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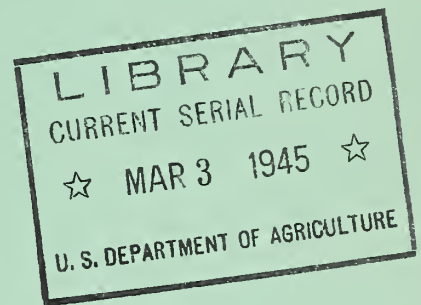
NORTH CAROLINA FOREST GROWTH AND DRAIN
1937 - 1943

by

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A FOREST SURVEY PROGRESS REPORT

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PREFACE

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, and each of the 11 Regional Forest Experiment Stations is responsible for the work in its territory. In the Middle Atlantic States the Forest Survey is an activity of the Appalachian Forest Experiment Station, Asheville, North Carolina.

The work of the Survey is divided into five major phases:

1. Inventory. Determination of the extent, location, and condition of forest lands, and the quantity, species, and quality of timber on these lands.
2. Growth. Determination of the current rate of timber growth.
3. Drain. Determination of the amount of industrial and domestic wood used, and the total loss resulting from fire, insects, disease, suppression, and other causes.
4. Requirements. Determination of the current and probable future requirements for forest products by all classes of consumers.
5. Policies and plans. Analysis of the relation of these findings to one another and to other economic factors as a basis for public and private policies and plans of forest land use and management.

This progress report summarizes growth and drain information for the 7-year period, 1937-1943, and deals specifically with forest growth and drain, by survey units, for each year since the original forest inventory of the State.

Grateful acknowledgment is given Miss Agnes Creasman, of the Survey staff, who was responsible for compiling most of the statistics in this report.

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SUMMARY

1. In the 7-year period, 1937-1943, pine saw timber decreased 2 percent in volume, cypress decreased 9 percent, but hardwood increased 1 percent.
2. The average annual net growth of saw timber for the seven years has been 2.3 billion board feet, 1.7 of softwoods and 0.6 of hardwoods. The total sound-tree growing stock increased at an average annual rate of 9.3 million cords, 5.7 of softwoods and 3.6 of hardwoods.
3. Over the 7-year period, drain from saw timber has averaged 2.4 billion board feet per year, 1.8 of softwoods and 0.6 of hardwoods. For the same period annual drain on all sound trees has averaged 8.6 million cords, 6.0 of softwoods and 2.6 of hardwoods.
4. In the three war years, 1941, 1942, and 1943, saw-timber drain was 15 percent greater than in the four previous years, and total drain of all sound trees was 12 percent greater.
5. The hardwood saw timber decreased nearly 5 percent in seven years in the mountains, but elsewhere in the State it increased. In the piedmont the pine saw timber decreased 16 percent, and hardwoods now make up 45 percent of the total stand compared to 40 percent in 1937.
6. Trends over the 7-year period point toward an increase in the volume of low-quality hardwoods, a reduction in the average size of the saw timber, and a growing scarcity of operable saw-timber stands of good quality.
7. The change in the forest growing stock of the State is indicated below:

(Saw timber - in million board feet)

Item	Pines	Cypress	Hardwoods	Total
Growing stock, Jan. 1, 1937	27,290	1,424	14,056	42,770
Growing stock, Jan. 1, 1944	26,787	1,296	14,206	42,289
Net change	-503	-128	+150	-481
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	-1.8	-9.0	+1.1	-1.1

(All sound trees, 5.0" d.b.h. & larger - in M cords)

Growing stock, Jan. 1, 1937	106,647	4,643	83,201	194,491
Growing stock, Jan. 1, 1944	105,169	4,297	90,326	199,792
Net change	-1,478	-346	+7,125	+5,301
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	-1.4	-7.5	+8.6	+2.7

NORTH CAROLINA FOREST GROWTH AND DRAIN

1937 - 1943

It is generally recognized that the present war has caused a heavy drain upon the forest resources of our nation. To date very little information, based upon actual records of forest growth and timber drain, has been published.

This report presents, for North Carolina, the change in the timber supply from the time of the original Forest Survey, made in 1937 and 1938, through December 31, 1943. It includes a very brief description of the forest resource and a more detailed discussion of forest growth and drain and trend in timber supply.

In most cases the tables in the text are summaries for the State; for those interested in more detail, two series of tables have been included in the Appendix. They show for each year in board feet and cords, forest drain by product and survey unit, and a comparison of forest growth and drain by survey units. The area included in each of the survey units is outlined in figure 1.

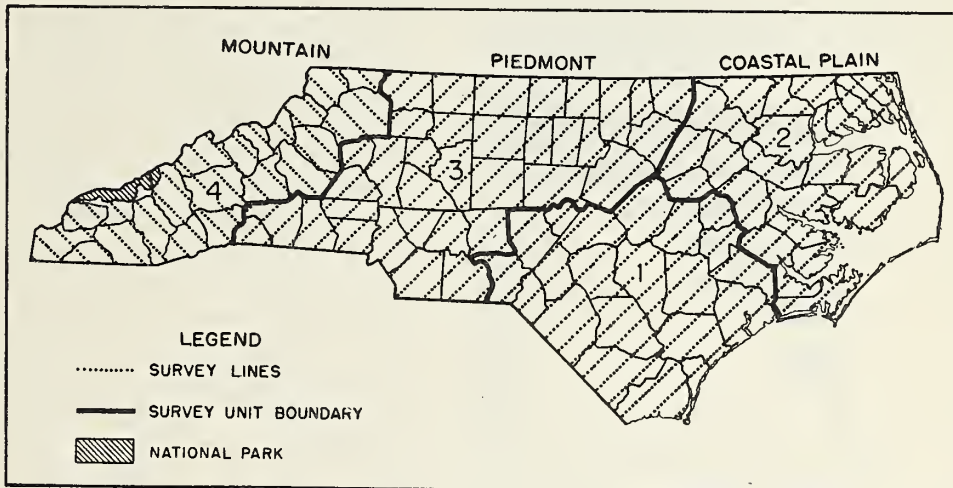


Figure 1. -- Regions, survey units, and location of survey lines in North Carolina.

THE FOREST RESOURCE^{1/}

In 1938, forests occupied 18.4 million acres, 59 percent, of North Carolina's land area (table 1). Nearly 71,000 acres were so sandy, swampy, or rocky that they were considered unsuitable for timber growing, and about 227,000 acres had been withdrawn from commercial use in the Great Smoky Mountains National Park, so the total area of productive forest land amounted to 18.1 million acres. The coastal plain, with almost 9.6 million acres, contained 53 percent of all the forested area. Of the rest, 5 million acres were located in the piedmont and 3.6 million in the mountains. About two-thirds of the coastal plain and mountains were forest covered, but only 47 percent of the piedmont.

Table 1. - Land use in North Carolina, 1938.

Land use	Total area	
	Acres	Percent
Forest:		
Productive	18,101,700	58.1
Other	298,100	0.9
Agriculture	11,148,600	35.7
Abandoned cropland	326,800	1.1
Other nonforest	1,318,400	4.2
All uses	31,193,600	100.0

Kind of Timber

Forest types: The forest is composed of a great variety of species but a few dominate large areas. The loblolly pine forest is most prevalent, occupying 26 percent of the forest land in the State (figure 2). Though chiefly confined to the coastal plain, it also occurs on about 640,000 acres

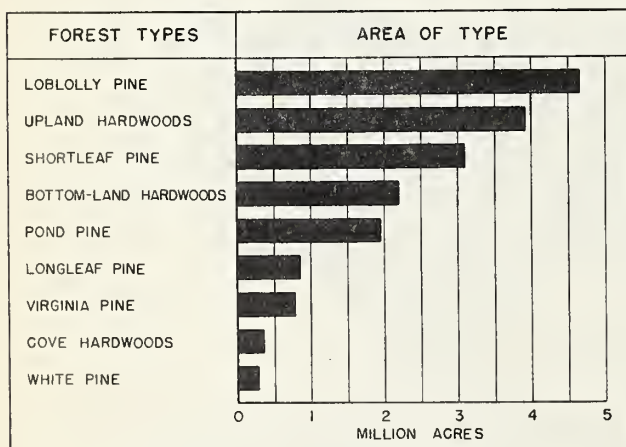


Figure 2. - Area of forest types in North Carolina, 1938.

along the eastern margin of the piedmont. Upland hardwoods, the typical forest cover in the mountains, rank next to loblolly pine in area. Fifty-five percent of the upland hardwood acreage is located in the mountains, 31 percent in the piedmont, and only 14 percent in the coastal plain. The shortleaf pine forest ranks third in area and is the predominating type in the piedmont. Other less important forest types include the hardwoods growing along the larger rivers, the pond pine of the coastal pocosins, the longleaf pine of the sandhill area, the Virginia pine growing on the old fields of the piedmont, the cove hardwoods of the mountains, and the white pine growing chiefly on the east slope of the Blue Ridge. Altogether these forests occupy 36 percent of the forested land.

^{1/}For a more complete description of the forest resources of North Carolina see: Cruikshank, J. W. North Carolina Forest Resources and Industries. USDA Misc. Pub. 533, 76 pp., illus., 1943.

Forest conditions: The pine forests are composed chiefly of second-growth timber. In 1938 only 6 percent of the pine land was stocked with old growth, 48 percent was stocked with second growth large enough for saw timber, and 46 percent was growing either saplings or small seedlings. In general, these proportions were the same in all three sections of the State.

The hardwood forests contained a higher proportion of old-growth timber and stands too young for saw timber. About 20 percent of the hardwood area was stocked with old growth, only 30 percent with second-growth saw timber, while 50 percent was young second growth. Old-growth hardwood is most common in the coastal plain and young second growth is most common in the mountains. Some clear-cut land was found in all the forest types, but less than 2 percent of the forest land in the State was so classified.

Volume in Board Feet

At the beginning of 1938 the total volume of saw timber, in pine trees 9.0 inches and larger in diameter at breast height, and in hardwoods and cypress 13.0 inches and larger, was 43.6 billion board feet according to the International $\frac{1}{4}$ -inch rule. Nearly 29 billion feet was softwood, including the pines, cypress, cedars, hemlock, spruce, and fir, and 14.8 billion feet was hardwood. Over one-third of all the saw timber was loblolly pine (figure 3).

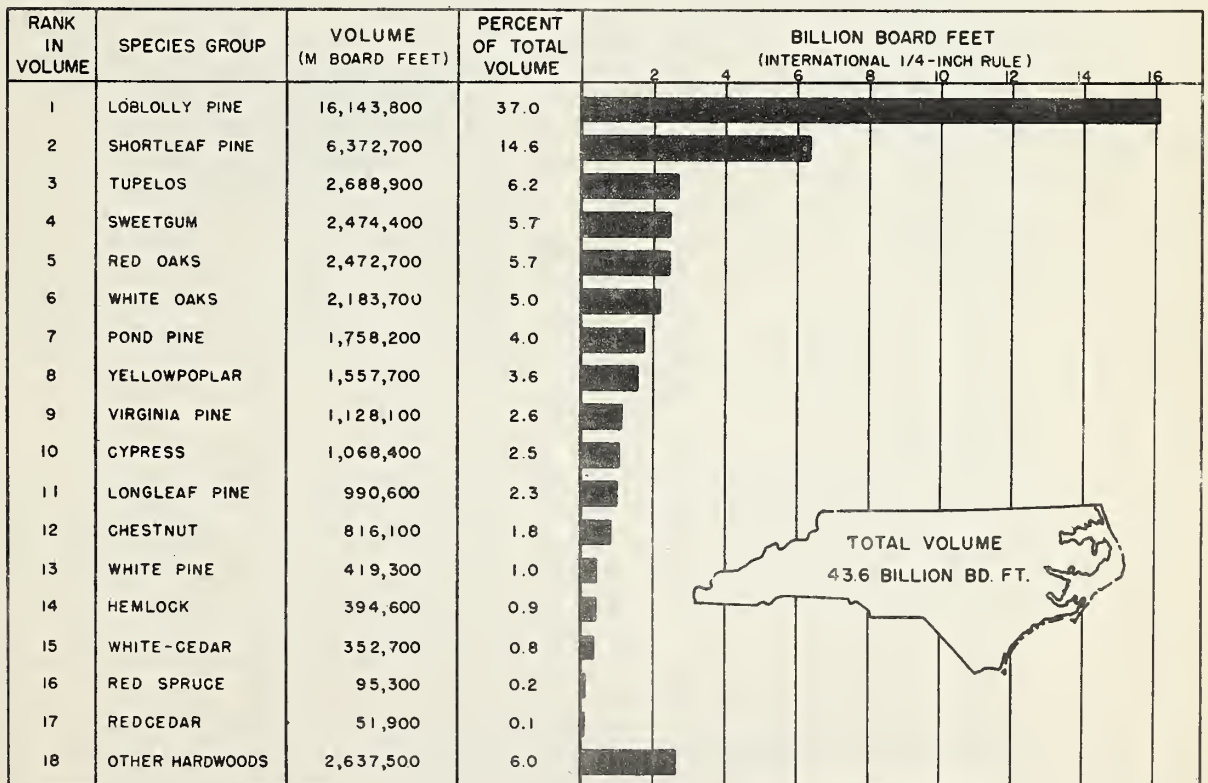


Figure 3. -- The volume of saw timber by species, North Carolina, 1938.

By forest condition: The distribution of the softwood saw-timber volume was as follows: merchantable second-growth stands, 73 percent; old-growth stands, 22 percent; scattered trees in young second growth, 5 percent. In contrast, 50 percent of the hardwood timber was in old-growth stands, only 43 percent was in merchantable second growth, and scattered trees in young stands comprised the rest.

By diameter class: In the coastal plain and mountains 60 percent of the softwood saw timber was in trees over 13.0 inches d.b.h., but in the piedmont only 42 percent occurred in these larger trees. Over one-half of the hardwood saw-timber volume in the mountains was in trees over 19.0 inches d.b.h., a higher proportion than elsewhere in the State. The distribution of the saw-timber volume by species and tree-diameter class is shown for the entire State in table 2.

Table 2. - Distribution of the net saw-timber volume^{1/} by species group and tree-diameter class, 1938.

Species group	10-12 inches	14-18 inches	20-24 inches	26+ inches
	Percent	Percent	Percent	Percent
<u>SOFTWOODS</u>				
Loblolly pine	39	45	13	3
Shortleaf pine	59	34	6	1
Pond pine	51	44	4	1
Longleaf pine	41	45	13	1
Virginia pine	70	29	1	Negl.
White pine	28	37	22	13
Hemlock	8	21	21	50
Red spruce	35	51	14	Negl.
Redcedar	61	29	10	Negl.
White cedar	50	43	5	2
Cypress	25	37	23	15
All softwoods	44	41	11	4
<u>HARDWOODS</u>				
Sweetgum	-	63	25	12
Black & water tupelo	-	59	30	11
Yellowpoplar	-	62	26	12
Red oaks	-	54	30	16
White oaks	-	52	27	21
Chestnut	-	30	34	36
Other hardwoods	-	67	23	10
All hardwoods	-	58	27	15

^{1/}Measured by International $\frac{1}{4}$ -inch rule.

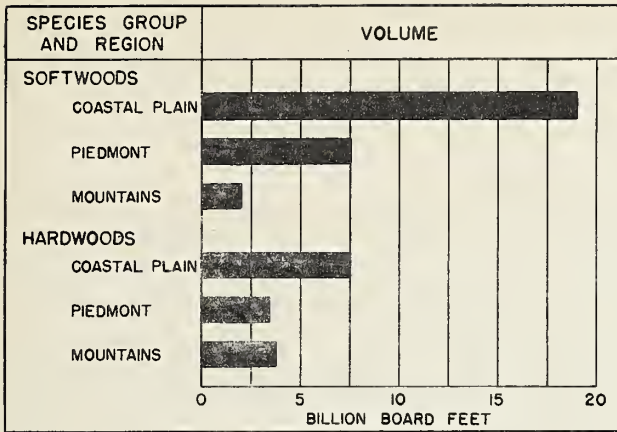


Figure 4. - Distribution of board-foot volume (International 1/4-inch rule), 1938.

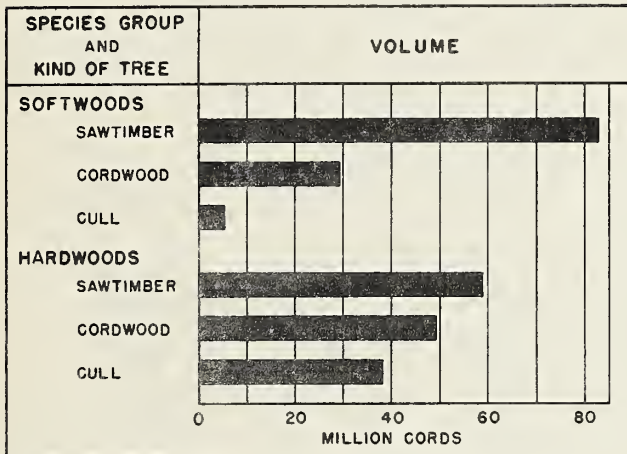


Figure 5. - Distribution of the total volume of wood in North Carolina, 1938

By location: Two-thirds of the softwood and one-half of the hardwood saw timber was in the coastal plain (figure 4). The piedmont contained one-fourth of both the softwood and hardwood saw timber, whereas the mountain section, with its relatively small area, contained less than one-tenth of the softwood and one-fourth of the hardwood

Volume in Cords

In 1938 the total quantity of all sound wood amounted to 264 million cords. All trees above 5.0 inches in diameter at breast height made up this volume. For saw timber and cordwood trees the complete trunk to a minimum 4-inch top is included, but the volume in cull trees includes only the sound wood. The volume in hardwood saw-timber trees also includes the sound wood in limbs 4.0 inches in diameter, or larger. The distribution of the total volume by classes of trees is indicated in figure 5.

NET GROWTH OF TIMBER, 1937-1943

Net growth is the net volume of wood produced by the forest growing stock after the volume of wood lost through mortality is deducted. It is the maximum amount of wood that can be utilized each year without reducing the forest capital. In understocked stands, generally characteristic of the State, it is desirable to limit the cut to less than the growth in order to build up the growing stock.

Growth in Board Feet

The average annual net growth of saw timber in the seven years 1937-1943 has been 2.3 billion board feet, 1.7 billion feet of softwoods and 0.6 billion feet of hardwoods. Contrary to popular belief the annual net growth of saw timber has not fallen off during the war years (table 3) and in the softwoods has actually increased. Since the softwood growing

stock decreased slightly in the 7-year period, this stable level of growth can be explained by the fact that the present saw-timber stand is made up of younger, faster growing trees than was the case in 1937. Unfortunately, this also means that the quality of the saw timber is poorer.

Growth in Cords

The total sound-tree growing stock 5.0 inches d.b.h. and larger grew at an average rate of 9.3 million cords per year, 5.7 million of softwoods, and 3.6 million of hardwoods. Here again the yield of wood in 1943 was greater than in 1937, in the softwoods by 4 percent. Indications are that the forests of North Carolina are being cut over at more and more frequent intervals, thus reducing the average age of the stand. These younger trees grow at a faster rate, 5.5 percent for pines in 1943 as against 5.2 percent in 1937, and the net effect is a larger volume of net growth from a smaller volume of growing stock. If this trend is carried to the extreme, however, the timber stands will consist chiefly of young saplings.

Table 3. - Net growth of timber in North Carolina, 1937-1943.

Year	Saw timber ^{1/}			All sound trees - 5.0" d.b.h. & larger		
	Softwoods ^{2/}	Hardwoods	Total	Softwoods ^{2/}	Hardwoods	Total
	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords
1937	1,661	638	2,299	5,589	3,549	9,138
1938	1,662	637	2,299	5,580	3,597	9,177
1939	1,671	637	2,308	5,671	3,549	9,220
1940	1,680	638	2,318	5,688	3,571	9,259
1941	1,680	638	2,318	5,722	3,751	9,473
1942	1,677	638	2,315	5,764	3,635	9,399
1943	1,679	637	2,316	5,833	3,670	9,503
Avg.	1,673	637	2,310	5,693	3,617	9,310

^{1/}Measured by International $\frac{1}{4}$ -inch rule.

^{2/}Includes cypress.

FOREST DRAIN, 1937-1943

As used in this report the amount of timber cut, i.e., forest drain, represents the amount of sound, live timber cut from the forest growing stock of the State. Products cut from dead chestnut are not considered as forest drain, neither is wood cut from sound or rotten cull trees. This procedure makes possible a direct comparison of drain with the net growth of the sound-tree growing stock.

Forest drain will not exactly equal production or consumption of wood by the forest industries within a Forest Survey unit or the State. This is because wood is brought into the State or a survey unit for manufacture and some is also shipped out. In addition, production figures do not include the volume of merchantable top logs sometimes left unutilized in the woods.

Forest Drain for All Products

Detailed tables showing drain by species groups, Forest Survey units, and commodities for each year from 1937 through 1943 can be found on pages 23 to 29 in the Appendix. They are essentially work tables for those interested in making a careful appraisal of specific items of forest drain.

Drain in board feet: A summary of these detailed tables shows that the volume of wood cut in the State from trees of saw-timber size has averaged 2.4 billion board feet per year in the 7-year period from January 1, 1937, to January 1, 1944, (table 4). In the four prewar years, 1937 through 1940, the average annual cut was 2.2 billion board feet, whereas in 1941, 1942, and 1943 the average annual cut was 2.6 billion feet, an increase of about 15 percent due to wartime demands. The rate of increased cutting was about the same in the softwoods and hardwoods.

Drain in cords: The total drain from all sound trees 5.0 inches d.b.h. and larger, including saw timber, has averaged 8.6 million cords per year over the 7-year period. In 1941, 1942, and 1943 average annual drain was 12 percent greater than in the four prewar years, with the softwoods showing an increase of 13 percent and the hardwoods only 8 percent.

Table 4. - Forest drain for all products in North Carolina, 1937-1943.

Year	Saw timber ^{1/}			All sound trees - 5.0" d.b.h. & larger		
	Softwoods ^{2/}	Hardwoods	Total	Softwoods ^{2/}	Hardwoods	Total
	<u>Million bd. ft.</u>	<u>Million bd. ft.</u>	<u>Million bd. ft.</u>	<u>M cords</u>	<u>M cords</u>	<u>M cords</u>
1937	1,702	660	2,362	5,697	2,683	8,380
1938	1,692	530	2,222	5,666	2,289	7,955
1939	1,540	530	2,070	5,437	2,565	8,002
1940	1,683	588	2,271	5,744	2,519	8,263
1941	1,913	691	2,604	6,399	2,751	9,150
1942	1,968	642	2,610	6,555	2,652	9,207
1943	1,841	674	2,515	6,172	2,738	8,910
Avg.	1,763	616	2,379	5,953	2,599	8,552

^{1/}Measured by the International $\frac{1}{4}$ -inch rule.

^{2/}Includes cypress.

The major change in the distribution of the drain by commodity has been the significant increase in the amount of pulpwood cut from the softwoods (table 5). In 1937, only 3 percent of the softwood drain went into pulpwood; in 1943 this had increased to 7.5 percent. Very little change has occurred in the pattern of hardwood use. About 95 percent of the drain on the forest growing stock is caused by sawlog, fuelwood, pulpwood, and veneer log cutting. The drain for these products is presented in some detail in the following discussion.

Table 5. - Distribution of forest drain^{1/} by commodity, 1937 and 1943.

Commodity	Softwoods		Hardwoods		Total	
	1937	1943	1937	1943	1937	1943
	Percent	Percent	Percent	Percent	Percent	Percent
Lumber	59.6	58.3	31.1	31.0	50.5	49.9
Veneer	0.6	0.1	12.1	13.1	4.3	4.1
Cooperage	0.6	0.4	0.1	Negl.	0.5	0.3
Pulpwood	3.0	7.5	2.6	2.9	2.9	6.1
Excelsior	0.1	0.1	Negl.	Negl.	Negl.	0.1
Other manufactures	0.2	0.2	2.4	2.7	0.9	1.0
Hewn crossties	0.4	0.4	6.2	4.5	2.3	1.7
Poles and piles	1.2	0.9	Negl.	Negl.	0.8	0.6
Fuelwood	32.7	30.8	43.4	43.8	36.1	34.7
Misc. farm use	1.6	1.3	2.1	2.0	1.7	1.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

^{1/}Based upon total drain on all sound trees 5.0" d.b.h. and larger, measured in cords.

Forest Drain for Selected Products

Lumber: Most of the lumber produced in North Carolina is cut by small mills. In 1942 approximately 3,200 active mills, producing at a rate of less than 5 million feet per year, cut 87 percent of the lumber. Twenty-seven larger mills cut the remainder.

From 1905 through 1940 the reported annual production of lumber has averaged about 1.2 billion board feet lumber tally. The 1914 cut, the largest reported, was 2.2 billion feet, and the smallest was 383 million in 1932.

Table 6. - Timber cut in North Carolina for sawlogs, 1937-1943.

Year	Softwoods	Hardwoods	Total	Change from 1937-1940 average ^{1/}
	Million bd. ft.	Million bd. ft.	Million bd. ft.	
1937	1,223	316	1,539	+10
1938	1,210	248	1,458	+4
1939	1,013	203	1,216	-13
1940	1,134	243	1,377	-1
1941	1,345	324	1,669	+19
1942	1,401	301	1,702	+22
1943	1,293	324	1,617	+16

^{1/}Average annual drain 1937-1940 was 1,397,500 M board feet.

In the four prewar years, 1937 through 1940, the average annual cut of timber for sawlogs was 1.4 billion board feet (table 6), but in 1941, 1942, and 1943 the full effect of the war was reflected in a cut averaging nearly 1.7 billion feet per year, an increase of about 19 percent. This war-time drain is about 40 percent higher than the average annual

drain for sawlogs over the past 35 years, but past experience has shown that peak years are often followed by years of low lumber production. This may not be the case in the immediate postwar years, however, as there is an enormous pent-up civilian demand for lumber for new housing, new industrial and farm buildings, and repairs to existing structures. Until this demand is satisfied, sawlog drain for lumber may well exceed that of the war years.

The increased drain brought about by the war had both beneficial and detrimental effects upon the saw-timber growing stock. The intense demand for practically all species and grades made it possible to utilize low-value timber that would have been left in the woods in peacetime. Hickory, chestnut oak, beech, sycamore, and hemlock are a few of the species that have been cut much more heavily since the start of the war. This increased use of low-grade species improved the composition of the forest, and at the same time helped to reduce the intensity of the cut of the better species. Fairly high lumber prices coupled with the opportunity to utilize profitably most of the inferior species also made it possible to operate timber tracts that had formerly been considered inoperable because of inaccessibility or low volumes per acre. This also helped spread the drain over the entire growing stock.

The demand was not, however, restricted to the lower grades. Never before was there such a need for high-quality timber for special products, such as truck bodies, ship timbers, yellowpoplar aircraft lumber, and walnut gunstock blanks. Yellow pine of all grades was needed in seemingly unlimited quantities. The net result was the most intensive demand for saw timber in many years. In general, there was enough timber in the State to meet this demand, but practically all sawmill operators will agree that good stands of operable timber are becoming more and more difficult to find. Many circular mills now commonly cut less than 100,000 board feet per "set," particularly in the piedmont.

Pulpwood: In 1937 the pulp and paper industry in North Carolina was represented by plants at Canton, Roanoke Rapids, Plymouth, and a semi-chemical plant using chestnut at Sylva. The Plymouth plant began operation the latter part of 1937 and used relatively little wood in that year. 1938, therefore, marks the beginning of the present large-scale use of wood for pulp in the State.

In the three years from January 1938 through 1940 the average annual cut of timber for pulpwood (not including chestnut) was 372,800 cords, but in 1941, 1942, and 1943 it averaged 578,800 cords, an increase of 36 percent. The peak year was 1942 (table 7) with a production of 606,300 cords. The decline in 1943 was not brought about by shortage of wood, or lack of demand; rather it represents the effect of production problems such as shortages of trucks, tires, and labor. In 1942 pulpwood accounted for 8 percent of the total softwood drain, in contrast to only 3 percent in 1937.

Table 7. - Timber cut in North Carolina for pulpwood, 1937-1943.^{1/}

Year	Coastal plain	Piedmont	Mountains	State	Change from 1938-1940 average ^{2/}
	<u>Cords</u>	<u>Cords</u>	<u>Cords</u>	<u>Cords</u>	<u>Percent</u>
1937	46,900	14,700	178,400	240,000	-36
1938	184,000	18,300	88,600	290,900	-22
1939	161,200	64,400	89,800	315,400	-15
1940	272,700	79,800	159,600	512,100	+37
1941	357,900	68,500	156,300	582,700	+56
1942	371,200	73,100	162,000	606,300	+63
1943	283,700	145,200	118,400	547,300	+47

^{1/}Does not include chestnut used for pulp.

^{2/}Average annual drain 1938-1940 was 372,800 cords.

In 1943 nine pulp companies, located in South Carolina, North Carolina, Virginia, and Tennessee, were drawing wood from North Carolina. Eighty-five percent of this was softwood, chiefly yellow pine. About one-half of the wood was cut in the coastal plain; roughly equal amounts of the rest were produced in the piedmont and mountains. In 1943 there was a marked increase in the amount of pulpwood produced in the piedmont, a development brought about by the desire on the part of the pulp companies to obtain wood where competition was less keen. The shortage of tires and trucks also tended to intensify procurement from this area as wood could be placed on the railroad with shorter truck hauls than in longer established wood-producing areas.

Table 8. - Distribution of pulpwood cut by tree-diameter class. ^{1/}

Diameter class	Number of trees	Volume
<u>Inches</u>	<u>Percent</u>	<u>Percent</u>
6 - 8	42	20
10 - 12	48	56
14 - 16	9	21
18+	1	3
Total	100	100

^{1/}Based on 3,200 trees cut from pulpwood operations in the coastal plain, 1942.

The war has brought about several changes in pulpwood procurement that has affected the growing stock. Because of the urgent demand for pulp, large out-of-state plants increased their wood purchases in North Carolina, and thus contributed to the over-all increase in forest drain. Due to a shortage of company foresters and timber markers less wood was cut selectively, and the pressure for wood brought about more heavy cutting. There was also more of a tendency to cut pulpwood from trees that could have been harvested for sawlogs (table 8).

Veneer: Slightly over one billion feet of veneer logs have been cut from the forests of North Carolina in the seven years from January 1937 through 1943. This is an average of 144 million board feet per year. In the four years preceding 1941 the average annual cut was 135 million feet; in the three war years it rose to 155 million, an increase of 13 percent. The heaviest drain, 174 million feet, was in 1941 (table 9).

Table 9. - Timber cut in North Carolina for veneer, 1937-1943.

Year	Coastal plain	Piedmont	Mountains	State	Change from 1937-1940 average ₁ /
	<u>M bd. ft.</u>	<u>M bd. ft.</u>	<u>M bd. ft.</u>	<u>M bd. ft.</u>	<u>Percent</u>
1937	125,200	16,300	5,300	146,800	+9
1938	99,600	13,400	5,900	118,900	-12
1939	97,000	22,100	8,400	127,500	-6
1940	115,200	25,400	7,200	147,800	+9
1941	136,000	30,000	8,400	174,400	+29
1942	109,300	26,800	8,400	144,500	+7
1943	111,700	27,000	8,200	146,900	+9

1/Average annual drain 1937-1940 was 135,250 M bd. ft.

Probably the greatest effect of the war upon veneer-log production in North Carolina was the intense demand for select yellowpoplar logs suitable for the manufacture of aircraft veneer. In 1942 and 1943 several plants in the State were making aircraft veneer and out-of-state buyers were combing the mountains for high-grade timber. Logs were shipped to New Orleans, Knoxville, Memphis, Louisville, Evansville, and many other places at the peak of the wooden aircraft construction program. However, only a few million feet of this high-grade timber were cut for aircraft use, and the effect upon the growing stock was chiefly to reduce slightly the average value of the stand. In many respects the demand for this high-grade timber was most fortunate, as much of the timber was mature or over-mature and located as scattered trees in relatively inaccessible locations. Without the high prices received for aircraft veneer logs, some, at least, could not have been utilized.

Fuelwood: Fuelwood ranks second to lumber as a cause of drain in North Carolina. The total amount of wood burned each year for heating and cooking and curing tobacco is about 6 million cords, but only about one-half is cut directly from sound trees in the forest growing stock, the rest is obtained from cull trees and sawmill waste.

In peacetime the yearly variation in the tobacco crop is the major factor tending to change the annual fuelwood drain on the forest. In war-time local coal shortages, population shifts, and shortages of woods labor exert their influence. All of these factors have been considered in computing the amount of timber cut for fuelwood (table 10), but little change is indicated from year to year. In general, much the same kind of timber was cut in 1943 as in 1937.

Table 10. - Timber cut in North Carolina for fuelwood, 1937-1943.

Year	Coastal plain	Piedmont	Mountains	State	Change from 1937-1940 average ^{1/}
	<u>M cords</u>	<u>M cords</u>	<u>M cords</u>	<u>M cords</u>	<u>Percent</u>
1937	1,405	1,303	320	3,028	-6
1938	1,351	1,299	320	2,970	-7
1939	1,787	1,502	363	3,652	+14
1940	1,455	1,367	366	3,188	-1
1941	1,392	1,352	366	3,110	-3
1942	1,433	1,318	346	3,097	-4
1943	1,433	1,318	346	3,097	-4

^{1/}Average annual drain 1937-1940 was 3,209,500 cords.

TREND IN SUPPLY OF TIMBER

Seven years of timber utilization have caused little change in the total volume of forest growing stock in the State. The volume of trees of saw-timber size decreased 1.1 percent, but the volume in all trees 5.0 inches d.b.h. and larger increased 2.7 percent. All of the increase was in the hardwoods, where the saw-timber growing stock increased 1.1 percent and the entire hardwood growing stock 8.6 percent. The pine timber decreased nearly 2 percent and the cypress at a much faster rate (table 11).

In considering the seemingly small effect of wartime cutting upon the timber stands of North Carolina it is well to recognize the following facts: (1) in the war years of 1941, 1942, and 1943, the average annual drain of saw timber was only 19 percent greater than the average of the four preceding years, (2) drain of pine never exceeded net growth by more than 17 percent, and (3) net growth was greater in 1943 than in 1937. In other words, the war has not caused extreme increases in total drain, in excesses of drain over net growth, or much reduction in the total yield of the forest. It has, however, caused certain undesirable changes that will be discussed later.

Trend in Total Supply of Softwoods

The effect of growth and drain upon the softwood growing stock, including cypress, is illustrated in figure 6. Here drain is expressed as a percent above or below net growth and the curve indicates that only in 1939 was growth more than drain, both in saw timber and on all sound trees. The significant point, and one that is often overlooked, is that drain can fluctuate a considerable percentage above or below net growth without causing much change in the total growing stock. For example, the softwood growing stock stayed very close to the January 1, 1937, level until 1940, and it was not until saw-timber drain exceeded growth by 17 percent in 1942 that the growing stock decreased measurably. Since 1940 heavy cutting has caused a definite downward trend in the volume of softwood timber that can be expected to continue until drain is reduced to the level of net growth.

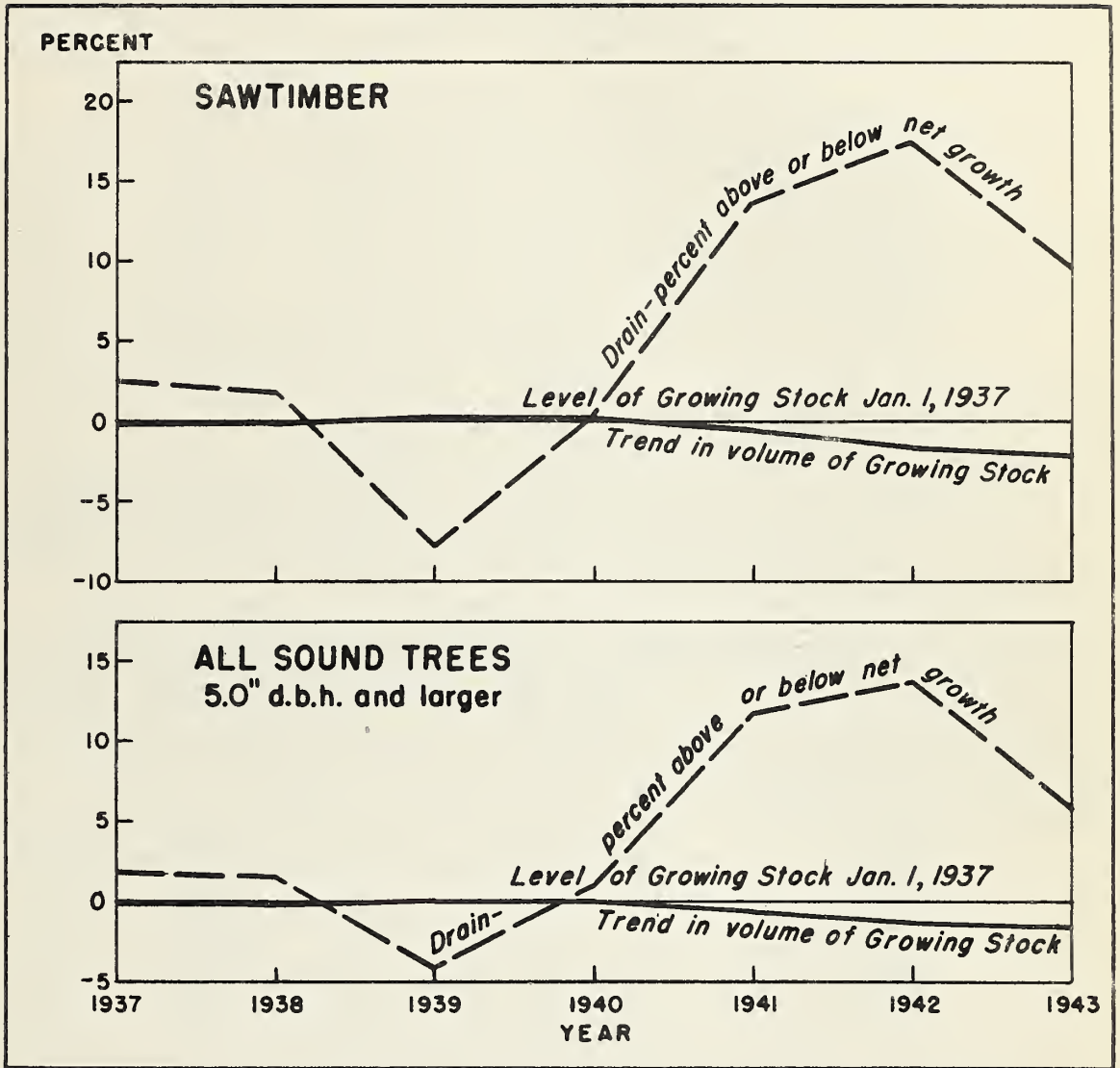


Figure 6. - The effect of growth and drain upon the softwood growing stock, 1937-1943.

Table 11. - Change in forest growing stock in North Carolina, 1937-1943.

(Saw timber)

Item	Pines	Cypress	Hardwoods	Total
	<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>
Growing stock, Jan. 1, 1937	27,290	1,424	14,056	42,770
Change in growing stock:				
1937	-27	-14	-22	-63
1938	-7	-23	+107	+77
1939	+151	-20	+107	+238
1940	+16	-20	+51	+47
1941	-207	-26	-52	-285
1942	-275	-17	-4	-296
1943	-154	-8	-37	-199
Growing stock, Jan. 1, 1944	26,787	1,296	14,206	42,289
Net change	-503	-128	+150	-481
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	-1.8	-9.0	+1.1	-1.1

(All sound trees - 5.0" d.b.h. and larger)

	<u>M cords</u>	<u>M cords</u>	<u>M cords</u>	<u>M cords</u>
Growing stock, Jan. 1, 1937	106,647	4,643	83,201	194,491
Change in growing stock:				
1937	-72	-36	+866	+758
1938	-27	-59	+1,308	+1,222
1939	+288	-54	+984	+1,218
1940	0	-56	+1,052	+996
1941	-611	-67	+1,000	+322
1942	-745	-46	+983	+192
1943	-311	-28	+932	+593
Growing stock, Jan. 1, 1944	105,169	4,297	90,326	199,792
Net change	-1,478	-346	+7,125	+5,301
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	-1.4	-7.5	+8.6	+2.7

Trend in Total Supply of Hardwoods

The situation is entirely different in the hardwoods (figure 7). In 1938, 1939, and 1940, drain of saw timber was considerably less than net growth with the result that the growing stock increased until the end of 1940 and has stayed above the January 1, 1937, level through 1941, 1942, and 1943. Since the war started the trend has been down, and the growing stock will drop below the January 1, 1937, level if drain exceeds growth for about two more years.

The portion of figure 7 dealing with all sound trees illustrates very clearly what happens when drain is considerably less than net growth. Since 1937 the total hardwood growing stock has been increasing over 1 per cent per year, and at the beginning of 1944 was 8.6 percent greater than on January 1, 1937. Over most of the State this is an undesirable development as a high proportion of the hardwoods are low-quality species, poorly adapted to commercial utilization. In addition, they are taking the place of pine on considerable areas, a development that may eventually cause a change in the forest industrial pattern.

Trend in Timber Supply by Regions

Because of differences in the kind and quality of timber and in the demand for forest products, the forest growing stock is developing differently in various parts of the State (tables 12 and 13).

Coastal plain: In this area nearly half of the pine land supported merchantable stands of second-growth saw timber in 1937. In consequence, net growth of pine saw timber has been high, and the stand has increased each year even though wartime drain has been as heavy here as elsewhere in the State. Pulpwood drain has increased from less than 50,000 cords in 1937 to as much as 358,000 in 1941, and as a result the growing stock 5.0 inches d.b.h. and larger decreased rather severely in 1940, 1941, and 1942. Heavy inroads have been made upon the old-growth cypress, and the supply of saw timber was reduced 9 percent in seven years.

Hardwoods of saw-timber size held their own in total volume, but differences in timber quality by species cause excessive drain on certain species, allowing the poor species to make up an increasing proportion of the stand. It is probable that the better quality oaks, sweetgum, yellow-poplar, and soft maple are being overcut, while the water and post oaks, and black and tupelo gums are increasing rather rapidly. The black and tupelo gums alone made up one-third of the hardwood saw-timber volume in 1937, and industrial use of these species is relatively limited.

Piedmont: History indicates that the original forest cover on the piedmont was chiefly hardwoods. As a result of a long cycle of land-clearing and abandonment that continued until the latter part of the past century, a large part of the forest land restocked with pine. This led to the establishment of a great number of sawmills and concentration yards producing pine almost exclusively. In recent years land-use practices

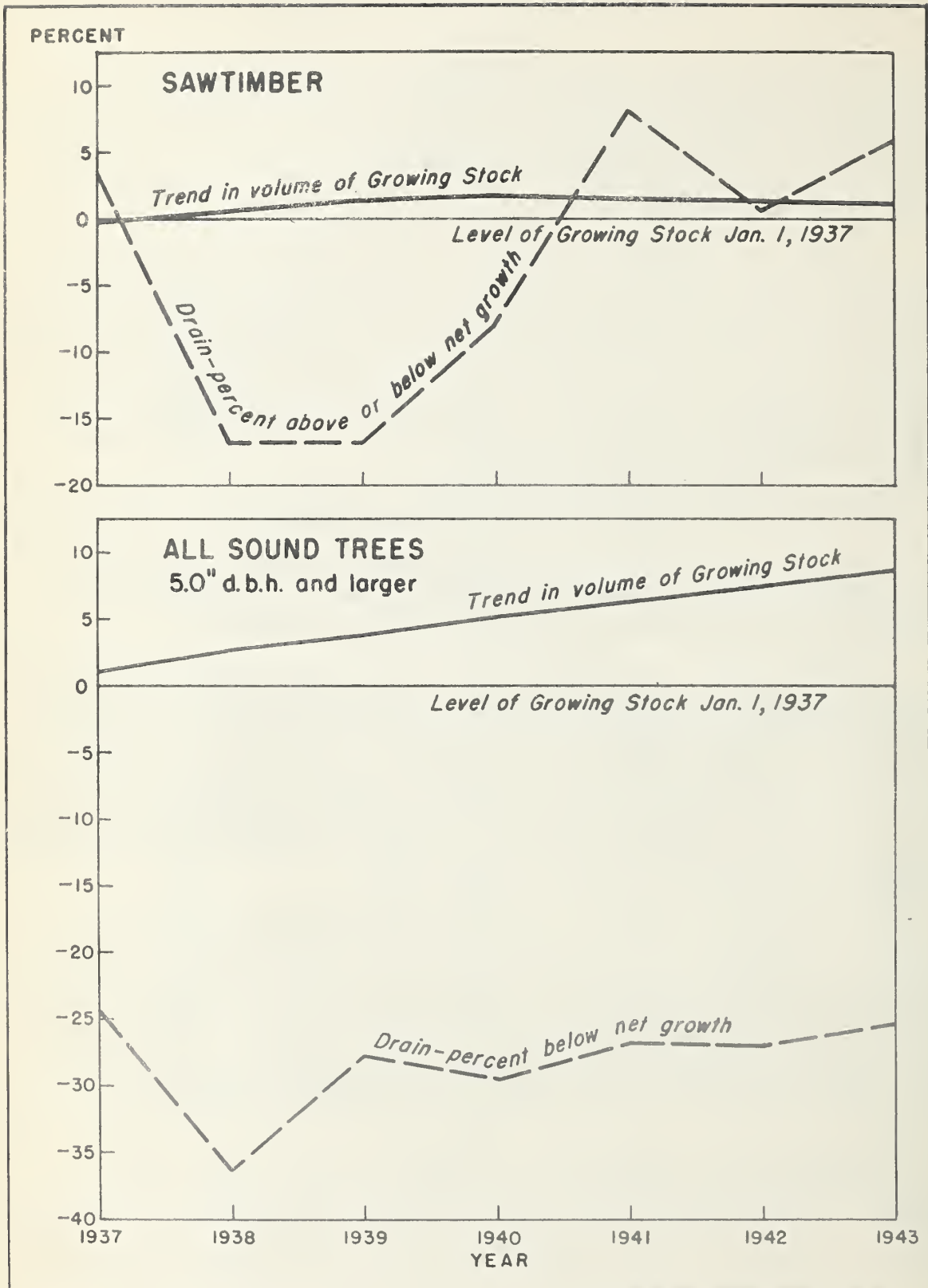


Figure 7. -- The effect of growth and drain upon the hardwood growing stock, 1937-1943.

have become more stable and the pine is gradually being replaced by hardwoods. This trend is being speeded up by the practice of cutting practically all the pine in the stands, leaving only hardwoods to reseed the land. Furthermore, the total cut of pine is so heavy that the growing stock is reduced nearly every year. The saw-timber stand was reduced over 16 percent between 1937 and 1944, and the reduction in the total softwood stand amounted to over one-half million cords in a single year (table 12). The situation is especially critical in a 17-county area surrounding Durham, and indications are that the 40 concentration yards in that area will find it increasingly difficult to obtain rough lumber within a reasonable hauling radius.

If the pine was being replaced by good-quality hardwood of saw-timber size, there would be less cause for concern because the furniture plants of the piedmont consume millions of board feet of hardwood lumber annually, lumber that is now imported from the Appalachian hardwood region and the deep South. Unfortunately, however, the net growth of hardwood saw timber has barely exceeded the drain upon it, and in 1943 when the cut of low-grade hardwood lumber was stepped up, there was a slight reduction in the growing stock. The increase, therefore, is chiefly in the volume of young hardwoods of cordwood size and a large part of this is low-grade hickory and oak. At the beginning of 1944 the total volume of hardwood was 12 percent greater than seven years before, while the total volume of pine was nearly 6 percent less. Hardwoods now make up 45 percent of the total stand in contrast to about 40 percent in 1937.

Mountains: The leading softwood saw-timber species in the mountains are shortleaf pine, white pine, and hemlock. In the mountain region there was no special emphasis upon increased production of shortleaf pine lumber as a result of the war, but the cut of white pine and hemlock was stepped up considerably. In 1939 about 9 million board feet of white pine lumber were produced in the mountain region, but the demand for box lumber and miscellaneous war items, such as floats for Navy parachute flares, resulted in a cut of 32 million feet in 1942, and an estimated 51 million in 1943. Lumbermen have never considered the old-growth hemlock of the North Carolina mountains a very desirable species because it is usually located on rough topography difficult to log, is subject to shake in the butt log, and splinters rather badly when used for ordinary construction. These defects have usually prevented profitable competition with yellow pine in times of peace. Wartime lumber prices, new military uses, and aggressive sales efforts by some lumbermen and wholesalers increased the cut of hemlock lumber from 5 million feet in 1939 to 9 million in 1942, and an estimated 40 million in 1943. The result of the increased cut of these two species has been a decrease of about 2 percent in the saw-timber growing stock, but this was offset by a 3 percent increase in the total volume of softwood timber (table 12). The new crop of softwood will be chiefly shortleaf, Virginia, and white pines as second-growth hemlock is relatively rare.

The hardwood saw timber has decreased every year since January 1, 1937. The old-growth timber is being cut several times as fast as it is growing, and if cutting continues at the present rate all of the old growth

in private ownership will soon be gone. Even now there are scarcely any lumber companies depending entirely upon privately owned old growth. Most of the band mills obtain part of their logs from the national forests, part from scattered tracts purchased from private owners, and part delivered at the yard. A few companies are cutting over their original extensive holdings for the second time, not for the new crop of second growth, but for the chestnut and other low-grade timber that was left when the first cut was made. Circular mills operate in small tracts, often containing as little as 100,000 board feet, or buy logs delivered to the mill by part-time farmers. In brief, there are few, if any, locations in western North Carolina with saw timber enough to justify the erection of a band mill cutting 5 to 10 million feet per year. On the contrary, it is expected that several of the present band mills will close for lack of timber within the next few years. The future is not wholly dark, however, as young second-growth hardwood timber is rapidly restocking the forest land. Since January 1, 1937, the total volume of hardwood growing stock has increased 11 percent (table 13), and much of this increase is in valuable species such as yellowpoplar. There is every reason to believe that in a few decades there will be more saw timber in the mountain region than at present, if (1) the forests receive adequate fire protection, and (2) forest industries do not overcut the young second growth.

Table 12. - Change in softwood^{1/} growing stock by region, 1937-1943.

(Saw timber)

Item	Coastal plain	Piedmont	Mountains
	<u>Million</u> <u>bd. ft.</u>	<u>Million</u> <u>bd. ft.</u>	<u>Million</u> <u>bd. ft.</u>
Growing stock, Jan. 1, 1937	18,960	7,673	2,081
Change in growing stock:			
1937	+144	-184	-1
1938	+120	-157	+7
1939	+168	-54	+17
1940	+76	-84	+4
1941	+13	-222	-24
1942	+19	-284	-27
1943	+112	-263	-11
Growing stock, Jan. 1, 1944	19,612	6,425	2,046
Net change	+652	-1,248	-35
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	+3.4	-16.3	-1.7

(All sound trees - 5.0" d.b.h. and larger)

Item	<u>M cords</u>	<u>M cords</u>	<u>M cords</u>
	Growing stock, Jan. 1, 1937	67,382	35,181
Change in growing stock:			
1937	+238	-371	+25
1938	+79	-264	+99
1939	+141	+13	+80
1940	-82	-27	+53
1941	-260	-393	-25
1942	-244	-521	-26
1943	+44	-422	+39
Growing stock, Jan. 1, 1944	67,298	33,196	8,972
Net change	-84	-1,985	+245
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	-0.1	-5.6	+2.8

^{1/}Includes cypress in the coastal plain.

Table 13. - Change in hardwood growing stock by region, 1937-1943.

(Saw timber)

Item	Coastal plain	Piedmont	Mountains
	<u>Million</u> <u>bd. ft.</u>	<u>Million</u> <u>bd. ft.</u>	<u>Million</u> <u>bd. ft.</u>
Growing stock, Jan. 1, 1937	7,566	3,410	3,080
Change in growing stock:			
1937	+20	+8	-50
1938	+65	+49	-7
1939	+61	+57	-11
1940	+26	+39	-14
1941	-29	+1	-24
1942	+5	+5	-14
1943	-2	-11	-24
Growing stock, Jan. 1, 1944	7,712	3,558	2,936
Net change	+146	+148	-144
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	+1.9	+4.3	-4.7

(All sound trees - 5.0ⁱⁿ d.b.h. and larger)

	<u>M cords</u>	<u>M cords</u>	<u>M cords</u>
Growing stock, Jan. 1, 1937	41,473	24,075	17,653
Change in growing stock:			
1937	+351	+366	+149
1938	+463	+480	+365
1939	+274	+440	+270
1940	+322	+443	+287
1941	+376	+356	+268
1942	+277	+381	+325
1943	+265	+353	+314
Growing stock, Jan. 1, 1944	43,801	26,894	19,631
Net change	+2,328	+2,819	+1,978
	<u>Percent</u>	<u>Percent</u>	<u>Percent</u>
	+5.6	+11.7	+11.2

CONCLUSIONS

Considering only the net change in the forest growing stock, it appears that the forest situation in North Carolina is reasonably satisfactory. However, further consideration by species groups, regions, and size class of growing stock reveals that cypress saw timber is being liquidated rather rapidly, that pine is being seriously overcut in the piedmont, and that hardwood saw timber in the mountains is not growing fast enough to sustain the present drain. Also, low-quality hardwoods are increasing at a rapid rate in the piedmont and threaten to displace the pine.

In addition, it appears that the forests are being cut over so frequently and to such small diameter limits that the average age and size of the growing stock is being gradually reduced. In the long run this may cause a serious curtailment in the activities of the lumber industry, an industry that now uses one-half of the wood cut in the State. Furthermore, even though there was still over 42 billion feet of saw timber on January 1, 1944, there is every indication that it is becoming harder to find operable stands of saw timber of good quality. Even in 1938, before wartime demands for timber, one-third of the saw-timber area was stocked with less than 2,000 board feet per acre. These light stands, held in thousands of ownerships, make it extremely difficult to establish permanent sawmill communities. Today there are scarcely any locations in the mountains or piedmont where medium-sized band mills could be established on a permanent basis unless radical changes were made in timber growing and procurement methods.

If present trends continue we can expect to see the volume of pine gradually decrease, with a large part of the volume more suitable for pulpwood than for lumber. Small portable mills will have even greater prominence in the lumber industry as trees become smaller and operable logging chances are reduced in size and volume. Hardwoods, many of low quality, will make up an increasing proportion of the stand.

In conclusion, it seems obvious that the people of North Carolina cannot afford to be complacent about the condition of their forest resource. If they are content to grow just enough timber to meet the need of existing industries, present practices may suffice, but North Carolina has long recognized that permanent prosperity depends upon greater industrialization based upon locally produced raw materials. No raw material is more abundant, or has greater possibilities for development than the 18 million acres of forest land and timber in the State. With improvements in timber protection, management, and utilization, the yield of raw material from this forest land can be nearly doubled and thus provide a sound basis for industrial expansion and a higher standard of living.

APPENDIX

Definition of Terms

Softwoods: Loblolly, shortleaf, pond, longleaf, Virginia, table mountain, pitch, and eastern white pines, eastern hemlock, red spruce, Fraser fir, eastern redcedar, Atlantic white cedar, and bald cypress.

Hardwoods: Sweetgum, black, swamp, and water tupelos, yellow-poplar, oaks, American chestnut, hickory, ash, elm, maple, flowering dogwood, and associated minor species.

Saw-timber trees: A softwood tree 9.0 inches or more in diameter, or a hardwood tree 13.0 inches or more, with not less than one sound 12-foot butt log, or with 50 percent of the gross board-foot volume of the tree in usable sawlogs.

All sound trees: All saw-timber trees as described above and all sound, straight-stemmed trees from 5.0 inches d.b.h. to saw-timber size.

Board-foot volume: The volume by International $\frac{1}{4}$ -inch rule, exclusive of defect, of that portion of sound saw-timber trees lying between stump and the upper limit of merchantability for sawlogs.

Volume in cords: The volume of wood and bark in standard cords, exclusive of defect, of that portion of trees 5.0 inches and larger in diameter lying between stump and a top of approximately 4 inches minimum diameter outside bark.

Growing stock: The volume of timber exclusive of cull trees and hardwood tops.

Mortality: The volume lost from the growing stock through the death of trees, caused by fire, tree competition, disease, insect damage, and windthrow.

Net growth: The net increase (mortality deducted) in growing stock, before subtracting forest drain.

Forest drain: The reduction in growing stock due to cutting within the designated area.

FOREST DRAIN BY SURVEY UNIT, COMMODITY AND SPECIES GROUP, NORTH CAROLINA--1937

Survey unit and commodity	Saw timber			All sound trees - 5.0" d.b.h. and larger		
	Softwoods ^{1/}	Hardwoods ^{2/}	All species	Softwoods ^{1/}	Hardwoods ^{2/}	All species
	M bd. ft.	M bd. ft.	M bd. ft.	Cords	Cords	Cords
Southern Coastal Plain:						
Lumber	320,600	46,800	367,400	858,000	113,500	971,500
Veneer	5,400	49,900	55,300	13,400	121,000	134,400
Cooperage	-	-	-	-	-	-
Pulpwood	1,200	-	1,200	5,100	-	5,100
Excelsior	-	-	-	-	-	-
Other manufactures	2,900	8,900	11,800	6,800	21,700	28,500
Hewn crossties	8,200	7,900	16,100	19,600	20,300	39,900
Poles and piles	9,800	-	9,800	26,500	-	26,500
Fuelwood	102,400	26,000	128,400	526,800	301,400	828,200
Miscellaneous farm use	3,300	2,200	5,500	28,500	15,400	43,900
Total	453,800	141,700	595,500	1,484,700	593,300	2,078,000
Northern Coastal Plain:						
Lumber	318,800	53,100	371,900	811,200	125,900	937,100
Veneer	8,900	61,000	69,900	22,700	144,500	167,200
Cooperage	10,400	-	10,400	26,700	-	26,700
Pulpwood	8,800	-	8,800	41,800	-	41,800
Excelsior	-	-	-	-	-	-
Other manufactures	1,400	3,700	5,100	3,600	8,700	12,300
Hewn crossties	900	800	1,700	2,300	3,200	5,500
Poles and piles	14,100	-	14,100	36,300	-	36,300
Fuelwood	74,400	17,900	92,300	376,100	201,000	577,100
Miscellaneous farm use	2,400	1,500	3,900	20,500	11,100	31,600
Total	440,100	138,000	578,100	1,341,200	494,400	1,835,600
Piedmont:						
Lumber	520,400	72,000	592,400	1,539,700	190,600	1,730,300
Veneer	100	16,200	16,300	400	42,900	43,300
Cooperage	3,000	700	3,700	8,900	1,800	10,700
Pulpwood	3,200	100	3,300	14,200	500	14,700
Excelsior	700	100	800	2,000	200	2,200
Other manufactures	200	10,300	10,500	700	27,600	28,300
Hewn crossties	100	37,400	37,500	200	99,000	99,200
Poles and piles	1,900	-	1,900	5,600	-	5,600
Fuelwood	170,000	43,600	213,600	871,200	431,800	1,303,000
Miscellaneous farm use	3,800	2,300	6,100	31,100	16,700	47,800
Total	703,400	182,700	886,100	2,474,000	811,100	3,285,100
Mountain:						
Lumber	63,200	144,600	207,800	186,800	405,200	592,000
Veneer	-	5,300	5,300	-	14,900	14,900
Cooperage	-	200	200	-	600	600
Pulpwood	25,000	4,800	29,800	109,300	69,100	178,400
Excelsior	400	300	700	1,300	700	2,000
Other manufactures	300	1,600	1,900	1,000	5,200	6,200
Hewn crossties	500	15,400	15,900	1,500	43,000	44,500
Poles and piles	-	-	-	-	700	700
Fuelwood	14,000	23,700	37,700	88,800	230,700	319,500
Miscellaneous farm use	900	1,800	2,700	7,800	14,400	22,200
Total	104,300	197,700	302,000	396,500	784,500	1,181,000
State of North Carolina:						
Lumber	1,223,000	316,500	1,539,500	3,395,700	835,200	4,230,900
Veneer	14,400	132,400	146,800	36,500	323,300	359,800
Cooperage	13,400	900	14,300	35,600	2,400	38,000
Pulpwood	38,200	4,900	43,100	170,400	69,600	240,000
Excelsior	1,100	400	1,500	3,300	900	4,200
Other manufacturees	4,800	24,500	29,300	12,100	63,200	75,300
Hewn crossties	9,700	61,500	71,200	23,600	165,500	189,100
Poles and piles	25,800	-	25,800	68,400	700	69,100
Fuelwood	360,800	111,200	472,000	1,862,900	1,164,900	3,027,800
Miscellaneous farm use	10,400	7,800	18,200	87,900	57,600	145,500
Total	1,701,600	660,100	2,361,700	5,696,400	2,683,300	8,379,700

^{1/}Cypress included with softwoods.

^{2/}Chestnut is not included.

FOREST DEBRIN BY SURVEY UNIT, COMMODITY AND SPECIES GROUP, NORTH CAROLINA--1938

Survey unit and commodity	Saw timber			All sound trees - 5.0" d.b.h. and larger		
	Softwoods ^{1/}	Hardwoods ^{2/}	All species	Softwoods ^{1/}	Hardwoods ^{2/}	All species
	M bd. ft.	M bd. ft.	M bd. ft.	Cords	Cords	Cords
Southern Coastal Plain:						
Lumber	328,500	43,800	372,300	878,200	106,300	984,500
Veneer	5,900	46,500	52,400	15,600	112,900	128,500
Cooperage	-	-	-	-	-	-
Pulpwood	2,000	400	2,400	8,400	1,400	9,800
Excelsior	-	-	-	-	-	-
Other manufactures	5,800	4,600	10,400	12,800	11,100	23,900
Hewn crosstiss	5,400	7,400	12,800	12,500	19,000	31,500
Poles and piles	6,700	-	6,700	18,000	-	18,000
Fuelwood	100,700	24,800	125,500	514,200	284,500	798,700
Miscellaneous farm use	3,300	2,100	5,400	28,500	15,300	43,800
Total	458,300	129,600	587,900	1,488,200	550,500	2,038,700
Northern Coastal Plain:						
Lumber	327,900	37,100	365,000	833,400	87,900	921,300
Veneer	2,900	44,300	47,200	7,600	105,000	112,600
Cooperage	9,500	400	9,900	24,400	900	25,300
Pulpwood	36,700	-	36,700	174,200	-	174,200
Excelsior	-	-	-	-	-	-
Other manufactures	2,700	-	2,700	6,700	-	6,700
Hewn crosstiss	1,700	4,400	6,100	4,100	11,800	15,900
Poles and piles	6,900	-	6,900	17,700	-	17,700
Fuelwood	73,000	16,900	89,900	365,500	187,200	552,700
Miscellaneous farm use	2,400	1,500	3,900	20,500	11,000	31,500
Total	463,700	104,600	568,300	1,454,100	403,800	1,857,900
Piedmont:						
Lumber	489,700	56,400	546,100	1,449,000	149,200	1,598,200
Veneer	100	13,300	13,400	300	35,200	35,500
Cooperage	3,500	100	3,600	10,500	200	10,700
Pulpwood	3,300	800	4,100	13,100	5,200	18,300
Excelsior	400	-	400	3,600	300	3,900
Other manufactures	500	8,600	9,100	1,300	23,000	24,300
Hewn crosstiss	200	16,200	16,400	600	42,700	43,300
Poles and piles	500	-	500	1,600	-	1,600
Fuelwood	169,700	43,500	213,200	869,400	429,900	1,299,300
Miscellaneous farm use	3,900	2,300	6,200	31,100	16,800	47,900
Total	671,800	141,200	813,000	2,380,500	702,500	3,083,000
Mountain:						
Lumber	63,900	111,000	174,900	189,000	310,900	499,900
Veneer	-	5,900	5,900	-	16,400	16,400
Cooperage	-	-	-	-	100	100
Pulpwood	15,000	3,800	18,800	54,900	33,700	88,600
Excelsior	300	200	500	1,100	500	1,600
Other manufactures	400	2,000	2,400	1,200	6,500	7,700
Hewn crosstiss	200	6,400	6,600	600	18,100	18,700
Poles and piles	-	-	-	-	700	700
Fuelwood	17,000	23,700	40,700	88,900	230,700	319,600
Miscellaneous farm use	900	1,800	2,700	7,800	14,500	22,300
Total	97,700	154,800	252,500	343,500	632,100	975,600
State of North Carolina:						
Lumber	1,210,000	248,300	1,458,300	3,349,600	654,300	4,003,900
Veneer	8,900	110,000	118,900	23,500	269,500	293,000
Cooperage	13,000	500	13,500	34,900	1,200	36,100
Pulpwood	57,000	5,000	62,000	250,600	40,300	290,900
Excelsior	700	200	900	4,700	800	5,500
Other manufactures	9,400	15,200	24,600	22,000	40,600	62,600
Hewn crosstiss	7,500	34,400	41,900	17,800	91,600	109,400
Poles and piles	14,100	-	14,100	37,300	700	38,000
Fuelwood	360,400	108,900	469,300	1,838,000	1,132,300	2,970,300
Miscellaneous farm use	10,500	7,700	18,200	87,900	57,600	145,500
Total	1,691,500	530,200	2,221,700	5,666,300	2,288,900	7,955,200

^{1/}Cyprees included with softwoods.

^{2/}Chestnut is not included.

FOREST DRAIN BY SURVEY UNIT, COMMODITY AND SPECIES GROUP, NORTH CAROLINA--1939

Survey unit and commodity	Saw timber			All sound trees - 5.0" d.b.h. and larger		
	Softwoods ^{1/}	Hardwoods ^{2/}	All species	Softwoods ^{1/}	Hardwoods ^{2/}	All species
	M bd. ft.	M bd. ft.	M bd. ft.	Cords	Cords	Cords
Southern Coastal Plain:						
Lumber	305,300	32,800	338,100	814,400	79,600	894,000
Veneer	2,700	49,200	51,900	7,400	119,500	126,900
Cooperage	-	-	-	-	-	-
Pulpwood	9,400	100	9,500	33,700	300	34,000
Excelsior	-	-	-	-	-	-
Other manufactures	3,100	5,800	8,900	7,100	14,300	21,400
Hewn crossties	4,500	6,100	10,600	11,000	14,700	25,700
Poles and piles	2,400	-	2,400	10,100	-	10,100
Fuelwood	123,500	36,200	159,700	660,000	432,900	1,092,900
Miscellaneous farm use	3,200	2,100	5,300	27,600	14,900	42,500
Total	454,100	132,300	586,400	1,571,300	676,200	2,247,500
Northern Coastal Plain:						
Lumber	292,900	35,600	328,500	744,100	84,300	828,400
Veneer	1,700	43,400	45,100	4,200	103,000	107,200
Cooperage	5,000	600	5,600	12,900	1,500	14,400
Pulpwood	30,800	500	31,300	125,900	1,300	127,200
Excelsior	-	-	-	-	-	-
Other manufactures	2,200	200	2,400	5,300	700	6,000
Hewn crossties	1,400	2,200	3,600	3,300	5,100	8,400
Poles and piles	12,800	200	13,000	32,900	400	33,300
Fuelwood	81,300	22,800	104,100	428,300	265,500	693,800
Miscellaneous farm use	2,200	1,400	3,600	18,800	10,100	28,900
Total	430,300	106,900	537,200	1,375,700	471,900	1,847,600
Piedmont:						
Lumber	357,000	38,800	395,800	1,056,400	102,500	1,158,900
Veneer	700	21,400	22,100	8,400	56,600	65,000
Cooperage	-	1,000	1,000	-	2,700	2,700
Pulpwood	12,200	1,300	13,500	58,400	6,000	64,400
Excelsior	500	-	500	2,100	700	2,800
Other manufactures	1,300	5,600	6,900	5,700	18,800	24,500
Hewn crossties	300	15,800	16,100	900	41,800	42,700
Poles and piles	400	-	400	1,100	-	1,100
Fuelwood	191,000	48,400	239,400	988,000	514,200	1,502,200
Miscellaneous farm use	3,600	2,100	5,700	28,700	15,400	44,100
Total	567,000	134,400	701,400	2,149,700	758,700	2,908,400
Mountain:						
Lumber	57,200	96,200	153,400	169,300	269,300	438,600
Veneer	100	8,300	8,400	300	23,300	23,600
Cooperage	-	500	500	-	1,400	1,400
Pulpwood	13,000	4,200	17,200	57,400	32,400	89,800
Excelsior	400	300	700	2,100	1,300	3,400
Other manufactures	900	10,000	10,900	2,800	31,600	34,400
Hewn crossties	400	7,800	8,200	1,100	21,800	22,900
Poles and piles	-	-	-	-	-	-
Fuelwood	15,800	27,000	42,800	99,300	263,500	362,800
Miscellaneous farm use	900	1,700	2,600	7,500	13,900	21,400
Total	88,700	156,000	244,700	339,800	658,500	998,300
State of North Carolina:						
Lumber	1,012,400	203,400	1,215,800	2,784,200	535,700	3,319,900
Veneer	5,200	122,300	127,500	20,300	302,400	322,700
Cooperage	5,000	2,100	7,100	12,900	5,600	18,500
Pulpwood	65,400	6,100	71,500	275,400	40,000	315,400
Excelsior	900	300	1,200	4,200	2,000	6,200
Other manufactures	7,500	21,600	29,100	20,900	65,400	86,300
Hewn crossties	6,600	31,900	38,500	16,300	83,400	99,700
Poles and piles	15,600	200	15,800	44,100	400	44,500
Fuelwood	411,600	134,400	546,000	2,175,600	1,476,100	3,651,700
Miscellaneous farm use	9,900	7,300	17,200	82,600	54,300	136,900
Total	1,540,100	529,600	2,069,700	5,436,500	2,565,300	8,001,800

^{1/}Cypress included with softwoods.

^{2/}Chestnut is not included.

FOREST DRAIN BY SURVEY UNIT, COMMODITY AND SPECIES GROUP, NORTH CAROLINA--1940

Survey unit and commodity	Saw timber			All sound tress - 5.0" d.b.h. and larger		
	Softwoods ^{1/}	Hardwoods ^{2/}	All species	Softwoods ^{1/}	Hardwoods ^{2/}	All species
	M bd. ft.	M bd. ft.	M bd. ft.	Cords	Cords	Cords
Southern Coastal Plain:						
Lumber	350,500	37,200	387,700	938,200	90,200	1,028,400
Veneer	2,200	57,500	59,700	5,800	139,600	145,400
Cooperage	-	-	-	-	-	-
Pulpwood	22,200	100	22,300	78,600	200	78,800
Excelsior	-	-	-	-	-	-
Other manufactures	2,200	7,900	10,100	5,100	19,400	24,500
Hewn crossties	5,800	10,000	15,800	14,000	24,200	38,200
Poles and piles	2,000	-	2,000	10,200	-	10,200
Fuelwood	112,300	27,500	139,800	572,000	310,700	882,700
Miscellaneous farm use	3,200	2,100	5,300	27,400	14,800	42,200
Total	500,400	142,300	642,700	1,651,300	599,100	2,250,400
Northern Coastal Plain:						
Lumber	331,200	48,800	380,000	841,500	115,500	957,000
Veneer	2,100	53,400	55,500	5,200	126,700	131,900
Cooperage	5,800	700	6,500	15,000	1,700	16,700
Pulpwood	44,500	5,000	49,500	180,400	13,500	193,900
Excelsior	-	-	-	-	-	-
Other manufactures	2,700	1,600	4,300	6,100	3,900	10,000
Hewn crosstiss	1,500	3,100	4,600	3,400	7,400	10,800
Poles and piles	20,200	300	20,500	52,000	800	52,800
Fuelwood	74,500	17,700	92,200	376,300	196,100	572,400
Miscellaneous farm use	2,100	1,400	3,500	18,400	9,900	28,300
Total	484,600	132,000	616,600	1,498,300	475,500	1,973,800
Piedmont:						
Lumber	391,000	59,500	450,500	1,156,700	157,400	1,314,100
Veneer	800	24,600	25,400	10,000	65,000	75,000
Cooperage	-	500	500	-	1,400	1,400
Pulpwood	15,100	1,800	16,900	71,900	7,900	79,800
Excelsior	600	-	600	2,300	700	3,000
Other manufactures	1,300	5,800	7,100	5,800	19,100	24,900
Hewn crossties	100	15,800	15,900	300	41,800	42,100
Poles and piles	400	-	400	1,000	-	1,000
Fuelwood	182,900	43,500	226,400	921,900	444,600	1,366,500
Miscellaneous farm use	3,500	2,000	5,500	28,100	15,100	43,200
Total	595,700	153,500	749,200	2,198,000	753,000	2,951,000
Mountain:						
Lumber	60,900	97,700	158,600	180,200	273,700	453,900
Veneer	100	7,100	7,200	300	19,900	20,200
Cooperage	-	600	600	-	1,700	1,700
Pulpwood	22,700	6,800	29,500	100,300	59,300	159,600
Excelsior	300	400	700	2,100	1,300	3,400
Other manufactures	1,000	10,900	11,900	3,000	34,300	37,300
Hewn crosstiss	1,000	7,500	8,500	3,000	21,000	24,000
Poles and piles	-	-	-	-	-	-
Fuelwood	16,000	27,300	43,300	100,100	266,400	366,500
Miscellaneous farm use	900	1,700	2,600	7,400	13,800	21,200
Total	102,900	160,000	262,900	396,400	691,400	1,087,800
State of North Carolina:						
Lumber	1,133,600	243,200	1,376,800	3,116,600	636,800	3,753,400
Veneer	5,200	142,600	147,800	21,300	351,200	372,500
Cooperage	5,800	1,800	7,600	15,000	4,800	19,800
Pulpwood	104,500	13,700	118,200	431,200	80,900	512,100
Excelsior	900	400	1,300	4,400	2,000	6,400
Other manufactures	7,200	26,200	33,400	20,000	76,700	96,700
Hewn crosstiss	8,400	36,400	44,800	20,700	94,400	115,100
Poles and piles	22,600	300	22,900	63,200	800	64,000
Fuelwood	385,700	116,000	501,700	1,970,300	1,217,800	3,188,100
Miscellaneous farm use	9,700	7,200	16,900	81,300	53,600	134,900
Total	1,683,600	587,800	2,271,400	5,744,000	2,519,000	8,263,000

^{1/}Cypress included with softwoods.

^{2/}Chestnut is not included.

FOREST DRAIN BY SURVEY UNIT, COMMODITY AND SPECIES GROUP, NORTH CAROLINA--1941

Survey unit and commodity	Saw timber			All sound tree - 5.0" d.b.h. and larger		
	Softwoods ^{1/}	Hardwoods ^{2/}	All species	Softwoods ^{1/}	Hardwoods ^{2/}	All species
	M bd. ft.	M bd. ft.	M bd. ft.	Cords	Cords	Cords
Southern Coastal Plain:						
Lumber	385,700	55,900	441,600	1,028,700	135,700	1,164,400
Veneer	2,600	67,800	70,400	6,900	164,600	171,500
Cooperage	-	-	-	-	-	-
Pulpwood	44,300	2,200	46,500	163,000	7,000	170,000
Excelsior	-	-	-	-	-	-
Other manufactures	2,000	8,800	10,800	4,400	21,300	25,700
Hewn crossties	6,800	11,800	18,600	16,500	28,600	45,100
Poles and piles	2,100	-	2,100	10,600	-	10,600
Fuelwood	109,100	25,300	134,400	548,100	278,700	826,800
Miscellaneous farm use	3,200	2,100	5,300	27,400	14,800	42,200
Total	555,800	173,900	729,700	1,805,600	650,700	2,456,300
Northern Coastal Plain:						
Lumber	343,100	63,300	406,400	874,100	150,100	1,024,200
Veneer	2,500	63,100	65,600	6,200	149,400	155,600
Cooperage	8,700	-	8,700	22,500	-	22,500
Pulpwood	40,700	4,800	45,500	174,900	13,000	187,900
Excelsior	-	-	-	-	-	-
Other manufactures	3,700	1,600	5,300	8,100	4,000	12,100
Hewn crossties	1,800	3,700	5,500	4,000	8,800	12,800
Poles and piles	21,000	300	21,300	54,100	800	54,900
Fuelwood	74,100	17,300	91,400	373,000	191,700	564,700
Miscellaneous farm use	2,100	1,400	3,500	18,400	9,900	28,300
Total	497,700	155,500	653,200	1,535,300	527,700	2,063,000
Piedmont:						
Lumber	525,500	88,500	614,000	1,554,800	234,000	1,788,800
Veneer	1,000	29,000	30,000	11,700	76,800	88,500
Cooperage	-	-	-	-	-	-
Pulpwood	13,800	2,300	16,100	57,600	10,900	68,500
Excelsior	200	-	200	3,700	400	4,100
Other manufacturee	800	6,600	7,400	3,700	25,000	28,700
Hewn crossties	100	18,700	18,800	400	49,300	49,700
Poles and piles	400	-	400	1,100	-	1,100
Fuelwood	182,000	42,900	224,900	914,700	437,400	1,352,100
Miscellaneous farm use	3,500	2,000	5,500	28,100	15,100	43,200
Total	727,300	190,000	917,300	2,575,800	848,900	3,424,700
Mountain:						
Lumber	90,700	116,500	207,200	268,400	326,300	594,700
Veneer	100	8,300	8,400	400	23,400	23,800
Cooperage	-	-	-	-	-	-
Pulpwood	22,600	5,700	28,300	100,000	56,300	156,300
Excelsior	300	100	400	1,700	600	2,300
Other manufactures	500	2,800	3,300	1,600	11,900	13,500
Hewn crossties	1,200	8,800	10,000	3,500	24,800	28,300
Poles and piles	-	-	-	-	-	-
Fuelwood	16,000	27,300	43,300	99,900	266,400	366,300
Miscellaneous farm use	800	1,700	2,500	7,400	13,800	21,200
Total	132,200	171,200	303,400	482,900	723,500	1,206,400
State of North Carolina:						
Lumber	1,345,000	324,200	1,669,200	3,726,000	846,100	4,572,100
Veneer	6,200	168,200	174,400	25,200	414,200	439,400
Cooperage	8,700	-	8,700	22,500	-	22,500
Pulpwood	121,400	15,000	136,400	495,500	87,200	582,700
Excelsior	500	100	600	5,400	1,000	6,400
Other manufactures	7,000	19,800	26,800	17,800	62,200	80,000
Hewn crossties	9,900	43,000	52,900	24,400	111,500	135,900
Poles and piles	23,500	300	23,800	65,800	800	66,600
Fuelwood	381,200	112,800	494,000	1,935,700	1,174,200	3,109,900
Miscellaneous farm use	9,600	7,200	16,800	81,300	53,600	134,900
Total	1,913,000	690,600	2,603,600	6,399,600	2,750,800	9,150,400

^{1/}Cypress included with softwoods.

^{2/}Chestnut is not included.

FOREST DRAIN BY SURVEY UNIT, COMMODITY AND SPECIES GROUP, NORTH CAROLINA--1942

Survey unit and commodity	Saw timber			All sound trees - 5.0" d.b.h. and larger		
	Softwoods ^{1/}	Hardwoods ^{2/}	All species	Softwoods ^{1/}	Hardwoods ^{2/}	All species
	M bd. ft.	M bd. ft.	M bd. ft.	Cords	Cords	Cords
Southern Coastal Plain:						
Lumber	372,200	47,100	419,300	994,300	114,300	1,108,600
Veneer	2,100	59,800	61,900	5,500	145,300	150,800
Cooperage	-	-	-	-	-	-
Pulpwood	59,800	2,700	62,500	217,200	8,500	225,700
Excelsior	-	-	-	-	-	-
Other manufactures	2,800	7,200	10,000	6,100	17,500	23,600
Hewn crossties	7,500	13,100	20,600	18,300	31,700	50,000
Poles and piles	2,600	-	2,600	12,800	-	12,800
Fuelwood	107,700	27,400	135,100	553,400	312,100	865,500
Miscellaneous farm use	3,200	2,100	5,300	27,400	14,800	42,200
Total	557,900	159,400	717,300	1,835,000	644,200	2,479,200
Northern Coastal Plain:						
Lumber	350,200	58,900	409,100	893,600	139,500	1,033,100
Veneer	1,900	45,500	47,400	4,800	107,900	112,700
Cooperage	8,400	-	8,400	21,600	-	21,600
Pulpwood	32,000	5,800	37,800	129,800	15,700	145,500
Excelsior	-	-	-	-	-	-
Other manufactures	300	2,000	2,300	700	5,000	5,700
Hewn crossties	2,000	4,100	6,100	4,500	9,700	14,200
Poles and piles	25,300	400	25,700	65,000	1,000	66,000
Fuelwood	71,700	17,800	89,500	366,500	200,900	567,400
Miscellaneous farm use	2,100	1,400	3,500	18,300	9,900	28,200
Total	493,900	135,900	629,800	1,504,800	489,600	1,994,400
Piedmont:						
Lumber	585,100	87,900	673,000	1,731,100	232,500	1,963,600
Veneer	800	26,000	26,800	9,900	68,800	78,700
Cooperage	-	-	-	-	-	-
Pulpwood	15,600	2,800	18,400	61,000	12,100	73,100
Excelsior	200	-	200	3,700	400	4,100
Other manufactures	800	4,600	5,400	3,700	18,100	21,800
Hewn crossties	200	20,700	20,900	500	54,700	55,200
Poles and piles	500	-	500	1,300	-	1,300
Fuelwood	174,100	42,100	216,200	883,200	434,800	1,318,000
Miscellaneous farm use	3,500	2,000	5,500	28,000	15,100	43,100
Total	780,800	186,100	966,900	2,722,400	836,500	3,558,900
Mountain:						
Lumber	93,500	106,700	200,200	276,700	299,000	575,700
Veneer	-	8,400	8,400	-	23,700	23,700
Cooperage	-	200	200	-	600	600
Pulpwood	24,400	5,500	29,900	108,000	54,000	162,000
Excelsior	200	100	300	1,200	600	1,800
Other manufactures	400	2,500	2,900	1,400	10,700	12,100
Hewn crossties	1,300	9,800	11,100	4,000	27,400	31,400
Poles and piles	-	-	-	-	-	-
Fuelwood	15,100	25,800	40,900	94,500	251,500	346,000
Miscellaneous farm use	900	1,700	2,600	7,400	13,800	21,200
Total	135,800	160,700	296,500	493,200	681,300	1,174,500
State of North Carolina:						
Lumber	1,401,000	300,600	1,701,600	3,895,700	785,300	4,681,000
Veneer	4,800	139,700	144,500	20,200	345,700	365,900
Cooperage	8,400	200	8,600	21,600	600	22,200
Pulpwood	131,800	16,800	148,600	516,000	90,300	606,300
Excelsior	400	100	500	4,900	1,000	5,900
Other manufactures	4,300	16,300	20,600	11,900	51,300	63,200
Hewn crossties	11,000	47,700	58,700	27,300	123,500	150,800
Poles and piles	28,400	400	28,800	79,100	1,000	80,100
Fuelwood	368,600	113,100	481,700	1,897,600	1,199,300	3,096,900
Miscellaneous farm use	9,700	7,200	16,900	81,100	53,600	134,700
Total	1,968,400	642,100	2,610,500	6,555,400	2,651,600	9,207,000

^{1/}Cypresses included with softwoods.
^{2/}Chestnut is not included.

FOREST DRAIN BY SURVEY UNIT, COMMODITY AND SPECIES GROUP, NORTH CAROLINA--1943

Survey unit and commodity	Saw timber			All sound trees - 5.0" d.b.h. and larger		
	Softwoods ^{1/}	Hardwoods ^{2/}	All species	Softwoods ^{1/}	Hardwoods ^{2/}	All species
	M bd. ft.	M bd. ft.	M bd. ft.	Cords	Cords	Cords
Southern Coastal Plain:						
Lumber	340,300	50,000	390,300	910,000	121,300	1,031,300
Veneer	1,500	63,900	65,400	4,100	155,200	159,300
Cooperags	-	-	-	-	-	-
Pulpwood	40,700	1,100	41,800	151,400	3,600	155,000
Excelsior	-	-	-	-	-	-
Other manufactures	1,900	6,500	8,400	4,400	15,700	20,100
Hewn crossties	7,500	13,100	20,600	18,300	31,700	50,000
Poles and piles	1,800	-	1,800	8,800	-	8,800
Fuelwood	107,700	27,300	135,000	553,400	312,100	865,500
Miscellaneous farm use	3,200	2,100	5,300	27,400	14,800	42,200
Total	504,600	164,000	668,600	1,677,800	654,400	2,332,200
Northern Coastal Plain:						
Lumber	324,400	60,600	385,000	829,000	143,600	972,600
Veneer	700	45,600	46,300	1,900	108,000	109,900
Cooperage	8,900	-	8,900	22,700	100	22,800
Pulpwood	34,400	5,900	40,300	112,500	16,200	128,700
Excelsior	-	-	-	-	-	-
Other manufactures	1,200	2,700	3,900	2,700	7,000	9,700
Hewn crossties	2,000	4,100	6,100	4,500	9,700	14,200
Poles and piles	17,400	300	17,700	44,700	700	45,400
Fuelwood	71,700	17,800	89,500	366,600	200,800	567,400
Miscellaneous farm use	2,100	1,400	3,500	18,400	9,900	28,300
Total	462,800	138,400	601,200	1,403,000	496,000	1,899,000
Piedmont:						
Lumber	540,400	96,800	637,200	1,598,900	256,100	1,855,000
Veneer	100	26,900	27,000	600	71,300	71,900
Cooperags	-	-	-	-	-	-
Pulpwood	31,600	3,900	35,500	129,700	15,500	145,200
Excelsior	300	-	300	4,200	400	4,600
Other manufactures	1,200	7,500	8,700	5,300	29,400	34,700
Hewn crossties	200	20,700	20,900	400	54,700	55,100
Poles and piles	300	-	300	900	-	900
Fuelwood	174,100	42,100	216,200	883,100	434,800	1,317,900
Miscellaneous farm use	3,500	2,000	5,500	28,100	15,100	43,200
Total	751,700	199,900	951,600	2,651,200	877,300	3,528,500
Mountain:						
Lumber	88,100	116,200	204,300	260,800	325,400	586,200
Veneer	-	8,200	8,200	-	23,100	23,100
Cooperags	-	200	200	-	600	600
Pulpwood	16,500	5,500	22,000	71,700	46,700	118,400
Excelsior	100	100	200	400	300	700
Other manufactures	300	3,800	4,100	900	22,100	23,000
Hewn crossties	1,300	9,800	11,100	4,000	27,400	31,400
Poles and piles	-	-	-	-	-	-
Fuelwood	15,100	25,800	40,900	94,500	251,500	346,000
Miscellaneous farm use	800	1,700	2,500	7,400	13,800	21,200
Total	122,200	171,300	293,500	439,700	710,900	1,150,600
Stats of North Carolina:						
Lumber	1,293,200	323,600	1,616,800	3,598,700	846,400	4,445,100
Veneer	2,300	144,600	146,900	6,600	357,600	364,200
Cooperage	8,900	200	9,100	22,700	700	23,400
Pulpwood	123,200	16,400	139,600	465,300	82,000	547,300
Excelsior	400	100	500	4,600	700	5,300
Other manufactures	4,600	20,500	25,100	13,300	74,200	87,500
Hewn crossties	11,000	47,700	58,700	27,200	123,500	150,700
Poles and piles	19,500	300	19,800	54,400	700	55,100
Fuelwood	368,600	113,000	481,600	1,897,600	1,199,200	3,096,800
Miscellaneous farm use	9,600	7,200	16,800	81,300	53,600	134,900
Total	1,841,300	673,600	2,514,900	6,171,700	2,738,600	8,910,300

^{1/}Cypress included with softwoods.

^{2/}Chsstnut is not included.

COMPARISON OF FOREST GROWTH AND DRAIN, NORTH CAROLINA--1937

Item	Survey unit	Saw timber				All sound trees - 5.0" d.b.h. and larger			
		Pines	Cypress	Hardwoods	Total	Pines	Cypress	Hardwoods	Total
		Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords	M cords
Growing stock, Jan. 1, 1937	1	8,453	467	3,341	12,261	31,151	1,493	19,791	52,435
	2	9,083	957	4,225	14,265	31,588	3,150	21,682	56,420
	3	7,673	-	3,410	11,083	35,181	-	24,075	59,256
	4	2,081	-	3,080	5,161	8,727	-	17,653	26,380
	State	27,290	1,424	14,056	42,770	106,647	4,643	83,201	194,491
Growth	1	583	13	170	766	1,951	40	872	2,863
	2	542	30	187	759	1,567	86	935	2,588
	3	557	-	212	769	2,386	-	1,352	3,738
	4	122	-	158	280	483	-	989	1,472
	State	1,804	43	727	2,574	6,387	126	4,148	10,661
Mortality	1	49	4	24	77	221	16	150	387
	2	68	9	33	110	298	45	218	561
	3	37	-	22	59	283	-	175	458
	4	19	-	10	29	61	-	56	117
	State	173	13	89	275	863	61	599	1,523
Net growth	1	534	9	146	689	1,730	24	722	2,476
	2	474	21	154	649	1,269	41	717	2,027
	3	520	-	190	710	2,103	-	1,177	3,280
	4	103	-	148	251	422	-	933	1,355
	State	1,631	30	638	2,299	5,524	65	3,549	9,138
Commodity drain	1	434	20	142	596	1,439	46	593	2,078
	2	416	24	138	578	1,286	55	495	1,836
	3	704	-	182	886	2,474	-	811	3,285
	4	104	-	198	302	397	-	784	1,181
	State	1,658	44	660	2,362	5,596	101	2,683	8,380
Net change	1	+100	-11	+4	+93	+291	-12	+129	+398
	2	+58	-3	+16	+71	-17	-14	+222	+191
	3	-184	-	+8	-176	-371	-	+366	-5
	4	-1	-	-50	-51	+25	-	+149	+174
	State	-27	-14	-22	-63	-72	-36	+866	+758
Growing stock, Jan. 1, 1938	1	8,553	456	3,345	12,354	31,442	1,471	19,920	52,833
	2	9,141	954	4,241	14,336	31,571	3,136	21,904	56,611
	3	7,489	-	3,418	10,907	34,810	-	24,441	59,251
	4	2,080	-	3,030	5,110	8,752	-	17,802	26,554
	State	27,263	1,410	14,034	42,707	106,575	4,607	84,067	195,249

COMPARISON OF FOREST GROWTH AND DRAIN, NORTH CAROLINA--1938

Item	Survey unit	Saw timber				All sound trees - 5.0" d.b.h. and larger			
		Pines	Cypress	Hardwoods	Total	Pines	Cypress	Hardwoods	Total
		Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords	M cords
Growing stock, Jan. 1, 1938	1	8,553	456	3,345	12,354	31,442	1,471	19,920	52,833
	2	9,141	954	4,241	14,336	31,571	3,136	21,904	56,611
	3	7,489	-	3,418	10,907	34,810	-	24,441	59,251
	4	2,080	-	3,030	5,110	8,752	-	17,802	26,554
	State	27,263	1,410	14,034	42,707	106,575	4,607	84,067	195,249
Growth	1	593	12	171	776	1,984	34	862	2,880
	2	540	29	187	756	1,503	82	926	2,511
	3	554	-	212	766	2,399	-	1,360	3,759
	4	123	-	158	281	500	-	1,054	1,554
	State	1,810	41	728	2,579	6,386	116	4,202	10,704
Mortality	1	50	4	25	79	224	15	150	389
	2	69	9	34	112	298	45	220	563
	3	39	-	22	61	282	-	178	460
	4	18	-	10	28	58	-	57	115
	State	176	13	91	280	862	60	605	1,527
Net growth	1	543	8	146	697	1,760	19	712	2,491
	2	471	20	153	644	1,205	37	706	1,948
	3	515	-	190	705	2,117	-	1,182	3,299
	4	105	-	148	253	442	-	997	1,439
	State	1,634	28	637	2,299	5,524	56	3,597	9,177
Commodity drain	1	436	23	129	588	1,437	51	551	2,039
	2	435	28	105	568	1,390	64	404	1,858
	3	672	-	141	813	2,381	-	702	3,083
	4	98	-	155	253	343	-	632	975
	State	1,641	51	530	2,222	5,551	115	2,289	7,955
Net change	1	+107	-15	+17	+109	+323	-32	+161	+452
	2	+36	-8	+48	+76	-185	-27	+302	+90
	3	-157	-	+49	-108	-264	-	+480	+216
	4	+7	-	-7	0	+99	-	+365	+464
	State	-7	-23	+107	+77	-27	-59	+1,308	+1,222
Growing stock, Jan. 1, 1939	1	8,660	441	3,362	12,463	31,765	1,439	20,081	53,285
	2	9,177	946	4,289	14,412	31,386	3,109	22,206	56,701
	3	7,332	-	3,467	10,799	34,546	-	24,921	59,467
	4	2,087	-	3,023	5,110	8,851	-	18,167	27,018
	State	27,256	1,387	14,141	42,784	106,548	4,548	85,375	196,471

COMPARISON OF FOREST GROWTH AND DRAIN, NORTH CAROLINA--1939

Item	Survey unit	Saw timber				All sound trees - 5.0" d.b.h. and larger			
		Pines	Cypress	Hardwoods	Total	Pines	Cypress	Hardwoods	Total
		Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords	M cords
Growing stock, Jan. 1, 1939	1	8,660	441	3,362	12,463	31,765	1,439	20,081	53,285
	2	9,177	946	4,289	14,412	31,386	3,109	22,206	56,701
	3	7,332	--	3,467	10,799	34,546	-	24,921	59,467
	4	2,087	-	3,023	5,110	8,851	-	18,167	27,018
	State	27,256	1,387	14,141	42,784	106,548	4,548	85,375	196,471
Growth	1	602	12	171	785	2,021	35	865	2,921
	2	545	29	188	762	1,536	81	933	2,550
	3	553	-	215	768	2,447	-	1,380	3,827
	4	124	-	156	280	479	-	986	1,465
	State	1,824	41	730	2,595	6,483	116	4,164	10,763
Mortality	1	52	4	25	81	228	16	151	395
	2	71	9	34	114	297	44	224	565
	3	40	-	23	63	284	-	182	466
	4	18	-	11	29	59	-	58	117
	State	181	13	93	287	868	60	615	1,543
Net growth	1	550	8	146	704	1,793	19	714	2,526
	2	474	20	154	648	1,239	37	709	1,985
	3	513	-	192	705	2,163	-	1,198	3,361
	4	106	-	145	251	420	-	928	1,348
	State	1,643	28	637	2,308	5,615	56	3,549	9,220
Commodity drain	1	434	20	132	586	1,525	46	677	2,248
	2	402	28	107	537	1,312	64	472	1,848
	3	567	-	135	702	2,150	-	758	2,908
	4	89	-	156	245	340	-	658	998
	State	1,492	48	530	2,070	5,327	110	2,565	8,002
Net change	1	+116	-12	+14	+118	+268	-7	+37	+278
	2	+72	-8	+47	+111	-73	-27	+237	+137
	3	-54	-	+57	+3	+13	-	+440	+453
	4	+17	-	-11	+6	+80	-	+270	+350
	State	+151	-20	+107	+238	+288	-54	+984	+1,218
Growing stock, Jan. 1, 1940	1	8,776	429	3,376	12,581	32,033	1,412	20,118	53,563
	2	9,249	938	4,336	14,523	31,313	3,082	22,443	56,838
	3	7,278	-	3,524	10,802	34,559	-	25,361	59,920
	4	2,104	-	3,012	5,116	8,931	-	18,437	27,368
	State	27,407	1,367	14,248	43,022	106,836	4,494	86,359	197,689

COMPARISON OF FOREST GROWTH AND DRAIN, NORTH CAROLINA--1940

Item	Survey unit	Saw timber				All sound trees - 5.0" d.b.h. and larger			
		Pines	Cypress	Hardwoods	Total	Pines	Cypress	Hardwoods	Total
		Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords	M cords
Growing stock, Jan. 1, 1940	1	8,776	429	3,376	12,581	32,033	1,412	20,118	53,563
	2	9,249	938	4,336	14,523	31,313	3,082	22,443	56,838
	3	7,278	-	3,524	10,802	34,559	-	25,361	59,920
	4	2,104	-	3,012	5,116	8,931	-	18,437	27,368
	State	27,407	1,367	14,248	43,022	106,836	4,494	86,359	197,689
Growth	1	609	12	172	793	2,018	34	854	2,906
	2	548	30	189	767	1,524	80	920	2,524
	3	553	-	216	769	2,459	-	1,381	3,840
	4	125	-	157	282	508	-	1,037	1,545
	State	1,835	42	734	2,611	6,509	114	4,192	10,815
Mortality	1	53	4	26	83	232	15	151	398
	2	72	9	35	116	298	44	226	568
	3	41	-	24	65	288	-	185	473
	4	18	-	11	29	58	-	59	117
	State	184	13	96	293	876	59	621	1,556
Net growth	1	556	8	146	710	1,786	19	703	2,508
	2	476	21	154	651	1,226	36	694	1,956
	3	512	-	192	704	2,171	-	1,196	3,367
	4	107	-	146	253	450	-	978	1,428
	State	1,651	29	638	2,318	5,633	55	3,571	9,259
Commodity drain	1	483	17	142	642	1,612	39	599	2,250
	2	453	32	132	617	1,426	72	476	1,974
	3	596	-	153	749	2,198	-	753	2,951
	4	103	-	160	263	397	-	691	1,088
	State	1,635	49	587	2,271	5,633	111	2,519	8,263
Net change	1	+73	-9	+4	+68	+174	-20	+104	+258
	2	+23	-11	+22	+34	-200	-36	+218	-18
	3	-84	-	+39	-45	-27	-	+443	+416
	4	+4	-	-14	-10	+53	-	+287	+340
	State	+16	-20	+51	+47	0	-56	+1,052	+996
Growing stock, Jan. 1, 1941	1	8,849	420	3,380	12,649	32,207	1,392	20,222	53,821
	2	9,272	927	4,358	14,557	31,113	3,046	22,661	56,820
	3	7,194	-	3,563	10,757	34,532	-	25,804	60,336
	4	2,108	-	2,998	5,106	8,984	-	18,724	27,708
	State	27,423	1,347	14,299	43,069	106,836	4,438	87,411	198,685

COMPARISON OF FOREST GROWTH AND DRAIN, NORTH CAROLINA--1941

Item	Survey unit	Saw timber				All sound trees - 5.0" d.b.h. and larger			
		Pines	Cypress	Hardwoods	Total	Pines	Cypress	Hardwoods	Total
		Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords	M cords
Growing stock, Jan. 1, 1941	1	8,849	420	3,380	12,649	32,207	1,392	20,222	53,821
	2	9,272	927	4,358	14,557	31,113	3,046	22,661	56,820
	3	7,194	-	3,563	10,757	34,532	-	25,804	60,336
	4	2,108	-	2,998	5,106	8,984	-	18,724	27,708
	State	27,423	1,347	14,299	43,069	106,836	4,438	87,411	198,685
Growth	1	614	12	172	798	2,039	33	1,009	3,081
	2	552	29	189	770	1,520	80	925	2,525
	3	548	-	216	764	2,476	-	1,394	3,870
	4	126	-	158	284	515	-	1,052	1,567
	State	1,840	41	735	2,616	6,550	113	4,380	11,043
Mortality	1	54	4	26	84	234	15	151	400
	2	73	9	35	117	298	44	228	570
	3	43	-	25	68	293	-	189	482
	4	18	-	11	29	57	-	61	118
	State	188	13	97	298	882	59	629	1,570
Net growth	1	560	8	146	714	1,805	18	858	2,681
	2	479	20	154	653	1,222	36	697	1,955
	3	505	-	191	696	2,183	-	1,205	3,388
	4	108	-	147	255	458	-	991	1,449
	State	1,652	28	638	2,318	5,668	54	3,751	9,473
Commodity drain	1	530	26	174	730	1,748	58	651	2,457
	2	470	28	155	653	1,472	63	528	2,063
	3	727	-	190	917	2,576	-	849	3,425
	4	132	-	171	303	483	-	723	1,206
	State	1,859	54	690	2,603	6,279	121	2,751	9,151
Net change	1	+30	-18	-28	-16	+57	-40	+207	+224
	2	+9	-8	-1	0	-250	-27	+169	-108
	3	-222	-	+1	-221	-393	-	+356	-37
	4	-24	-	-24	-48	-25	-	+268	+243
	State	-207	-26	-52	-285	-611	-67	+1,000	+322
Growing stock, Jan. 1, 1942	1	8,879	402	3,352	12,633	32,264	1,352	20,429	54,045
	2	9,281	919	4,357	14,557	30,863	3,019	22,830	56,712
	3	6,972	-	3,564	10,536	34,139	-	26,160	60,299
	4	2,084	-	2,974	5,058	8,959	-	18,992	27,951
	State	27,216	1,321	14,247	42,784	106,225	4,371	88,411	199,007

COMPARISON OF FOREST GROWTH AND DRAIN, NORTH CAROLINA--1942

Item	Survey unit	Saw timber				All sound trees - 5.0" d.b.h. and larger			
		Pines	Cypress	Hardwoods	Total	Pines	Cypress	Hardwoods	Total
		Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords	M cords
Growing stock, Jan. 1, 1942	1	8,879	402	3,352	12,633	32,264	1,352	20,429	54,045
	2	9,281	919	4,357	14,557	30,863	3,019	22,830	56,712
	3	6,972	-	3,564	10,536	34,139	-	26,160	60,299
	4	2,084	-	2,974	5,058	8,959	-	18,992	27,951
	State	27,216	1,321	14,247	42,784	106,225	4,371	88,411	199,007
Growth	1	619	11	172	802	2,062	32	859	2,953
	2	554	29	190	773	1,515	80	934	2,529
	3	541	-	217	758	2,496	-	1,410	3,906
	4	126	-	158	284	522	-	1,069	1,591
	State	1,840	40	737	2,617	6,595	112	4,272	10,979
Mortality	1	56	3	26	85	237	14	153	404
	2	74	9	36	119	298	44	230	572
	3	44	-	26	70	295	-	192	487
	4	17	--	11	28	55	-	62	117
	State	191	12	99	302	885	58	637	1,580
Net growth	1	563	8	146	717	1,825	18	706	2,549
	2	480	20	154	654	1,217	36	704	1,957
	3	497	-	191	688	2,201	-	1,218	3,419
	4	109	-	147	256	467	-	1,007	1,474
	State	1,649	28	638	2,315	5,710	54	3,635	9,399
Commodity drain	1	534	23	160	717	1,783	52	644	2,479
	2	473	22	135	630	1,457	48	489	1,994
	3	781	-	186	967	2,722	-	837	3,559
	4	136	-	161	297	493	-	682	1,175
	State	1,924	45	642	2,611	6,455	100	2,652	9,207
Net change	1	+29	-15	-14	0	+42	-34	+62	+70
	2	+7	-2	+19	+24	-240	-12	+215	-37
	3	-284	-	+5	-279	-521	-	+381	-140
	4	-27	-	-14	-41	-26	-	+325	+299
	State	-275	-17	-4	-296	-745	-46	+983	+192
Growing stock, Jan. 1, 1943	1	8,908	387	3,338	12,633	32,306	1,318	20,491	54,115
	2	9,288	917	4,376	14,581	30,623	3,007	23,045	56,675
	3	6,688	-	3,569	10,257	33,618	-	26,541	60,159
	4	2,057	-	2,960	5,017	8,933	-	19,317	28,250
	State	26,941	1,304	14,243	42,488	105,480	4,325	89,394	199,199

COMPARISON OF FOREST GROWTH AND DRAIN, NORTH CAROLINA--1943

Item	Survey unit	Saw timber				All sound trees - 5.0* d.b.h. and larger			
		Pines	Cypress	Hardwoods	Total	Pines	Cypress	Hardwoods	Total
		Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	M cords	M cords	M cords	M cords
Growing stock, Jan. 1, 1943	1	8,908	387	3,338	12,633	32,306	1,318	20,491	54,115
	2	9,288	917	4,376	14,581	30,623	3,007	23,045	56,675
	3	6,688	-	3,569	10,257	33,618	-	26,541	60,159
	4	2,057	-	2,960	5,017	8,933	-	19,317	28,250
	State	26,941	1,304	14,243	42,488	105,480	4,325	89,394	199,199
Growth	1	626	11	171	808	2,090	32	860	2,982
	2	558	29	191	778	1,517	80	941	2,538
	3	533	-	216	749	2,526	-	1,425	3,951
	4	127	-	159	286	532	-	1,089	1,621
	State	1,844	40	737	2,621	6,665	112	4,315	11,092
Mortality	1	57	3	26	86	240	14	153	407
	2	76	9	35	120	297	43	233	573
	3	44	-	27	71	297	-	195	492
	4	16	-	12	28	53	-	64	117
	State	193	12	100	305	887	57	645	1,589
Net growth	1	569	8	145	722	1,850	18	707	2,575
	2	482	20	156	658	1,220	37	708	1,965
	3	489	-	189	678	2,229	-	1,230	3,459
	4	111	-	147	258	479	-	1,025	1,504
	State	1,651	28	637	2,316	5,778	55	3,670	9,503
Commodity drain	1	486	19	164	669	1,634	44	654	2,332
	2	445	17	139	601	1,364	39	496	1,899
	3	752	-	200	952	2,651	-	877	3,528
	4	122	-	171	293	440	-	711	1,151
	State	1,805	36	674	2,515	6,089	83	2,738	8,910
Net change	1	+83	-11	-19	+53	+216	-26	+53	+243
	2	+37	+3	+17	+57	-144	-2	+212	+66
	3	-263	-	-11	-274	-422	-	+353	-69
	4	-11	-	-24	-35	+39	-	+314	+353
	State	-154	-8	-37	-199	-311	-28	+932	+593
Growing stock, Jan. 1, 1944	1	8,991	376	3,319	12,686	32,522	1,292	20,544	54,358
	2	9,325	920	4,393	14,638	30,479	3,005	23,257	56,741
	3	6,425	-	3,558	9,983	33,196	-	26,894	60,090
	4	2,046	-	2,936	4,982	8,972	-	19,631	28,603
	State	26,787	1,296	14,206	42,289	105,169	4,297	90,326	199,792

