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FOREST STATISTICS FOR NORTH CENTRAL AND NORTH GEORGIA 1953

by

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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 of the Southeastern Forest Experiment Station, Asheville, North Carolina.

The five-fold 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 finds to aid in the formulation of private and public policies regarding forest land management.

The first inventory of forest resources in the State of Georgia by the Forest Survey was made during the period 1934-36, and these findings have been published. Since then, the effects of forest growth, timber cutting, changes in land use, and other factors have caused rapid changes in the growing stock which can only be measured by on-the-ground surveys. A resurvey of forest resources in Georgia was started in July 1950 and the field work was completed in November 1953. This progress report presents statistics on forest area, timber volume, growth, and timber cut for North Central and North Georgia, Survey Units 4 and 5 respectively.

ACKNOWLEDGMENTS

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The Division of Forest Economics is under the direction of James W. Cruikshank. Field inventory work was supervised by L. C. Nix, and photo interpretation was done by R. C. Aldrich. Office compilation of the data was under the direction of Agnes Nichols, assisted by Louise Shuford, Camilla Young, Sammy Wennington, and Eunice Gamble.

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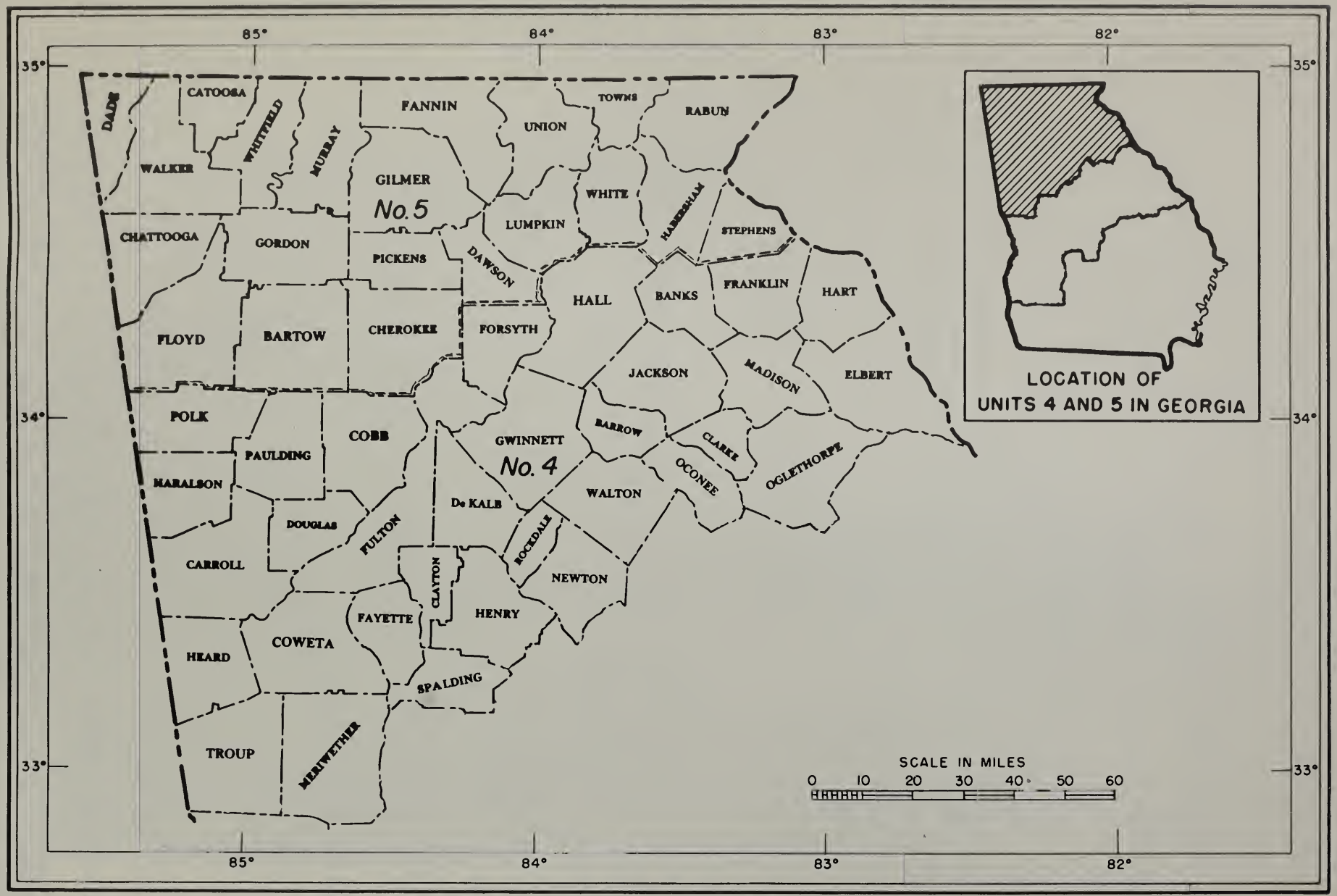


Figure 1.--Counties in North Central and North Georgia included in Survey Units Nos. 4 and 5

FOREST STATISTICS FOR NORTH CENTRAL AND NORTH GEORGIA, 1953

This progress report presents forest resource data for North Central and North Georgia. These areas are the last of five survey units to be covered by a complete resurvey of the State. The statistical tables show 1953 information on forest area, timber volumes, growth, and the amount of timber cut. Changes in forest area and timber volume which have taken place during the past 17 years are also pointed out. The trends were developed by comparing 1953 statistics with those of the original Forest Survey made in 1936.

The statistical tables in this report have been abridged to permit earlier release of the basic data. Detailed tables for each unit similar to those in Forest Survey Release No. 40 are on file at the Southeastern Station. Anyone needing more detailed information may obtain copies of individual tables upon request.

The North Central unit consists of 32 counties in the upper Piedmont designated as Survey Unit No. 4. The North unit is composed of 21 counties in the mountain region which were combined to form Survey Unit No. 5 (fig. 1). Field data were obtained between December 1952 and November 1953 from ground sample plots distributed throughout the individual counties. The methods used in selecting and examining the sample plots are described briefly on page 31.

1953 SURVEY HIGHLIGHTS

Area of commercial forest land increases 1.2 million acres.--During the period between surveys the acreage of commercial forest land in both survey units increased from 5.4 million to 6.6 million acres, a gain of 23 percent. Four-fifths of this increase took place in the North Central unit, where the change amounted to nearly one million acres.

Table A.--Change in commercial forest area, 1936 to 1953

Survey unit	1936	1953	Change	
	Thousand acres	Thousand acres	Thousand acres	Percent
North Central	2,549.0	3,521.9	972.9	+38
North	2,835.3	3,075.4	240.1	+ 8
Total	5,384.3	6,597.3	1,213.0	+23

Forests now occupy 63 percent of the 10.5 million acres of gross land area in the two units. The mountain region is the more heavily forested area with nearly 75 percent of the land devoted to growing timber. Slightly more than 700 thousand acres of commercial forest land are in public ownership, most of which is located in the Chattahoochee National Forest.

Hardwood timber stands increase in area.--The trend in acreage of forest types is toward a larger area of hardwood stands. A comparison of type areas for both surveys shows that 42 percent of the forest land is now in hardwood types as compared to 29 percent in 1936. The 1936 system of type classification was used in both surveys to make the data comparable. This tendency for hardwood stands to take over and occupy larger areas of forest land is widespread throughout the State. The cause usually stems from cutting operations, which remove the pine timber from mixed stands and leave hardwood species in possession of the site.

Yellow pine sawtimber volume shows severe decline.--Since 1936 the board-foot volume in southern yellow pine species has declined from a total of 5.7 billion to 3.0 billion feet, a reduction of 47 percent. The downward trend of pine volume has been parallel in both survey units, and the extent of decline during this relatively short period of time is surprising.

Table B.--Comparison of sawtimber volumes, 1936 and 1953

Species group	North Central Unit			North Unit		
	1936 1/	1953	Change	1936 1/	1953	Change
	Million bd. ft.	Million bd. ft.	Percent	Million bd. ft.	Million bd. ft.	Percent
Yellow pines	3,342	1,708	-49	2,394	1,322	-45
Other softwoods	3	5	+67	252	179	-29
Hardwoods	1,596	1,831	+15	2,317	2,364	+ 2
All species	4,941	3,544	-28	4,963	3,865	-22

1/ Original survey volumes have been recomputed to allow for differences in standards between the two surveys and to provide a uniform basis for comparison. Thus, they will not agree with volumes previously published.

The volume of hardwood sawtimber in both units has increased approximately 7 percent during the same period. This is a relatively minor change, however, when compared to the large reduction in pine volume. The net effect has been a 25-percent decrease in the board-foot volume of all species.

Stand tables for the two surveys reveal sizable increases in the number of sound pine trees 8 inches and smaller in diameter, due largely

to the natural restocking of pine on large areas of idle and abandoned fields. On the other hand, the number of pine sawtimber trees 10 inches and larger in diameter decreased from 70 million to 47 million during the period. Utilization of the larger pine trees for sawlogs, pulpwood, and other forest products has far exceeded the rate of replacement through growth. Hardwood trees increased in number through all size classes up to 16 inches in diameter, indicating a much lower rate of utilization for these species.

Volume of pine growing stock also decreases.--Estimates of growing stock volume are calculated in terms of cubic feet of solid wood. These estimates include all sound pole-size trees (starting at 5.0 inches in diameter) as well as the volume in the larger sawtimber trees. Trees smaller than 5.0 inches in diameter are considered seedlings or saplings and are not assigned volume in the timber inventory.

Exceptionally heavy use over the past 17-year period has also reduced the volume of yellow pine growing stock by 25 percent. Volume increases in pole-size trees have only partially offset the loss of volume in larger pine trees. In hardwood species, the amount of growing stock increased 16 percent, reflecting the larger areas of hardwood stands and less intensive logging activity.

Table C.--Comparison of volume in all live trees 5.0 inches d.b.h. and larger, 1936 and 1953

Species group	Growing stock			Cull trees		
	1936[1]	1953	Change	1936[1]	1953	Change
	Million cu. ft.	Million cu. ft.	Percent	Million cu. ft.	Million cu. ft.	Percent
NORTH CENTRAL UNIT						
Yellow pines	993	775	- 22	44	222	+405
Other softwoods	1	2	+100	--	--	--
Hardwoods[2]	551	685	+ 24	178	350	+ 97
All species	1,545	1,462	- 5	222	572	+158
NORTH UNIT						
Yellow pines	693	489	- 29	56	110	+ 96
Other softwoods	53	42	- 21	2	8	+300
Hardwoods[2]	769	841	+ 9	364	567	+ 56
All species	1,515	1,372	- 9	422	685	+ 62

1/ See footnote 1, table B.

2/ Excludes limb volume of hardwood sawtimber trees.

The amount of wood in low-quality cull trees has approximately doubled during the period. Three-fourths of the cull-tree volume is hardwood and one-fourth is pine. These trees are too crooked, limby, or rotten to be sawed into lumber, but many of them could be utilized in the form of pulpwood, fence posts, hewn crossties, or other products.

Present rate of pine timber cutting exceeds growth.--The downward trend of yellow pine timber volume evident from comparison of the two inventories was still continuing in 1953. In both units the growth of pine sawtimber amounted to 337 million board feet, while timber cutting removed 490 million feet. Logging activity was found to be particularly heavy in the North Central unit, where the volume of pine sawtimber cut exceeded the growth by more than 60 percent. A similar downward trend was also found in the volume of pine growing stock. Hardwood timber growth is greater than the volume cut for both sawtimber and for all trees 5.0 inches and larger.

Table D.--Comparison of net annual growth and timber cut, 1953

SAWTIMBER (In million board feet)

Species group	North Central Unit			North Unit		
	Net growth	Timber cut	Loss or gain	Net growth	Timber cut	Loss or gain
So. yellow pines	197	324	-127	140	166	- 26
Other softwoods	--	--	--	7	6	+ 1
Hardwoods	103	95	+ 8	128	78	+ 50
All species	300	419	-119	275	250	+ 25

GROWING STOCK (In thousand cords)

So. yellow pines	1,025	1,303	-278	623	638	- 15
Other softwoods	1	3	- 2	32	16	+ 16
Hardwoods	501	347	+154	565	251	+314
All species	1,527	1,653	-126	1,220	905	+315

Timber growth estimates include the growth on all sound trees of volume size plus the ingrowth created by young trees reaching volume size during the year. The volume of mortality in trees dying from natural causes is deducted to obtain net growth. The amount of timber cut is based on measurement and tally of stumps found on ground sample plots. Stumps of all trees cut during the 3-year period preceding inventory were recorded by species, diameter, and height. These measurements were then converted into volume of trees cut, and the average amount for the 3-year period was taken as the annual estimate.

Table 1.--Gross area[1/] by broad use class, 1953

(In thousand acres)

Class of use	North Central Unit	North Unit
Forest land:		
Commercial	3,521.9	3,075.4
Noncommercial:		
Reserved from commercial use	2.5	13.6
Unproductive for timber use	5.3	13.5
Total forest	3,529.7	3,102.5
Nonforest land	2,725.1	1,102.6
Total land area	6,254.8	4,205.1
Total water area[2/]	33.8	42.6
All classes	6,288.6	4,247.7

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

2/ Includes 36,800 acres of water in both units according to Survey standards of area classification but defined by the Bureau of Census as land.

Table 2.--Ownership of commercial forest land, 1953

(In thousand acres)

Class of ownership	North Central Unit	North Unit
Public land:		
National forest	0.4	635.9
Indian	--	--
Other federal	14.4	34.0
Total federal	14.8	669.9
State	7.5	6.1
County and municipal	6.4	1.1
Total public	28.7	677.1
Private land:		
Farm	3,129.9	1,851.5
Other	363.3	546.8
Total private	3,493.2	2,398.3
All classes	3,521.9	3,075.4

Table 3.--Commercial forest area by forest type, 1953

(In thousand acres)

Forest type	North Central Unit	North Unit
Pine types:		
Longleaf pine	14.8	6.2
Slash pine	0.9	--
Loblolly pine	1,264.5	312.0
Shortleaf pine	831.9	529.2
Virginia pine	7.0	250.7
White pine	--	22.4
Total	2,119.1	1,120.5
Other types:		
Oak-pine	323.0	539.7
Oak-hickory:		
Upland hdwds.	684.8	1,352.5
Scrub oak	13.6	3.5
Oak-gum-cypress	381.4	59.2
Total	1,402.8	1,954.9
All types	3,521.9	3,075.4

Table 4.--Commercial forest area by stand-size class and forest type group, 1953

(In thousand acres)

Stand-size class	North Central Unit		North Unit	
	Pine types	Other types	Pine types	Other types
Large sawtimber stands	41.3	218.1	38.4	268.1
Small sawtimber stands	233.7	170.5	153.8	138.4
Poletimber stands	994.1	566.4	464.4	1,025.1
Seedling & sapling stands	810.7	390.4	438.3	495.8
Nonstocked and other areas	39.3	57.4	25.6	27.5
All stands	2,119.1	1,402.8	1,120.5	1,954.9

Table 5.--Net volume[1/] of sawtimber by species, 1953

(In million board feet)

Species	North Central Unit	North Unit
Softwoods:		
Longleaf pine	22.5	12.7
Slash pine	1.1	--
Loblolly pine	873.1	235.2
Shortleaf pine	804.0	822.3
Virginia pine	7.0	251.9
Total	1,707.7	1,322.1
White pine	--	121.3
Hemlock	--	48.6
Cedar	4.9	8.9
Total softwoods	1,712.6	1,500.9
Hardwoods:		
Bl. & tupelo gum	65.7	85.1
Sweetgum	305.2	34.8
Yellow-poplar	315.3	211.3
Soft maple	77.6	32.5
Other soft hardwoods	24.1	14.9
Total	787.9	378.6
White & swamp chestnut oaks	227.6	298.8
Other white oaks	102.6	409.0
No. red oak	45.2	305.2
Other red oaks	282.6	654.0
Hickory	178.9	274.2
Ash	81.5	11.0
Other hard hardwoods	124.5	33.7
Total	1,042.9	1,985.9
Total hardwoods	1,830.8	2,364.5
All species	3,543.4	3,865.4

1/ Log scale, International 1/4-inch rule.

Table 6.--Net volume[1/] of sawtimber by species group and diameter class, 1953

Species group and diameter class	North Central Unit		North Unit	
	Million bd. ft.	Percent	Million bd. ft.	Percent
So. yellow pines:				
10-12 inches	1,163.2	68.1	789.1	59.7
14-18 inches	504.6	29.6	477.5	36.1
20+ inches	39.9	2.3	55.5	4.2
Total	1,707.7	100.0	1,322.1	100.0
Other softwoods:				
10-12 inches	3.2	65.3	44.2	24.7
14-18 inches	1.7	34.7	61.7	34.5
20+ inches	--	--	72.9	40.8
Total	4.9	100.0	178.8	100.0
Hardwoods:				
12 inches	397.2	21.7	616.3	26.1
14-18 inches	930.6	50.8	1,209.2	51.1
20+ inches	503.0	27.5	539.0	22.8
Total	1,830.8	100.0	2,364.5	100.0

1/ Log scale, International 1/4-inch rule.

Table 7.--Net volume[1/] of all timber by species, 1953

GROWING STOCK

Species	North Central Unit		North Unit	
	Thousand cords	Million cu. ft.	Thousand cords	Million cu. ft.
Softwoods:				
Longleaf pine	97	7.1	48	3.4
Slash pine	9	0.6	--	--
Loblolly pine	5,609	389.6	1,250	87.7
Shortleaf pine	5,512	375.6	4,330	303.4
Virginia pine	32	2.2	1,360	95.0
Total	11,259	775.1	6,988	489.5
White pine	--	--	375	31.1
Hemlock	--	--	90	8.8
Cedar	20	1.5	34	2.4
Total softwoods	11,279	776.6	7,487	531.8
Hardwoods:				
Bl. & tupelo gum	312	23.4	329	24.8
Sweetgum	1,529	112.6	190	14.4
Yellow-poplar	1,401	103.9	819	61.3
Soft maple	434	31.8	230	16.4
Other soft hardwoods	171	12.5	60	4.5
Total	3,847	284.2	1,628	121.4
White & swamp chestnut oak	1,058	78.9	1,763	127.8
Other white oaks	581	42.1	2,254	162.5
No. red oak	246	17.9	855	67.0
Other red oaks	1,457	106.9	3,209	234.9
Hickory	979	72.1	1,291	93.9
Ash	473	34.5	153	10.6
Dogwood, persimmon	109	6.7	74	4.5
Other hard hardwoods	559	41.9	257	17.9
Total	5,462	401.0	9,856	719.1
Total hardwoods	9,309	685.2	11,484	840.5
All species	20,588	1,461.8	18,971	1,372.3

OTHER MATERIAL

Sound culls				
Softwoods	3,168	222.8	1,650	118.1
Hardwoods	4,734	338.9	7,376	522.4
Rotten culls	145	10.7	557	43.9
Hardwood limbs	1,426	109.8	2,028	149.1
Total other material	9,473	682.2	11,611	833.5

1/ Volume in cords includes sound wood and bark. Volume in cubic feet includes sound wood only.

Table 8.--Net volume[1/] of growing stock by species group and diameter class, 1953

Species group and diameter class	North Central Unit		North Unit	
	Thousand cords	Percent	Thousand cords	Percent
So. yellow pines:				
6-8 inches	6,099	54.2	3,281	46.9
10-12 inches	3,765	33.4	2,403	34.4
14-18 inches	1,304	11.6	1,181	16.9
20+ inches	91	0.8	123	1.8
Total	11,259	100.0	6,988	100.0
Other softwoods:				
6-8 inches	8	40.0	105	21.0
10-12 inches	9	45.0	123	24.6
14-18 inches	3	15.0	133	26.7
20+ inches	--	--	138	27.7
Total	20	100.0	499	100.0
Soft hardwoods:				
6-8 inches	905	23.5	363	22.3
10-12 inches	1,339	34.8	490	30.1
14-18 inches	1,232	32.0	610	37.5
20+ inches	371	9.7	165	10.1
Total	3,847	100.0	1,628	100.0
Hard hardwoods:				
6-8 inches	1,533	28.1	2,761	28.0
10-12 inches	1,712	31.3	3,447	35.0
14-18 inches	1,337	24.5	2,551	25.9
20+ inches	880	16.1	1,097	11.1
Total	5,462	100.0	9,856	100.0

1/ Sound wood and bark.

Table 9.--Net annual growth of sawtimber by species group, 1953

(In million board feet)

Species group	North Central Unit	North Unit
So. yellow pines	196.9	139.6
Other softwoods	0.4	7.4
Soft hardwoods	49.1	23.7
Hard hardwoods	53.7	104.8
All species	300.1	275.5

Table 10.--Net annual growth of growing stock by species group, 1953

Species group	North Central Unit		North Unit	
	Thousand cords	Million cu. ft.	Thousand cords	Million cu. ft.
So. yellow pines	1,025	65.2	623	40.0
Other softwoods	1	0.1	32	2.4
Soft hardwoods	253	17.3	104	7.1
Hard hardwoods	248	16.9	461	30.7
All species	1,527	99.5	1,220	80.2

Table 11.--Annual net growth percentages by species group, 1953

Species group	North Central Unit		North Unit	
	Sawtimber[1/]	Growing stock[2/]	Sawtimber[1/]	Growing stock[2/]
So. yellow pines	11.53	8.41	10.55	8.16
Other softwoods	8.25	7.35	4.15	5.71
Soft hardwoods	6.23	6.08	6.26	5.87
Hard hardwoods	5.15	4.21	5.28	4.27
All species	8.47	6.80	7.13	5.84

1/ For use with board-foot volumes.

2/ For use with cord or cubic-foot volumes.

Table 12.--Average annual timber cut from sawtimber trees by species group

(In million board feet)

Species group	North Central Unit	North Unit
So. yellow pines	324.0	166.3
Other softwoods	0.3	6.1
Soft hardwoods	67.1	27.5
Hard hardwoods	27.5	50.8
All species	418.9	250.7

Table 13.--Average annual timber cut from growing stock by species group and tree-size class

(In thousand cords)

Species group	North Central Unit			North Unit		
	Pole trees	Sawtimber trees	All trees	Pole trees	Sawtimber trees	All trees
So. yellow pines	288	1,015	1,303	130	508	638
Other softwoods	2	1	3	--	16	16
Soft hardwoods	29	174	203	4	70	74
Hard hardwoods	67	77	144	40	137	177
All species	386	1,267	1,653	174	731	905

Table 14.--Net change in sawtimber volume by species group, 1953

(In thousand board feet)

NORTH CENTRAL UNIT

Item	Southern yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Net volume, Jan. 1, 1953	1,707,638	4,924	787,895	1,042,912	3,543,369
Total growth	208,620	456	54,854	60,953	324,883
Mortality	11,756	50	5,745	7,211	24,762
Net growth	196,864	406	49,109	53,742	300,121
Timber cut	323,966	300	67,076	27,551	418,893
Loss or gain	-127,102	+106	-17,967	+26,191	-118,772
Net volume, Jan. 1, 1954	1,580,536	5,030	769,928	1,069,103	3,424,597
Percent change	-7.4	+2.2	-2.3	+2.5	-3.4

NORTH UNIT

Net volume, Jan. 1, 1953	1,322,078	178,795	378,617	1,985,940	3,865,430
Total growth	148,483	8,429	26,269	120,143	303,324
Mortality	8,951	1,001	2,549	15,329	27,830
Net growth	139,532	7,428	23,720	104,814	275,494
Timber cut	166,279	6,125	27,507	50,796	250,707
Loss or gain	-26,747	+1,303	-3,787	+54,018	+24,787
Net volume, Jan. 1, 1954	1,295,331	180,098	374,830	2,039,958	3,890,217
Percent change	-2.0	+0.7	-1.0	+2.7	40.6

Table 15.--Net change in growing stock by species group, 1953

(In million cubic feet)

NORTH CENTRAL UNIT

Item	Southern yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Net volume, Jan. 1, 1953	775.1	1.5	284.2	401.0	1,461.8
Total growth	73.2	0.1	19.4	19.6	112.3
Mortality	8.0	--	2.1	2.7	12.8
Net growth	65.2	0.1	17.3	16.9	99.5
Timber cut	96.8	0.2	16.0	10.5	123.5
Loss or gain	-31.6	-0.1	+1.3	+6.4	-24.0
Net volume, Jan. 1, 1954	743.5	1.4	285.5	407.4	1,437.8
Percent change	-4.1	-6.7	+0.5	+1.6	-1.6

NORTH UNIT

Net volume, Jan. 1, 1953	489.5	42.3	121.4	719.1	1,372.3
Total growth	44.8	2.7	8.1	35.8	91.4
Mortality	4.8	0.3	1.0	5.1	11.2
Net growth	40.0	2.4	7.1	30.7	80.2
Timber cut	47.3	1.3	5.9	13.4	67.9
Loss or gain	-7.3	+1.1	+1.2	+17.3	+12.3
Net volume, Jan. 1, 1954	482.2	43.4	122.6	736.4	1,384.6
Percent change	-1.5	+2.6	+1.0	+2.4	+ 0.9

Table 16.--Net change in growing stock by species group, 1953

(In thousand cords)

NORTH CENTRAL UNIT

Item	Southern yellow pines	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Net volume, Jan. 1, 1953	11,259	20	3,847	5,462	20,588
Total growth	1,146	1	283	283	1,713
Mortality	121	--	30	35	186
Net growth	1,025	1	253	248	1,527
Timber cut	1,303	3	203	144	1,653
Loss or gain	-278	-2	+50	+104	-126
Net volume, Jan. 1, 1954	10,981	18	3,897	5,566	20,462
Percent change	-2.5	-10.0	+1.3	+1.9	-0.6

NORTH UNIT

Net volume, Jan. 1, 1953	6,988	499	1,628	9,856	18,971
Total growth	694	35	119	531	1,379
Mortality	71	3	15	70	159
Net growth	623	32	104	461	1,220
Timber cut	638	16	74	177	905
Loss or gain	-15	+16	+30	+284	+315
Net volume, Jan. 1, 1954	6,973	515	1,658	10,140	19,286
Percent change	-0.2	+3.2	+1.8	+2.9	+1.7

Table 17.--County area by broad use class, 1953

County	Total area1/	Nonforest area		Forest land		
		Land	Water	Non-commercial	Commercial	
	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent
Banks	147.8	55.4	--	--	92.4	62.5
Barrow	109.4	57.3	0.4	--	51.7	47.4
Bartow	304.6	106.0	9.6	--	189.0	64.1
Carroll	316.8	163.3	0.7	--	152.8	48.3
Catoosa	106.9	40.8	0.2	4.1	61.8	57.9
Chattooga	202.9	74.6	--	(2/)	128.3	63.2
Cherokee	273.9	73.4	9.9	--	190.6	72.2
Clarke	80.0	45.7	0.2	--	34.1	42.7
Clayton	95.4	51.6	0.1	--	43.7	45.9
Cobb	222.7	114.6	1.8	2.2	104.1	47.1
Coweta	283.5	113.6	0.5	--	169.4	59.9
Dade	105.6	18.8	--	3.2	83.6	79.2
Dawson	136.3	23.9	--	0.2	112.2	82.3
De Kalb	172.2	87.7	0.5	--	84.0	48.9
Douglas	129.3	44.2	1.0	--	84.1	65.5
Elbert	233.6	73.4	15.0	--	145.2	66.4
Fannin	256.0	51.7	3.8	1.8	198.7	78.8
Fayette	127.4	60.2	0.3	--	66.9	52.6
Floyd	329.0	119.0	2.9	0.1	207.0	63.5
Forsyth	155.5	58.0	0.6	--	96.9	62.6
Franklin	172.2	94.3	0.3	--	77.6	45.1
Fulton	339.8	175.0	2.2	--	162.6	48.2
Gilmer	281.0	28.4	0.2	0.5	251.9	89.7
Gordon	229.1	112.6	1.7	0.1	114.7	50.4
Gwinnett	279.7	136.5	0.2	--	143.0	51.2
Habersham	181.1	49.5	0.7	2.7	128.2	71.1
Hall	272.6	100.4	1.1	--	171.1	63.0
Haralson	182.4	59.1	0.2	--	123.1	67.6
Hart	165.1	93.3	1.5	--	70.3	43.0
Heard	193.3	44.5	1.5	3.6	143.7	74.9
Henry	211.8	113.3	0.1	--	98.4	46.5
Jackson	215.7	116.1	--	--	99.6	46.2
Lumpkin	186.9	20.3	--	2.3	164.3	87.9
Madison	179.9	90.0	0.3	--	89.6	49.9
Meriwether	319.4	85.6	0.4	--	233.4	73.2
Murray	218.9	51.2	--	0.5	167.2	76.4
Newton	174.7	70.8	1.2	--	102.7	59.2
Oconee	119.0	65.0	0.1	--	53.9	45.3
Oglethorpe	278.4	102.2	0.2	--	176.0	63.3
Paulding	203.5	59.8	0.1	--	143.6	70.6
Pickens	144.0	30.8	0.4	--	112.8	78.6
Polk	199.7	88.2	0.1	--	111.4	55.8
Rabun	240.0	23.7	4.3	3.4	208.6	88.5
Rockdale	81.9	38.2	0.2	2.0	41.5	50.8
Spalding	128.6	65.3	0.1	--	63.2	49.2
Stephens	115.2	37.3	0.8	1.6	75.5	66.0
Towns	110.1	16.5	3.9	1.3	88.4	83.2
Troup	286.1	78.5	2.7	--	204.9	72.3
Union	204.2	42.7	4.0	2.2	155.3	77.6
Walker	286.7	87.3	--	1.4	198.0	69.1
Walton	211.2	124.0	0.2	--	87.0	41.2
White	155.5	25.7	0.2	1.7	127.9	82.4
Whitfield	179.8	68.4	--	(2/)	111.4	62.0
Total	10,536.3	3,827.7	76.4	34.9	6,597.3	63.1

1/ Gross area from Bureau of the Census, 1950.

Table 18.--Ownership of commercial forest land by county, 1953

County	Private		Public					
			National forest	Other federal	State	County, city, town	Total public	
	Thousand acres	Percent	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Thousand acres	Percent
Banks	91.7	99.2	0.4	--	0.3	--	0.7	0.8
Barrow	49.6	95.9	--	--	2.0	0.1	2.1	4.1
Bartow	183.0	96.8	--	6.0	--	(1/)	6.0	3.2
Carroll	152.7	99.9	--	--	--	0.1	0.1	0.1
Catoosa	60.4	97.7	--	1.4	--	(1/)	1.4	2.3
Chattooga	115.9	90.3	12.4	--	--	(1/)	12.4	9.7
Cherokee	175.8	92.2	--	14.7	--	0.1	14.8	7.8
Clarke	32.4	95.0	--	--	1.6	0.1	1.7	5.0
Clayton	43.5	99.5	--	--	--	0.2	0.2	0.5
Cobb	100.6	96.6	--	3.3	--	0.2	3.5	3.4
Coweta	168.4	99.4	--	--	--	1.0	1.0	0.6
Dade	82.1	98.2	--	--	1.5	--	1.5	1.8
Dawson	106.9	95.3	5.0	--	0.3	--	5.3	4.7
De Kalb	83.4	99.3	--	0.3	--	0.3	0.6	0.7
Douglas	84.0	99.9	--	--	--	0.1	0.1	0.1
Elbert	140.8	97.0	--	4.3	--	0.1	4.4	3.0
Fannin	104.9	52.8	93.4	0.4	--	--	93.8	47.2
Fayette	66.8	99.9	--	--	--	0.1	0.1	0.1
Floyd	200.1	96.7	6.3	--	0.4	0.2	6.9	3.3
Forsyth	96.3	99.4	--	0.6	--	--	0.6	0.6
Franklin	77.5	99.9	--	--	(1/)	0.1	0.1	0.1
Fulton	160.7	98.8	--	--	0.1	1.8	1.9	1.2
Gilmer	228.9	90.9	22.9	--	--	0.1	23.0	9.1
Gordon	107.8	94.0	6.8	--	(1/)	0.1	6.9	6.0
Gwinnett	142.0	99.3	--	0.9	0.1	--	1.0	0.7
Habersham	89.3	69.7	38.7	--	0.2	(1/)	38.9	30.3
Hall	170.7	99.8	--	0.3	--	0.1	0.4	0.2
Haralson	123.1	100.0	--	--	--	(1/)	(1/)	--
Hart	70.3	100.0	--	--	--	(1/)	(1/)	--
Heard	143.7	100.0	--	--	--	--	--	--
Henry	98.4	100.0	--	--	--	(1/)	(1/)	--
Jackson	99.1	99.5	--	--	0.5	(1/)	0.5	0.5
Lumpkin	109.9	66.9	54.1	--	0.3	(1/)	54.4	33.1
Madison	89.6	100.0	--	--	--	(1/)	(1/)	--
Meriwether	229.2	98.2	--	--	2.6	1.6	4.2	1.8
Murray	130.3	77.9	34.9	--	1.9	0.1	36.9	22.1
Newton	102.6	99.9	--	--	--	0.1	0.1	0.1
Oconee	52.8	98.0	--	1.1	--	--	1.1	2.0
Oglethorpe	172.4	98.0	--	3.6	--	(1/)	3.6	2.0
Paulding	143.5	99.9	--	--	--	0.1	0.1	0.1
Pickens	112.8	100.0	--	--	--	(1/)	(1/)	--
Polk	111.3	99.9	--	--	--	0.1	0.1	0.1
Rabun	69.9	33.5	137.6	--	1.1	--	138.7	66.5
Rockdale	41.5	100.0	--	--	--	(1/)	(1/)	--
Spalding	62.9	99.5	--	--	0.2	0.1	0.3	0.5
Stephens	55.5	73.5	19.9	--	(1/)	0.1	20.0	26.5
Towns	35.3	39.9	52.4	0.7	--	--	53.1	60.1
Troup	204.8	100.0	--	--	--	0.1	0.1	(2/)
Union	66.3	42.7	86.4	2.5	0.1	--	89.0	57.3
Walker	182.5	92.2	15.1	--	0.2	0.2	15.5	7.8
Walton	86.9	99.9	--	--	0.1	(1/)	0.1	0.1
White	88.8	69.4	39.0	--	0.1	--	39.1	30.6
Whitfield	91.9	82.5	11.0	8.3	--	0.2	19.5	17.5
Total	5,891.5	89.3	636.3	48.4	13.6	7.5	705.8	10.7

1/ Less than 50 acres.

2/ Less than 0.05 percent.

Table 19.--Net volume[1] of sawtimber by county and species group, 1953

(In million board feet)

County	Softwoods[2]	Gum, maple and yellow-poplar[3]	Other hardwoods	All species
Banks	45.9	11.1	27.5	84.5
Barrow	42.6	10.2	7.8	60.6
Bartow	78.1	--	39.6	117.7
Carroll	76.4	14.8	52.2	143.4
Catoosa	20.9	2.4	34.3	57.6
Chattooga	53.3	8.9	30.3	92.5
Cherokee	30.6	26.8	106.2	163.6
Clarke	21.2	17.6	11.4	50.2
Clayton	34.7	11.8	12.9	59.4
Cobb	80.1	14.0	9.3	103.4
Coweta	49.0	30.7	22.7	102.4
Dade	10.3	29.2	72.4	111.9
Dawson	55.2	2.3	50.1	107.6
De Kalb	107.5	5.7	61.3	174.5
Douglas	17.8	31.4	17.2	66.4
Elbert	28.9	25.5	74.7	129.1
Fannin	27.6	24.5	202.6	254.7
Fayette	22.9	31.1	15.1	69.1
Floyd	138.3	19.8	45.7	203.8
Forsyth	21.4	--	6.0	27.4
Franklin	39.2	20.4	37.5	97.1
Fulton	142.8	23.7	87.1	253.6
Gilmer	49.0	61.9	221.4	332.3
Gordon	36.9	2.2	20.3	59.4
Gwinnett	49.7	47.5	35.2	132.4
Habersham	133.0	16.7	100.7	250.4
Hall	104.4	9.4	47.0	160.8
Haralson	37.5	70.6	38.6	146.7
Hart	24.6	9.6	10.6	44.8
Heard	60.1	30.8	15.4	106.3
Henry	58.8	9.4	56.3	124.5
Jackson	36.4	10.7	6.2	53.3
Lumpkin	60.5	7.5	98.6	166.6
Madison	50.1	69.5	52.5	172.1
Meriwether	66.1	44.5	146.3	256.9
Murray	88.2	5.6	78.4	172.2
Newton	68.2	23.7	58.9	150.8
Oconee	55.2	15.3	8.0	78.5
Oglethorpe	116.1	49.5	24.1	189.7
Paulding	50.3	23.0	25.9	99.2
Pickens	49.5	17.7	28.6	95.8
Polk	26.2	2.9	23.1	52.2
Rabun	322.0	61.2	213.4	596.6
Rockdale	6.9	14.5	2.3	23.7
Spalding	30.1	25.5	16.0	71.6
Stephens	60.8	3.9	53.5	118.2
Towns	14.3	20.6	148.2	183.1
Troup	91.3	57.0	17.0	165.3
Union	88.7	25.8	248.9	363.4
Walker	79.1	20.4	86.6	186.1
Walton	50.2	26.5	16.8	93.5
White	47.6	15.0	80.9	143.5
Whitfield	57.0	6.2	25.2	88.4
Total	3,213.5	1,166.5	3,028.8	7,408.8

1/ Log scale, International 1/4-inch rule.

2/ Includes pine, hemlock, and cedar.

3/ Includes other soft-textured hardwoods.

Table 20.--Net volume[1/] of all timber by county, pulping species group, and tree-diameter group, 1953

(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	
Banks	357	35	--	--	110	19	87	49	657
Barrow	143	60	--	--	22	17	42	13	297
Bartow	345	66	--	--	--	--	100	77	588
Carroll	383	53	--	--	83	33	149	108	809
Catoosa	75	18	2	3	5	5	81	53	242
Chattooga	279	53	--	--	27	21	156	60	596
Cherokee	206	39	--	--	20	70	456	171	962
Clarke	113	16	--	--	44	34	26	26	259
Clayton	141	40	--	--	78	22	31	28	340
Cobb	281	92	--	--	7	31	51	17	479
Coweta	376	29	--	--	67	75	55	51	653
Dade	58	6	14	--	27	63	266	141	575
Dawson	151	83	--	--	--	6	88	71	399
De Kalb	290	141	--	--	19	12	110	136	708
Douglas	190	--	--	--	69	59	138	39	495
Elbert	361	14	4	3	96	54	135	172	839
Fannin	121	15	8	7	92	56	492	387	1,178
Fayette	110	26	--	--	95	60	61	37	389
Floyd	411	183	--	--	14	41	43	104	796
Forsyth	139	4	--	--	--	--	28	10	181
Franklin	190	24	1	--	8	48	121	83	475
Fulton	446	215	--	--	88	47	248	177	1,221
Gilmer	324	7	45	8	78	131	914	379	1,886
Gordon	224	26	--	--	79	--	41	36	406
Gwinnett	212	47	--	--	20	121	47	84	531
Habersham	334	146	--	--	49	31	365	187	1,112
Hall	479	60	--	--	41	23	256	105	964
Haralson	268	12	--	--	143	153	163	71	810
Hart	169	15	--	--	72	20	98	25	399
Heard	318	64	--	--	85	49	135	27	678
Henry	361	27	--	--	15	18	115	121	657
Jackson	210	22	4	--	24	22	6	13	301
Lumpkin	334	9	30	61	33	10	393	167	1,037
Madison	244	35	--	--	137	124	101	125	766
Meriwether	524	65	--	--	202	74	301	301	1,467
Murray	524	38	13	33	6	10	325	129	1,078
Newton	278	49	--	--	42	53	99	143	664
Oconee	230	57	5	--	25	31	55	18	421
Oglethorpe	839	64	--	--	125	98	74	50	1,250
Paulding	357	15	--	--	137	39	131	30	709
Pickens	265	55	--	--	26	25	50	52	473
Polk	280	10	--	--	3	5	174	40	512
Rabun	540	322	76	105	80	115	622	428	2,288
Rockdale	78	4	1	--	27	31	20	3	164
Spalding	198	20	--	--	71	52	23	35	399
Stephens	252	45	4	--	20	8	149	94	572
Towns	73	--	--	--	38	48	274	299	732
Troup	1,022	31	2	--	206	123	115	38	1,537
Union	222	44	14	54	77	53	358	496	1,318
Walker	405	62	11	--	79	35	571	120	1,283
Walton	277	49	--	--	83	56	50	42	557
White	221	56	11	--	41	35	240	166	770
Whitfield	320	31	--	--	62	12	224	31	680
Total	15,548	2,699	245	274	3,097	2,378	9,453	5,865	39,559

1/ Sound wood and bark.

Table 20.--Net volume[1/] of all timber by county, pulping species group, and tree-diameter group, 1953 (cont'd.)

(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	
Banks	55	13	--	--	16	9	43	21	157
Barrow	43	12	--	--	35	16	36	16	158
Bartow	183	8	--	--	12	--	318	80	601
Carroll	69	24	--	--	52	37	190	65	437
Catoosa	11	2	--	--	2	3	29	43	90
Chattooga	65	63	--	--	52	32	356	184	752
Cherokee	57	--	--	--	6	34	58	62	217
Clarke	34	4	--	--	9	17	14	10	88
Clayton	60	23	--	--	14	24	34	22	177
Cobb	39	20	--	--	23	36	68	22	208
Coweta	167	59	--	--	72	75	68	35	476
Dade	11	--	--	--	63	32	139	149	394
Dawson	55	32	--	17	52	9	281	137	583
De Kalb	109	36	--	--	34	11	88	93	371
Douglas	40	3	--	--	71	42	155	50	361
Elbert	149	--	--	--	5	30	34	59	277
Fannin	18	12	4	--	68	49	277	285	713
Fayette	14	2	--	--	52	67	34	26	195
Floyd	160	32	--	--	27	45	266	238	768
Forsyth	131	25	--	--	--	--	100	66	322
Franklin	9	13	--	--	22	16	53	56	169
Fulton	149	10	--	--	126	124	131	196	736
Gilmer	29	7	11	18	65	74	554	415	1,173
Gordon	132	16	--	--	56	10	189	66	469
Gwinnett	320	54	--	--	70	164	59	46	713
Habersham	10	4	--	--	23	20	243	114	414
Hall	86	25	--	--	9	5	102	73	300
Haralson	31	5	--	--	63	68	151	46	364
Hart	4	--	--	--	13	4	18	22	61
Heard	68	11	--	--	44	27	56	130	336
Henry	47	8	--	--	24	15	23	60	177
Jackson	118	37	--	--	42	23	23	31	274
Lumpkin	66	28	--	--	83	2	151	161	491
Madison	45	6	--	--	80	85	44	40	300
Meriwether	110	48	--	--	63	34	164	118	537
Murray	115	23	--	--	68	18	244	170	638
Newton	70	21	--	--	16	15	41	62	225
Oconee	29	5	--	--	33	18	1	13	99
Oglethorpe	96	29	--	--	140	62	93	41	461
Paulding	173	--	--	--	83	10	99	54	419
Pickens	185	23	2	4	24	15	219	85	557
Polk	24	5	--	--	9	1	132	38	209
Rabun	46	8	--	--	48	40	367	273	782
Rockdale	23	4	--	--	1	7	29	4	68
Spalding	64	11	--	--	25	11	10	27	148
Stephens	33	19	--	--	17	2	84	79	234
Towns	--	--	--	--	22	30	201	263	516
Troup	106	18	--	--	60	58	93	8	343
Union	22	2	19	19	50	33	340	289	774
Walker	35	6	--	--	67	19	361	248	736
Walton	123	32	--	--	34	21	72	25	307
White	11	--	2	--	14	46	176	182	431
Whitfield	25	--	--	--	33	24	184	12	278
Total	3,874	848	38	58	2,192	1,669	7,295	5,110	21,084

1/ Sound wood and bark.

Table 21.--Average annual volume of sawtimber cut by county[1/] and species group

(In thousand board feet)

County	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Banks	6,303	--	796	535	7,634
Barrow	4,857	--	1,202	842	6,901
Bartow	1,557	--	--	1,384	2,941
Carroll	12,340	--	394	897	13,631
Catoosa	2,626	--	207	445	3,278
Chattooga	5,026	--	--	--	5,026
Cherokee	29,027	--	7,115	6,214	42,356
Clarke	6,558	--	--	--	6,558
Clayton	4,047	--	--	--	4,047
Cobb	7,926	--	--	--	7,926
Coweta	31,689	--	5,165	1,858	38,712
Dade	5,059	3,124	6,325	2,584	17,092
Dawson	5,276	--	--	990	6,266
De Kalb	7,345	--	--	--	7,345
Douglas	1,526	--	3,126	636	5,288
Elbert	11,565	--	1,273	697	13,535
Fannin	1,529	--	--	9,024	10,553
Fayette	6,620	--	1,507	--	8,127
Floyd	14,632	--	670	1,609	16,911
Forsyth	--	--	--	2,114	2,114
Franklin	7,619	--	--	2,429	10,048
Fulton	9,533	--	1,702	478	11,713
Gilmer	1,463	356	9,930	7,055	18,804
Gordon	8,431	--	--	--	8,431
Gwinnett	11,378	--	885	--	12,263
Habersham	8,947	--	--	511	9,458
Hall	16,619	--	731	3,141	20,491
Haralson	9,914	--	--	2,543	12,457
Hart	898	--	--	269	1,167
Heard	13,448	--	908	3,050	17,406
Henry	22,473	--	5,886	558	28,917
Jackson	12,157	--	443	--	12,600
Lumpkin	9,244	--	1,540	4,742	15,526
Madison	2,874	300	--	1,153	4,327
Meriwether	25,674	--	21,540	954	48,168
Murray	23,678	--	--	1,671	25,349
Newton	10,922	--	1,605	3,577	16,104
Oconee	5,132	--	3,963	292	9,387
Oglethorpe	8,441	--	--	--	8,441
Paulding	7,749	--	6,048	--	13,797
Pickens	4,855	--	--	--	4,855
Polk	8,436	--	--	655	9,091
Rabun	6,536	2,645	1,720	4,114	15,015
Rockdale	8,987	--	--	539	9,526
Spalding	22,559	--	4,061	--	26,620
Stephens	2,163	--	--	2,250	4,413
Towns	--	--	--	3,157	3,157
Troup	7,937	--	1,531	334	9,802
Union	5,552	--	--	1,530	7,082
Walker	20,480	--	--	2,012	22,492
Walton	10,440	--	4,310	--	14,750
White	1,845	--	--	1,504	3,349
Whitfield	8,353	--	--	--	8,353
Total	490,245	6,425	94,583	78,347	669,600

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 22.--Average annual volume of growing stock cut by county[1/] and species group

(In thousand cords)

County	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species
Banks	36	--	3	2	41
Barrow	15	--	3	2	20
Bartow	9	--	--	4	13
Carroll	47	--	4	17	68
Catoosa	16	--	1	2	19
Chattooga	18	--	--	9	27
Cherokee	113	--	20	21	154
Clarke	22	--	--	--	22
Clayton	14	--	--	--	14
Cobb	33	--	--	--	33
Coweta	118	--	25	5	148
Dade	21	8	15	7	51
Dawson	21	--	1	4	26
De Kalb	25	--	--	--	25
Douglas	6	--	8	2	16
Elbert	51	--	10	19	80
Fannin	7	--	--	24	31
Fayette	25	--	6	--	31
Floyd	55	--	2	5	62
Forsyth	1	--	--	24	25
Franklin	31	--	--	9	40
Fulton	43	--	5	2	50
Gilmer	8	2	24	21	55
Gordon	31	--	--	--	31
Gwinnett	46	--	3	--	49
Habersham	28	--	--	2	30
Hall	83	--	2	9	94
Haralson	36	--	--	9	45
Hart	10	--	--	2	12
Heard	49	--	3	8	60
Henry	78	--	15	2	95
Jackson	49	1	1	--	51
Lumpkin	35	--	4	18	57
Madison	19	1	--	4	24
Meriwether	81	--	56	12	149
Murray	90	--	--	5	95
Newton	47	1	4	9	61
Oconee	20	--	11	1	32
Oglethorpe	51	--	--	--	51
Paulding	36	--	15	--	51
Pickens	32	--	--	--	32
Polk	25	--	--	2	27
Rabun	22	6	6	11	45
Rockdale	44	--	--	2	46
Spalding	78	--	10	--	88
Stephens	8	--	--	10	18
Towns	--	--	--	7	7
Troup	40	--	4	1	45
Union	21	--	1	12	34
Walker	70	--	--	8	78
Walton	44	--	15	1	60
White	8	--	--	7	15
Whitfield	25	--	--	--	25
Total	1,941	19	277	321	2,558

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, 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 are the criteria.

Pine types: Forests in which 50 percent or more of the stand is in pine species. Plurality of volume or number of trees is used to determine the specific type.

Oak-pine type: Forests in which 50 percent or more of the stand is hardwood, usually upland oaks, but in which southern yellow pines make up 25-49 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, maple, gum, and other hardwoods, except where pines comprise 25-49 percent of the stand.

Scrub oak: Upland forests in which 50 percent or more of the stand is composed of scrub oak species, except where pines comprise 25-49 percent of the stand.

Oak-gum-cypress type: Bottomland forests in which 50 percent or more of the stand is tupelo, blackgum, sweetgum, ash, oak, cypress, elm, maple, and associated species, except where pines comprise 25-49 percent of the stand.

Stand-Size Classes

Sawtimber: Stands containing at least 1,500 board feet net volume per acre, 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 less of the net board-foot volume in trees 15.0 inches d.b.h. or larger.

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.

Seedling 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 at least 9.0 inches d.b.h. and hardwood trees at least 11.0 inches d.b.h., with not less than one merchantable log 12 feet long, or with less than 50 percent of the gross volume of the tree in sound sawtimber.

Poletimber trees: Straight-boled trees between 5.0 inches d.b.h. and sawtimber size.

Sapling-size trees: Trees 1.0 inch to 4.9 inches d.b.h. which will grow into poletimber or sawtimber size trees of sound quality.

Other Material

Sound cull trees: Live trees of all sizes that are unmerchantable for sawlogs 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 sawlogs now or prospectively because of rotten defect.

Hardwood limbs: The limb volume of all hardwood sawtimber and cull trees to a minimum diameter of 4.0 inches inside bark.

Species Groups

Yellow pines: Includes longleaf, slash, loblolly, Virginia, and shortleaf pine.

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

Soft-textured hardwoods: Blackgum, yellow-poplar, sweetgum, cottonwood, soft maple, basswood, cucumber, and willow.

Hard-textured hardwoods: All of the oaks, hickories, ash, beech, elm, river birch, hackberry, sycamore, black locust, mulberry, black walnut, holly, dogwood, and persimmon.

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 sawlogs.

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. and larger, between stump and a minimum top-stem diameter of 4.0 inches inside bark. Similar volumes are given for cull trees. The volume in limbs, in sections four feet long and at least 4.0 inches in diameter inside bark, of all sawtimber-size hardwoods is shown separately.

Volume in cubic feet: Same as volume shown in cords except 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 73 cubic feet of solid wood.

Growth and Timber Cut

Net growth.--The estimated volume of net growth includes the growth on the present growing stock, the growth on trees which died or were cut during the year, and the ingrowth resulting from smaller trees reaching volume size. It excludes mortality, or loss of volume in trees dying from natural causes. Net growth estimates are based on growth of sound trees. Growth of "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 sawlog 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.

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) nonsampling 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 nonsampling errors are minimized or eliminated through training, supervision, field check cruises, and complete editing and machine verification in compiling the data.

The sampling intensity of the 1953 survey was sufficient to provide estimates of commercial forest area and timber volumes for each survey unit as given below. The probabilities are two out of three that the total estimates shown in the tables do not differ from the actual totals by more than the sampling error indicated.

Survey unit	Forest area	Board-foot volume	Cubic-foot volume
North Central	±1.3	±3.7	±2.8
North	±1.0	±5.5	±4.2

The standard error of volume in terms of standard cords was not computed, but it should be approximately the same as the error of cubic volume.

Use of county data.--The tables showing area and timber volumes by county are included to permit grouping of the data in any desired combinations. The survey was designed so that the number of sample plots taken in each county would provide an estimate of the timber volume in cubic feet which would not exceed ±15 percent. The actual range of error of the cubic volume estimates by county is from ±14.0 percent to ±15.4 percent. The errors of board-foot volume estimates by county range from ±18.6 percent to ±23.4 percent, and of forest area from ±2.6 percent to ±12.3 percent.

In spite of the accuracy limit set on volume estimates by county, comparison of individual county statistics may be subject to considerable error and should be avoided. Grouping the data for a number of counties will increase the reliability and make the combined estimates sufficiently accurate for general use. For example, grouping the growing stock volume data for four counties with errors ranging from 14 to 15 percent resulted in a total volume estimate with only 8 percent error. Where estimates of timber volume cut by county are used, the data for at least ten counties should be combined.

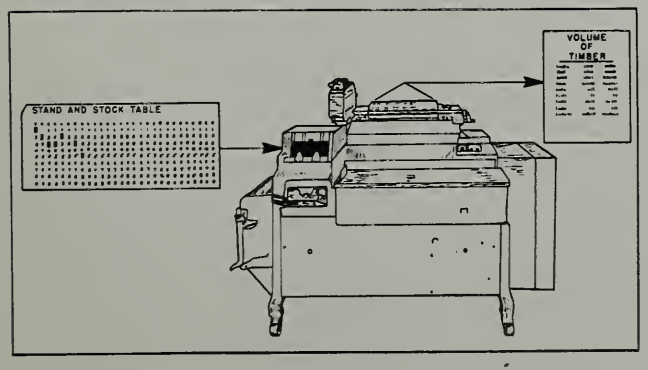
HOW THE FOREST INVENTORY IS MADE

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, and mortality. 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

Southeastern Forest Experiment Station

No. 21 - 1945 Pulpwood Production by County in the Carolinas and Virginia

No. 22 - Southern Forests as a Source of Pulpwood

No. 23 - 1946 Pulpwood Production by County in the Southeast

No. 24 - Southern Pulpwood Production and the Timber Supply

No. 25 - Forest Resources of the Lower Coastal Plain of South Carolina

No. 26 - 1946 Commodity Drain by County from South Carolina Forests

No. 27 - 1947 Pulpwood Production by County in the Southeast

No. 28 - South Carolina's Forest Resources, 1947

No. 29 - 1948 Pulpwood Production by County in the Southeast

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. 35 - 1949 Pulpwood Production in the South (Out of print)

No. 36 - Forest Statistics for Florida, 1949

No. 37 - Forest Statistics for Southwest Georgia, 1951

No. 38 - 1951 Pulpwood Production in the South

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

OTHER REPORTS

Pulpwood Production in the South, 1950. Forest Survey Release No. 69

1952 Pulpwood Production in the South. Forest Survey Release No. 72

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

Agriculture--Asheville