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FOREST STATISTICS
FOR THE
MOUNTAIN REGION OF VIRGINIA, 1957

by

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Forest Service

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Virginia

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FOREWORD

Through the McSweeney-McNary Act of 1928, Congress authorized the Secretary of Agriculture to conduct a comprehensive survey of the forest resources of the United States. The Forest Survey was organized by the Forest Service to carry out the provisions of the Act through the Regional Forest Experiment Stations. In the southeastern states the Forest Survey is an activity of the Division of Forest Economics Research, Southeastern Forest Experiment Station, Asheville, North Carolina.

The fivefold purpose of the Forest Survey is (1) to make a field inventory of the present supply of standing timber, (2) to ascertain the rate at which this supply is being increased through growth, (3) to determine the rate at which it is being reduced through industrial and domestic uses, fire, and other causes, (4) to determine the present consumption and the probable future trend in requirements for forest products, and (5) to interpret and correlate these findings to aid in the formulation of private and public policies regarding forest land management.

ACKNOWLEDGMENTS

The Southeastern Station received material assistance on the field phase of the Survey and wishes to acknowledge this cooperation. The Virginia Division of Forestry furnished personnel and equipment for one field crew, and the pulp and paper companies listed below contributed funds through Virginia Forests, Inc., to finance a second crew.

Chesapeake Corp. of Virginia	Mead Corporation
Continental Can Company	National Container Corp. of Va.
P. H. Glatfelter Company	Union Bag-Camp Paper Corp.
Johns-Manville Products Corp.	West Virginia Pulp and Paper Co.

Personnel of the George Washington National Forest, the Jefferson National Forest, and Region 7 Timber Management Surveys cooperated in collecting field data on national forest lands. The Station also wishes to acknowledge cooperation of the Tennessee Valley Authority in conducting the field work in Russell, Smyth, and Washington Counties.

The Division of Forest Economics Research at the Southeastern Station is under the direction of J. F. McCormack. Collection of field data was supervised by Ronald C. Froelich, and aerial photo interpretation was done by W. H. B. Haines. Other staff assistance was as follows:

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Figure 1.--Counties and independent cities in the Virginia Mountain Region.

FOREST STATISTICS FOR THE MOUNTAIN REGION OF VIRGINIA, 1957

The Mountain Region of Virginia includes 31 counties in the western part of the State within the Appalachian Mountains. Its total area is a little over 9 million acres. The Blue Ridge runs the full length of the region along the eastern edge, and the Cumberlands extend into the southwestern portion where the State borders on Kentucky. Much of the region is made up of valleys and numerous small ridges forming the headwaters of several major rivers. The region is more than half forested, but such sections as the Shenandoah Valley and the Winchester area are well known for their livestock farms, apple orchards, and other agriculture. For purposes of analysis the Mountain Region is divided near Roanoke into northern and southern subregions known as Survey Units 4 and 5, respectively (fig. 1).

Late in the spring of 1956, a forest resource survey of Virginia was begun to obtain current statistics on forest area, timber volume, and timber growth and cut. The survey was started in the coastal plain and progressed through the piedmont to the mountains, where the field work was completed in June 1957. This is the final progress report to be issued by physiographic region. A statistical report for the entire State will be published later this year.

During 1940, a similar survey was made of Virginia's forest resources. Certain comparisons of area and volume determined by the two surveys are presented in the next few pages to point out changes that have occurred during the 17-year period.

THE PRESENT FOREST SITUATION AND RECENT CHANGES

Land-use pattern has changed materially.--Total forest area has increased by 650,000 acres, or 13 percent, in the Virginia mountains since 1940 (fig. 2). During that period the land actively cultivated

Figure 2.--Comparison of land areas by class of use, 1940 and 1957.

in field crops and orchards dropped 860,000 acres to a little less than half the former area. Some of this land has been converted to improved pasture, while other areas are idle or abandoned and gradually reverting to forest. A more strict interpretation of the definition for nonproductive forest land on national forests is the principal reason for a buildup of almost 60 percent in area of noncommercial forest. Some extremely steep slopes and heads of drains were added to this classification because harvesting of timber would subject the land to excessive erosion and increase the occurrence of land slides. Expansion of the system of highways, spreading urban areas, and suburban development accounted for an increase of nearly 3⁵ percent in non-forest and nonagricultural land uses.

Forest ownership pattern little changed since 1940.--Forest area by class of ownership apparently has changed only slightly in the past 17 years, but differences in sources of ownership data for the two surveys make precise comparisons impossible. Comparison of Census of Agriculture figures shows a small increase (3 percent) in farm woodland area between 1939 and 1954. Few significant changes in public ownership have taken place during recent years in the Virginia mountains.

The resurvey reveals that approximately one-half of the commercial forest land is on farms (fig. 3). Wood-using industries hold only one percent of the commercial forest, and miscellaneous other private owners have 27 percent. The latter group owns one-third of the commercial forest land in the southern subregion, where mining companies have large holdings. National forests account for 22 percent of the commercial forest land and one percent is in State, county, or municipal ownership. More than two-thirds of the national forest land is in the northern subregion, where about 35 percent of the forest land is in public ownership.

Figure 3.--Ownership of commercial forest land, 1957.

Proportion of area in hardwood types has increased.--The hardwood types, which predominated with 77 percent of the commercial forest area in 1940, have spread to 82 percent in 1957. The Virginia pine type has almost doubled in area during the past 17 years, but the white pine-hemlock type has dropped about one-half and the shortleaf pine type (including pitch and Table-Mountain pine) has decreased by one-fourth (fig. 4). The net change in area of softwood types amounted to a drop of 11 percent, while hardwood types expanded 16 percent. This may have resulted as much from increased stocking of hardwoods in mixed stands as from the removal of softwoods from such stands by cutting. Comparisons were made using 1940 forest type definitions, which included pine-hardwood types with pine types.

Figure 4.--Change in commercial forest area by forest type, 1940 to 1957.

Volume of each species group increased between surveys.--Cubic volume of sound trees 5.0 inches d.b.h. or larger increased in all four of the broad groups of species. Yellow pines made the modest climb of 8 percent, while other softwoods increased 49 percent, soft hardwoods 79 percent, and hard hardwoods 40 percent (table A). Closer examination

of the yellow-pine data reveals that the increase was all in Virginia pine, amounting to 38 percent, as the other yellow pines decreased 4 percent. An encouraging detail in the hardwood situation is the rapid expansion of yellow-poplar growing stock. Cubic volume of that species has more than doubled in the past 17 years. It now makes up over half of the soft hardwood volume, compared to about 43 percent in 1940.

Table A.--Comparison of volumes^{1/} in all trees 5.0 inches d.b.h. or larger, 1940 and 1957

Class of material and species group	1940	1957	Change	
	<u>Million cu. ft.</u>	<u>Million cu. ft.</u>	<u>Million cu. ft.</u>	<u>Percent</u>
Growing stock:				
Yellow pines	236	255	+19	+8
Other softwoods	132	197	+65	+49
Soft hardwoods	303	542	+239	+79
Hard hardwoods	1,495	2,089	+594	+40
All species	2,166	3,083	+917	+42
All live trees:				
Softwoods	418	573	+155	+37
Hardwoods	2,466	3,856	+1,390	+56
All live trees	2,884	4,429	+1,545	+54

^{1/} Species computation procedures have been used to eliminate differences resulting from changes in standards and definitions between surveys. Thus, estimates shown will not agree with other published figures.

Figure 5 points out the volume supremacy of hardwoods over softwoods in the Mountain Region and shows the rapid gain made by hardwoods in recent years. Enormous volume increases occurred in hardwood poletimber, and a fairly large gain extended up through the 18-inch diameter class. Only slight decreases appear in the larger diameters. Softwood growing stock changed little except for a moderate increase in the smaller diameters.

Figure 5.--Comparison of growing stock volume by tree diameter, 1940 and 1957.

Sawtimber volume is 26 percent above the 1940 level.--All the major species of the Virginia Mountain Region have increased in board-foot volume since 1940. The increase ranged from 2 percent in yellow pines to 84 percent for yellow-poplar, with an overall change of 26 percent (table B).

Table B.--Comparison of sawtimber volumes, 1940 and 1957^{1/}

Species group	1940	1957	Change	
	<u>Million bd.-ft.</u>	<u>Million bd.-ft.</u>	<u>Million bd.-ft.</u>	<u>Percent</u>
Yellow pines	613	625	+12	+2
White pine	353	425	+72	+20
Oaks	3,285	3,761	+476	+14
Yellow-poplar	463	854	+391	+84
Other species	1,761	2,517	+756	+43
Total	6,475	8,182	+1,707	+26

^{1/} See footnote 1, table A.

The average sound-tree volume per acre of commercial forest land now runs 1,726 board-feet, 645 cubic feet, or 8.8 cords in the Mountain Region. Average volumes vary by ownership from 710 cubic feet per acre on public lands to 641 on farms and 600 on other private ownerships. The softwood component in the stands is 22 percent of total cubic volume on public lands, 12 percent on farms, and 13 percent on other private lands.

Nine-tenths of the annual volume increase is in hardwoods.--The net increase in cubic-foot volume of growing stock is about 2.4 percent per year, with nine-tenths of the volume gain in hardwoods (table 21). Annual growth after reduction for mortality amounts to more than twice the present rate of cutting. The ratio of growth to cut, however, is far less favorable in the species and sizes in demand commercially. Much of the volume increase is in trees that are small, of poor quality, or of species with little value.

Table 1.--Gross area^{1/} by broad use class, 1957

Class of use	Area					
	Mountain Region		Northern subregion		Southern subregion	
	<u>Thousand acres</u>	<u>Percent</u>	<u>Thousand acres</u>	<u>Percent</u>	<u>Thousand acres</u>	<u>Percent</u>
Forest land:						
Commercial	5,143.0	56.4	2,398.0	55.7	2,745.0	57.0
Noncommercial:						
Productive-reserved	117.6	1.3	103.4	2.4	14.2	0.3
Unproductive	345.9	3.8	275.2	6.4	70.7	1.4
Total forest	5,606.5	61.5	2,776.6	64.5	2,829.9	58.7
Nonforest land:						
Agriculture	3,217.3	35.3	1,384.7	32.1	1,832.6	38.1
Urban and other ^{2/}	267.9	2.9	136.5	3.2	131.4	2.7
Total nonforest	3,485.2	38.2	1,521.2	35.3	1,964.0	40.8
Total land area	9,091.7	99.7	4,297.8	99.8	4,793.9	99.5
Total water area ^{3/}	30.8	0.3	8.1	0.2	22.7	0.5
All classes	9,122.5	100.0	4,305.9	100.0	4,816.6	100.0

^{1/} From U. S. Bureau of the Census, 1950.

^{2/} Includes urban, suburban residential, and rural industrial areas, rights-of-way, cemeteries, schools, etc.

^{3/} Includes 19,800 acres of water reported by the U. S. Bureau of the Census in 1950 and 11,000 acres reported as land by the Bureau of the Census but defined as water by Forest Survey.

Table 2.--Ownership of commercial forest land, 1957

Class of ownership	Commercial forest land					
	Mountain Region		Northern subregion		Southern subregion	
	<u>Thousand acres</u>	<u>Percent</u>	<u>Thousand acres</u>	<u>Percent</u>	<u>Thousand acres</u>	<u>Percent</u>
Public land:						
National forest	1,114.3	21.6	799.1	33.3	315.2	11.5
Indian	--	--	--	--	--	--
Other Federal	3.1	0.1	1.8	0.1	1.3	(1/)
Total Federal	1,117.4	21.7	800.9	33.4	316.5	11.5
State	26.3	0.5	7.2	0.3	19.1	0.7
County and municipal	28.2	0.6	23.3	1.0	4.9	0.2
Total public	1,171.9	22.8	831.4	34.7	340.5	12.4
Private land:						
Farm	2,554.1	49.6	1,089.8	45.4	1,464.3	53.3
Wood-using industries	39.2	0.8	4.1	0.2	35.1	1.3
Other	1,377.8	26.8	472.7	19.7	905.1	33.0
Total private	3,971.1	77.2	1,566.6	65.3	2,404.5	87.6
All classes	5,143.0	100.0	2,398.0	100.0	2,745.0	100.0

1/ Less than 0.05 percent.

Table 3.--Commercial forest area by forest type and stand-size class, 1957

(In thousand acres)

MOUNTAIN REGION

Forest type ^{1/}	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Shortleaf pine	20.0	86.1	217.5	55.4	4.0	383.0
Virginia pine	--	36.1	155.5	51.0	16.9	259.5
White pine	34.2	29.4	24.2	3.9	4.0	95.7
Total	54.2	151.6	397.2	110.3	24.9	738.2
Hardwood types:						
Oak-pine	14.7	40.9	187.0	39.0	--	281.6
Maple-beech-birch	20.4	10.0	14.8	--	2.8	48.0
Oak-hickory	858.2	757.6	1,858.0	435.3	114.4	4,023.5
Oak-gum-cypress	18.5	--	11.0	11.0	11.2	51.7
Total	911.8	808.5	2,070.8	485.3	128.4	4,404.8
All types	966.0	960.1	2,468.0	595.6	153.3	5,143.0
Percent	18.8	18.6	48.0	11.6	3.0	100.0

NORTHERN SUBREGION

Softwood types:						
Shortleaf pine	14.0	53.3	153.8	25.1	4.0	250.2
Virginia pine	--	27.5	100.9	32.3	12.5	173.2
White pine	22.4	11.0	6.4	--	--	39.8
Total	36.4	91.8	261.1	57.4	16.5	463.2
Hardwood types:						
Oak-pine	11.4	13.0	148.0	21.6	--	194.0
Maple-beech-birch	5.3	--	3.6	--	--	8.9
Oak-hickory	330.7	399.2	805.7	129.3	42.8	1,707.7
Oak-gum-cypress	13.9	--	3.4	3.4	3.5	24.2
Total	361.3	412.2	960.7	154.3	46.3	1,934.8
All types	397.7	504.0	1,221.8	211.7	62.8	2,398.0
Percent	16.6	21.0	51.0	8.8	2.6	100.0

SOUTHERN SUBREGION

Softwood types:						
Shortleaf pine	6.0	32.8	63.7	30.3	--	132.8
Virginia pine	--	8.6	54.6	18.7	4.4	86.3
White pine	11.8	18.4	17.8	3.9	4.0	55.9
Total	17.8	59.8	136.1	52.9	8.4	275.0
Hardwood types:						
Oak-pine	3.3	27.9	39.0	17.4	--	87.6
Maple-beech-birch	15.1	10.0	11.2	--	2.8	39.1
Oak-hickory	527.5	358.4	1,052.3	306.0	71.6	2,315.8
Oak-gum-cypress	4.6	--	7.6	7.6	7.7	27.5
Total	550.5	396.3	1,110.1	331.0	82.1	2,470.0
All types	568.3	456.1	1,246.2	383.9	90.5	2,745.0
Percent	20.7	16.6	45.4	14.0	3.3	100.0

^{1/} See description of forest type and stand-size class under "Definition of Terms."

Table 4.--Net volume^{1/} of sawtimber by species and stand-size class,
Mountain Region, 1957
(In million board-feet)

Species ^{2/}	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwoods:						
Shortleaf pine	93.2	247.2	209.7	16.1	3.5	569.7
Virginia pine	19.3	95.8	60.0	0.4	--	175.5
Total	112.5	343.0	269.7	16.5	3.5	745.2
White pine	236.2	152.1	37.1	2.6	--	428.0
Hemlock	342.7	39.3	10.7	--	--	392.7
Redcedar	--	21.6	2.1	--	--	23.7
Total sftwds.	691.4	556.0	319.6	19.1	3.5	1,589.6
Hardwoods:						
Blackgum	70.9	50.2	18.5	3.2	0.6	143.4
Yellow-poplar	552.3	224.7	83.6	7.8	--	868.4
Soft maple	71.1	37.5	23.6	5.2	--	137.4
Basswood-cucumber	179.6	71.8	32.6	1.9	--	285.9
Other soft hwdws.	150.9	17.8	35.2	--	2.4	206.3
Total	1,024.8	402.0	193.5	18.1	3.0	1,641.4
White oak	356.2	291.4	151.5	7.4	1.9	808.4
Other white oaks	657.8	398.8	269.8	17.8	6.3	1,350.5
Northern red oak	550.1	186.2	76.0	0.4	--	812.7
Other red oaks	557.7	405.8	194.4	13.3	6.6	1,177.8
Hickory	549.6	222.9	120.5	29.1	1.4	923.5
Ash	40.2	11.9	12.2	--	--	64.3
Hard maple	105.9	36.2	14.7	2.7	--	159.5
Black walnut	48.3	36.1	11.6	2.3	2.2	100.5
Other hard hwdws.	154.1	48.5	33.9	1.5	9.5	247.5
Total	3,019.9	1,637.8	884.6	74.5	27.9	5,644.7
Total hwdws.	4,044.7	2,039.8	1,078.1	92.6	30.9	7,286.1
All species	4,736.1	2,595.8	1,397.7	111.7	34.4	8,875.7
Percent	53.4	29.2	15.7	1.3	0.4	100.0

^{1/} Log scale, International 1/4-inch rule.

^{2/} See "Definition of Terms" for species combined with others.

Table 5.--Net volume^{1/} of sawtimber by species and diameter class,
Mountain Region, 1957

Species	10-12 inches ^{2/}	14-18 inches	20-24 inches	26+ inches	All diameters	
	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Percent</u>
Softwoods:						
Shortleaf pine	299.5	226.1	44.1	--	569.7	6.4
Virginia pine	148.7	23.4	3.4	--	175.5	2.0
Total	448.2	249.5	47.5	--	745.2	8.4
White pine	141.1	174.2	105.3	7.4	428.0	4.8
Hemlock	43.2	75.3	95.7	178.5	392.7	4.4
Redcedar	17.7	6.0	--	--	23.7	0.3
Total sftwds.	650.2	505.0	248.5	185.9	1,589.6	17.9
Hardwoods:						
Blackgum	24.0	74.7	32.7	12.0	143.4	1.6
Yellow-poplar	196.3	472.5	140.6	59.0	868.4	9.8
Soft maple	51.4	67.7	18.3	--	137.4	1.6
Basswood-cucumber	72.5	182.0	31.4	--	285.9	3.2
Other soft hwdws.	35.6	104.2	44.6	21.9	206.3	2.3
Total	379.8	901.1	267.6	92.9	1,641.4	18.5
White oak	169.0	432.5	171.8	35.1	808.4	9.1
Other white oaks	319.9	674.0	273.4	83.2	1,350.5	15.2
Northern red oak	108.8	419.2	219.3	65.4	812.7	9.2
Other red oaks	334.0	644.3	149.3	50.2	1,177.8	13.3
Hickory	234.0	522.1	132.6	34.8	923.5	10.4
Ash	18.5	37.7	8.1	--	64.3	0.7
Hard maple	26.2	86.8	27.2	19.3	159.5	1.8
Black walnut	24.2	68.6	7.7	--	100.5	1.1
Other hard hwdws.	49.9	131.8	58.4	7.4	247.5	2.8
Total	1,284.5	3,017.0	1,047.8	295.4	5,644.7	63.6
Total hwdws.	1,664.3	3,918.1	1,315.4	388.3	7,286.1	82.1
All species	2,314.5	4,423.1	1,563.9	574.2	8,875.7	100.0
Percent	26.1	49.8	17.6	6.5	100.0	--

^{1/} Log scale, International 1/4-inch rule.

^{2/} Ten-inch hardwoods are not included since they are below sawtimber size.

Table 5a.--Net volume^{1/} of sawtimber by species and diameter class,
northern subregion, 1957

Species	10-12 inches ^{2/}	14-18 inches	20-24 inches	26+ inches	All diameters	
	Million bd.-ft.	Million bd.-ft.	Million bd.-ft.	Million bd.-ft.	Million bd.-ft.	Percent
Softwoods:						
Shortleaf pine	210.1	126.3	29.1	--	365.5	8.3
Virginia pine	105.5	18.0	3.4	--	126.9	2.9
Total	315.6	144.3	32.5	--	492.4	11.2
White pine	64.6	120.5	58.2	7.4	250.7	5.7
Hemlock	13.8	38.8	35.1	106.5	194.2	4.5
Redcedar	--	--	--	--	--	--
Total sftwds.	394.0	303.6	125.8	113.9	937.3	21.4
Hardwoods:						
Blackgum	6.7	20.8	12.1	12.0	51.6	1.2
Yellow-poplar	62.2	207.9	20.3	17.0	307.4	7.0
Soft maple	25.5	10.8	6.3	--	42.6	0.9
Basswood-cucumber	17.9	25.6	9.7	--	53.2	1.2
Other soft hwdws.	12.5	51.8	22.5	--	86.8	2.0
Total	124.8	316.9	70.9	29.0	541.6	12.3
White oak	98.1	287.4	108.0	18.8	512.3	11.7
Other white oaks	231.3	456.4	175.8	64.8	928.3	21.2
Northern red oak	39.4	161.1	69.2	6.7	276.4	6.3
Other red oaks	184.6	308.9	89.4	24.6	607.5	13.9
Hickory	103.9	243.9	51.7	--	399.5	9.1
Ash	6.6	18.0	--	--	24.6	0.6
Hard maple	9.6	41.5	5.6	--	56.7	1.3
Black walnut	17.1	33.5	--	--	50.6	1.1
Other hard hwdws.	11.4	36.9	--	--	48.3	1.1
Total	702.0	1,587.6	499.7	114.9	2,904.2	66.3
Total hwdws.	826.8	1,904.5	570.6	143.9	3,445.8	78.6
All species	1,220.8	2,208.1	696.4	257.8	4,383.1	100.0
Percent	27.8	50.4	15.9	5.9	100.0	--

^{1/} Log scale, International 1/4-inch rule.

^{2/} Ten-inch hardwoods are not included since they are below sawtimber size.

Table 5b.--Net volume^{1/} of sawtimber by species and diameter class,
southern subregion, 1957

Species	10-12 inches ^{2/}	14-18 inches	20-24 inches	26+ inches	All diameters	
	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Million</u> <u>bd.-ft.</u>	<u>Percent</u>
Softwoods:						
Shortleaf pine	89.4	99.8	15.0	--	204.2	4.5
Virginia pine	43.2	5.4	--	--	48.6	1.1
Total	132.6	105.2	15.0	--	252.8	5.6
White pine	76.5	53.7	47.1	--	177.3	4.0
Hemlock	29.4	36.5	60.6	72.0	198.5	4.4
Redcedar	17.7	6.0	--	--	23.7	0.5
Total sftwds.	256.2	201.4	122.7	72.0	652.3	14.5
Hardwoods:						
Blackgum	17.3	53.9	20.6	--	91.8	2.0
Yellow-poplar	134.1	264.6	120.3	42.0	561.0	12.5
Soft maple	25.9	56.9	12.0	--	94.8	2.1
Basswood-cucumber	54.6	156.4	21.7	--	232.7	5.2
Other soft hdwds.	23.1	52.4	22.1	21.9	119.5	2.7
Total	255.0	584.2	196.7	63.9	1,099.8	24.5
White oak	70.9	145.1	63.8	16.3	296.1	6.6
Other white oaks	88.6	217.6	97.6	18.4	422.2	9.4
Northern red oak	69.4	258.1	150.1	58.7	536.3	11.9
Other red oaks	149.4	335.4	59.9	25.6	570.3	12.7
Hickory	130.1	278.2	80.9	34.8	524.0	11.7
Ash	11.9	19.7	8.1	--	39.7	0.9
Hard maple	16.6	45.3	21.6	19.3	102.8	2.3
Black walnut	7.1	35.1	7.7	--	49.9	1.1
Other hard hdwds.	38.5	94.9	58.4	7.4	199.2	4.4
Total	582.5	1,429.4	548.1	180.5	2,740.5	61.0
Total hdwds.	837.5	2,013.6	744.8	244.4	3,840.3	85.5
All species	1,093.7	2,215.0	867.5	316.4	4,492.6	100.0
Percent	24.4	49.3	19.3	7.0	100.0	--

^{1/} Log scale, International 1/4-inch rule.

^{2/} Ten-inch hardwoods are not included since they are below sawtimber size.

Table 6.--Net volume^{1/} of sawtimber by forest type and stand-size class, 1957
(In million board-feet)

MOUNTAIN REGION						
Forest type	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Shortleaf pine	57.9	224.6	130.8	8.1	--	421.4
Virginia pine	--	114.3	68.6	0.4	--	183.3
White pine	421.2	88.1	11.3	--	--	520.6
Total	479.1	427.0	210.7	8.5	--	1,125.3
Hardwood types:						
Oak-pine	63.3	85.2	89.5	1.0	--	239.0
Maple-beech-birch	64.0	19.1	5.7	--	0.2	89.0
Oak-hickory	4,039.5	2,064.5	1,090.8	102.2	34.2	7,331.2
Oak-gum-cypress	90.2	--	1.0	--	--	91.2
Total	4,257.0	2,168.8	1,187.0	103.2	34.4	7,750.4
All types	4,736.1	2,595.8	1,397.7	111.7	34.4	8,875.7
Percent	53.4	29.2	15.7	1.3	0.4	100.0
NORTHERN SUBREGION						
Softwood types:						
Shortleaf pine	35.4	127.2	95.4	3.5	--	261.5
Virginia pine	--	90.9	45.1	0.4	--	136.4
White pine	267.5	28.6	2.4	--	--	298.5
Total	302.9	246.7	142.9	3.9	--	696.4
Hardwood types:						
Oak-pine	49.2	27.4	74.3	1.0	--	151.9
Maple-beech-birch	9.7	--	--	--	--	9.7
Oak-hickory	1,699.5	1,126.9	573.6	46.7	9.0	3,455.7
Oak-gum-cypress	68.4	--	1.0	--	--	69.4
Total	1,826.8	1,154.3	648.9	47.7	9.0	3,686.7
All types	2,129.7	1,401.0	791.8	51.6	9.0	4,383.1
Percent	48.6	31.9	18.1	1.2	0.2	100.0
SOUTHERN SUBREGION						
Softwood types:						
Shortleaf pine	22.5	97.4	35.4	4.6	--	159.9
Virginia pine	--	23.4	23.5	--	--	46.9
White pine	153.7	59.5	8.9	--	--	222.1
Total	176.2	180.3	67.8	4.6	--	428.9
Hardwood types:						
Oak-pine	14.1	57.8	15.2	--	--	87.1
Maple-beech-birch	54.3	19.1	5.7	--	0.2	79.3
Oak-hickory	2,340.0	937.6	517.2	55.5	25.2	3,875.5
Oak-gum-cypress	21.8	--	--	--	--	21.8
Total	2,430.2	1,014.5	538.1	55.5	25.4	4,063.7
All types	2,606.4	1,194.8	605.9	60.1	25.4	4,492.6
Percent	58.0	26.6	13.5	1.3	0.6	100.0

^{1/} Log scale, International 1/4-inch rule.

Table 7.--Net volume of sawtimber by species group, log grade, and tree-size class, Mountain Region, 1957

YELLOW PINES						
Log grade	10 - 14 inches ^{1/}		16+ inches		All trees	
	Million bd.-ft.	Percent	Million bd.-ft.	Percent	Million bd.-ft.	Percent
Grade 1	--	--	--	--	--	--
Grade 2	10.6	1.8	61.0	38.3	71.6	9.6
Grade 3	472.1	80.6	62.4	39.1	534.5	71.7
Grade 4	103.1	17.6	36.0	22.6	139.1	18.7
Total	585.8	100.0	159.4	100.0	745.2	100.0

OTHER SOFTWOODS						
Grade 1	--	--	29.3	5.3	29.3	3.5
Grade 2	--	--	34.2	6.2	34.2	4.0
Grade 3	249.0	85.2	379.3	68.7	628.3	74.4
Grade 4	43.3	14.8	109.3	19.8	152.6	18.1
Total	292.3	100.0	552.1	100.0	844.4	100.0

SOFT HARDWOODS						
Grade 1	--	--	85.3	9.7	85.3	5.2
Grade 2	75.3	9.9	223.5	25.4	298.8	18.2
Grade 3	112.0	14.7	115.3	13.1	227.3	13.8
Grade 4	574.2	75.4	455.8	51.8	1,030.0	62.8
Total	761.5	100.0	879.9	100.0	1,641.4	100.0

HARD HARDWOODS						
Grade 1	--	--	655.9	21.4	655.9	11.6
Grade 2	105.8	4.1	493.5	16.1	599.3	10.6
Grade 3	389.5	15.1	655.9	21.4	1,045.4	18.5
Grade 4	2,084.5	80.8	1,259.6	41.1	3,344.1	59.3
Total	2,579.8	100.0	3,064.9	100.0	5,644.7	100.0

^{1/} Ten-inch hardwoods are not included since they are below sawtimber size.

Table 8.--Net volume^{1/} of all timber by species and stand-size class,
Mountain Region, 1957
(In thousand cords)

GROWING STOCK						
Species	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwoods:						
Shortleaf pine	261	953	1,267	66	33	2,580
Virginia pine	101	425	1,041	5	6	1,578
Total	362	1,378	2,308	71	39	4,158
White pine	479	590	189	17	1	1,276
Hemlock	665	191	63	--	--	919
Redcedar	3	78	64	--	--	145
Total sftwds.	1,509	2,237	2,624	88	40	6,498
Hardwoods:						
Blackgum	226	198	177	30	2	633
Yellow-poplar	1,714	932	1,057	31	1	3,735
Soft maple	414	228	374	19	--	1,035
Basswood-cucumber	589	293	294	5	--	1,181
Other soft hwdws.	453	149	376	--	10	988
Total	3,396	1,800	2,278	85	13	7,572
White oak	1,151	1,504	1,389	37	6	4,087
Other white oaks	2,293	2,474	3,203	63	23	8,056
Northern red oak	1,632	745	896	44	--	3,317
Other red oaks	2,047	1,901	3,047	70	24	7,089
Hickory	2,197	1,105	1,317	107	5	4,731
Ash	256	141	93	--	--	490
Hard maple	374	237	143	10	1	765
Black walnut	154	156	159	49	8	526
Dogwood, holly	37	12	36	5	--	90
Other hard hwdws.	725	297	536	34	31	1,623
Total	10,866	8,572	10,819	419	98	30,774
Total hwdws.	14,262	10,372	13,097	504	111	38,346
All species	15,771	12,609	15,721	592	151	44,844
Percent	35.2	28.1	35.1	1.3	0.3	100.0
OTHER MATERIAL						
Sound culls:						
Softwoods	57	147	709	90	49	1,052
Hardwoods	3,267	2,269	5,662	759	336	12,293
Rotten culls	496	365	504	83	11	1,459
Total other material	3,820	2,781	6,875	932	396	14,804

^{1/} Sound wood and bark.

Table 9.--Net volume^{1/} of all timber by species and diameter class,
Mountain Region, 1957
(In thousand cords)

GROWING STOCK							
Species	Diameter class						All diameters
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20+ inches	
Softwoods:							
Shortleaf pine	242	516	550	542	631	99	2,580
Virginia pine	462	553	300	193	62	8	1,578
Total	704	1,069	850	735	693	107	4,158
White pine	104	246	172	199	360	195	1,276
Hemlock	36	97	54	84	174	474	919
Redcedar	62	34	25	14	10	--	145
Total sftwds.	906	1,446	1,101	1,032	1,237	776	6,498
Hardwoods:							
Blackgum	71	66	69	94	232	101	633
Yellow-poplar	373	550	623	566	1,197	426	3,735
Soft maple	240	189	182	183	194	47	1,035
Basswood-cucumber	103	100	237	206	465	70	1,181
Other soft hwdws.	60	188	168	136	288	148	988
Total	847	1,093	1,279	1,185	2,376	792	7,572
White oak	428	715	583	601	1,231	529	4,087
Other white oaks	1,264	1,525	1,178	1,176	1,977	936	8,056
Northern red oak	391	396	300	368	1,160	702	3,317
Other red oaks	1,050	1,333	1,257	1,128	1,835	486	7,089
Hickory	471	789	825	783	1,469	394	4,731
Ash	44	91	166	61	108	20	490
Hard maple	67	159	79	94	249	117	765
Black walnut	52	60	111	87	197	19	526
Dogwood, holly	67	23	--	--	--	--	90
Other hard hwdws.	334	236	315	186	378	174	1,623
Total	4,168	5,327	4,814	4,484	8,604	3,377	30,774
Total hwdws.	5,015	6,420	6,093	5,669	10,980	4,169	38,346
All species	5,921	7,866	7,194	6,701	12,217	4,945	44,844
Percent	13.2	17.5	16.0	15.0	27.3	11.0	100.0
OTHER MATERIAL							
Sound culls:							
Softwoods	218	232	269	164	116	53	1,052
Hardwoods	1,553	1,567	1,699	1,338	3,345	2,791	12,293
Rotten culls	153	173	257	56	320	500	1,459
Total other material	1,924	1,972	2,225	1,558	3,781	3,344	14,804

^{1/} Sound wood and bark.

Table 9a.--Net volume^{1/} of all timber by species and diameter class,
northern subregion, 1957
(In thousand cords)

GROWING STOCK							
Species	Diameter class						All diameters
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20+ inches	
Softwoods:							
Shortleaf pine	177	427	400	365	354	65	1,788
Virginia pine	346	350	208	138	48	8	1,098
Total	523	777	608	503	402	73	2,886
White pine	43	97	73	99	245	113	670
Hemlock	20	27	9	33	91	235	415
Redcedar	17	28	--	--	--	--	45
Total sftwds.	603	929	690	635	738	421	4,016
Hardwoods:							
Blackgum	38	38	40	26	66	53	261
Yellow-poplar	52	69	131	185	527	79	1,043
Soft maple	60	90	145	90	31	16	432
Basswood-cucumber	11	31	30	50	70	22	214
Other soft hwdws.	43	69	69	48	139	54	422
Total	204	297	415	399	833	224	2,372
White oak	251	403	378	350	817	324	2,523
Other white oaks	823	949	751	853	1,340	631	5,347
Northern red oak	221	198	217	134	452	189	1,411
Other red oaks	614	880	768	612	895	277	4,046
Hickory	239	356	251	348	684	125	2,003
Ash	23	54	92	23	50	--	242
Hard maple	26	62	40	34	122	15	299
Black walnut	24	21	55	61	94	--	255
Dogwood, holly	24	--	--	--	--	--	24
Other hard hwdws.	100	9	100	43	107	--	359
Total	2,345	2,932	2,652	2,458	4,561	1,561	16,509
Total hwdws.	2,549	3,229	3,067	2,857	5,394	1,785	18,881
All species	3,152	4,158	3,757	3,492	6,132	2,206	22,897
Percent	13.8	18.2	16.4	15.2	26.8	9.6	100.0

OTHER MATERIAL							
Sound culls:							
Softwoods	135	132	178	95	73	14	627
Hardwoods	831	718	762	676	1,712	1,173	5,872
Rotten culls	93	102	65	30	116	167	573
Total other material	1,059	952	1,005	801	1,901	1,354	7,072

^{1/} Sound wood and bark.

Table 9b.--Net volume^{1/} of all timber by species and diameter class,
southern subregion, 1957
(In thousand cords)

Species	Diameter class						All diameters
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20+ inches	
Softwoods:							
Shortleaf pine	65	89	150	177	277	34	792
Virginia pine	116	203	92	55	14	--	480
Total	181	292	242	232	291	34	1,272
White pine	61	149	99	100	115	82	606
Hemlock	16	70	45	51	83	239	504
Redcedar	45	6	25	14	10	--	100
Total sftwds.	303	517	411	397	499	355	2,482
Hardwoods:							
Blackgum	33	28	29	68	166	48	372
Yellow-poplar	321	481	492	381	670	347	2,692
Soft maple	180	99	37	93	163	31	603
Basswood-cucumber	92	69	207	156	395	48	967
Other soft hwdws.	17	119	99	88	149	94	566
Total	643	796	864	786	1,543	568	5,200
White oak	177	312	205	251	414	205	1,564
Other white oaks	441	576	427	323	637	305	2,709
Northern red oak	170	198	83	234	708	513	1,906
Other red oaks	436	453	489	516	940	209	3,043
Hickory	232	433	574	435	785	269	2,728
Ash	21	37	74	38	58	20	248
Hard maple	41	97	39	60	127	102	466
Black walnut	28	39	56	26	103	19	271
Dogwood, holly	43	23	--	--	--	--	66
Other hard hwdws.	234	227	215	143	271	174	1,264
Total	1,823	2,395	2,162	2,026	4,043	1,816	14,265
Total hwdws.	2,466	3,191	3,026	2,812	5,586	2,384	19,465
All species	2,769	3,708	3,437	3,209	6,085	2,739	21,947
Percent	12.6	16.9	15.7	14.6	27.7	12.5	100.0
OTHER MATERIAL							
Sound culls:							
Softwoods	83	100	91	69	43	39	425
Hardwoods	722	849	937	662	1,633	1,618	6,421
Rotten culls	60	71	192	26	204	333	886
Total other material	865	1,020	1,220	757	1,880	1,990	7,732

^{1/} Sound wood and bark.

Table 10.--Net volume^{1/} of all timber by species and class of material,
Mountain Region, 1957
(In thousand cords)

Species	Growing stock				Other material	
	Sawtimber trees		Pole-timber trees	Total sound trees	Sound culls	Rotten culls
	Saw-log portion	Upper stems				
Softwoods:						
Shortleaf pine	1,282	540	758	2,580	364	10
Virginia pine	414	149	1,015	1,578	524	10
Total	1,696	689	1,773	4,158	888	20
White pine	788	138	350	1,276	42	4
Hemlock	608	178	133	919	103	2
Redcedar	35	14	96	145	19	12
Total sftwds.	3,127	1,019	2,352	6,498	1,052	38
Hardwoods:						
Blackgum	301	126	206	633	436	50
Yellow-poplar	1,726	463	1,546	3,735	249	26
Soft maple	303	121	611	1,035	800	108
Basswood-cucumber	617	124	440	1,181	175	59
Other soft hwdws.	402	170	416	988	510	28
Total	3,349	1,004	3,219	7,572	2,170	271
White oak	1,632	729	1,726	4,087	817	85
Other white oaks	2,835	1,254	3,967	8,056	4,142	208
Northern red oak	1,622	608	1,087	3,317	703	106
Other red oaks	2,423	1,026	3,640	7,089	1,092	110
Hickory	1,875	771	2,085	4,731	762	82
Ash	134	55	301	490	64	2
Hard maple	331	129	305	765	344	79
Black walnut	214	89	223	526	77	15
Dogwood, holly	--	--	90	90	79	2
Scrub oak ^{2/}	--	--	--	--	349	23
Other hard hwdws.	529	209	885	1,623	1,694	438
Total	11,595	4,870	14,309	30,774	10,123	1,150
Total hwdws.	14,944	5,874	17,528	38,346	12,293	1,421
All species	18,071	6,893	19,880	44,844	13,345	1,459
Percent	40.3	15.4	44.3	100.0	90.1	9.9

^{1/} Sound wood and bark.

^{2/} Includes noncommercial species.

Table 10a.--Net volume^{1/} of all timber by species and class of material,
northern subregion, 1957
(In thousand cords)

Species	Growing stock				Other material	
	Sawtimber trees		Pole- timber trees	Total sound trees	Sound culls	Rotten culls
	Saw-log portion	Upper stems				
Softwoods:						
Shortleaf pine	845	339	604	1,788	239	10
Virginia pine	288	114	696	1,098	310	6
Total	1,133	453	1,300	2,886	549	16
White pine	450	80	140	670	26	--
Hemlock	300	68	47	415	34	--
Redcedar	--	--	45	45	18	12
Total sftwds.	1,883	601	1,532	4,016	627	28
Hardwoods:						
Blackgum	106	39	116	261	131	17
Yellow-poplar	621	170	252	1,043	72	11
Soft maple	94	43	295	432	215	17
Basswood - cucumber	116	26	72	214	46	4
Other soft hdwds.	169	72	181	422	146	20
Total	1,106	350	916	2,372	610	69
White oak	1,038	453	1,032	2,523	519	51
Other white oaks	1,948	876	2,523	5,347	2,618	130
Northern red oak	548	227	636	1,411	354	46
Other red oaks	1,243	541	2,262	4,046	665	59
Hickory	810	347	846	2,003	338	30
Ash	53	20	169	242	40	1
Hard maple	120	51	128	299	87	22
Black walnut	107	48	100	255	41	--
Dogwood, holly	--	--	24	24	15	--
Scrub oak ^{2/}	--	--	--	--	187	21
Other hard hdwds.	104	46	209	359	398	116
Total	5,971	2,609	7,929	16,509	5,262	476
Total hdwds.	7,077	2,959	8,845	18,881	5,872	545
All species	8,960	3,560	10,377	22,897	6,499	573
Percent	39.1	15.6	45.3	100.0	91.9	8.1

^{1/} Sound wood and bark.

^{2/} Includes noncommercial species.

Table 10b.--Net volume^{1/} of all timber by species and class of material,
southern subregion, 1957
(In thousand cords)

Species	Growing stock				Other material	
	Sawtimber trees		Pole-timber trees	Total sound trees	Sound culls	Rotten culls
	Saw-log portion	Upper stems				
Softwoods:						
Shortleaf pine	437	201	154	792	125	--
Virginia pine	126	35	319	480	214	4
Total	563	236	473	1,272	339	4
White pine	338	58	210	606	16	4
Hemlock	308	110	86	504	69	2
Redcedar	35	14	51	100	1	--
Total sftwds.	1,244	418	820	2,482	425	10
Hardwoods:						
Blackgum	195	87	90	372	305	33
Yellow-poplar	1,105	293	1,294	2,692	177	15
Soft maple	209	78	316	603	585	91
Basswood-cucumber	501	98	368	967	129	55
Other soft hdwds.	233	98	235	566	364	8
Total	2,243	654	2,303	5,200	1,560	202
White oak	594	276	694	1,564	298	34
Other white oaks	887	378	1,444	2,709	1,524	78
Northern red oak	1,074	381	451	1,906	349	60
Other red oaks	1,180	485	1,378	3,043	427	51
Hickory	1,065	424	1,239	2,728	424	52
Ash	81	35	132	248	24	1
Hard maple	211	78	177	466	257	57
Black walnut	107	41	123	271	36	15
Dogwood, holly	--	--	66	66	64	2
Scrub oak ^{2/}	--	--	--	--	162	2
Other hard hdwds.	425	163	676	1,264	1,296	322
Total	5,624	2,261	6,380	14,265	4,861	674
Total hdwds.	7,867	2,915	8,683	19,465	6,421	876
All species	9,111	3,333	9,503	21,947	6,846	886
Percent	41.5	15.2	43.3	100.0	88.5	11.5

^{1/} Sound wood and bark.

^{2/} Includes noncommercial species.

Table 11.--Net volume^{1/} of all timber by forest type and stand-size class,
Mountain Region, 1957
(In thousand cords)

GROWING STOCK						
Forest type	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Shortleaf pine	234	939	993	43	--	2,209
Virginia pine	--	525	1,083	10	7	1,625
White pine	980	457	133	5	--	1,575
Total	1,214	1,921	2,209	58	7	5,409
Hardwood types:						
Oak-pine	253	524	1,213	7	--	1,997
Maple-beech-birch	219	67	84	--	3	373
Oak-hickory	13,758	10,097	12,174	522	141	36,692
Oak-gum-cypress	327	--	41	5	--	373
Total	14,557	10,688	13,512	534	144	39,435
All types	15,771	12,609	15,721	592	151	44,844
Percent	35.2	28.1	35.1	1.3	0.3	100.0
OTHER MATERIAL						
Softwood types:						
Shortleaf pine	23	184	383	23	12	625
Virginia pine	--	75	386	45	39	545
White pine	78	96	43	--	19	236
Total	101	355	812	68	70	1,406
Hardwood types:						
Oak-pine	31	49	434	60	--	574
Maple-beech-birch	84	63	98	--	7	252
Oak-hickory	3,568	2,314	5,468	790	316	12,456
Oak-gum-cypress	36	--	63	14	3	116
Total	3,719	2,426	6,063	864	326	13,398
All types	3,820	2,781	6,875	932	396	14,804
Percent	25.8	18.8	46.4	6.3	2.7	100.0

^{1/} Sound wood and bark.

Table 11a.--Net volume^{1/} of all timber by forest type and stand-size class,
northern subregion, 1957

(In thousand cords)

GROWING STOCK

Forest type	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Shortleaf pine	149	583	775	14	--	1,521
Virginia pine	--	394	640	10	7	1,051
White pine	600	121	28	--	--	749
Total	749	1,098	1,443	24	7	3,321
Hardwood types:						
Oak-pine	212	219	985	7	--	1,423
Maple-beech-birch	46	--	10	--	--	56
Oak-hickory	5,817	5,727	5,957	260	61	17,822
Oak-gum-cypress	262	--	8	5	--	275
Total	6,337	5,946	6,960	272	61	19,576
All types	7,086	7,044	8,403	296	68	22,897
Percent	30.9	30.8	36.7	1.3	0.3	100.0

OTHER MATERIAL

Softwood types:						
Shortleaf pine	20	122	267	6	12	427
Virginia pine	--	52	246	21	25	344
White pine	61	64	--	--	--	125
Total	81	238	513	27	37	896
Hardwood types:						
Oak-pine	27	9	379	12	--	427
Maple-beech-birch	26	--	7	--	--	33
Oak-hickory	1,446	1,216	2,516	230	266	5,674
Oak-gum-cypress	36	--	--	3	3	42
Total	1,535	1,225	2,902	245	269	6,176
All types	1,616	1,463	3,415	272	306	7,072
Percent	22.9	20.7	48.3	3.8	4.3	100.0

^{1/} Sound wood and bark.

Table 11b.--Net volume^{1/} of all timber by forest type and stand-size class,
southern subregion, 1957
(In thousand cords)

GROWING STOCK						
Forest type	Large sawtimber stands	Small sawtimber stands	Pole- timber stands	Seedling & sapling stands	Poorly stocked stands & unstocked areas	All stands
Softwood types:						
Shortleaf pine	85	356	218	29	--	688
Virginia pine	--	131	443	--	--	574
White pine	380	336	105	5	--	826
Total	465	823	766	34	--	2,088
Hardwood types:						
Oak-pine	41	305	228	--	--	574
Maple-beech-birch	173	67	74	--	3	317
Oak-hickory	7,941	4,370	6,217	262	80	18,870
Oak-gum-cypress	65	--	33	--	--	98
Total	8,220	4,742	6,552	262	83	19,859
All types	8,685	5,565	7,318	296	83	21,947
Percent	39.6	25.4	33.3	1.3	0.4	100.0
OTHER MATERIAL						
Softwood types:						
Shortleaf pine	3	62	116	17	--	198
Virginia pine	--	23	140	24	14	201
White pine	17	32	43	--	19	111
Total	20	117	299	41	33	510
Hardwood types:						
Oak-pine	4	40	55	48	--	147
Maple-beech-birch	58	63	91	--	7	219
Oak-hickory	2,122	1,098	2,952	560	50	6,782
Oak-gum-cypress	--	--	63	11	--	74
Total	2,184	1,201	3,161	619	57	7,222
All types	2,204	1,318	3,460	660	90	7,732
Percent	28.5	17.0	44.8	8.5	1.2	100.0

^{1/} Sound wood and bark.

Table 12.--Net volume^{1/} of all timber by species and diameter class,
Mountain Region, 1957
(In million cubic feet)

GROWING STOCK							
Species	Diameter class						All diameters
	6 inches	8 inches	10 inches	12 inches	14-18 inches	20+ inches	
Softwoods:							
Shortleaf pine	15.9	34.4	38.2	40.7	50.8	8.3	188.3
Virginia pine	29.1	36.9	21.2	15.0	5.0	0.7	107.9
Total	45.0	71.3	59.4	55.7	55.8	9.0	296.2
White pine	7.3	18.4	13.4	16.9	31.6	18.3	105.9
Hemlock	2.8	6.6	4.4	7.2	15.7	45.9	82.6
Redcedar	4.4	2.4	1.9	1.3	0.9	--	10.9
Total sftwds.	59.5	98.7	79.1	81.1	104.0	73.2	495.6
Hardwoods:							
Blackgum	4.2	4.3	5.0	7.2	18.5	8.3	47.5
Yellow-poplar	25.0	35.7	44.5	43.1	95.3	35.3	278.9
Soft maple	16.5	11.8	13.3	13.9	15.7	3.8	75.0
Basswood-cucumber	6.3	6.4	16.6	15.9	37.3	5.8	88.3
Other soft hwdws.	4.8	11.2	12.4	10.4	23.1	12.0	73.9
Total	56.8	69.4	91.8	90.5	189.9	65.2	563.6
White oak	27.9	46.0	42.7	44.6	98.6	43.6	303.4
Other white oaks	76.6	98.8	86.0	87.8	157.8	77.8	584.8
Northern red oak	24.0	25.0	22.6	27.6	93.3	57.9	250.4
Other red oaks	63.0	86.5	92.4	84.9	144.8	40.2	511.8
Hickory	30.2	51.2	60.0	60.2	115.4	32.4	349.4
Ash	3.4	5.8	11.8	5.0	8.4	1.6	36.0
Hard maple	5.0	10.3	6.1	7.0	20.1	9.7	58.2
Black walnut	3.3	3.8	8.1	6.5	15.9	1.6	39.2
Dogwood, holly	4.1	1.5	--	--	--	--	5.6
Other hard hwdws.	26.1	14.4	23.3	13.6	30.7	14.3	122.4
Total	263.6	343.3	353.0	337.2	685.0	279.1	2,261.2
Total hwdws.	320.4	412.7	444.8	427.7	874.9	344.3	2,824.8
All species	379.9	511.4	523.9	508.8	978.9	417.5	3,320.4
Percent	11.4	15.4	15.8	15.3	29.5	12.6	100.0
OTHER MATERIAL							
Sound culls:							
Softwoods	12.7	15.7	19.0	12.7	9.5	5.0	74.6
Hardwoods	94.1	102.4	122.4	101.7	268.3	230.7	919.6
Rotten culls	10.7	13.0	17.9	7.3	24.7	41.6	115.2
Total other material	117.5	131.1	159.3	121.7	302.5	277.3	1,109.4

^{1/} Excludes bark.

Table 13.--Net volume^{1/} of all timber by species and class of material,
Mountain Region, 1957
(In million cubic feet)

Species	Growing stock				Other material	
	Sawtimber trees		Pole timber trees	Total sound trees	Sound culls	Rotten culls
	Saw-log portion	Upper stems				
Softwoods:						
Shortleaf pine	98.7	39.3	50.3	188.3	25.5	0.7
Virginia pine	31.2	10.7	66.0	107.9	35.5	0.7
Total	129.9	50.0	116.3	296.2	61.0	1.4
White pine	70.5	9.7	25.7	105.9	3.4	0.3
Hemlock	57.3	15.9	9.4	82.6	8.9	0.2
Redcedar	3.5	0.6	6.8	10.9	1.3	0.9
Total sftwds.	261.2	76.2	158.2	495.6	74.6	2.8
Hardwoods:						
Blackgum	24.5	9.5	13.5	47.5	33.9	4.1
Yellow-poplar	138.8	34.9	105.2	278.9	18.5	2.3
Soft maple	23.6	9.8	41.6	75.0	57.4	7.7
Basswood-cucumber	48.6	10.4	29.3	88.3	13.4	4.8
Other soft hwdws.	32.2	13.3	28.4	73.9	37.6	2.3
Total	267.7	77.9	218.0	563.6	160.8	21.2
White oak	129.3	57.5	116.6	303.4	63.9	6.6
Other white oaks	224.3	99.1	261.4	584.8	313.3	16.8
Northern red oak	129.1	49.7	71.6	250.4	55.3	8.5
Other red oaks	191.5	78.4	241.9	511.8	80.6	8.4
Hickory	149.1	58.9	141.4	349.4	55.4	6.4
Ash	10.8	4.2	21.0	36.0	4.6	0.2
Hard maple	26.7	10.1	21.4	58.2	26.0	6.1
Black walnut	17.1	6.9	15.2	39.2	5.9	1.3
Dogwood, holly	--	--	5.6	5.6	5.0	0.3
Scrub oak ^{2/}	--	--	--	--	23.5	2.2
Other hard hwdws.	41.2	17.4	63.8	122.4	125.3	34.4
Total	919.1	382.2	959.9	2,261.2	758.8	91.2
Total hwdws.	1,186.8	460.1	1,177.9	2,824.8	919.6	112.4
All species	1,448.0	536.3	1,336.1	3,320.4	994.2	115.2
Percent	43.6	16.2	40.2	100.0	89.6	10.4

^{1/} Excludes bark.

^{2/} Includes noncommercial species.

Table 14.--Average volume^{1/} per acre of sawtimber by forest type, species group, and stand-size class, Mountain Region, 1957

(In board-feet)					
Forest type and species group	Large sawtimber stands	Small sawtimber stands	Pole-timber stands	Other stand sizes	All stands
Shortleaf pine					
Softwood	2,657	2,392	570	136	1,021
Hardwood	235	220	31	--	79
Virginia pine					
Softwood	--	2,392	312	6	522
Hardwood	--	771	129	--	184
White pine					
Softwood	10,836	2,684	469	--	4,814
Hardwood	1,496	303	--	--	628
Oak-pine					
Softwood	1,302	1,027	253	25	389
Hardwood	2,989	1,053	226	--	460
Maple-beech-birch					
Softwood	51	--	--	--	22
Hardwood	3,086	1,921	381	80	1,832
Oak-hickory					
Softwood	288	188	48	24	122
Hardwood	4,419	2,537	540	224	1,700
Oak-gum-cypress					
Softwood	50	--	--	--	18
Hardwood	4,840	--	87	--	1,745
All types					
Softwood	716	579	129	30	309
Hardwood	4,187	2,125	437	165	1,417

^{1/} Log scale, International 1/4-inch rule.

Table 15.--Average volume^{1/} per acre of all trees by forest type, species group,
and stand-size class, Mountain Region, 1957

(In standard cords)

Forest type and species group	Large sawtimber stands		Small sawtimber stands		Pole- timber stands		Other stand sizes		All stands	
	Sound trees	Cull trees	Sound trees	Cull trees	Sound trees	Cull trees	Sound trees	Cull trees	Sound trees	Cull trees
Shortleaf pine										
Softwood	7.1	0.1	9.2	0.6	3.7	0.9	0.6	0.3	4.6	0.7
Hardwood	4.5	1.0	1.8	1.5	0.9	0.9	0.2	0.3	1.1	1.0
Virginia pine										
Softwood	--	--	9.5	1.6	5.0	1.6	0.1	0.8	4.3	1.4
Hardwood	--	--	5.0	0.4	2.0	0.9	0.1	0.4	1.9	0.7
White pine										
Softwood	20.9	0.5	13.6	0.1	2.2	0.5	0.6	0.4	12.2	0.4
Hardwood	7.8	1.8	1.9	3.1	3.4	1.3	--	2.0	4.2	2.1
Oak-pine										
Softwood	6.8	0.3	3.7	(2/)	2.3	0.7	0.2	0.6	2.5	0.6
Hardwood	10.3	1.8	9.1	1.2	4.2	1.6	(2/)	0.9	4.6	1.4
Maple-beech-birch										
Softwood	0.4	--	--	--	--	--	--	--	0.2	--
Hardwood	10.3	4.1	6.7	6.3	5.7	6.6	1.0	2.4	7.6	5.3
Oak-hickory										
Softwood	0.6	(2/)	0.7	0.1	0.3	0.1	0.1	0.1	0.4	0.1
Hardwood	15.4	4.1	12.6	3.0	6.2	2.9	1.1	1.9	8.7	3.0
Oak-gum-cypress										
Softwood	0.2	--	--	--	--	--	--	--	0.1	--
Hardwood	17.6	2.0	--	--	3.7	5.7	0.2	0.8	7.2	2.2
All types										
Softwood	1.6	0.1	2.3	0.2	1.1	0.3	0.2	0.2	1.3	0.2
Hardwood	14.8	3.9	10.8	2.7	5.3	2.5	0.8	1.6	7.5	2.7

^{1/} Sound wood and bark.

^{2/} Less than 0.05 cord per acre.

Table 16.--Number of trees^{1/} by species group, diameter class, and quality, Mountain Region, 1957
(In thousand trees)

SOUND TREES					
D.b.h. class	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All trees
2	71,554	39,980	182,655	656,032	950,221
4	44,506	23,046	77,521	304,594	449,667
6	23,595	7,948	27,753	125,208	184,504
8	16,271	6,270	13,811	69,284	105,636
10	7,811	2,307	9,382	38,656	58,156
12	4,057	1,700	5,413	22,448	33,618
14	1,525	762	3,366	13,785	19,438
16	566	544	1,434	6,890	9,434
18	128	248	980	4,362	5,718
20	95	265	413	2,056	2,829
22	45	109	197	1,159	1,510
24	--	102	50	568	720
26	--	22	30	265	317
28	--	31	50	127	208
30+	--	87	19	145	251
Total	170,153	83,421	323,074	1,245,579	1,822,227

CULL TREES					
2	25,324	8,024	236,506	834,771	1,104,625
4	10,039	2,016	26,920	185,463	224,438
6	8,066	1,293	13,449	57,754	80,562
8	3,985	526	4,804	27,621	36,936
10	2,540	201	4,329	16,630	23,700
12	874	208	1,698	8,523	11,303
14	281	42	1,486	5,324	7,133
16	123	46	652	4,114	4,935
18	22	19	682	3,040	3,763
20	--	23	399	1,808	2,230
22	--	28	195	1,560	1,783
24	--	--	86	902	988
26	--	6	47	382	435
28	--	24	58	319	401
30+	--	--	26	270	296
Total	51,254	12,456	291,337	1,148,481	1,503,528

^{1/} All trees 1.0 inch d.b.h. or larger.

Table 17.--Stocking on commercial forest land by forest type and tree-size class, Mountain Region, 1957

(In thousand acres)

GROWING STOCK OF ALL SIZES

Forest type	Non-stocked 0-9%	Poor stocking 10-39%	Medium stocking 40-69%	Good stocking 70-100%	Total area
Shortleaf pine	4.1	71.1	157.6	150.2	383.0
Virginia pine	16.8	45.5	52.2	145.0	259.5
White pine	4.0	4.1	15.4	72.2	95.7
Oak-pine	--	49.1	79.7	152.8	281.6
Maple-beech-birch	1.0	7.1	11.1	28.8	48.0
Oak-hickory	84.7	615.1	1,396.0	1,927.7	4,023.5
Oak-gum-cypress	7.7	11.0	23.7	9.3	51.7
All types	118.3	803.0	1,735.7	2,486.0	5,143.0
Percent	2.3	15.6	33.8	48.3	100.0

SAWTIMBER GROWING STOCK

Shortleaf pine	139.6	205.9	30.6	6.9	383.0
Virginia pine	178.2	57.7	19.0	4.6	259.5
White pine	27.5	28.4	20.4	19.4	95.7
Oak-pine	162.6	106.5	6.7	5.8	281.6
Maple-beech-birch	17.7	25.1	5.2	--	48.0
Oak-hickory	1,690.9	1,769.4	493.9	69.3	4,023.5
Oak-gum-cypress	33.3	9.2	4.5	4.7	51.7
All types	2,249.8	2,202.2	580.3	110.7	5,143.0
Percent	43.7	42.8	11.3	2.2	100.0

Table 18.--Net annual growth by species group and unit of measure, Mountain Region, 1957

Species group	Sawtimber	Growing stock	
	<u>Million bd.-ft.</u>	<u>Million cu. ft.</u>	<u>Thousand cords</u>
Yellow pines	25.8	11.5	179
Other softwoods	32.1	7.3	93
Soft hardwoods	98.5	30.9	458
Hard hardwoods	206.0	88.0	1,344
All species	362.4	137.7	2,074

Table 19.--Net annual growth percentages by species group and unit of measure, Mountain Region, 1957

Unit of measure	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Board-feet	3.46	3.81	6.00	3.65	4.08
Cubic feet	3.89	3.63	5.48	3.89	4.14
Standard cords	4.30	3.97	6.05	4.37	4.62

Table 20.--Average annual timber cut by tree-size class and species group,
Mountain Region

SAWTIMBER (In million board-feet)

Tree-size class	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Small sawtimber	4.0	7.4	10.4	28.5	50.3
Large sawtimber	6.0	24.8	36.3	113.8	180.9
All trees	10.0	32.2	46.7	142.3	231.2

GROWING STOCK (In thousand cords)

Pole trees	42	4	18	108	172
Small sawtimber	16	19	33	92	160
Large sawtimber	11	45	83	289	428
All trees	69	68	134	489	760

GROWING STOCK (In million cubic feet)

Pole trees	2.5	0.3	1.1	6.5	10.4
Small sawtimber	1.2	1.7	2.5	6.9	12.3
Large sawtimber	1.0	4.3	6.8	23.7	35.8
All trees	4.7	6.3	10.4	37.1	58.5

Table 21.--Net annual change in volume by species group,
Mountain Region, 1957

SAWTIMBER (In million board-feet)

Item	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Net volume, Jan. 1, 1957	745.2	844.4	1,641.4	5,644.7	8,875.7
Total growth	32.0	38.4	106.7	247.8	424.9
Mortality	6.2	6.3	8.2	41.8	62.5
Net growth	25.8	32.1	98.5	206.0	362.4
Timber cut	10.0	32.2	46.7	142.3	231.2
Loss or gain	+15.8	-0.1	+51.8	+63.7	+131.2
Net volume, Dec. 31, 1957	761.0	844.3	1,693.2	5,708.4	9,006.9
Percent change	+2.1	0.0	+3.2	+1.1	+1.5

GROWING STOCK (In thousand cords)

Net volume, Jan. 1, 1957	4,158	2,340	7,572	30,774	44,844
Total growth	208	108	483	1,515	2,314
Mortality	29	15	25	171	240
Net growth	179	93	458	1,344	2,074
Timber cut	69	68	134	489	760
Loss or gain	+110	+25	+324	+855	+1,314
Net volume, Dec. 31, 1957	4,268	2,365	7,896	31,629	46,158
Percent change	+2.6	+1.1	+4.3	+2.8	+2.9

GROWING STOCK (In million cubic feet)

Net volume, Jan. 1, 1957	296.2	199.4	563.6	2,261.2	3,320.4
Total growth	13.6	8.5	32.9	101.0	156.0
Mortality	2.1	1.2	2.0	13.0	18.3
Net growth	11.5	7.3	30.9	88.0	137.7
Timber cut	4.7	6.3	10.4	37.1	58.5
Loss or gain	+6.8	+1.0	+20.5	+50.9	+79.2
Net volume, Dec. 31, 1957	303.0	200.4	584.1	2,312.1	3,399.6
Percent change	+2.3	+0.5	+3.6	+2.3	+2.4

Table 21a.--Net annual change in volume by species group,
northern subregion, 1957

SAWTIMBER (In million board-feet)

Item	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Net volume, Jan. 1, 1957	492.4	444.9	541.6	2,904.2	4,383.1
Total growth	21.3	18.0	34.6	125.1	199.0
Mortality	4.1	3.3	2.7	21.5	31.6
Net growth	17.2	14.7	31.9	103.6	167.4
Timber cut	8.7	6.0	20.9	72.2	107.8
Loss or gain	+8.5	+8.7	+11.0	+31.4	+59.6
Net volume, Dec. 31, 1957	500.9	453.6	552.6	2,935.6	4,442.7
Percent change	+1.7	+2.0	+2.0	+1.1	+1.4

GROWING STOCK (In thousand cords)

Net volume, Jan. 1, 1957	2,886	1,130	2,372	16,509	22,897
Total growth	147	49	139	792	1,127
Mortality	20	7	8	91	126
Net growth	127	42	131	701	1,001
Timber cut	60	16	54	254	384
Loss or gain	+67	+26	+77	+447	+617
Net volume, Dec. 31, 1957	2,953	1,156	2,449	16,956	23,514
Percent change	+2.3	+2.3	+3.2	+2.7	+2.7

GROWING STOCK (In million cubic feet)

Net volume, Jan. 1, 1957	204.3	97.7	176.2	1,191.9	1,670.1
Total growth	9.5	4.0	9.6	52.2	75.3
Mortality	1.4	0.6	0.7	6.8	9.5
Net growth	8.1	3.4	8.9	45.4	65.8
Timber cut	4.1	1.4	4.3	19.0	28.8
Loss or gain	+4.0	+2.0	+4.6	+26.4	+37.0
Net volume, Dec. 31, 1957	208.3	99.7	180.8	1,218.3	1,707.1
Percent change	+2.0	+2.0	+2.6	+2.2	+2.2

Table 21b.--Net annual change in volume by species group,
southern subregion, 1957

SAWTIMBER (In million board-feet)

Item	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Net volume, Jan. 1, 1957	252.8	399.5	1,099.8	2,740.5	4,492.6
Total growth	10.7	20.4	72.1	122.7	225.9
Mortality	2.1	3.0	5.5	20.3	30.9
Net growth	8.6	17.4	66.6	102.4	195.0
Timber cut	1.3	26.2	25.8	70.1	123.4
Loss or gain	+7.3	-8.8	+40.8	+32.3	+71.6
Net volume, Dec. 31, 1957	260.1	390.7	1,140.6	2,772.8	4,564.2
Percent change	+2.9	-2.2	+3.7	+1.2	+1.6

GROWING STOCK (In thousand cords)

Net volume, Jan. 1, 1957	1,272	1,210	5,200	14,265	21,947
Total growth	61	59	344	723	1,187
Mortality	9	8	17	80	114
Net growth	52	51	327	643	1,073
Timber cut	9	52	80	235	376
Loss or gain	+43	-1	+247	+408	+697
Net volume, Dec. 31, 1957	1,315	1,209	5,447	14,673	22,644
Percent change	+3.4	-0.1	+4.8	+2.9	+3.2

GROWING STOCK (In million cubic feet)

Net volume, Jan. 1, 1957	91.9	101.7	387.4	1,069.3	1,650.3
Total growth	4.1	4.5	23.3	48.8	80.7
Mortality	0.7	0.6	1.3	6.2	8.8
Net growth	3.4	3.9	22.0	42.6	71.9
Timber cut	0.6	4.9	6.1	18.1	29.7
Loss or gain	+2.8	-1.0	+15.9	+24.5	+42.2
Net volume, Dec. 31, 1957	94.7	100.7	403.3	1,093.8	1,692.5
Percent change	+3.0	-1.0	+4.1	+2.3	+2.6

Table 22.--Average annual change in volume per acre by stand size and forest type,
Mountain Region, 1957

Stand size and forest type	Sawtimber (in board-feet)				Growing stock (in standard cords)			
	Growth	Mortality	Timber cut ^{1/}	Net change	Growth	Mortality	Timber cut ^{1/}	Net change
Sawtimber stands:								
Yellow pine	136	11	125	0	0.50	0.06	0.54	-0.10
White pine	286	88	394	-196	.82	.16	.87	-.21
Oak-pine	134	17	71	+46	.62	.05	.27	+.30
Oak-hickory ^{2/}	154	28	118	+8	.53	.08	.33	+.12
All types	156	29	131	-4	.54	.08	.37	+.09
Poletimber stands:								
Yellow pine	28	3	8	+17	.37	.06	.08	+.23
White pine	39	--	--	+39	.55	--	--	+.55
Oak-pine	35	--	9	+26	.48	.02	.10	+.36
Oak-hickory ^{2/}	38	5	10	+23	.44	.02	.05	+.37
All types	37	4	9	+24	.43	.02	.06	+.35
Other stands:								
Yellow pine	1	12	14	-25	.03	.04	.07	-.08
White pine	--	--	--	--	.04	--	--	+.04
Oak-pine	2	--	--	+2	.01	--	--	+.01
Oak-hickory ^{2/}	27	3	5	+19	.08	.04	.02	+.02
All types	21	4	6	+11	.07	.04	.02	+.01
All stands:								
Yellow pine	46	7	41	-2	.33	.05	.20	+.08
White pine	200	57	253	-110	.69	.10	.56	+.03
Oak-pine	50	5	25	+20	.44	.03	.13	+.28
Oak-hickory ^{2/}	83	14	53	+16	.42	.05	.16	+.21
All types	79	14	56	+9	.42	.05	.18	+.19

^{1/} Excludes timber removed in clearing land.

^{2/} Includes volume in maple-beech-birch and oak-gum-cypress types.

Table 23.--County area by broad use class, 1957

County	Total area ^{1/}	Nonforest area		Forest land		
		Land	Water	Non- commercial	Commercial	
	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Percent</u>
Alleghany	288.6	37.5	0.6	30.4	220.1	76.4
Augusta	631.0	278.5	0.1	63.0	289.4	45.9
Bath	345.6	42.0	0.8	46.7	256.1	74.3
Bland	236.2	64.3	--	5.8	166.1	70.3
Botetourt	351.4	96.5	0.8	26.7	227.4	64.9
Buchanan	325.1	47.8	--	--	277.3	85.3
Carroll	318.7	159.4	2.2	6.0	151.1	47.7
Clarke	111.3	75.2	0.9	--	35.2	31.9
Craig	215.0	42.8	--	13.2	159.0	74.0
Dickenson	214.4	27.3	--	1.4	185.7	86.6
Floyd	245.1	133.5	--	2.4	109.2	44.6
Frederick	276.5	130.5	0.2	1.8	144.0	52.1
Giles	232.3	64.3	2.2	8.3	157.5	68.4
Grayson	291.2	150.6	1.9	5.4	133.3	46.1
Highland	266.3	69.9	--	9.7	186.7	70.1
Lee	280.3	136.3	0.1	16.1	127.8	45.6
Montgomery	252.8	96.0	0.5	2.9	153.4	60.8
Page	202.2	72.7	0.6	46.8	32.1	40.7
Pulaski	217.6	95.7	9.7	6.3	105.9	50.9
Roanoke	176.6	67.7	--	2.6	106.3	60.2
Rockbridge	386.6	133.4	0.6	27.4	225.2	58.3
Rockingham	556.2	246.9	1.9	78.0	229.4	41.4
Russell	309.1	165.1	0.7	--	143.3	46.5
Scott	345.0	151.1	1.2	5.0	187.7	54.6
Shenandoah	324.5	138.2	0.5	18.3	167.5	51.7
Smyth	278.4	115.8	0.1	4.0	158.5	57.0
Tazewell	334.1	144.8	--	0.3	189.0	56.6
Warren	140.2	55.5	1.1	14.0	69.6	50.0
Washington	370.6	197.3	2.4	0.5	170.4	46.3
Wise	265.6	64.1	0.4	13.5	187.6	70.7
Wythe	294.4	144.9	1.3	7.0	141.2	48.2
Entire Region	9,082.9	3,445.6	30.8	463.5	5,143.0	56.8

^{1/} Gross area from the Bureau of the Census, 1950. Excludes independent cities.

Table 24.--Ownership of commercial forest land by county, 1957

County	Private		Public					
			National forest	Other Federal	State	County, city, town	Total public	
	<u>Thousand acres</u>	<u>Percent</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Thousand acres</u>	<u>Percent</u>
Alleghany	116.6	53.0	101.3	--	--	2.2	103.5	47.0
Augusta	149.6	51.7	139.5	--	0.1	0.2	139.8	48.3
Bath	128.3	50.1	127.8	--	--	(1/)	127.8	49.9
Bland	146.5	88.2	19.0	--	0.6	--	19.6	11.8
Botetourt	163.0	71.7	52.7	--	--	11.7	64.4	28.3
Buchanan	277.3	100.0	--	--	--	(1/)	(1/)	--
Carroll	146.0	96.6	4.3	--	--	0.8	5.1	3.4
Clarke	35.0	99.4	--	(1/)	(1/)	0.2	0.2	0.6
Craig	60.2	37.9	98.8	--	--	(1/)	98.8	62.1
Dickenson	177.1	95.4	8.6	--	--	--	8.6	4.6
Floyd	109.2	100.0	--	--	(1/)	--	(1/)	--
Frederick	141.3	98.1	2.7	--	--	(1/)	2.7	1.9
Giles	108.1	68.6	48.2	--	1.2	(1/)	49.4	31.4
Grayson	121.6	91.2	11.6	--	--	0.1	11.7	8.8
Highland	139.1	74.5	47.6	--	--	--	47.6	25.5
Lee	118.7	92.9	9.0	--	--	0.1	9.1	7.1
Montgomery	135.6	88.4	14.8	0.8	2.2	(1/)	17.8	11.6
Page	64.2	78.2	17.9	--	--	--	17.9	21.8
Pulaski	73.6	69.5	16.9	0.2	15.0	0.2	32.3	30.5
Roanoke	96.2	90.5	1.6	0.1	6.8	1.6	10.1	9.5
Rockbridge	173.1	76.9	46.1	--	0.3	5.7	52.1	23.1
Rockingham	126.3	55.1	101.4	--	--	1.7	103.1	44.9
Russell	143.2	99.9	--	--	(1/)	0.1	0.1	0.1
Scott	157.4	83.9	30.3	--	--	--	30.3	16.1
Shenandoah	110.0	65.7	57.5	--	--	(1/)	57.5	34.3
Smyth	99.2	62.6	59.1	--	0.1	0.1	59.3	37.4
Tazewell	184.0	97.4	5.0	--	--	(1/)	5.0	2.6
Warren	63.7	91.5	4.2	1.7	--	--	5.9	8.5
Washington	153.9	90.3	16.2	0.3	(1/)	(1/)	16.5	9.7
Wise	159.1	84.8	26.9	--	--	1.6	28.5	15.2
Wythe	94.0	66.6	45.3	--	(1/)	1.9	47.2	33.4
Entire Region	3,971.1	77.2	1,114.3	3.1	26.3	28.2	1,171.9	22.8

1/ Less than 50 acres.

Table 25.--Net volume^{1/} of sawtimber by county and species group, 1957

(In million board-feet)

County	Softwoods ^{2/}	Yellow-poplar, basswood, and cucumber ^{3/}	Oaks and other hard hardwoods	All species
Alleghany	42.1	1.7	167.8	211.6
Augusta	57.8	17.3	356.7	431.8
Bath	77.3	14.1	303.2	394.6
Bland	36.8	19.6	153.7	210.1
Botetourt	115.6	124.0	281.3	520.9
Buchanan	16.2	205.7	240.5	462.4
Carroll	105.7	21.8	168.5	296.0
Clarke	9.5	28.5	25.5	63.5
Craig	55.9	30.9	132.8	219.6
Dickenson	7.7	141.9	258.0	407.6
Floyd	49.3	36.0	75.6	160.9
Frederick	24.2	19.0	208.4	251.6
Giles	12.1	26.7	168.9	207.7
Grayson	14.9	16.7	159.7	191.3
Highland	87.2	33.6	293.6	414.4
Lee	19.1	42.0	113.3	174.4
Montgomery	34.7	26.8	110.1	171.6
Page	26.5	10.6	94.5	131.6
Pulaski	59.5	13.8	26.5	99.8
Roanoke	41.9	17.4	47.2	106.5
Rockbridge	120.4	137.2	357.2	614.8
Rockingham	234.1	52.3	371.9	658.3
Russell	4.0	85.7	156.1	245.8
Scott	46.2	86.9	132.2	265.3
Shenandoah	41.1	25.8	217.1	284.0
Smyth	39.6	46.3	165.7	251.6
Tazewell	6.5	44.0	220.5	271.0
Warren	3.7	29.2	47.0	79.9
Washington	76.7	82.1	192.6	351.4
Wise	78.3	185.8	266.0	530.1
Wythe	45.0	18.0	132.6	195.6
Entire Region	1,589.6	1,641.4	5,644.7	8,875.7

^{1/} Log scale, International 1/4-inch rule.

^{2/} Includes white pine, hemlock, and redcedar.

^{3/} Includes other soft hardwoods.

Table 26.--Net volume^{1/} of sawtimber by county, broad species group,
and diameter group, 1957

(In million board-feet)

County	Softwoods			Hardwoods		
	9.0-14.9 inches	15.0-18.9 inches	19.0+ inches	11.0-14.9 inches	15.0-18.9 inches	19.0+ inches
Alleghany	37.9	4.2	--	61.4	64.4	43.7
Augusta	43.8	--	14.0	201.0	90.1	82.9
Bath	36.8	9.4	31.1	132.3	109.6	75.4
Bland	22.7	6.5	7.6	91.1	42.5	39.7
Botetourt	51.7	45.8	18.1	188.6	119.2	97.5
Buchanan	6.4	3.2	6.6	188.5	135.1	122.6
Carroll	43.5	11.3	50.9	101.0	56.5	32.8
Clarke	0.8	1.3	7.4	29.0	14.2	10.8
Craig	37.1	13.8	5.0	88.3	47.3	28.1
Dickenson	4.6	3.1	--	136.1	124.9	138.9
Floyd	49.3	--	--	65.3	29.4	16.9
Frederick	24.2	--	--	93.2	54.5	79.7
Giles	12.1	--	--	101.5	57.1	37.0
Grayson	14.9	--	--	95.6	70.1	10.7
Highland	46.1	35.1	6.0	175.2	105.1	46.9
Lee	19.1	--	--	73.3	52.5	29.5
Montgomery	32.5	2.2	--	63.7	49.3	23.9
Page	25.1	1.4	--	52.3	33.8	19.0
Pulaski	31.3	18.4	9.8	21.8	13.7	4.8
Roanoke	30.7	3.4	7.8	25.5	20.6	18.5
Rockbridge	72.2	29.7	18.5	240.2	184.8	69.4
Rockingham	77.6	24.7	131.8	198.6	147.7	77.9
Russell	2.2	1.8	--	94.1	75.9	71.8
Scott	5.9	--	40.3	94.5	77.7	46.9
Shenandoah	35.0	6.1	--	125.1	61.8	56.0
Smyth	24.4	12.0	3.2	106.6	59.2	46.2
Tazewell	6.5	--	--	95.4	52.6	116.5
Warren	3.7	--	--	52.1	15.4	8.7
Washington	39.4	20.3	17.0	127.1	87.0	60.6
Wise	2.8	16.2	59.3	149.0	144.5	158.3
Wythe	37.8	7.2	--	73.9	44.6	32.1
Entire Region	878.1	277.1	434.4	3,341.3	2,241.1	1,703.7

^{1/} Log scale, International 1/4-inch rule.

Table 27.--Net volume^{1/} of all timber by county, species group, and diameter group,

1957

(In thousand cords)

GROWING STOCK

County	Yellow pines		Other softwoods		Soft hardwoods		Hard hardwoods		All species
	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	
Alleghany	109	25	23	13	51	--	526	401	1,148
Augusta	284	34	30	29	57	30	1,376	688	2,528
Bath	150	41	28	55	143	24	1,196	627	2,264
Bland	76	38	28	11	135	27	526	334	1,175
Botetourt	186	94	34	83	177	222	942	579	2,317
Buchanan	--	--	7	31	403	427	611	505	1,984
Carroll	85	6	135	121	157	36	678	335	1,553
Clarke	9	3	--	12	42	60	123	41	290
Craig	215	76	20	--	77	59	515	278	1,240
Dickenson	19	8	8	--	315	283	484	577	1,694
Floyd	45	--	206	24	118	66	180	136	775
Frederick	208	12	12	4	90	43	730	467	1,566
Giles	25	12	--	6	89	33	547	351	1,063
Grayson	2	--	24	14	38	47	610	336	1,071
Highland	135	30	78	83	155	57	1,033	627	2,198
Lee	8	--	36	6	144	73	398	244	909
Montgomery	155	22	89	6	110	43	492	247	1,164
Page	136	8	21	6	45	26	396	189	827
Pulaski	156	80	7	11	49	32	227	55	617
Roanoke	180	25	36	17	106	32	231	103	730
Rockbridge	194	48	65	107	106	290	931	792	2,533
Rockingham	277	54	88	262	150	106	928	821	2,686
Russell	2	3	6	2	189	159	329	345	1,035
Scott	19	--	28	72	259	172	363	289	1,202
Shenandoah	296	20	3	13	42	50	988	439	1,851
Smyth	90	46	25	8	175	85	580	316	1,325
Tazewell	13	10	2	4	215	78	547	479	1,348
Warren	32	5	8	--	74	58	472	70	719
Washington	118	40	39	69	266	145	602	429	1,708
Wise	5	10	15	132	363	375	644	621	2,165
Wythe	129	50	26	12	64	30	588	260	1,159
Entire Region	3,358	800	1,127	1,213	4,404	3,168	18,793	11,981	44,844

^{1/} Sound wood and bark.

Table 27.--Net volume^{1/} of all timber by county, species group, and diameter group,
1957 (continued)
(In thousand cords)
OTHER MATERIAL

County	Yellow pines		Other softwoods		Soft hardwoods		Hard hardwoods		All species
	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	5 - 12 inches	13+ inches	
Alleghany	44	5	--	--	24	35	279	360	747
Augusta	104	--	20	14	24	61	322	392	937
Bath	26	--	--	7	35	40	482	323	913
Bland	31	--	5	4	11	21	93	219	384
Botetourt	25	5	12	5	18	3	151	185	404
Buchanan	2	5	--	--	66	129	322	537	1,061
Carroll	7	--	8	--	47	18	271	93	444
Clarke	5	2	--	--	10	3	50	21	91
Craig	52	--	--	--	5	27	208	207	499
Dickenson	--	--	--	--	12	58	129	220	419
Floyd	42	--	6	--	90	20	33	147	338
Frederick	23	--	--	--	4	--	89	92	208
Giles	19	6	3	25	72	33	213	219	590
Grayson	--	5	--	--	101	35	196	110	447
Highland	12	--	19	--	36	32	324	301	724
Lee	--	--	--	--	90	57	149	69	365
Montgomery	84	4	3	2	24	16	113	117	363
Page	30	--	7	--	3	--	31	49	120
Pulaski	47	--	1	--	70	25	53	21	217
Roanoke	36	6	--	--	18	33	100	72	265
Rockbridge	34	17	4	--	114	34	341	319	863
Rockingham	30	18	2	--	28	28	272	353	731
Russell	--	--	1	1	32	39	54	44	171
Scott	32	--	3	15	63	114	244	311	782
Shenandoah	69	13	--	--	15	13	196	147	453
Smyth	--	--	--	--	14	26	41	76	157
Tazewell	7	4	--	--	85	47	297	282	722
Warren	9	--	--	--	24	12	51	21	117
Washington	2	1	--	6	18	20	45	84	176
Wise	2	--	9	--	41	114	151	201	518
Wythe	35	8	--	--	44	110	229	152	578
Entire Region	809	99	103	79	1,238	1,203	5,529	5,744	14,804

^{1/} Sound wood and bark.

Table 28.--Average annual volume of sawtimber cut by county
and species group^{1/}

(In million board-feet)

County	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Alleghany	0.2	1.2	--	3.9	5.3
Augusta	--	--	4.3	22.7	27.0
Bath	--	--	--	--	--
Bland	--	--	--	2.6	2.6
Botetourt	0.6	--	11.2	7.9	19.7
Buchanan	--	--	1.0	5.2	6.2
Carroll	0.6	16.2	--	1.4	18.2
Clarke	--	--	--	1.1	1.1
Craig	--	--	--	--	--
Dickenson	--	--	0.7	--	0.7
Floyd	0.3	5.0	1.3	7.0	13.6
Frederick	5.6	0.2	0.9	18.8	25.5
Giles	--	--	1.1	1.4	2.5
Grayson	--	2.6	13.7	5.7	22.0
Highland	--	--	--	2.8	2.8
Lee	--	--	--	--	--
Montgomery	--	--	--	--	--
Page	--	--	1.3	4.9	6.2
Pulaski	--	--	--	8.8	8.8
Roanoke	0.2	1.2	3.2	3.4	8.0
Rockbridge	0.2	--	--	2.6	2.8
Rockingham	--	--	--	1.1	1.1
Russell	--	--	1.5	4.4	5.9
Scott	--	1.2	2.8	5.7	9.7
Shenandoah	1.7	3.4	--	--	5.1
Smyth	0.4	1.2	1.8	0.9	4.3
Tazewell	--	--	1.6	20.1	21.7
Warren	0.2	--	--	3.0	3.2
Washington	--	--	0.3	5.2	5.5
Wise	--	--	--	0.4	0.4
Wythe	--	--	--	1.3	1.3
Entire Region	10.0	32.2	46.7	142.3	231.2

^{1/} Estimates of timber cut by county are less accurate than inventory volumes, and use of individual county statistics should be avoided. For general use, data for a minimum of 10 counties should be combined.

Table 29.--Average annual volume of growing stock cut by county
and species group^{1/}

(In thousand cords)

County	Yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Alleghany	9	3	--	31	43
Augusta	--	--	10	66	76
Bath	1	--	--	1	2
Bland	--	--	--	9	9
Botetourt	4	--	26	31	61
Buchanan	--	--	5	15	20
Carroll	3	28	1	7	39
Clarke	--	--	--	3	3
Craig	5	2	--	4	11
Dickenson	--	--	2	--	2
Floyd	3	12	4	24	43
Frederick	14	1	3	55	73
Giles	--	--	4	8	12
Grayson	--	5	33	34	72
Highland	--	--	--	9	9
Lee	--	--	--	--	--
Montgomery	--	--	--	3	3
Page	--	--	4	16	20
Pulaski	--	--	--	21	21
Roanoke	3	4	11	9	27
Rockbridge	5	--	--	10	15
Rockingham	--	--	--	3	3
Russell	--	--	4	14	18
Scott	--	4	16	21	41
Shenandoah	17	6	--	1	24
Smyth	1	3	4	2	10
Tazewell	2	--	4	59	65
Warren	2	--	--	15	17
Washington	--	--	3	14	17
Wise	--	--	--	1	1
Wythe	--	--	--	3	3
Entire Region	69	68	134	489	760

^{1/} Estimates of timber cut by county are less accurate than inventory volumes, and use of individual county statistics should be avoided. For general use, data for a minimum of 10 counties should be combined.

DEFINITION OF TERMS

Land-Use Classes

Forest land: Includes (a) lands which are at least 10 percent stocked with trees of any size and capable of producing sawtimber or other wood products, and (b) lands from which the trees described in (a) have been removed to less than 10-percent stocking but which have not been developed for other use; subdivided into the following classes:

Commercial: Forest land which is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or in the future, and (c) not withdrawn from timber use.

Noncommercial: Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, or (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions, or so physically inaccessible as to be unavailable economically in the foreseeable future.

Nonforest land: Includes land under cultivation or in pasture where the timber has been cleared to less than 10 percent stocking, idle or abandoned agricultural land, marsh land, and land in urban, residential, or industrial areas, school yards, cemeteries, roads, railroads, and other rights-of-way.

Water: Includes lakes, bays, and estuaries over 40 acres in size, and streams, canals, and sloughs at least one-eighth of a mile in width which are classed as "inland water" by the Bureau of the Census. Smaller lakes and ponds between one acre and 40 acres in size, and waterways between 120 feet and 660 feet in width, which are classed as land area by the Bureau of the Census, are also included as water areas.

Forest Types

Forest type is determined on the basis of cubic volume for all stand sizes except seedlings and saplings (stand size 4), in which case the number of stems is the criterion.

Yellow pine types: Forests in which 50 percent or more of the cubic volume or number of stems in the stand is loblolly, pond, shortleaf, or Virginia pine. In mixtures the predominating species determines the type.

White pine-hemlock type: Forests in which 50 percent or more of the cubic volume or number of stems in the stand is white pine or hemlock.

Hardwood-pine type: Forests in which 50 percent or more of the stand is in hardwoods, but in which southern yellow pine species make up 25 to 49 percent of the stand.

Oak-hickory type: Upland hardwood forests in which 50 percent or more of the stand is composed of upland oak, hickory, yellow-poplar, soft maple, and other associated hardwood species, except in cases where yellow pines make up 25 to 49 percent and the stand would be classified as oak-pine.

Maple-beech-birch type: Upland hardwood forests in which 50 percent or more of the stand is sugar maple, beech, or yellow birch, singly or in combination, except where yellow pines make up 25 to 49 percent of the stand.

Oak-gum-cypress type: Bottomland forests in which 50 percent or more of the stand is tupelo, blackgum, sweetgum, ash, lowland oak, elm, soft maple, cypress, and other associated species, except where pines comprise 25 to 49 percent of the stand. In the mountains, flat areas of forest bordering streams may be given this classification. River birch, sycamore, willow, and alder are characteristic of such areas.

Stand-Size Classes

Sawtimber: Stands containing at least 1,500 board-feet net volume per acre, International 1/4-inch log rule, in sound, live, softwood trees 9.0 inches d.b.h. or larger, or hardwood trees 11.0 inches d.b.h. or larger. Two classes of sawtimber stands are recognized:

Large sawtimber: Stands of sawtimber having more than 50 percent of the net board-foot volume in trees 15.0 inches d.b.h. or larger.

Small sawtimber: Stands of sawtimber having 50 percent or more of the net board-foot volume in trees smaller than 15.0 inches d.b.h.

Poletimber: Stands failing to meet the minimum sawtimber specifications, but at least 10 percent stocked with trees 5.0 inches d.b.h. or larger and with at least half the minimum stocking in pole-size trees.

Seedlings and saplings: Stands not qualifying as sawtimber or poletimber stands, but having at least a 10-percent stocking of trees of commercial species and with half the minimum stocking in seedlings and saplings.

Nonstocked and other areas: Forest areas not qualifying as sawtimber, poletimber, or seedling and sapling stands.

Diameters

D.b.h. (diameter at breast height): Stem diameter in inches, outside bark, measured at 4-1/2 feet above the ground.

Diameter class: All trees were tallied by 2-inch diameter classes, each class including diameters 1.0 inch below and 0.9 inch above the stated midpoint, e.g., trees 7.0 to and including 8.9 inches are included in the 8-inch class. Corresponding limits apply to other diameter classes.

Timber Quality Classification

Growing Stock

Sawtimber trees: Live softwood trees 9.0 inches d.b.h. or larger and hardwood trees 11.0 inches d.b.h. or larger, with a sound volume of at least 50 percent of the gross board-foot volume up to the point of minimum saw-log merchantability. To be considered sound, a saw log must be at least 8 feet long, must be at least 50 percent sound, and must meet the following additional requirements:

Softwood logs^{1/} must have a scaling diameter of 6 inches or more, and sweep or crook must not exceed one-third of the scaling diameter per 8 feet of log length.

Hardwood logs must have a scaling diameter of 8 inches or more and must pass specifications^{2/} for standard lumber logs or tie and timber logs.

Sound poletimber trees: Straight-boled trees between 5.0 inches d.b.h. and sawtimber size that can be expected to become sawtimber.

Sound saplings: Trees 1.0 inch to 4.9 inches d.b.h. which show promise of growing into sawtimber.

Other Material

Sound cull trees: Live trees of all sizes that are unmerchantable for saw logs now or prospectively because of species, poor form, excessive limbiness, or other sound defect.

Rotten cull trees: Live trees of all sizes that are unmerchantable for saw logs now or prospectively because of rotten defect.

Species Groups

Yellow pines: Includes shortleaf, pitch, Table-Mountain, and Virginia pine.

Other softwoods: White pine, hemlock, spruce, fir, and eastern redcedar.

Soft hardwoods: Blackgum, yellow-poplar, sweetgum, cottonwood, soft maple, basswood, willow, elm, hackberry, sycamore, and black cherry.

Hard hardwoods: All the oaks, hickories, ash, beech, hard maple, river birch, black walnut, black locust, honeylocust, mulberry, sourwood, dogwood, holly, and persimmon.

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^{1/} For detailed specifications of log grades, see "Interim log grades for southern pine." Southern Forest Expt. Station, 18 pp. 1953.

^{2/} For detailed hardwood log grade specifications, see "Hardwood log grades for standard lumber: proposals and results." U. S. Forest Products Laboratory, D1737. 1949.

Volume Estimates

Board-foot volume: The volume in board-feet, measured by the International 1/4-inch rule, exclusive of defect, of that portion of sound sawtimber trees between the stump and the upper limit of merchantability for saw logs.

Volume in cords: For sound trees the volume in standard cords (including bark) of the sound portion of trees 5.0 inches d.b.h. or larger, between stump and a minimum top stem diameter of 4.0 inches inside bark. Similar volumes are given for cull trees.

Volume in cubic feet: Cubic-foot volume of the same material shown in cords except that bark is not included.

International 1/4-inch log rule: A rule for estimating the board-foot volume of 4-foot log sections, according to the formula $V = .905 (0.22D^2 - 0.71D)$. The taper allowance for computing the volume in log lengths greater than four feet is 0.5 inch per 4-foot section. Allowance for saw kerf is 1/4 inch.

Standard cord: A stacked pile, 4 x 4 x 8 feet, of round or split bolts, estimated to contain, on the average, about 74 cubic feet of solid wood.

Growth and Timber Cut

Net growth.--The growth on trees that were of volume size at the beginning of the year and the ingrowth resulting from smaller trees growing into volume size during the year, minus the partial loss of growth on trees that died or were cut during the year and the loss of volume in trees dying from natural causes during the year. Net growth is based on growth of sound trees. Growth on "Other material" is not included.

In board-feet: The change during the calendar year in sawtimber volume resulting from growth, ingrowth, and mortality losses.

In cubic feet or cords: The change during the calendar year in the volume of all sound trees 5.0 inches and larger resulting from growth, ingrowth, and mortality losses.

Timber cut.--The volume of timber cut is based on the measurement and tally of stumps found on regular ground sample plots. Stumps of all trees cut during the past 3-year period are recorded and the measurements are converted into equivalent tree volume. The average yearly volume of timber cut for the 3-year period is then taken as the annual estimate. Board-foot volumes include the saw-log portion of all sawtimber-size trees which were cut. Estimates in cubic feet or cords include the entire stem from stump to 4.0-inch top of all sound trees 5.0 inches in diameter and larger. Timber cut from cull or dead trees is not included.

Stocking

Stocking is the extent to which growing space is effectively utilized by trees. The number of stems present by d.b.h. classes was used as a basis for stocking classification. Areas having the minimum numbers of trees listed below, either in a single diameter class or proportionately in any combinations of diameter classes, were considered fully stocked.

<u>D.b.h.</u>	<u>Minimum number trees per acre</u>
Seedlings	1,000
2 inches	800
4 inches	590
6 inches	400
8 inches	240
10 inches	155
12 inches	115
14 inches	90

RELIABILITY OF FOREST SURVEY DATA

In general, the errors which affect the accuracy of Forest Survey area and timber volume estimates arise from two sources. These may be described as (1) sampling errors which result from using sampling procedures rather than making a complete inventory or canvass, and (2) non-sampling errors which arise from human mistakes in judgment, measurement, recording, or arithmetic.

In Forest Survey work a diligent effort is made to maintain a high degree of accuracy in the collection and compilation of data. The sampling errors are held to a specified minimum through survey design and sampling technique. These errors are the only measurable errors involved in computing the reliability of the data. The non-sampling errors are minimized or eliminated through training, supervision, field check cruises, and complete editing and machine verification in compiling the data.

Preliminary estimates of area by land-use class were based on examination of about 68,200 points systematically spaced on aerial photographs of the Virginia Mountain Region. Subsamples of 1,727 photo points classified as forest and 678 in other land uses were established as sample plots on the ground. These ground plots provided adjustments for changes in land use since the date of photographs, and supplied detailed measurements and observations needed in evaluating forest conditions.

Forest area.--The sampling intensity of the 1957 survey provided an estimate of the total forest area with a standard error of ± 0.6 percent. The probabilities were two out of three that the actual forest area was within ± 0.6 percent of the estimated acreage. The standard error per million acres was ± 1.4 percent.

Cubic volume.--The standard error of the net cubic-foot volume estimate was ± 2.7 percent, or ± 4.9 percent per billion cubic feet. Here again, the probabilities were two out of three that the actual volume did not vary from the estimated volume by more than these percentages. The error of the volume in cords was not computed, but it should have been approximately the same as for cubic volume.

Board-foot volume.--The standard error of the total board-foot volume estimate was ± 3.6 percent.

Growth.--Estimates of timber growth were based on measurements of radial growth on 2,758 sample trees, and on mortality data taken on sample plots. Because of technical problems involved, no attempt was made to compute the sampling error of growth estimates.

Timber cut.--Estimates of the amount of timber cut were based on the number, size, and species of stumps tallied on cutover plots. Stumps of all trees cut during the 3-year period preceding the date of inventory were included, and the measurements were converted into tree volume. The average volume of timber cut for the 3-year period was taken as the annual estimate. The standard error for the total volume of growing stock cut was ± 12.7 percent, or ± 3.0 percent per billion cubic feet.

Use of county data.--The tables showing forest area, timber volumes, and timber cut by county are included to permit grouping of the data in any desired area combinations. In designing the survey, provision was made for controlling the range of sampling error on a county basis. However, comparison or use of individual county statistics should be avoided because of the possibility that they may be subject to considerable error. It is recommended that area or volume data for a minimum of five counties be combined, and that at least 10 counties be used when working with data on timber cut.

The actual range of errors in county data are as follows:

<u>Item</u>	<u>Percent of error</u>	
	<u>Low</u>	<u>High</u>
Forest area	± 0.8	± 6.6
Growing stock volume	± 10.1	± 18.4
Board-foot volume	± 14.4	± 24.7

HOW THE FOREST INVENTORY IS MADE

The present system of inventory is a two-step method which includes land-use classification of points on aerial photographs followed by the cruising of ground sample plots. The county is the basic work unit. The detailed procedure is as follows:

1. Preliminary estimates of the acreage of land in forests and other land-use classes are obtained by classifying points printed on every third aerial photograph in alternate flight lines within a county. The proportion of points falling in each class is used to estimate the acreage. This estimate is later checked and revised through the use of ground plots.

2. Ground sample plots are selected in a systematic manner from the forest land classifications made in Step 1, using an interval which will provide sufficient plots to meet established limits of error per billion cubic feet of timber. This results in a proportional sample of all existing timber stands. Timber cruisers make a detailed description and tally of the ground plots to obtain data on timber volume, quality, stocking, mortality, and timber cut. Samples of agricultural and other photo classifications are also checked on the ground to verify or adjust the area estimates based on these classifications.

3. Growth estimates are based on increment borings taken proportionally from sample trees of various diameters and species in each forest type and stand class. The volume of timber cut is computed from a tally of the stumps of trees cut on the plots during a specified period.

4. All field data are sent to Asheville for editing and are placed on punch cards for machine sorting and tabulation. Final estimates are based on statistical summaries of the data.

Forest Survey Reports Published Since 1945

Forest Statistics:

- No. 25 - Forest Resources of the Lower Coastal Plain of South Carolina
- No. 26 - 1946 Commodity Drain by County from South Carolina Forests
- No. 28 - South Carolina's Forest Resources, 1947
- No. 30 - Forest Resources of Northeast Florida, 1949
- No. 31 - Forest Resources of Central Florida, 1949
- No. 32 - Forest Resources of Northwest Florida, 1949
- No. 33 - Forest Resources of South Florida, 1949
- No. 34 - Timber Production and Commodity Drain from Florida's Forests, 1948
- No. 36 - Forest Statistics for Florida, 1949
- No. 37 - Forest Statistics for Southwest Georgia, 1951
- No. 39 - Forest Statistics for Southeast Georgia, 1952
- No. 40 - Forest Statistics for Central Georgia, 1952
- No. 41 - Forest Statistics for the Southern Coastal Plain of North Carolina, 1952
- No. 42 - Forest Statistics for North Central and North Georgia, 1953
- No. 44 - Forest Statistics for Georgia, 1951-53
- No. 45 - Forest Statistics for the Northern Coastal Plain of North Carolina, 1955
(out of print)
- No. 46 - Forest Statistics for the Mountain Region of North Carolina, 1955
- No. 48 - Forest Statistics for the Piedmont of North Carolina, 1956
- No. 49 - North Carolina's Timber Supply, 1955
- No. 50 - Forest Statistics for the Coastal Plain of Virginia, 1956
- No. 51 - Forest Statistics for the Piedmont of Virginia, 1957

Pulpwood Production:

- No. 21 - 1945 Pulpwood Production by County in the Carolinas and Virginia
- No. 23 - 1946 Pulpwood Production by County in the Southeast
- No. 27 - 1947 Pulpwood Production by County in the Southeast
- No. 29 - 1948 Pulpwood Production by County in the Southeast
- *No. 35 - 1949 Pulpwood Production in the South (out of print)
- *No. 69 - Pulpwood Production in the South, 1950
- *No. 38 - 1951 Pulpwood Production in the South
- *No. 72 - 1952 Pulpwood Production in the South
- *No. 43 - 1953 Pulpwood Production in the South
- *No. 76 - 1954 Pulpwood Production in the South
- *No. 47 - 1955 Pulpwood Production in the South (out of print)
- *No. 80 - 1956 Pulpwood Production in the South

Other Reports

- Southern Forests as a Source of Pulpwood. Forest Survey Release No. 22
- Southern Pulpwood Production and the Timber Supply. Forest Survey Release No. 24
- Virginia Forest Resources and Industries, 1949. U. S. Dept. Agr. Misc. Pub. No. 681
- The Timber Supply Outlook in South Carolina, 1951. U. S. Dept. Agr. Resource Report No. 3
- The Timber Supply Situation in Florida, 1952. U. S. Dept. Agr. Resource Report No. 6
- The Timber Supply Situation in Georgia, 1956. U. S. Dept. Agr. Resource Report No. 12

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*Published in cooperation with the Southern Forest Experiment Station, New Orleans, La.