41	7	64	...	8
White pine	128	125	67	11	47	...	3
Hemlock	321	304	239	32	33	...	17
Total	3,136	3,039	1,611	223	1,205	...	97
Hardwood:							
Red oaks	6,285	3,730	1,985	...	1,745	1,194	1,361
White oaks	6,736	3,684	1,733	...	1,951	1,094	1,958
Hickories	3,647	2,419	1,185	...	1,234	643	585
Yellow-poplar	1,367	970	624	...	346	276	121
Sweetgum	139	102	36	...	66	21	16
Black and tupelo gums	1,277	550	410	...	140	251	476
Other hardwoods	4,748	2,044	1,028	...	1,016	640	2,064
Total	24,199	13,499	7,001	...	5,498	4,119	6,581
All species	27,335	16,538	8,612	223	7,703	4,119	6,678
EAST							
Softwood:							
Southern pines	6,023	5,951	3,436	447	2,068	...	72
Cedar	154	145	53	9	83	...	9
White pine	609	585	444	57	84	...	24
Hemlock	461	412	309	39	64	...	49
Total	7,247	7,093	4,242	552	2,299	...	154
Hardwood:							
Red oaks	5,797	3,526	2,193	...	1,333	1,261	1,010
White oaks	6,856	4,052	2,364	...	1,688	1,458	1,346
Hickories	2,512	1,664	913	...	751	478	370
Yellow-poplar	1,853	1,442	681	...	761	304	107
Sweetgum	174	118	46	...	72	28	28
Black and tupelo gums	693	347	181	...	166	112	234
Other hardwoods	4,343	2,231	937	...	1,294	534	1,578
Total	22,228	13,380	7,315	...	6,065	4,175	4,673
All species	29,475	20,473	11,557	552	8,364	4,175	4,827

1/ Sound volume in dead trees considered salvageable is not included. This volume is as follows:

Region	Chestnut	Other species
	Thousand cords	
West	...	48
West-Central	104	48
Central	121	85

Region	Chestnut	Other species
	Thousand cords	
Plateau	199	129
East	285	69
Total	709	379

Table 10. --Total volume by class of timber and species, by Survey region, 1948-50

Species	All timber[1/]	Growing stock				Tops and limbs	Cull trees
		Total growing stock	Sawlog trees		Cordwood trees		
			Sawlog portions	Tops			
	Million cubic feet						
STATE							
Softwood:							
Southern pines	700.6	689.6	376.9	50.4	262.3	...	11.0
Cedar	97.6	80.3	23.4	4.2	52.7	...	17.3
White pine	55.2	53.2	38.3	5.1	9.8	...	2.0
Hemlock	58.7	53.7	41.1	5.3	7.3	...	5.0
Cypress	59.9	49.4	39.8	5.2	4.4	...	10.5
Total	972.0	926.2	519.5	70.2	336.5	...	45.8
Hardwood:							
Red oaks	1,707.3	1,051.0	607.5	...	443.5	355.8	300.5
White oaks	1,677.3	1,016.5	510.7	...	505.8	314.3	346.5
Hickories	849.7	572.2	262.5	...	309.7	142.1	135.4
Yellow-poplar	417.5	302.0	175.3	...	126.7	77.7	37.8
Sweetgum	245.2	167.6	88.9	...	78.7	44.9	32.7
Black and tupelo gums	270.8	128.7	74.7	...	54.0	45.2	96.9
Other hardwoods	1,774.1	772.0	371.4	...	400.6	224.0	778.1
Total	6,941.9	4,010.0	2,091.0	...	1,919.0	1,204.0	1,727.9
All species	7,913.9	4,936.2	2,610.5	70.2	2,255.5	1,204.0	1,773.7
WEST							
Softwood:							
Southern pines	22.8	22.7	9.5	1.5	11.7	...	.1
Cedar	7.7	6.7	3.6	.7	2.4	...	1.0
Cypress	59.4	48.9	39.5	5.1	4.3	...	10.5
Total	89.9	78.3	52.6	7.3	18.4	...	11.6
Hardwood:							
Red oaks	288.1	169.9	117.3	...	52.6	71.8	46.4
White oaks	172.2	102.8	63.6	...	39.2	42.2	27.2
Hickories	114.0	65.7	40.0	...	25.7	23.6	24.7
Yellow-poplar	53.3	37.6	24.4	...	13.2	10.7	5.0
Sweetgum	154.6	101.9	60.4	...	41.5	30.7	22.0
Black and tupelo gums	76.4	34.1	20.0	...	14.1	12.5	29.8
Other hardwoods	519.6	212.4	121.7	...	90.7	71.9	235.3
Total	1,378.2	724.4	447.4	...	277.0	263.4	390.4
All species	1,468.1	802.7	500.0	7.3	295.4	263.4	402.0
WEST-CENTRAL							
Softwood:							
Southern pines	33.4	33.1	14.9	2.4	15.8	...	.3
Cedar	7.7	7.0	1.6	.3	5.1	...	.7
Cypress	.5	.5	.3	.1	.1	...	...
Total	41.6	40.6	16.8	2.8	21.0	...	1.0
Hardwood:							
Red oaks	312.3	210.9	89.6	...	121.3	46.5	54.9
White oaks	352.7	244.8	89.6	...	155.2	49.0	58.9
Hickories	141.7	100.9	31.3	...	69.6	15.9	24.9
Yellow-poplar	47.4	33.1	19.8	...	13.3	8.1	6.2
Sweetgum	40.6	29.2	12.8	...	16.4	6.3	5.1
Black and tupelo gums	33.7	16.9	8.2	...	8.7	4.4	12.4
Other hardwoods	140.7	59.1	21.6	...	37.5	12.8	68.8
Total	1,069.1	694.9	272.9	...	422.0	143.0	231.2
All species	1,110.7	735.5	289.7	2.8	443.0	143.0	232.2

Table 10.--Total volume by class of timber and species, by Survey region, 1948-50 (continued)

Species	All timber 1/	Growing stock				Tops and limbs	Cull trees
		Total growing stock	Sawlog trees		Cordwood trees		
			Sawlog portions	Tops			
	Million cubic feet						
CENTRAL							
Softwood:							
Southern pines	.1	.1	...	...	.1	...	...
Cedar	61.6	47.3	11.1	2.0	34.2	...	14.3
Cypress	...	...	...	...	...	...	...
Total	61.7	47.4	11.1	2.0	34.3	...	14.3
Hardwood:							
Red oaks	297.4	184.1	120.7	...	63.4	73.0	40.3
White oaks	241.7	150.6	83.0	...	67.6	52.1	39.0
Hickories	181.3	132.0	50.6	...	81.4	27.5	21.8
Yellow-poplar	101.0	69.7	43.7	...	26.0	20.0	11.3
Sweetgum	29.0	21.8	10.2	...	11.6	4.6	2.6
Black and tupelo gums	28.7	17.6	6.9	...	10.7	4.0	7.1
Other hardwoods	504.6	214.0	96.4	...	117.6	60.6	230.0
Total	1,383.7	789.8	411.5	...	378.3	241.8	352.1
All species	1,445.4	837.2	422.6	2.0	412.6	241.8	366.4
PLATEAU							
Softwood:							
Southern pines	192.6	187.4	94.8	13.0	79.6	...	5.2
Cedar	9.0	8.4	3.1	.5	4.8	...	.6
White pine	9.5	9.3	5.0	.8	3.5	...	.2
Hemlock	24.1	22.8	17.9	2.4	2.5	...	1.3
Total	235.2	227.9	120.8	16.7	90.4	...	7.3
Hardwood:							
Red oaks	421.1	249.9	133.0	...	116.9	80.0	91.2
White oaks	451.3	246.8	116.1	...	130.7	73.3	131.2
Hickories	244.4	162.1	79.4	...	82.7	43.1	39.2
Yellow-poplar	91.6	65.0	41.8	...	23.2	18.5	8.1
Sweetgum	9.3	6.8	2.4	...	4.4	1.4	1.1
Black and tupelo gums	85.6	36.9	27.5	...	9.4	16.8	31.9
Other hardwoods	318.2	137.0	68.9	...	68.1	42.9	138.3
Total	1,621.5	904.5	469.1	...	435.4	276.0	441.0
All species	1,856.7	1,132.4	589.9	16.7	525.8	276.0	448.3
EAST							
Softwood:							
Southern pines	451.7	446.3	257.7	33.5	155.1	...	5.4
Cedar	11.6	10.9	4.0	.7	6.2	...	.7
White pine	45.7	43.9	33.3	4.3	6.3	...	1.8
Hemlock	34.6	30.9	23.2	2.9	4.8	...	3.7
Total	543.6	532.0	318.2	41.4	172.4	...	11.6
Hardwood:							
Red oaks	388.4	236.2	146.9	...	89.3	84.5	67.7
White oaks	459.4	271.5	158.4	...	113.1	97.7	90.2
Hickories	168.3	111.5	61.2	...	50.3	32.0	24.8
Yellow-poplar	124.2	96.6	45.6	...	51.0	20.4	7.2
Sweetgum	11.7	7.9	3.1	...	4.8	1.9	1.9
Black and tupelo gums	46.4	23.2	12.1	...	11.1	7.5	15.7
Other hardwoods	291.0	149.5	62.8	...	86.7	35.8	105.7
Total	1,489.4	896.4	490.1	...	406.3	279.8	313.2
All species	2,033.0	1,428.4	808.3	41.4	578.7	279.8	324.8

1/ Sound volume in dead trees considered salvageable is not included. This volume is as follows:

Region	Chestnut	Other species
	Million cubic feet	
West	...	3.2
West-Central	7.0	3.2
Central	8.1	5.7

Region	Chestnut	Other species
	Million cubic feet	
Plateau	13.3	8.7
East	19.1	4.6
Total	47.5	25.4

Table 11.--Total growing stock by species and stand size, by Survey region, 1948-50

Species	All stand sizes	Large saw timber	Small saw timber	Cordwood	Seedling and sapling	Denuded
	Million cubic feet					
STATE						
Softwood:						
Southern pines	689.6	51.8	314.3	311.3	11.7	0.5
Cedar	80.3	7.1	6.9	62.7	3.6	...
White pine	53.2	19.9	15.9	17.1	.3	...
Hemlock	53.7	23.2	15.8	11.2	3.2	.3
Cypress	49.4	25.6	19.7	3.9	.2	...
Total	926.2	127.6	372.6	406.2	19.0	.8
Hardwood:						
Red oaks	1,051.0	186.8	308.3	536.8	18.4	.7
White oaks	1,016.5	143.5	289.6	559.9	22.6	.9
Hickories	572.2	62.4	158.9	339.1	11.6	.2
Yellow-poplar	302.0	50.8	113.5	133.1	4.6	...
Sweetgum	167.6	24.7	71.6	68.8	2.3	.2
Black and tupelo gums	128.7	21.8	47.8	56.5	2.6	...
Other hardwoods	772.0	140.4	242.4	365.0	22.4	1.8
Total	4,010.0	630.4	1,232.1	2,059.2	84.5	3.8
All species	4,936.2	758.0	1,604.7	2,465.4	103.5	4.6
WEST						
Softwood:						
Southern pines	22.7	3.1	6.6	12.7	.3	...
Cedar	6.7	.2	2.9	3.5	.1	...
Cypress	48.9	25.6	19.2	3.9	.2	...
Total	78.3	28.9	28.7	20.1	.6	...
Hardwood:						
Red oaks	169.9	34.8	67.2	64.6	2.6	.7
White oaks	102.8	15.8	45.8	37.1	2.1	...
Hickories	65.7	7.3	28.3	29.0	1.0	.1
Yellow-poplar	37.6	2.2	28.5	6.8	.1	...
Sweetgum	101.9	14.3	50.7	35.6	1.1	.2
Black and tupelo gums	34.1	3.5	21.3	9.1	.2	...
Other hardwoods	212.4	31.5	104.4	72.9	3.1	.5
Total	724.4	109.4	346.2	257.1	10.2	1.5
All species	802.7	138.3	374.9	277.2	10.8	1.5
WEST-CENTRAL						
Softwood:						
Southern pines	33.1	.2	14.6	17.7	.6	...
Cedar	7.0	.5	.3	5.9	.3	...
Cypress	.5	...	.5	...	...	...
Total	40.6	.7	15.4	23.6	.9	...
Hardwood:						
Red oaks	210.9	3.9	66.6	135.3	5.1	...
White oaks	244.8	1.7	68.9	168.7	5.4	.1
Hickories	100.9	2.0	23.2	74.5	1.2	...
Yellow-poplar	33.1	.6	15.1	16.7	.7	...
Sweetgum	29.2	2.1	7.5	19.4	.2	...
Black and tupelo gums	16.9	.1	7.6	7.9	1.3	...
Other hardwoods	59.1	3.0	19.6	36.2	.3	...
Total	694.9	13.4	208.5	458.7	14.2	.1
All species	735.5	14.1	223.9	482.3	15.1	.1

Table 11.--Total growing stock by species and stand size, by Survey region, 1948-50 (continued)

Species	All stand sizes	Large saw timber	Small saw timber	Cordwood	Seedling and sapling	Denuded
	Million cubic feet					
			CENTRAL			
Softwood:						
Southern pines	.1	...	...	.1	...	...
Cedar	47.3	1.3	1.7	41.6	2.7	...
Total	47.4	1.3	1.7	41.7	2.7	...
Hardwood:						
Red oaks	184.1	33.4	55.8	89.9	5.0	...
White oaks	150.6	17.5	50.5	78.6	3.5	.5
Hickories	132.0	7.6	34.9	84.6	4.9	...
Yellow-poplar	69.7	18.9	17.8	31.2	1.8	...
Sweetgum	21.8	6.4	9.3	5.5	.6	...
Black and tupelo gums	17.6	3.1	5.0	9.0	.5	...
Other hardwoods	214.0	34.4	44.1	121.7	12.9	.9
Total	789.8	121.3	217.4	420.5	29.2	1.4
All species	837.2	122.6	219.1	462.2	31.9	1.4
			PLATEAU			
Softwood:						
Southern pines	187.4	7.8	87.9	89.0	2.5	.2
Cedar	8.4	3.3	.5	4.1	.5	...
White pine	9.3	...	4.3	4.7	.3	...
Hemlock	22.8	11.7	4.6	4.2	2.0	.3
Total	227.9	22.8	97.3	102.0	5.3	.5
Hardwood:						
Red oaks	249.9	39.4	66.2	140.9	3.4	...
White oaks	246.8	32.4	61.2	147.5	5.7	...
Hickories	162.1	19.6	45.0	94.6	2.8	.1
Yellow-poplar	65.0	11.0	25.0	28.0	1.0	...
Sweetgum	6.8	.5	.9	5.2	.2	...
Black and tupelo gums	36.9	11.8	8.0	16.8	.3	...
Other hardwoods	137.0	40.3	38.5	55.3	2.5	.4
Total	904.5	155.0	244.8	488.3	15.9	.5
All species	1,132.4	177.8	342.1	590.3	21.2	1.0
			EAST			
Softwoods:						
Southern pines	446.3	40.7	205.2	191.8	8.3	.3
Cedar	10.9	1.8	1.5	7.6	...	...
White pine	43.9	19.9	11.6	12.4	...	...
Hemlock	30.9	11.5	11.2	7.0	1.2	...
Total	532.0	73.9	229.5	218.8	9.5	.3
Hardwood:						
Red oaks	236.2	75.3	52.5	106.1	2.3	...
White oaks	271.5	76.1	63.2	126.0	5.9	.3
Hickories	111.5	25.9	27.5	56.4	1.7	...
Yellow-poplar	96.6	18.1	27.1	50.4	1.0	...
Sweetgum	7.9	1.4	3.2	3.1	.2	...
Black and tupelo gums	23.2	3.3	5.9	13.7	.3	...
Other hardwoods	149.5	31.2	35.8	78.9	3.6	...
Total	896.4	231.3	215.2	434.6	15.0	.3
All species	1,428.4	305.2	444.7	653.4	24.5	.6

Table 12. --Total growing stock volume by species and Survey region, 1948-50

Species	State of Tennessee	West	West-central	Central	Plateau	East
	Million cubic feet					
Softwood:						
Shortleaf pine	375.2	21.4	31.6	0.1	123.9	198.2
Virginia pine	235.7	.1	1.5	...	63.2	170.9
Other pines	131.9	1.2	...	...	9.6	121.1
Cedar	80.3	6.7	7.0	47.3	8.4	10.9
Other softwoods	103.1	48.9	.5	...	22.8	30.9
Total	926.2	78.3	40.6	47.4	227.9	532.0
Hardwood:						
Black, scarlet, and southern red oaks	756.6	101.4	152.5	125.9	188.9	187.9
Cherrybark, Shumard, and northern red oaks	238.1	39.5	51.0	48.6	53.4	45.6
Water oaks	56.3	29.0	7.4	9.6	7.6	2.7
White oak	526.2	49.8	157.0	85.0	114.6	119.8
Other white oaks	490.3	53.0	87.8	65.6	132.2	151.7
Hickories	572.2	65.7	100.9	132.0	162.1	111.5
Yellow-poplar	302.0	37.6	33.1	69.7	65.0	96.6
Sweetgum	167.6	101.9	29.2	21.8	6.8	7.9
Black and tupelo gums	128.7	34.1	16.9	17.6	36.9	23.2
Elms	111.8	42.7	10.5	39.4	11.3	7.9
Soft maples	86.6	17.1	5.3	8.3	25.7	30.2
Sugar maple	61.6	1.5	4.6	25.1	21.1	9.3
Ash	76.3	21.9	7.0	21.8	10.1	15.5
Beech	75.6	9.7	9.4	27.1	19.2	10.2
Walnut	61.2	2.6	7.3	26.6	7.9	16.8
Sycamore	33.9	15.3	4.9	6.5	5.5	1.7
Hackberry	26.6	13.8	1.2	9.8	.6	1.2
Other hardwoods	238.4	87.8	8.9	49.4	35.6	56.7
Total	4,010.0	724.4	694.9	789.8	904.5	896.4
All species	4,936.2	802.7	735.5	837.2	1,132.4	1,428.4

Table 13.--Average volume per acre of total growing stock by forest type and Survey region, 1948-50

Forest type	State of Tennessee	West	West-central	Central	Plateau	East
			Cubic feet			
Softwood types:						
Southern yellow pine	450	379	455	...	364	516
Cedar	180	(1/)	169	167	(1/)	(1/)
Other softwood	(1/)	...	...	...	(1/)	(1/)
Total	383	375	322	167	368	513
Hardwood types:						
Bottomland hardwood	550	539	545	584	(1/)	(1/)
Upland hardwood	400	406	343	425	402	451
Upland hardwood-pine	356	229	352	295	301	416
Total	405	453	351	429	371	436
All types	400	449	349	357	370	467

1/ Sample too small to be reliable.

Table 14.--Basal area per acre of growing stock[1/] and cull trees by forest-type group and Survey region, 1948-50

Forest type	State of Tennessee	West	West-central	Central	Plateau	East
			Square feet			
Softwood types:						
Growing stock	43.3	39.2	38.2	26.8	42.9	53.0
Cull trees	9.2	7.6	8.0	11.5	10.5	7.2
Total	52.5	46.8	46.2	38.3	53.4	60.2
Bottomland hardwood:						
Growing stock	49.2	47.9	51.9	52.2	56.3	73.8
Cull trees	28.5	29.7	21.5	25.5	28.3	14.6
Total	77.7	77.6	73.4	77.7	84.6	88.4
Upland hardwood[2/]						
Growing stock	41.3	37.5	38.0	41.7	40.1	47.8
Cull trees	13.2	15.3	10.7	14.6	14.8	11.6
Total	54.5	52.8	48.7	56.3	54.9	59.4
All types:						
Growing stock	42.4	41.8	38.5	37.9	41.1	50.1
Cull trees	13.3	20.9	10.8	14.1	13.7	9.8
Total	55.7	62.7	49.3	52.0	54.8	59.9

1/ Includes sound, well-formed 2- and 4- inch trees.
2/ Includes upland hardwood-pine.

Table 15.--Sawlog volume by species and tree diameter, by Survey region, 1948-50

Species	All diameter classes	10 - 12 inches 1/	14 - 18 inches	20 - 24 inches	26 inches and up
			Million board feet		
			STATE		
Softwood:					
Southern pines	2,127.1	1,263.7	767.6	86.6	9.2
Cedar	132.4	86.0	44.0	2.4	...
White pine	244.0	64.8	93.9	63.2	22.1
Hemlock	261.6	54.3	65.6	72.5	69.2
Cypress	249.7	42.8	104.8	46.3	55.8
Total	3,014.8	1,511.6	1,075.9	271.0	156.3
Hardwood:					
Red oaks	3,878.6	814.6	1,987.2	794.3	282.5
White oaks	3,208.6	791.3	1,616.3	601.8	199.2
Hickories	1,629.2	413.5	878.9	271.5	65.3
Yellow-poplar	1,135.0	249.3	622.2	214.5	49.0
Sweetgum	562.0	126.3	311.5	96.6	27.6
Black and tupelo gums	465.7	98.6	244.9	104.7	17.5
Other hardwoods	2,346.1	471.4	1,255.4	432.8	186.5
Total	13,225.2	2,965.0	6,916.4	2,516.2	827.6
All species	16,240.0	4,476.6	7,992.3	2,787.2	983.9
			WEST		
Softwood:					
Southern pines	57.0	31.7	17.8	7.5	...
Cedar	21.8	6.7	15.1	...	...
Cypress	247.7	42.4	103.2	46.3	55.8
Total	326.5	80.8	136.1	53.8	55.8
Hardwood:					
Red oaks	759.5	122.5	330.7	153.3	153.0
White oaks	404.8	91.9	164.8	85.7	62.4
Hickories	253.2	63.3	120.4	50.8	18.7
Yellow-poplar	156.5	32.5	95.6	21.9	6.5
Sweetgum	384.4	73.9	205.0	77.9	27.6
Black and tupelo gums	123.8	38.9	54.0	30.9	...
Other hardwoods	762.5	144.4	432.2	138.5	47.4
Total	2,844.7	567.4	1,402.7	559.0	315.6
All species	3,171.2	648.2	1,538.8	612.8	371.4
			WEST-CENTRAL		
Softwood:					
Southern pines	87.1	59.0	23.8	4.3	...
Cedar	8.9	7.9	1.0	...	...
Cypress	2.0	.4	1.6	...	...
Total	98.0	67.3	26.4	4.3	...
Hardwood:					
Red oaks	555.0	213.2	307.9	29.8	4.1
White oaks	549.4	244.9	278.8	20.9	4.8
Hickories	189.5	72.5	103.4	13.6	...
Yellow-poplar	126.7	28.8	78.3	19.6	...
Sweetgum	79.1	25.8	47.9	5.4	...
Black and tupelo gums	50.7	14.0	36.7	...	...
Other hardwoods	134.8	40.2	63.2	28.0	3.4
Total	1,685.2	639.4	916.2	117.3	12.3
All species	1,783.2	706.7	942.6	121.6	12.3

Table 15.--Sawlog volume by species and tree diameter, by Survey region, 1948-50 (continued)

Species	All diameter classes	10 - 12 inches 1/	14 - 18 inches	20 - 24 inches	26 inches and up
	Million board feet				
			CENTRAL		
Softwood:					
Cedar	61.1	40.5	20.6	...	...
Hardwood:					
Red oaks	779.5	156.9	372.7	208.1	41.8
White oaks	524.8	119.0	283.8	110.1	11.9
Hickories	313.6	84.2	160.9	62.2	6.3
Yellow-poplar	284.8	55.2	157.4	64.2	8.0
Sweetgum	63.8	17.4	43.7	2.7	...
Black and tupelo gums	43.0	11.2	26.8	5.0	...
Other hardwoods	613.8	127.5	315.9	120.4	50.0
Total	2,623.3	571.4	1,361.2	572.7	118.0
All species	2,684.4	611.9	1,381.8	572.7	118.0
			PLATEAU		
Softwood:					
Southern pines	534.3	354.1	161.8	9.2	9.2
Cedar	17.6	14.6	3.0	...	...
White pine	28.8	15.8	13.0	...	...
Hemlock	113.6	18.1	30.6	55.9	9.0
Total	694.3	402.6	208.4	65.1	18.2
Hardwood:					
Red oaks	849.4	185.8	470.5	168.7	24.4
White oaks	726.3	169.3	380.3	135.6	41.1
Hickories	494.1	121.6	272.0	68.7	31.8
Yellow-poplar	273.1	56.2	146.7	49.3	20.9
Sweetgum	14.8	6.6	8.2	...	...
Black and tupelo gums	176.1	21.6	90.9	46.1	17.5
Other hardwoods	442.7	77.2	218.0	90.2	57.3
Total	2,976.5	638.3	1,586.6	558.6	193.0
All species	3,670.8	1,040.9	1,795.0	623.7	211.2
			EAST		
Softwood:					
Southern pines	1,448.7	818.9	564.2	65.6	...
Cedar	23.0	16.3	4.3	2.4	...
White pine	215.2	49.0	80.9	63.2	22.1
Hemlock	148.0	36.2	35.0	16.6	60.2
Total	1,834.9	920.4	684.4	147.8	82.3
Hardwood:					
Red oaks	935.2	136.2	505.4	234.4	59.2
White oaks	1,003.3	166.2	508.6	249.5	79.0
Hickories	378.8	71.9	222.2	76.2	8.5
Yellow-poplar	293.9	76.6	144.2	59.5	13.6
Sweetgum	19.9	2.6	6.7	10.6	...
Black and tupelo gums	72.1	12.9	36.5	22.7	...
Other hardwoods	392.3	82.1	226.1	55.7	28.4
Total	3,095.5	548.5	1,649.7	708.6	188.7
All species	4,930.4	1,468.9	2,334.1	856.4	271.0

1/ Hardwood sawlog volume not tallied in trees under 11.0 inches d.b.h.

Table 16.--Sawlog volume by species and stand size, by Survey region, 1948-50

Species	All stand sizes	Large saw timber	Small saw timber	Cordwood	Seedling and sapling	Denuded
			Million board feet			
			STATE			
Softwood:						
Southern pines	2,127.1	257.6	1,155.5	674.2	38.5	1.3
Cedar	132.4	19.7	26.4	82.6	3.7	...
White pine	244.0	116.4	65.4	60.9	1.3	...
Hemlock	261.6	134.2	74.1	34.8	16.8	1.7
Cypress	249.7	145.6	91.1	13.0	...	...
Total	3,014.8	673.5	1,412.5	865.5	60.3	3.0
Hardwood:						
Red oaks	3,878.6	1,108.6	1,378.6	1,326.7	63.1	1.6
White oaks	3,208.6	809.1	1,071.9	1,246.5	76.9	4.2
Hickories	1,629.2	304.1	553.8	734.4	36.9	...
Yellow-poplar	1,135.0	274.3	512.7	338.8	9.2	...
Sweetgum	562.0	120.4	307.1	124.9	8.0	1.6
Black and tupelo gums	465.7	116.0	182.2	158.7	8.8	...
Other hardwoods	2,346.1	667.7	862.2	751.7	59.3	5.2
Total	13,225.2	3,400.2	4,868.5	4,681.7	262.2	12.6
All species	16,240.0	4,073.7	6,281.0	5,547.2	322.5	15.6
			WEST			
Softwood:						
Southern pines	57.0	18.2	24.7	13.9	.2	...
Cedar	21.8	.6	13.5	7.4	.3	...
Cypress	247.7	145.6	89.1	13.0	...	...
Total	326.5	164.4	127.3	34.3	.5	...
Hardwood:						
Red oaks	759.5	206.3	368.0	174.6	9.0	1.6
White oaks	404.8	92.3	202.1	105.3	5.1	...
Hickories	253.2	46.4	123.8	78.3	4.7	...
Yellow-poplar	156.5	13.9	124.0	17.9	.7	...
Sweetgum	384.4	84.0	236.8	56.8	5.2	1.6
Black and tupelo gums	123.8	16.3	82.9	23.7	.9	...
Other hardwoods	762.5	163.4	402.3	185.1	11.7	...
Total	2,844.7	622.6	1,539.9	641.7	37.3	3.2
All species	3,171.2	787.0	1,667.2	676.0	37.8	3.2
			WEST-CENTRAL			
Softwood:						
Southern pines	87.1	.6	52.1	31.5	2.9	...
Cedar	8.9	...	1.3	7.6	...	...
Cypress	2.0	...	2.0	...	...	...
Total	98.0	.6	55.4	39.1	2.9	...
Hardwood:						
Red oaks	555.0	19.3	264.5	254.7	16.5	...
White oaks	549.4	11.3	238.7	283.9	15.1	.4
Hickories	189.5	12.3	59.6	116.6	1.0	...
Yellow-poplar	126.7	1.8	76.3	45.7	2.9	...
Sweetgum	79.1	12.3	25.7	39.7	1.4	...
Black and tupelo gums	50.7	...	20.7	27.3	2.7	...
Other hardwoods	134.8	15.2	56.4	62.1	1.1	...
Total	1,685.2	72.2	741.9	830.0	40.7	.4
All species	1,783.2	72.8	797.3	869.1	43.6	.4

Table 16.--Sawlog volume by species and stand size, by Survey region, 1948-50 (continued)

Species	All stand sizes	Large saw timber	Small saw timber	Cordwood	Seedling and sapling	Denuded
	Million board feet					
CENTRAL						
Softwood:						
Cedar	61.1	1.1	7.6	50.3	2.1	...
Hardwood:						
Red oaks	779.5	204.0	261.0	288.2	26.3	...
White oaks	524.8	101.5	193.6	211.4	15.5	2.8
Hickories	313.6	30.4	115.9	153.6	13.7	...
Yellow-poplar	284.8	110.9	84.3	86.4	3.2	...
Sweetgum	63.8	18.9	28.5	16.0	.4	...
Black and tupelo gums	43.0	5.7	18.4	16.2	2.7	...
Other hardwoods	613.8	151.5	172.8	246.1	38.2	5.2
Total	2,623.3	622.9	874.5	1,017.9	100.0	8.0
All species	2,684.4	624.0	882.1	1,068.2	102.1	8.0
PLATEAU						
Softwood:						
Southern pines	534.3	39.0	306.6	180.8	7.2	.7
Cedar	17.6	11.8	.5	4.0	1.3	...
White pine	28.8	...	12.0	15.5	1.3	...
Hemlock	113.6	65.2	23.1	11.9	11.7	1.7
Total	694.3	116.0	342.2	212.2	21.5	2.4
Hardwood:						
Red oaks	849.4	243.4	268.6	331.7	5.7	...
White oaks	726.3	180.9	210.8	316.4	18.2	...
Hickories	494.1	103.2	158.7	224.7	7.5	...
Yellow-poplar	273.1	68.7	129.7	73.0	1.7	...
Sweetgum	14.8	...	4.6	10.2	...	...
Black and tupelo gums	176.1	75.3	38.4	61.1	1.3	...
Other hardwoods	442.7	201.9	131.3	104.4	5.1	...
Total	2,976.5	873.4	942.1	1,121.5	39.5	...
All species	3,670.8	989.4	1,284.3	1,333.7	61.0	2.4
EAST						
Softwood:						
Southern pines	1,448.7	199.8	772.1	448.0	28.2	.6
Cedar	23.0	6.2	3.5	13.3	...	...
White pine	215.2	116.4	53.4	45.4	...	...
Hemlock	148.0	69.0	51.0	22.9	5.1	...
Total	1,834.9	391.4	880.0	529.6	33.3	.6
Hardwood:						
Red oaks	935.2	435.6	216.5	277.5	5.6	...
White oaks	1,003.3	423.1	226.7	329.5	23.0	1.0
Hickories	378.8	111.8	95.8	161.2	10.0	...
Yellow-poplar	293.9	79.0	98.4	115.8	.7	...
Sweetgum	19.9	5.2	11.5	2.2	1.0	...
Black and tupelo gums	72.1	18.7	21.8	30.4	1.2	...
Other hardwoods	392.3	135.7	99.4	154.0	3.2	...
Total	3,095.5	1,209.1	770.1	1,070.6	44.7	1.0
All species	4,930.4	1,600.5	1,650.1	1,600.2	78.0	1.6

Table 17.--Sawlog volume by species and Survey region, 1948-50

Species	State of Tennessee	West	West-central	Central	Plateau	East
	Million board feet					
Softwood:						
Shortleaf pine	1,203.9	56.3	83.4	...	386.1	678.1
Virginia pine	662.6	.7	3.7	...	147.2	511.0
Other pines	504.6	...	...	...	29.8	474.8
Cedar	132.4	21.8	8.9	61.1	17.6	23.0
Other softwoods	511.3	247.7	2.0	...	113.6	148.0
Total	3,014.8	326.5	98.0	61.1	694.3	1,834.9
Hardwood:						
Black, scarlet, and southern red oaks	2,761.1	487.2	406.4	549.2	578.1	740.2
Cherrybark, Shumard, and northern red oaks	895.9	138.2	134.2	204.8	234.0	184.7
Water oaks	221.6	134.1	14.4	25.5	37.3	10.3
White oak	1,701.2	187.2	400.1	290.8	321.5	501.6
Other white oaks	1,507.4	217.6	149.3	234.0	404.8	501.7
Hickories	1,629.2	253.2	189.5	313.6	494.1	378.8
Yellow-poplar	1,135.0	156.5	126.7	284.8	273.1	293.9
Sweetgum	562.0	384.4	79.1	63.8	14.8	19.9
Black and tupelo gums	465.7	123.8	50.7	43.0	176.1	72.1
Elms	355.6	144.6	16.0	123.4	36.4	35.2
Soft maples	181.6	56.5	13.6	21.1	42.3	48.1
Sugar maple	159.0	7.1	16.3	50.9	55.0	29.7
Ash	205.6	52.8	13.8	60.9	27.6	50.5
Beech	351.1	40.7	25.8	129.9	115.4	39.3
Walnut	184.6	12.5	10.8	74.8	20.4	66.1
Sycamore	158.8	76.3	20.9	32.7	23.4	5.5
Hackberry	72.6	42.2	2.7	21.3	1.4	5.0
Other hardwoods	677.2	329.8	14.9	98.8	120.8	112.9
Total	13,225.2	2,844.7	1,685.2	2,623.3	2,976.5	3,095.5
All species	16,240.0	3,171.2	1,783.2	2,684.4	3,670.8	4,930.4

Table 18. --Average sawlog volume per acre by forest type and Survey region, 1948-50

Forest type	State of Tennessee	West	West-central	Central	Plateau	East
			Board feet			
Softwood:						
Southern yellow pine	1,337	740	932	...	1,012	1,634
Cedar	426	(1/)	269	358	(1/)	(1/)
Other softwood	(1/)	...	...	...	(1/)	(1/)
Total	1,150	893	625	358	1,108	1,668
Hardwood:						
Bottomland hardwood	2,135	2,201	1,329	1,832	(1/)	(1/)
Upland hardwood	1,345	1,622	841	1,440	1,429	1,724
Upland hardwood-pine	1,098	731	879	847	835	1,408
Total	1,368	1,817	862	1,444	1,241	1,575
All types	1,315	1,774	846	1,145	1,201	1,613

1/ Sample too small to be reliable.

Table 19. --Softwood sawlog volume by tree grade and stand quality, by species group and Survey region, 1948-50

Species group and Survey region	All grades	Grade 1	Grade 2	Grade 3	
				In fair and better stands	In poor stands
	Million board feet				
Species group:					
Shortleaf pine	1,203.9	192.4	316.3	134.6	560.6
Other southern pines	923.2	12.3	73.5	83.3	754.1
Cedar	132.4	1/ 132.4	...	...	...
Other softwoods	755.3	107.1	131.0	113.0	404.2
Total	3,014.8	444.2	520.8	330.9	1,718.9
Survey region:					
West	326.5	89.6	87.7	30.1	119.1
West-central	98.0	21.6	22.8	14.1	39.5
Central	61.1	2/ 61.1	...	...	...
Plateau	694.3	55.8	138.5	106.8	393.2
East	1,834.9	216.1	271.8	179.9	1,167.1
Total	3,014.8	444.2	520.8	330.9	1,718.9

1/ All cedar sawlog trees were graded as No. 1.
2/ Cedar is the only species represented here.

Table 20. --Hardwood sawlog volume by log grade and stand quality, by species group and Survey region, 1948-50

Species group and Survey region	All grades	Grade 1	Grade 2	Grade 3 A			Grade 3 B		
				Total	In fair and better stands	In poor stands	Total	In fair and better stands	In poor stands
	Million board feet								
Species group:									
Red oaks	3,878.6	394.2	763.4	2,166.1	592.0	1,574.1	554.9	116.6	438.3
White oaks	3,208.6	262.0	739.1	1,975.0	432.7	1,542.3	232.5	52.4	180.1
Hickories	1,629.2	112.5	322.8	1,042.3	248.4	793.9	151.6	31.8	119.8
Yellow-poplar	1,135.0	71.0	224.7	546.3	164.4	381.9	293.0	67.5	225.5
Sweetgum	562.0	52.4	63.9	291.1	70.9	220.2	154.6	49.1	105.5
Black and tupelo gums	465.7	43.8	107.0	277.4	72.3	205.1	37.5	15.3	22.2
Other hardwoods	2,346.1	235.3	399.7	1,401.7	449.8	951.9	309.4	63.8	245.6
Total	13,225.2	1,171.2	2,620.6	7,699.9	2,030.5	5,669.4	1,733.5	396.5	1,337.0
Survey region:									
West	2,844.7	350.7	420.2	1,509.9	475.0	1,034.9	563.9	175.3	388.6
West-Central	1,685.2	42.1	239.3	1,108.7	133.2	975.5	295.1	31.0	264.1
Central	2,623.3	249.2	490.6	1,570.6	338.4	1,232.2	312.9	57.1	255.8
Plateau	2,976.5	264.6	642.5	1,810.3	468.6	1,341.7	259.1	53.3	205.8
East	3,095.5	264.6	828.0	1,700.4	615.3	1,085.1	302.5	79.8	222.7
Total	13,225.2	1,171.2	2,620.6	7,699.9	2,030.5	5,669.4	1,733.5	396.5	1,337.0

Table 21.--Current annual net growth of sawlog and total growing stock by species and class of timber, by Survey region, 1948-50

Class of timber	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	Million cubic feet			Million board feet		
			STATE			
Sawlog trees	153.9	39.4	114.5	877.0	187.4	689.6
Cordwood trees	90.3	14.5	75.8	...	...	...
Total	244.2	53.9	190.3	877.0	187.4	689.6
			WEST			
Sawlog trees	34.2	3.5	30.7	196.8	16.4	180.4
Cordwood trees	9.5	.6	8.9	...	...	...
Total	43.7	4.1	39.6	196.8	16.4	180.4
			WEST-CENTRAL			
Sawlog trees	21.5	2.2	19.3	114.8	8.5	106.3
Cordwood trees	12.7	.7	12.0	...	...	...
Total	34.2	2.9	31.3	114.8	8.5	106.3
			CENTRAL			
Sawlog trees	21.8	.8	21.0	135.3	3.5	131.8
Cordwood trees	18.9	1.4	17.5	...	...	...
Total	40.7	2.2	38.5	135.3	3.5	131.8
			PLATEAU			
Sawlog trees	31.7	9.7	22.0	187.3	47.6	139.7
Cordwood trees	25.9	4.6	21.3	...	...	...
Total	57.6	14.3	43.3	187.3	47.6	139.7
			EAST			
Sawlog trees	44.7	23.2	21.5	242.8	111.4	131.4
Cordwood trees	23.3	7.2	16.1	...	...	...
Total	68.0	30.4	37.6	242.8	111.4	131.4

Table 22.--Current annual net growth per acre of sawlog and total growing stock, by forest-type and stand-size group, by Survey region, 1948-50

Stand-size group	Total growing stock			Sawlog growing stock		
	All types	Softwood types	Hardwood types	All types	Softwood types	Hardwood types
	Cubic feet			Board feet		
STATE						
Saw timber	30	41	27	151	179	144
Cordwood	19	21	18	54	55	54
Other stand sizes	7	5	9	12	10	12
Total	20	22	19	71	71	71
WEST						
Saw timber	37	44	37	208	191	208
Cordwood	21	32	20	71	69	71
Other stand sizes	6	...	6	15	...	15
Total	24	31	24	110	83	111
WEST-CENTRAL						
Saw timber	23	40	22	128	198	123
Cordwood	17	24	16	48	51	47
Other stand sizes	6	...	7	6	...	7
Total	16	22	16	54	64	54
CENTRAL						
Saw timber	27	19	27	138	75	139
Cordwood	17	10	20	48	25	57
Other stand sizes	9	4	13	13	7	19
Total	17	8	21	58	20	72
PLATEAU						
Saw timber	29	45	23	126	176	109
Cordwood	17	19	16	46	51	44
Other stand sizes	9	5	12	13	12	13
Total	19	22	17	61	71	57
EAST						
Saw timber	31	39	24	148	182	121
Cordwood	22	28	19	65	77	58
Other stand sizes	6	6	5	11	15	7
Total	22	28	18	79	98	67

Table 23.--Current annual drain of sawlog and total growing stock in species groups, by commodity and Survey region, 1949

Commodity	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	Million cubic feet			Million board feet		
STATE						
Sawlogs	100.1	43.9	56.2	588.5	232.5	356.0
Veneer logs	2.0	(1/)	2.0	14.0	.2	13.8
Cooperage bolts	5.9	(1/)	5.9	37.8	.2	37.6
Pulpwood	6.8	3.9	2.9	11.1	5.4	5.7
Fuel wood	71.7	10.5	61.2	283.2	49.3	233.9
Chemical wood	2.4	...	2.4	7.2	...	7.2
Piling	(1/)	(1/)	(1/)	0.3	.1	.2
Poles	.4	.4	...	2.1	2.1	...
Posts	8.3	2.5	5.8	18.8	.3	18.5
Hewn ties	1.0	...	1.0	6.0	...	6.0
Mine timbers	1.2	.7	.5	.9	.9	...
Misc. logs and bolts	9.5	.9	8.6	43.2	3.7	39.5
Total	209.3	62.8	146.5	1,013.1	294.7	718.4
WEST						
Sawlogs	15.5	2.6	12.9	95.0	13.3	81.7
Veneer logs	1.4	...	1.4	9.5	...	9.5
Cooperage bolts	1.4	...	1.4	9.0	...	9.0
Pulpwood	.5	...	.5	1.0	...	1.0
Fuel wood	16.0	...	16.0	61.1	...	61.1
Chemical wood	.1	...	.1	.3	...	.3
Piling	(1/)	(1/)	(1/)	.3	.1	.2
Poles	(1/)	(1/)	...	.2	.2	...
Posts	2.2	.4	1.8	5.6	.1	5.5
Hewn ties	.3	...	.3	1.6	...	1.6
Mine timbers	...	...	...	...	...	...
Misc. logs and bolts	2.1	...	2.1	9.6	...	9.6
Total	39.5	3.0	36.5	193.2	13.7	179.5
WEST-CENTRAL						
Sawlogs	13.9	2.8	11.1	85.3	14.9	70.4
Veneer logs	.2	(1/)	.2	1.3	.2	1.1
Cooperage bolts	.5	...	.5	3.4	...	3.4
Pulpwood	.4	...	.4	.8	...	.8
Fuel wood	4.3	...	4.3	16.6	...	16.6
Chemical wood	2.3	...	2.3	6.9	...	6.9
Piling	...	...	...	...	...	...
Poles	(1/)	(1/)	...	.1	.1	...
Posts	.7	.2	.5	1.5	(1/)	1.5
Hewn ties	.3	...	.3	2.4	...	2.4
Mine timbers	...	...	...	...	...	...
Misc. logs and bolts	1.4	...	1.4	6.5	...	6.5
Total	24.0	3.0	21.0	124.8	15.2	109.6

Table 23.--Current annual drain of sawlog and total growing stock in species groups, by commodity and Survey region, 1949 (continued)

Commodity	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	-- Million cubic feet --			-- Million board feet --		
CENTRAL						
Sawlogs	12.3	2.6	9.7	74.9	13.8	61.1
Veneer logs	.1	...	.1	1.0	...	1.0
Cooperage bolts	1.8	...	1.8	11.2	...	11.2
Pulpwood	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
Fuel wood	17.6	...	17.6	67.3	...	67.3
Chemical wood	...	...	...	...	...	...
Piling	...	...	...	...	...	...
Poles	...	...	...	...	...	...
Posts	2.8	.8	2.0	6.5	.1	6.4
Hewn ties	.1	...	.1	.6	...	.6
Mine timbers	...	...	...	...	...	...
Misc. logs and bolts	1.8	.1	1.7	8.2	.7	7.5
Total	36.5	3.5	33.0	169.7	14.6	155.1
PLATEAU						
Sawlogs	25.8	13.3	12.5	149.7	70.7	79.0
Veneer logs	(1/)	(1/)	(1/)	.3	(1/)	.3
Cooperage bolts	1.5	...	1.5	9.6	...	9.6
Pulpwood	1.7	.5	1.2	3.1	.8	2.3
Fuel wood	10.2	2.8	7.4	41.2	13.1	28.1
Chemical wood	...	...	...	...	...	...
Piling	...	...	...	...	...	...
Poles	...	...	...	...	...	...
Posts	.7	.3	.4	1.4	(1/)	1.4
Hewn ties	.2	...	.2	1.1	...	1.1
Mine timbers	.7	.4	.3	.5	.5	...
Misc. logs and bolts	2.8	.1	2.7	14.2	.3	13.9
Total	43.6	17.4	26.2	221.1	85.4	135.7
EAST						
Sawlogs	32.6	22.6	10.0	183.6	119.8	63.8
Veneer logs	.3	(1/)	.3	1.9	(1/)	1.9
Cooperage bolts	.7	(1/)	.7	4.6	.2	4.4
Pulpwood	4.2	3.4	.8	6.2	4.6	1.6
Fuel wood	23.6	7.7	15.9	97.0	36.2	60.8
Chemical wood	...	...	...	...	...	...
Piling	...	...	...	...	...	...
Poles	.4	.4	...	1.8	1.8	...
Posts	1.9	.8	1.1	3.8	.1	3.7
Hewn ties	.1	...	.1	.3	...	.3
Mine timbers	.5	.3	.2	.4	.4	...
Misc. logs and bolts	1.4	.7	.7	4.7	2.7	2.0
Total	65.7	35.9	29.8	304.3	165.8	138.5

1/ Negligible.

Table 24.--Current annual drain of sawlog and total growing stock by species, 1949

Species	Total growing stock	Sawlog growing stock
	Million cubic feet	Million board feet
Softwood:		
Southern pines	49.1	234.9
Other	13.7	59.8
Total	62.8	294.7
Hardwood:		
Oaks	90.9	431.7
Hickory	12.5	56.6
Other firm-textured	20.3	95.5
Sweetgum	7.5	43.3
Black and tupelo gums	1.9	11.1
Yellow-poplar	9.1	54.9
Other soft-textured	4.3	25.3
Total	146.5	718.4
All species	209.3	1,013.1

Table 25.--Current annual drain of sawlog and total growing stock, by species group and class of timber, by Survey region, 1949

Class of timber	Total growing stock			Sawlog growing stock		
	All species	Soft-wood	Hard-wood	All species	Soft-wood	Hard-wood
	Million cubic feet			Million board feet		
STATE						
Sawlog trees	164.9	53.8	111.1	1,013.1	294.7	718.4
Cordwood trees	44.4	9.0	35.4	...	...	...
Total	209.3	62.8	146.5	1,013.1	294.7	718.4
WEST						
Sawlog trees	30.2	2.5	27.7	193.2	13.7	179.5
Cordwood trees	9.3	.5	8.8	...	...	...
Total	39.5	3.0	36.5	193.2	13.7	179.5
WEST-CENTRAL						
Sawlog trees	19.6	2.7	16.9	124.8	15.2	109.6
Cordwood trees	4.4	.3	4.1	...	...	...
Total	24.0	3.0	21.0	124.8	15.2	109.6
CENTRAL						
Sawlog trees	26.7	2.6	24.1	169.7	14.6	155.1
Cordwood trees	9.8	.9	8.9	...	...	...
Total	36.5	3.5	33.0	169.7	14.6	155.1
PLATEAU						
Sawlog trees	36.4	15.4	21.0	221.1	85.4	135.7
Cordwood trees	7.2	2.0	5.2	...	...	...
Total	43.6	17.4	26.2	221.1	85.4	135.7
EAST						
Sawlog trees	52.0	30.6	21.4	304.3	165.8	138.5
Cordwood trees	13.7	5.3	8.4	...	...	...
Total	65.7	35.9	29.8	304.3	165.8	138.5

Definitions of Terms

Forest Land

Forest land. Land which bears forest growth, or land from which the forest has been removed and which has not been put to other use. Each tract classed as forest is at least one acre in size.

Commercial forest land. Forest land bearing, or capable of bearing, timber of commercial quantity and quality, and not withdrawn from commercial timber use.

Reserved-commercial forest land. Forest land in public parks or preserves which qualifies as commercial forest land except that it is withdrawn from commercial timber use through statute, ordinance, or administrative order.

Tree Species

Softwoods. Southern pines, principally shortleaf (Pinus echinata) and Virginia (P. virginiana); eastern white pine (P. strobus); hemlock (Tsuga canadensis); eastern redcedar (Juniperus virginiana); and baldcypress (Taxodium distichum).

Hardwoods. Broadleaved species, of which the most numerous genera or species are the oaks (Quercus spp.); hickories (Carya spp.); and yellow-poplar (Liriodendron tulipifera).

Forest Type

Forest type is determined only from dominant and codominant growing stock and dominant and codominant smaller sound trees of good form.

Southern yellow pine. Stands in which southern pines comprise at least 25 percent of the trees.

Cedar. Stands in which eastern redcedar comprises at least 25 percent of the trees.

Other softwood. Stands in which softwood species other than southern pines or cedar comprise at least 25 percent of the trees. The principal species are eastern white pine and hemlock.

Bottomland hardwood. Stands in which bottomland hardwoods and cypress comprise 76 percent or more of the trees.

Upland hardwood. Stands in which upland hardwoods comprise 76 percent or more of the trees, and no pine is present.

Upland hardwood-pine. Stands in which upland hardwoods comprise 76 percent or more of the trees, and some pine is present.

Class of Timber

Growing stock. Sawlog growing stock is the sawlog portion of sawlog trees. Total growing stock includes sawlog growing stock and upper stems of softwood sawlog trees and entire stems of cordwood trees to a minimum diameter of 4 inches inside bark.

Sawlog tree. A live, merchantable softwood 9.0 inches or larger in d.b.h., or a live, merchantable hardwood 11.0 inches or larger in d.b.h. To be merchantable, the tree must have at least a merchantable 12-foot butt log or 50 percent of its gross volume in merchantable logs.

Cordwood tree. A live tree 5.0 inches or larger in d.b.h., but smaller than sawlog size, which would become a sawlog tree if it should grow to sawlog size.

Cull tree. A live tree 5.0 inches or larger in d.b.h., which because of decay or sound defect fails to meet the specifications for a cordwood or sawlog tree.

Tops and limbs. Upper stems and limbs of hardwood sawlog trees between the top sawlog and a minimum diameter of 4 inches inside bark.

Stand-size Class

Large saw timber. Stands having a net volume of at least 1,500 board feet per acre in sawlog trees and at least half of this volume in softwoods 15.0 inches d.b.h. and larger, and hardwoods 17.0 inches d.b.h. and larger.

Small saw timber. Stands which do not meet the specifications for large saw timber but which do contain a net volume of at least 1,500 board feet per acre in sawlog trees.

Cordwood. Stands below saw-timber specifications, with at least 10 percent of the growing space occupied by growing stock, and with at least 5 percent of the growing space occupied by cordwood trees.

Seedling and sapling. Stands that do not meet saw-timber and cordwood specifications in which at least 10 percent of the growing space is occupied by growing stock and smaller sound trees of commercial species, and with at least 5 percent of the space occupied by seedlings and saplings.

Denuded. Commercial forest land which does not qualify for any other stand-size class.

Tree Stocking

Degree of stocking is determined by the ratio of the actual number of growing-stock and smaller sound trees of good form in the stand to the number of trees of the same size required to occupy the site fully (for best growth). Under this criterion, stands are well stocked when the percentage of full stocking is 70 or above, medium stocked when the percentage is 40 to 69, poorly stocked when the percentage is 10 to 39, and nonstocked when the percentage is under 10.

Volume and Basal Area

Sawlog volume. Net volume in merchantable sawlogs in sawlog trees, measured by the International 1/4-inch log rule.

Total volume. Volume of sound, usable wood in stems of softwoods and stems and branches of hardwoods between stump and minimum top diameter of 4 inches inside bark, measured in cubic feet.

Basal area. Cross-sectional area of trees at breast height, measured in square feet.

Diameter

D. b. h. (diameter breast high). Tree diameter in inches, outside bark, measured at 4-1/2 feet above ground.

Diameter class. Each 2-inch diameter class includes diameters 1.0 inch below and 0.9 inch above the stated midpoint. E.g., the 12-inch class includes trees 11.0 up to and including 12.9 inches.

Growth

Current annual net growth. The change during the inventory year in net volume of the growing stock on commercial forest land resulting from natural causes exclusive of catastrophic losses.

Drain

Net volume removed from the growing stock through cutting of timber commodities and attendant logging waste.

Log and Tree Grade

Tree grades for softwoods:

Grade 1 (smooth[1/] trees). Not less than 20 feet of clear bole and at least 40 percent of the merchantable length clear of limbs and knots in sections not less than 8 feet in length. All cedar sawlog trees were graded as No. 1.

Grade 2 (limby trees). Not less than 12 feet of clear bole and 25 to 39 percent of the merchantable length clear of limbs and knots in sections not less than 8 feet in length.

Grade 3 (rough trees). Merchantable trees below grade-2 specifications.

Log grades for hardwoods:[2/]

Grade 1. Logs having five-sixths or more of their length on the 3 best faces in clear-cuttings not less than 3 feet long; they yield at least 65 percent of their volume in No. 1 Common and better grades of lumber.

Grade 2. Logs having two-thirds to five-sixths of their entire length on the 3 best faces in clear-cuttings not less than 3 feet long; they yield at least 40 percent of their volume in No. 1 Common and better grades of lumber.

Grade 3. --

--A. Logs below grade 2, having 1/2 or more of their entire length on the 3 best faces in clear-cuttings not less than 2 feet long; they yield at least 13 percent of their volume in No. 1 Common and better grades of lumber.

1/ Except as noted in the case of cedar.

2/ For detailed external specifications of log grades used, see Forest Service Committee on Interim Hardwood Sawlog Grades, "Interim sawlog grades for southern hardwoods," Southern Forest Experiment Station, 9 pp., illus. Rev. 1948.

--B. Logs which do not meet the clear-cutting requirements of 3A or higher grades, but which are sound, reasonably straight, and without large knots or knot clusters; they are suitable for ties or low-grade structural timbers.

Stand Quality

Fair and better. A stand in which at least four grade 2 or better hardwood logs or softwood trees are present per acre.

Poor. A stand in which fewer than four grade 2 or better hardwood logs or softwood trees are present per acre.

Standard Forest Survey Tables

To insure that Forest Survey statistics for the different States and major forest regions of the country are on a comparable basis, a plan for nationally standardized terminology, definitions, forest categories, and summary tables has been formulated. The survey of Tennessee's forests was partly completed before the plan was promulgated, and therefore the foregoing tables do not conform in every respect to present national standards.

Chief differences are: (1) the national standards make some changes in the forest type categories used in the foregoing tables; (2) upper-stem volume of hardwood saw-timber trees is included in growing stock under the national standards but excluded from growing stock in the foregoing tables; (3) limb volume of both merchantable and cull hardwood saw-timber trees is included in a single category under the national standards, whereas the hardwood tops and limbs category in the foregoing tables includes upper-stem and limb volumes of merchantable hardwood saw timber but excludes upper stems and limbs of hardwood cull trees; and (4) the foregoing tables use some regional terms--as, for example, "cordwood trees" and "cordwood stands" for the nationally adopted terms of "pole timber trees" and "pole timber stands."

There follows a set of 10 nationally standard tables in which data from the foregoing tables have been adjusted to conform as nearly as possible to the national Forest Survey standards. It will be noted that estimates of cubic volume for timber inventory, growth, and drain are all affected by this adjustment.

Table I. --Land area, by major classes of land, Tennessee, 1948-50

Class of land	Area
	Thousand acres
Forest:	
Commercial	12,353.8
Noncommercial:	
Reserved from commercial timber use	253.8
Unproductive for timber use	...
Total	12,607.6
Nonforest[1/]	14,247.4
Total, all classes	26,855.0

1/ Includes some acreage of water according to Survey standards of area classification but defined by the Bureau of Census as land.

Table II. --Commercial forest land area, by ownership and stand-size classes, Tennessee, 1948-50

Ownership class	Total	Saw-timber stands	Pole-timber stands	Seedling and sapling stands[1/]
	Thousand acres	Thousand acres	Thousand acres	Thousand acres
Federally owned or managed:				
National forest	563.3	219.7	298.5	45.1
Indian	...	...	...	...
Other	252.7	99.2	135.3	18.2
Total	816.0	318.9	433.8	63.3
State[2/]	297.7	59.5	190.6	47.6
County and municipal[2/]	...	...	...	...
Private	11,240.1	2,550.1	6,961.3	1,728.7
All ownership	12,353.8	2,928.5	7,585.7	1,839.6

1/ Nonstocked and other areas included with seedling and sapling stands.

2/ County and municipal included with State.

Table III. --Area of commercial forest land, by major forest types, Tennessee, 1948-50

Forest type	Thousand acres
White-red-jack pine	108.1
Spruce-fir	...
Longleaf-slash pine	3.0
Loblolly-shortleaf pine	1,611.7
Oak-pine	1,312.6
Oak-hickory	7,894.9
Oak-gum-cypress	846.1
Elm-ash-cottonwood	75.8
Maple-beech-birch	501.6
Aspen-birch	...
Total	12,353.8

Table IV. --Net volume of live saw timber and growing stock on commercial forest land, by stand-size class, Tennessee, 1948-50

Stand-size class	Saw timber	Growing stock
	Million bd. ft.	Million cu. ft.
Saw-timber stands	10,354.7	2,857.9
Pole-timber stands	5,547.2	2,745.9
Seedling and sapling stands	322.5	119.3
Nonstocked and other areas not elsewhere classified	15.6	5.4
Total	16,240.0	5,728.5

Table V.--Net volume of live saw timber and growing stock on commercial forest land, by ownership class, Tennessee, 1948-50

Ownership class	Saw timber	Growing stock
	Million bd. ft.	Million cu. ft.
Federally owned or managed:		
National Forest	1,163.8	347.8
Indian	...	...
Other	469.0	159.1
Total	1,632.8	506.9
State[1/]	374.8	146.0
County and municipal[1/]		
Private:		
Farm[2/]	...	...
Industrial and other[2/]	...	...
Total	14,232.4	5,075.6
All ownerships	16,240.0	5,728.5

1/ County and municipal included with State.

2/ Data not available.

Table VI. --Net volume of live saw timber and growing stock on commercial forest land, by species, Tennessee, 1948-50

Species	Saw timber	Growing stock
	Million bd. ft.	Million cu. ft.
Softwoods:		
Longleaf and slash pines	...	...
Shortleaf and loblolly pines	1,240.6	392.0
Other southern yellow pines	886.5	297.6
Spruce and balsam fir	...	...
White and red pines	244.0	53.2
Jack pine	...	...
Hemlock	261.6	53.7
Cypress	249.7	49.4
Other eastern softwoods	132.4	80.3
Total	3,014.8	926.2
Hardwoods:		
White oaks (Q. alba and prinus)	1,834.6	671.0
Red oaks (Q. borealis and falcata var. pagodaefolia)	503.6	147.2
Other white oaks	1,374.0	537.7
Other red oaks	3,375.0	1,136.1
Yellow birch	...	...
Sugar maple	159.0	71.1
Soft maples	181.6	97.5
Beech	351.1	96.6
Sweetgum	562.0	201.3
Tupelo and blackgum	465.7	156.6
Ash	205.6	88.6
Hickory	1,652.9	683.3
Cottonwood and aspen	79.4	18.4
Basswood	79.7	23.2
Yellow-poplar	1,135.0	370.0
Black walnut	184.6	72.3
Other eastern hardwoods	1,081.4	431.4
Total	13,225.2	4,802.3
All species	16,240.0	5,728.5

Table VII.--Net volume of live saw timber on commercial forest land, by diameter class groups and species, Tennessee, 1948-50

Species	Diameter class groups						Total
	10 inches	12 inches	14 inches	16 inches	18 inches	20 inches and up	
	Million board feet						
Southern yellow pines	681.0	582.7	439.9	221.6	106.1	95.8	2,127.1
White and red pines	27.5	37.3	37.1	27.6	29.2	85.3	244.0
Other eastern softwoods	77.8	105.3	81.0	71.2	62.2	246.2	643.7
White oaks (Q. alba and prinus)	...	462.2	395.4	268.9	249.6	458.5	1,834.6
Other white oaks	...	329.1	315.4	222.0	165.0	342.5	1,374.0
Red oaks (Q. borealis and falcata var. pagodaefolia)	...	81.9	89.7	113.1	67.5	151.4	503.6
Other red oaks	...	732.7	676.9	590.6	449.4	925.4	3,375.0
Yellow birch	...	...	...	...	...	...	...
Sugar maple	...	31.7	31.1	37.3	10.5	48.4	159.0
Beech	...	26.0	28.5	53.0	65.6	178.0	351.1
Sweetgum	...	126.3	118.4	98.2	94.9	124.2	562.0
Tupelo and blackgum	...	98.6	99.6	90.8	54.5	122.2	465.7
Yellow-poplar	...	249.3	239.3	217.1	165.8	263.5	1,135.0
Other eastern hardwoods	...	827.2	800.7	678.4	429.2	729.7	3,465.2

Table VIII. --Net volume of all timber on commercial forest land, by class of material and species group, Tennessee, 1948-50

Class of material	Total	Softwoods	Hardwoods
	Million cubic ft.	Million cubic ft.	Million cubic ft.
Growing stock:			
Saw-timber trees:			
Sawlog portion	2,610.5	519.5	2,091.0
Upper stem portion	862.5	70.2	792.3
Total	3,473.0	589.7	2,883.3
Pole-timber trees	2,255.5	336.5	1,919.0
Total growing stock	5,728.5	926.2	4,802.3
Other material:			
Sound cull trees	786.6	26.5	760.1
Rotten cull trees	777.5	19.3	758.2
Hardwood limbs	621.3	...	621.3
Salvable dead trees	72.9	5.5	67.4
Total other material	2,258.3	51.3	2,207.0
Total, all timber	7,986.8	977.5	7,009.3

Table IX. --Net annual growth, annual mortality, and commodity drain on live saw timber and growing stock on commercial forest land, by species group, Tennessee, 1948-50

Item	Saw timber			Growing stock		
	Total	Softwoods	Hardwoods	Total	Softwoods	Hardwoods
	Million board feet			Million cubic feet		
Net annual growth	877.0	187.4	689.6	285.5	53.9	231.6
Annual mortality	97.4	18.1	79.3	41.1	6.6	34.5
Commodity drain						
Timber products	962.7	288.9	673.8	211.0	56.9	154.1
Logging waste	50.4	5.8	44.6	41.3	5.9	35.4
Total commodity drain	1,013.1	294.7	718.4	252.3	62.8	189.5

Table X. --Total output of timber products and commodity drain on live saw timber and growing stock, Tennessee, 1949

Product	Volume of products cut[1]			Commodity drain on saw timber			Commodity drain on growing stock		
	Standard unit	Number	M cu. ft.	Total	Soft-woods	Hard-woods	Total	Soft-woods	Hard-woods
				Million bd. ft.			Million cu. ft.		
Sawlogs	MBM[2]	604,449	97,076	588.5	232.5	356.0	121.4	43.9	77.5
Veneer logs and bolts	MBM[2]	12,764	1,787	14.0	.2	13.8	2.8	([5])	2.8
Cooperage logs and bolts	MBM[2]	28,183	4,056	37.8	.2	37.6	8.2	([5])	8.2
Pulpwood logs	MBM[2]	...	...	...	...	...	...	...	...
Pulpwood bolts	Std. cords[3]	158,059	12,153	11.1	5.4	5.7	7.1	3.9	3.2
Fuel wood	Std. cords[3]	1,674,000	125,610	283.2	49.3	233.9	85.7	10.5	75.2
Piling	M linear feet	41	41	.3	.1	.2	([5])	([5])	...
Poles	M pieces	88	361	2.1	2.1	...	.4	.4	...
Posts	M pieces	14,776	9,309	18.8	.3	18.5	9.4	2.5	6.9
Hewn ties	M pieces	113	793	6.0	...	6.0	1.4	...	1.4
Mine timbers	M cu. ft.	1,089	1,089	.9	.9	...	1.2	.7	.5
Miscellaneous[4]	M cu. ft.	11,188	11,188	50.4	3.7	46.7	14.7	.9	13.8
Total	...	...	263,463	1,013.1	294.7	718.4	252.3	62.8	189.5

1/ Includes material from both growing stock and other miscellaneous sources. 2/ International 1/4-inch rule. 3/ Rough wood basis. 4/ Includes chemical wood, excelsior, handle stock, shingle bolts, etc. 5/ Negligible.