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South Carolina's Forests, 1993

Roger C. Conner

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Southern Research Station
P.O. Box 2680
Asheville, NC 28802

Photo Courtesy of South Carolina Forestry Commission

South Carolina's Forests, 1993

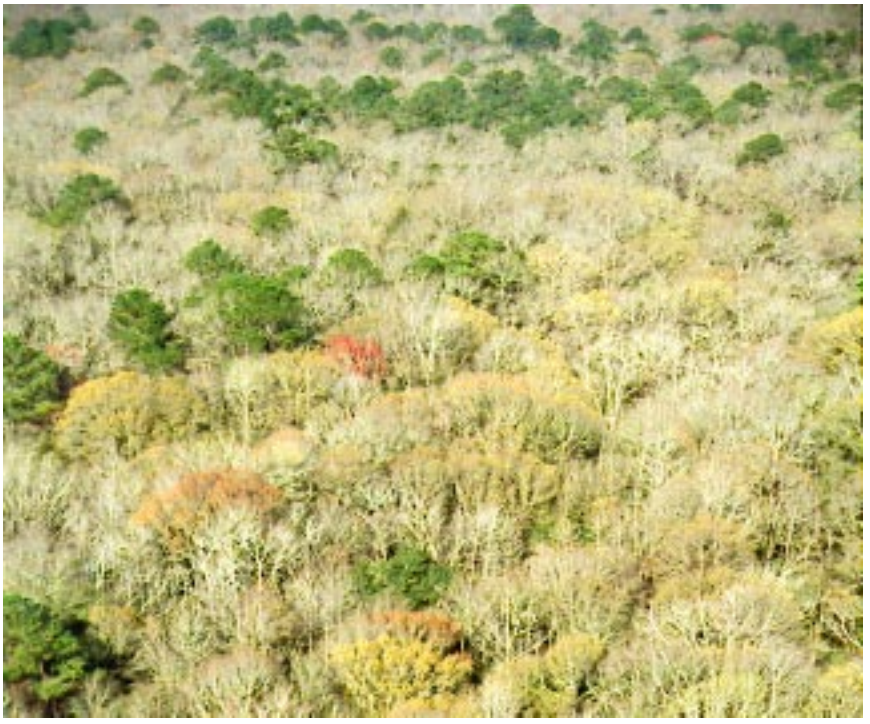


Photo Courtesy of South Carolina Forestry Commission

Roger C. Conner, Research Forester
Forest Inventory and Analysis
Asheville, North Carolina

Cover photo—South Carolina Forestry Commisssion

Foreword

This resource bulletin describes the principal findings of the seventh inventory of South Carolina's forest resources. Data on the extent, condition, and classification of forest land and associated timber volumes, growth, removals, and mortality are described and interpreted. Whereas data on nontimber commodities associated with forests were also collected, evaluations of these data are not included in this report.

Periodic surveys of our Nation's forest resources are mandated by the Forest and Rangeland Renewable Resources Research Act of 1978. These surveys are part of a continuing, nationwide undertaking by the regional experiment stations of the U.S. Department of Agriculture, Forest Service. Inventories of the 13 Southern States (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia) and the Commonwealth of Puerto Rico are conducted by the Southern Research Station, Forest Inventory and Analysis Research Work Unit (FIA) operating from its headquarters in Asheville, NC, and from an office in Starkville, MS. The primary objective of these periodic appraisals is to develop and maintain the resource information needed to formulate sound forest policies and programs. More information is available about Forest Service resource inventories (U.S. Department of Agriculture, Forest Service 1992).

Field work for the seventh survey of South Carolina began in January 1992 and was completed in May 1993. Six previous surveys, completed in 1936, 1947, 1958, 1968, 1978, and 1986, provide statistics for measuring changes and trends over a 57-year span. This analysis focuses mainly on changes and trends in recent years and their implications for the future.

The combined efforts of many people have gone into this evaluation of South Carolina's forest resources. Appreciation is expressed to all Research Work Unit and Station personnel who participated in the field and office work. The Southern Research Station gratefully acknowledges the cooperation and assistance provided by the South Carolina Department of Environment, Health and Natural Resources, Division of Forest Resources, in collecting field data. Appreciation is also expressed for the excellent cooperation of other public agencies, forest industries, and private landowners in providing information and allowing access to the sample locations.

Tabular data included in FIA reports are designed to provide a comprehensive array of forest resource statistics, but additional data can be obtained for those who require more specialized information. The forest resource data for Southern States can be accessed directly via the Internet at: www.srsfia.usfs.msstate.edu. Data in a format common to the four FIA units in the Eastern United States (Eastwide Data Base) are also available (Hansen and others 1992). Custom compilations of tabular data and datasets require processing fees; costs may range from less than $100 for a relatively simple retrieval to several thousand dollars for a complex request that involves special programming. Although such requests are usually serviced promptly, attention to special requests is sometimes delayed by our regular duties.

Information concerning any aspect of this survey may be obtained from:

Forest Inventory and Analysis
Southern Research Station
P.O. Box 2680
Asheville, NC 28802
Phone: 704-257-4350

Noel D. Cost
Project Leader

Contents

Page

Highlights iv

Overview 1

Land Use Patterns and Vegetative Cover . . . 3

Timberland 4
- Changes and Trends in Timberland Area 4
- Distribution by Ownership 5
- Trends for Privately Owned Timberland 6
- Tract Size of NIPF Timberland 7

Forest Composition and Stand Structure . . . 8
- Forest Type and Stand Size 8
- Stand Origin: Natural Pine Stands and Plantations 9

Volume 12
- Softwood Growing Stock 12
- Hardwood Growing Stock 13

Components of Change: Net Growth, Mortality, and Removals 16
- Softwood Net Annual Growth and Removals . . . 17
- Hardwood Net Annual Growth and Removals . . . 18
- Net Annual Growth and Removals by Broad Management Class 20

Timber Products Output 21

Timber Supply Outlook 23
- Projected Trends in Timberland Area 23
- Inventory Projections 24
- Projected Net Annual Growth and Removals for Pine 25
- Projected Net Annual Growth and Removals for Hardwoods 26

Literature Cited 28

Appendix 29
- Procedure 29
- Reliability of the Data 30
- Definitions 31
- Conversion Factors 36
- Index of Detailed Tables 37
- Tables 39

Highlights from the Seventh Inventory of South Carolina

Area

- Nonreserved timberland area now totals more than 12.4 million acres, up 2 percent from 1986. Currently, almost 66 percent of South Carolina is forested.

- Private landowners control 91 percent of the timberland, including 8.9 million acres classified as nonindustrial private forest (NIPF) land.

- Forest industry timberland decreased by 312,000 acres to 2.4 million, the first decline in industry holdings since the 1950's. Corporate timberland increased by one-third to 1.6 million acres.

- The area of softwood forest types increased to more than 5.5 million acres and now constitutes 48 percent of South Carolina's timberland.

- Pine plantations account for nearly 2.7 million acres, or 49 percent of the area of softwoods.

- Loblolly pine is the predominant softwood forest type and occupies 4.3 million acres, up 12 percent. The area of longleaf pine continued its long-term descent, falling from more than 396,000 acres in 1986 to just over 369,000 acres today. The area of virtually all other major softwood forest types declined.

- Hardwoods account for 5.0 million acres, down by over 206,000 acres.

Volume

- Softwood growing-stock volume amounts to 8.0 billion cubic feet, a decline of 910.0 million cubic feet. Most of the decline was in the Northern Coastal Plain as a result of damage from Hurricane Hugo.

- Hardwood volume declined by 413.4 million cubic feet to 8.7 billion, a decrease of 5 percent. Again, Hurricane Hugo was the primary factor behind the reduction.

- Loblolly pine accounts for 5.4 billion cubic feet, or 67 percent, of the current softwood inventory. Longleaf pine continued its downward trend in volume, falling from 656.9 million cubic feet to 513.5 million cubic feet.

- About 5.1 billion cubic feet of South Carolina's softwood growing-stock volume is on NIPF land. Forest industry holds almost 1.7 billion cubic feet of softwood growing stock.

- Nearly 2.3 billion cubic feet, or 28 percent, of the softwood volume is in pine plantations.

Net Growth and Removals

- Statewide, current net annual growth for all growing-stock species is 525.6 million cubic feet. Average annual mortality is 407.3 million cubic feet. Roughly 68 percent of the mortality was in the Northern Coastal Plain, which sustained the most hurricane damage.

- Total removals from growing stock have increased 16 percent since 1985, averaging almost 728.0 million cubic feet per year. This increase was evident in all sample units for both softwoods and hardwoods.

- Softwood net annual growth dropped to 343.6 million cubic feet, a 23-percent decline. Removals climbed to 492.2 million cubic feet, exceeding net growth by 43 percent.

- Hardwood net annual growth declined from 248.7 million cubic feet to 182.0 million, a 27-percent decrease. Annual timber removals for hardwoods averaged 235.7 million cubic feet and exceeded net annual growth by almost 30 percent over the survey period.

Timber Products Output

- Total output of timber products increased 32 percent, averaging 826.8 million cubic feet per year over the survey period.

- Pulpwood remains the primary product in terms of volume and amounts to 410.8 million cubic feet, almost one-half of the total timber products output.

- Softwoods accounted for 599.9 million cubic feet of the current volume in timber products.

Timber Supply Outlook

- The area of planted pine/oak–pine stands is projected to reach 3.8 million acres by 2013, exceeding the area of natural pine/oak–pine stands for the first time. The projected area of hardwoods will remain fairly constant, increasing by just 1 percent to 5.1 million acres by 2023.

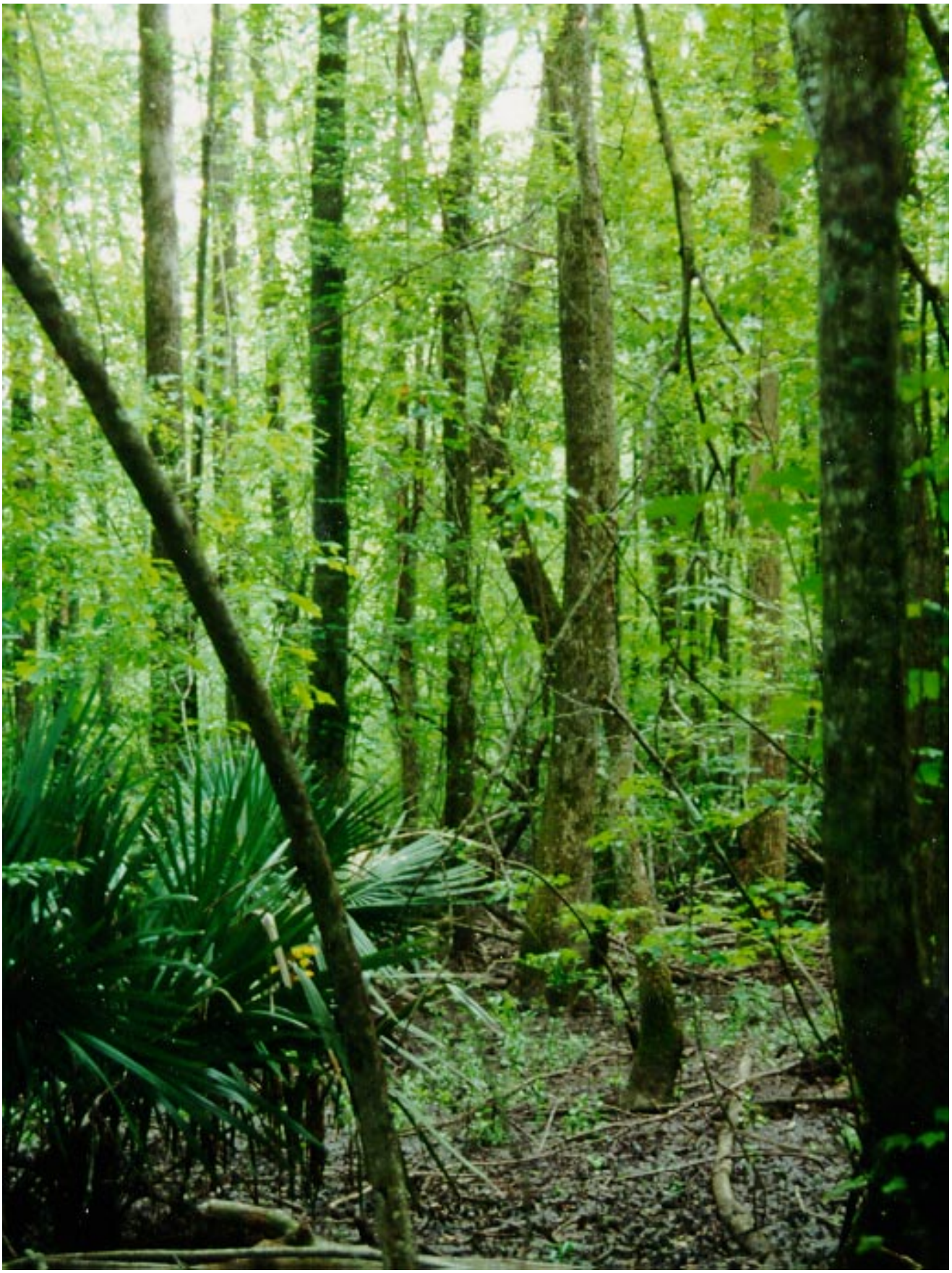
- Southern yellow pine inventory is expected to increase to 9.0 billion cubic feet over the next 30 years. Hardwood inventory will rise to 11.1 billion cubic feet.

- Pine net annual growth is projected to increase steadily, reaching 692.5 million cubic feet per year by 2023. Pine net growth is expected to exceed future increases in removals during all but the first 5-year projection period.

- Pine removals volume requested is expected to exceed pine volume available from inventory between 2003 and 2008, and between 2013 and 2018. These projected shortfalls amount to 66.1 million cubic feet and 74.6 million cubic feet, respectively.

- Projected hardwood net annual growth will peak in 2018 at 411.3 million cubic feet. Hardwood net growth will exceed requested hardwood removals over the entire 30-year period.

- Requested hardwood volume will peak at 322.6 million cubic feet per year between 2013 and 2018. Sufficient hardwood volume will be available from inventory to supply increased demand over the next 30 years.



Overview

South Carolina's forests, by most standards, were in good condition prior to September 22, 1989. Thousands of acres of timberland were well stocked with relatively high quality trees, many at or near harvest size. Timberland in the State's Northern Coastal Plain had one of the highest levels of pine sawtimber per acre in the South. The Francis Marion National Forest in Berkeley County held nearly 15 percent of the pine sawtimber found on national forest lands in the Midsouth States (Knight and Nodine 1996). The previous survey reported that net annual growth of growing stock averaged 57 cubic feet per acre Statewide, while annual mortality averaged just 12 cubic feet per acre. Growing-stock volume averaged 1,625 cubic feet per acre for softwoods, and 1,320 cubic feet per acre for hardwoods (Tansey and Hutchins 1988).

Hurricane Hugo dramatically altered the condition of thousands of timberland acres. The storm hit the South Carolina coast near Charleston with sustained winds of 135 miles per hour. More than half of the State's forest land stood directly in Hugo's path. The hurricane took roughly 2 hours to cross the eastern third of South Carolina. In its aftermath, more than 4.5 million acres of prime timberland in 23 counties were damaged, and 1.2 million acres sustained moderate to heavy damage (fig. 1) (Sheffield and Thompson 1992). Valuable, well-managed stands that had taken decades to produce were destroyed in a matter of minutes. Reportedly, the storm caused over $1 billion in damage to South Carolina's timber resource (Marsinko and others 1993). Salvage operations began immediately and continued for 9 months. However, only 387 million cubic feet were recovered, out of the estimated 2.5 billion cubic feet damaged (Lupold 1993).

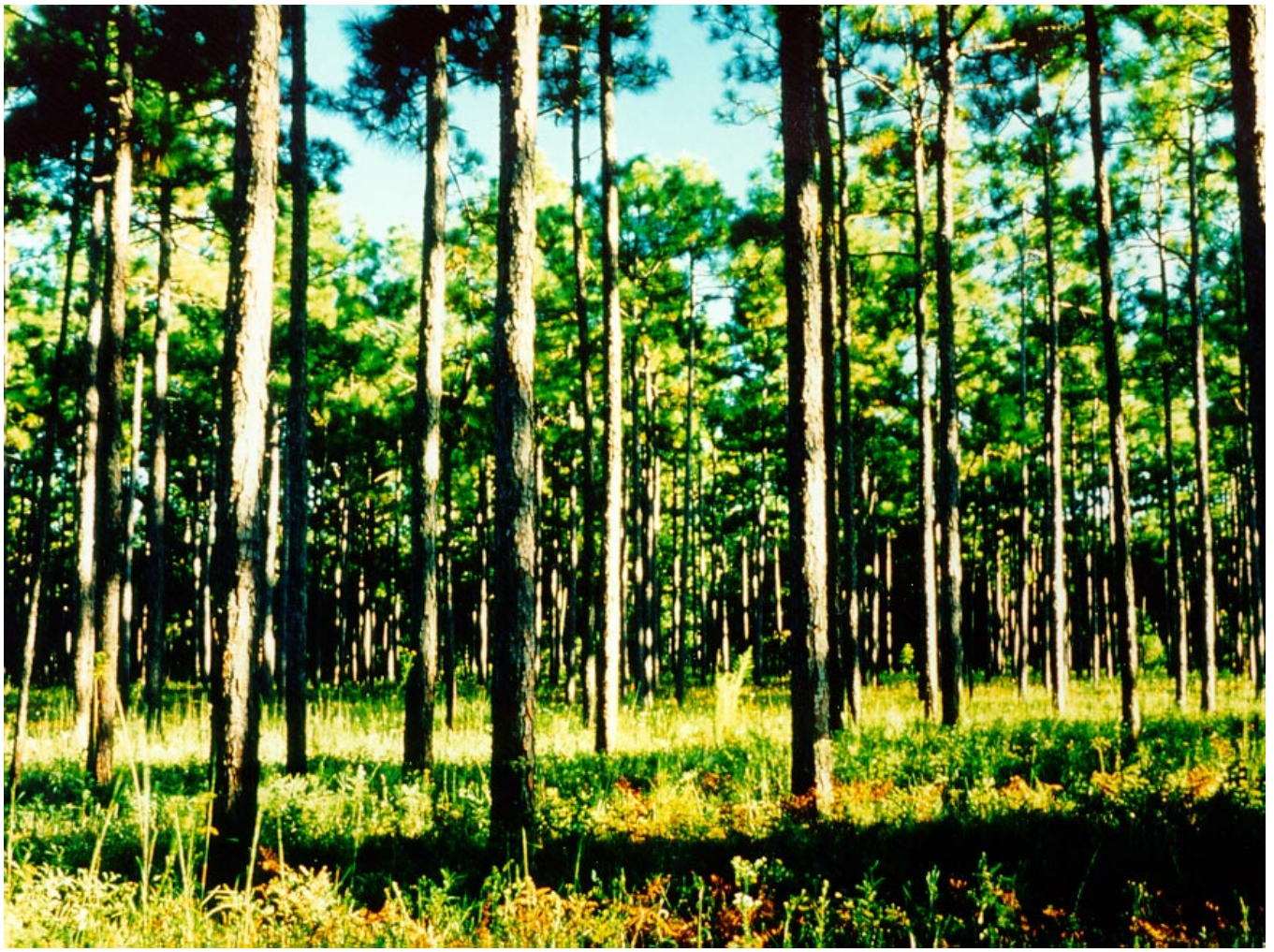


Photo Courtesy of South Carolina Forestry Commission

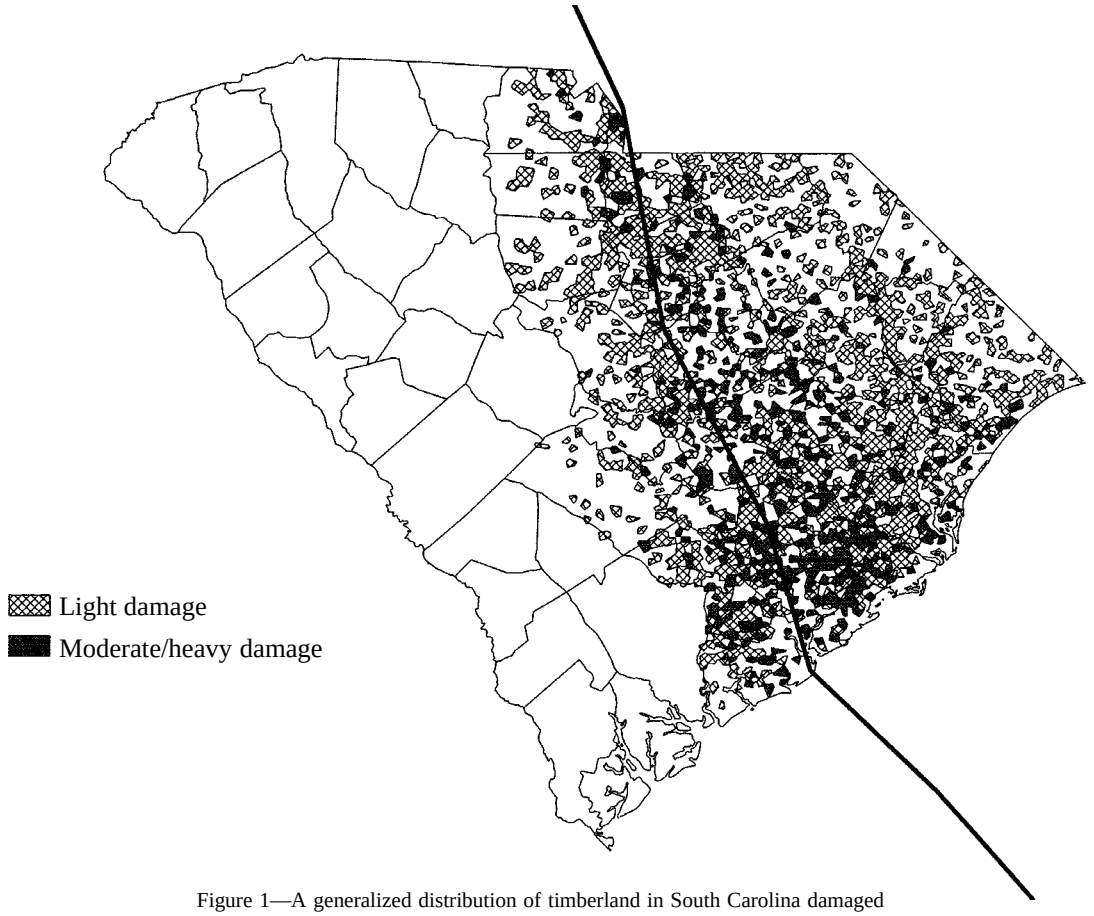


Figure 1—A generalized distribution of timberland in South Carolina damaged by Hurricane Hugo by degree of damage (Sheffield and Thompson 1992).

It will take many years for South Carolina's timber resource to recover completely. The restoration process already has begun, as evidenced in some findings of the latest forest survey. This report focuses on the current condition of the State's timberland. Included is a detailed look at the impacts Hurricane Hugo has had on stand stocking, growing-stock volume, net growth, mortality, and removals levels. The storm's potential impact on future timber supply also is addressed by analyses and discussions of projected supply.

Photo Courtesy of South Carolina Forestry Commission

Land Use Patterns and Vegetative Cover

South Carolina is divided into multi-county sample units based on broad physiographic similarities. A natural "break" in the State occurs along the fall line, separating the Piedmont from the Coastal Plain. The Coastal Plain is further divided along county lines into the Northern and Southern Coastal Plain sample units (fig. 2). Most resource statistics presented in this report are State totals, but differences and trends among sample units are noted where appropriate.

South Carolina's total area is more than 20.5 million acres, including 1.2 million acres of census water. Land use is a primary factor in the presence or absence of vegetative cover on a given site. Forests occupy almost 66 percent of the State's land area, or about 12.6 million acres. The remaining 6.6 million acres reflect a variety of nonforest uses, such as agriculture and urban development. About 2.7 million acres are classified as urban and other nonforest land, an increase of 98,000 acres since 1986. Current estimates show over 3.0 million acres of cropland and idle farmland, a decline of almost 522,000 acres.

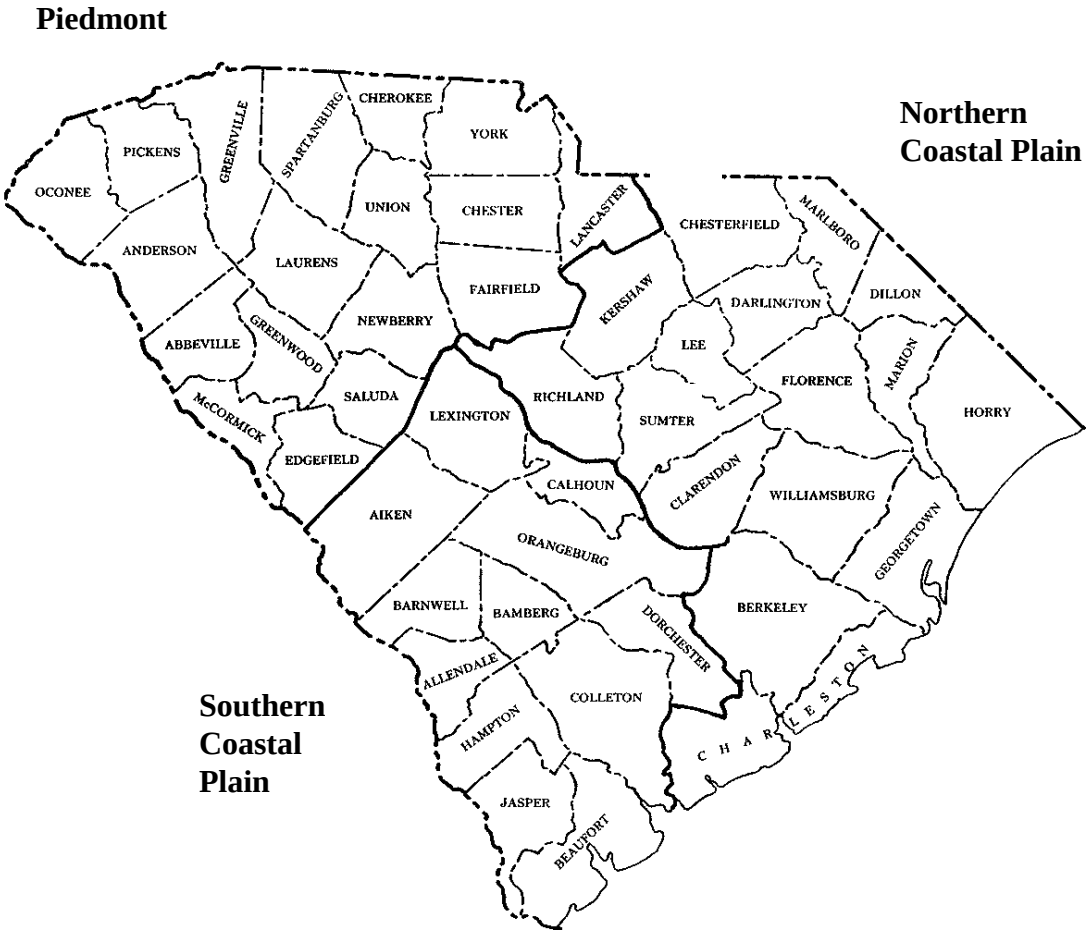


Figure 2—Forest survey sample units, South Carolina, 1993.

Photo Courtesy of South Carolina Forestry Commission

Timberland

All 12.6 million acres of forest land in South Carolina are classified as productive timberland; land capable of growing at least 20 cubic feet of industrial wood per acre per year. However, some of these acres are reserved for uses that exclude timber management and harvest. Currently, 191,000 acres are reserved, an increase of more than 112,000 acres since 1986. Greenville County has the most reserved timberland with 33,000 acres, followed by Richland County with over 21,000 acres. Oak-hickory forest types occupy over 80,000 acres, or 42 percent of the current reserved forest land area. Almost 51,000 acres of oak-gum-cypress timberland are reserved, along with about 50,000 acres of loblolly-shortleaf pine. The remaining 10,000 reserved acres are longleaf-slash pine types.

Reserved areas, including State parks and national wildlife refuges, are highly valued for their potential to provide a wide range of forest-based recreation and provide habitat for South Carolina's diverse wildlife populations. While the importance and value of reserved forest land is worth noting, these areas will not be discussed in this report. The report will focus, instead, on analyses and discussions of survey results for timberland acres available for commercial wood production.

Changes and Trends in Timberland Area

Since 1986, timberland area in South Carolina has increased by more than 276,000 acres, or about 2 percent, to 12.4 million acres (fig. 3). Considering results from earlier surveys, gains in timberland generally have been the rule, although between 1978 and 1986 timberland area dropped by about 3 percent to less than 12.2 million acres. The high mark for timberland was reached in 1978, at just over 12.5 million acres.

The recent increase in timberland is due to planting on nonforest land and, to a lesser extent, natural reversion. The result has been the addition of 687,400 acres supporting stands of young trees where none existed a few years ago (table I). Conversely, about 411,300 acres that were classified as forest land in 1986 are no longer classified as such. Urban expansion and other related uses have diverted almost 196,600 acres from the timber base over the past 7 years, and an additional 76,500 acres have been cleared for agricultural uses.

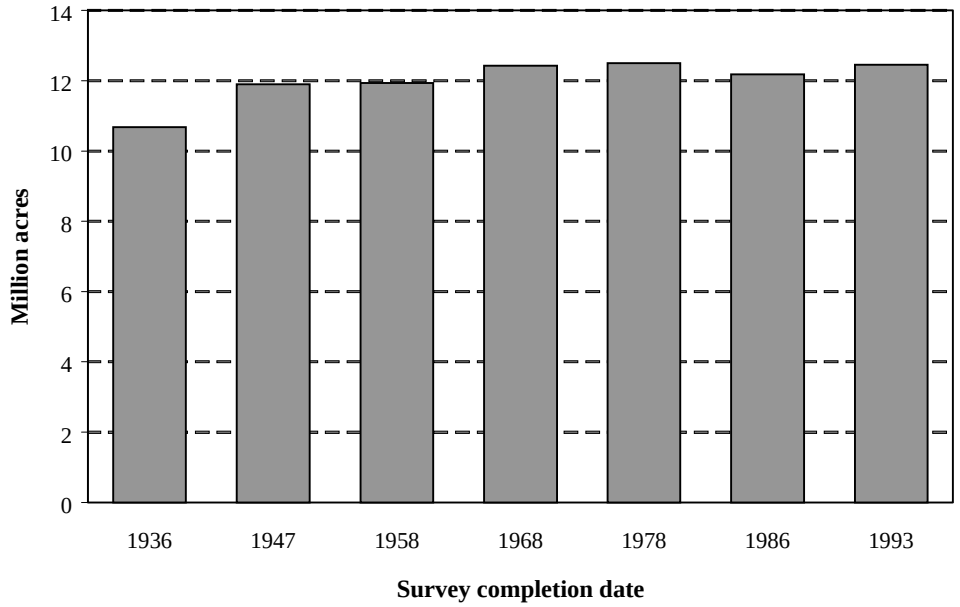


Figure 3—Timberland area by survey completion date, South Carolina.

Table I—Changes in area of South Carolina's timberland between 1986 and 1993, by survey unit

Survey unit	Area of timberland in—		Changes								
					Additions from—			Diversions to—			
	1986	1993	Net change	Total gain	Nonforest	Other forest land	Total loss	Other forest land	Agri-culture	Urban and other	Water
	Thousand acres										
Southern Coastal Plain	3,162.7	3,266.0	+103.3	198.1	198.1	—	94.8	13.0	25.6	51.1	5.1
Northern Coastal Plain	4,574.9	4,718.5	+143.6	298.9	298.9	—	155.3	43.0	21.0	81.9	9.4
Piedmont	4,441.2	4,470.4	+29.2	190.4	190.4	—	161.2	56.5	29.9	63.6	11.2
State	12,178.8	12,454.9	+276.1	687.4	687.4	—	411.3	112.5	76.5	196.6	25.7

Change in land use occurred throughout the State, but the net increase in timberland area was greatest in the Northern Coastal Plain. There, the total area of timberland increased by about 298,900 acres. Diversion of timberland to other uses amounted to 155,300 acres, including 81,900 acres that were diverted to urban use. Another 43,000 acres were placed in a reserved status. The net increase in timberland for the region was roughly 143,600 acres, or 3 percent. In the Piedmont, 190,400 acres of timberland were gained, yet 161,200 acres of forest land were lost to nontimber uses. The result was a net gain of 29,200 acres. Timberland in the Southern Coastal Plain has shown a net gain of 103,300 acres since 1986.

Distribution by Ownership

The overall distribution of South Carolina’s timberland area by ownership has changed little over the years. Historically, public timberland accounted for little more than 8 or 9 percent of the State’s timber base, a level which, according to latest survey results, remains about the same. The 1.1 million acres of public timberland is 9 percent of the current timberland area (fig. 4). Public timberland is managed by State and county (2 percent), miscellaneous Federal agencies (3 percent), and by the national forests (4 percent). The Francis Marion and Sumter National Forests together account for over 560,000 acres of public timberland.

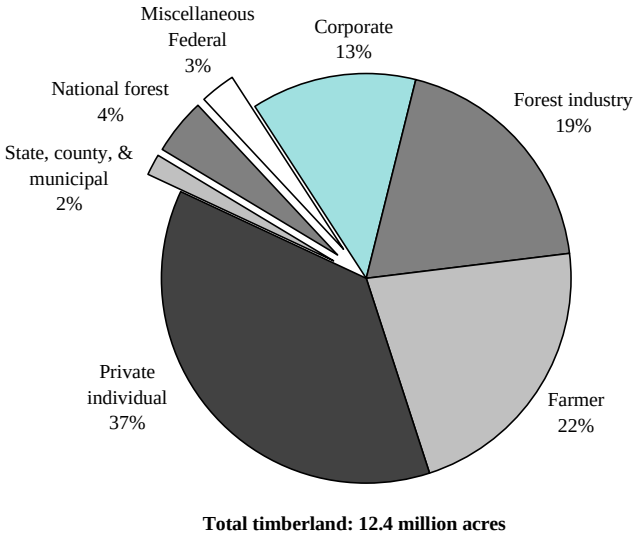


Figure 4—Area of timberland by ownership class, South Carolina, 1993.

The majority of the timberland area remains in private hands. Private ownership is composed of two major groups: forest industry and NIPF land. Forest industry controls 19 percent of South Carolina's timberland, while NIPF owners hold 72 percent. The NIPF ownership group includes farmers, individuals, and corporate landowners. Private individuals own 37 percent, farmers hold 22 percent, and corporations control 13 percent.

Trends for Privately Owned Timberland

The degree to which any privately owned acres are managed for timber products, or the likelihood that they will be available for harvest, is often determined by the goals and decisions of a single individual. Movement of large numbers of acres among private owner groups within a given survey period is uncommon. Even moderate changes in distribution, however, can have far-reaching effects on South Carolina's future timber supply.

Estimates from the past three surveys—from 1978 to 1993—show that the total timberland area of all private owners has remained relatively constant; about 11.3 million acres. Forest industry timberland has decreased by 312,000 acres since 1986 (fig. 5), the first decline in industry ownership since the 1950's. Industry timberland now amounts to 2.4 million acres, including over 72,000 acres of other private land under long-term lease. Industry timberland is typically the most intensively managed, and often the most readily available for harvest. The decline in industry acreage could be a reason for concern, should this downward trend continue.

More than 8.9 million acres of South Carolina's timberlands are under NIPF ownership. Farmers and individual landowners together control 7.3 million acres. This figure is up from 7.1 million acres in 1986, but down 579,000

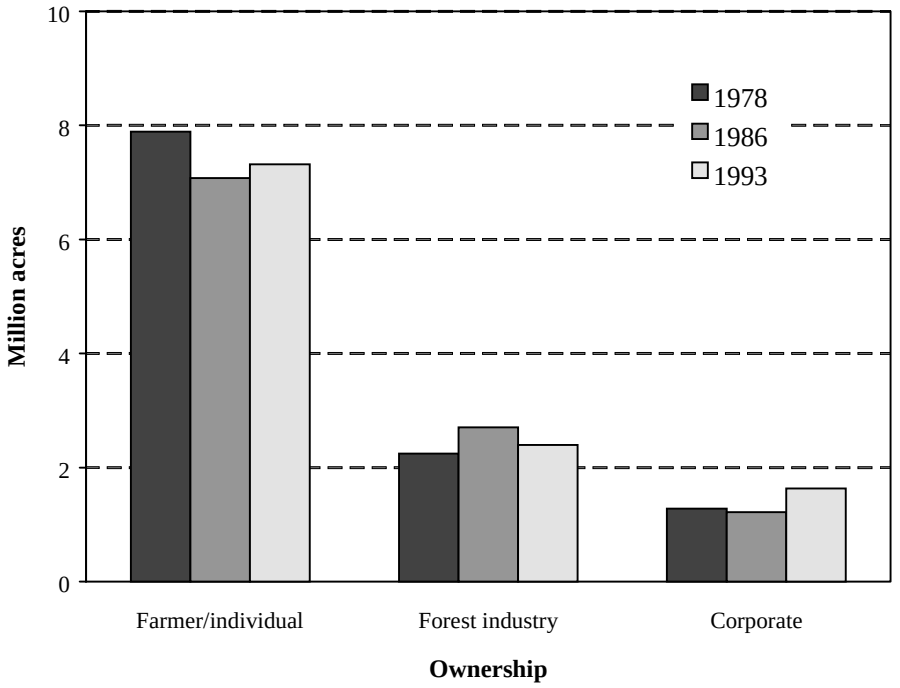


Figure 5—Distribution of private forest land, South Carolina, 1978, 1986, and 1993.

acres from the level recorded in 1978. The number of farmer-owned acres continues to decline, down from 3.1 million acres in 1986 to 2.7 million acres in 1993. Timberland under corporate ownership has increased by one-third since 1986 and now totals more than 1.6 million acres. Corporate holdings of forest land tend to increase as the investment value of timber assets increases. However, there is no guarantee that corporate acreage will be intensively managed for long-term timber production (Alig and others 1986). Some acres will likely undergo a one-time harvest before being resold or developed.

Tract Size of NIPF Timberland

An anticipated higher demand for wood suggests that increased dependence on private timberland is likely, particularly NIPF lands. The importance of nonindustrial private timberland to South Carolina's current and future timber supply is obvious. The potential of NIPF land to respond to increased demand is dependent on many factors, including the size of a forested tract an individual owns. A recent report has shown that nearly 891,000 acres of private forest land in South Carolina are distributed among individuals who own tracts 10 acres in size or less (Thompson 1997).

Moreover, about 3.8 million acres (43 percent) of NIPF land is in individually owned tracts that range from 11 to 100 acres. The comparatively high cost of managing small tracts—those less than 100 acres—may be a disincentive to NIPF owners to manage their land for timber production. Private landowners may not be willing to invest in long-term timber management without incentives such as cost sharing or technical assistance. Addressing this concern will become imperative as more and more landowners control smaller, forested tracts.

Forest Composition and Stand Structure

The species and sizes of trees present largely define the composition and structure of a stand. Forest type and stand-size class are variables FIA uses to help describe and classify forest land. Stand origin, indicating whether a stand was established naturally or through planting, is also useful.

Forest Type and Stand Size

Timberland is classified into three broad forest-type groups based on plurality of stand stocking: hardwoods, softwoods, and oak–pine. Oak–pine stands are often remnants of what once were classified as pine stands, but where hardwoods have restocked the site as the pine component was removed. Before 1958, oak–pine was not reported as a separate forest-type group. In 1936, the area classified as pine forest, combined with oak–pine stands, occupied nearly 73 percent of South Carolina's timberland area, or about 7.8 million acres (fig. 6). By 1958, the combined area had dropped to 6.7 million acres, or 56 percent of the timberland area. Over the same period, hardwood stands increased by 82 percent, rising from 2.9 million acres to a peak of almost 5.3 million acres in 1958. By 1993, the area of hardwoods had declined to fewer than 5.0 million acres, or 40 percent of the timberland area. Oak–pine stands currently occupy just over 1.9 million acres, while softwood forest types are predominant on almost 5.6 million acres.

Stand size is based on the diameter class distribution of live trees. This distribution was significantly altered on thousands of acres by storm damage to large diameter trees. In the 23 counties where Hurricane Hugo had its greatest impact, more than three-fourths of the sawtimber stands received significant damage (Sheffield and Thompson 1992). In addition, at least 67 percent of the poletimber stands, and 59 percent of the sapling-seedling stands in affected counties sustained damage. Overall, the number of softwood trees of sawtimber-size declined by almost 45.6 million from 1986 estimates, and hardwood sawtimber trees declined by 14.4 million.

Given the extent of the damage, it is not surprising that stands classified as sawtimber declined by almost 747,000 acres Statewide since the last survey (fig. 7). Most of the decline occurred in the Northern Coastal Plain where sawtimber dropped 534,000 acres. Sawtimber stands now occupy a total of 4.8 million acres across the State. The decline reverses an upward trend that began after the 1968 survey. Softwood forest types accounted for most of the decrease in sawtimber stands, down more than 428,000 acres from 1986, to 2.0 million acres by 1993. At the same time, hardwood sawtimber stands declined from 3.1 million acres to 2.8 million, a 10-percent decrease.

The area of poletimber stands has increased since the last survey. Poletimber stands now occupy 3.1 million acres, up 2 percent. Softwoods accounted for all the increase, which was just enough to offset the decline of 56,000 acres of hardwood poletimber. Loblolly poletimber increased by 284,000 acres, to over 1.1 million acres.

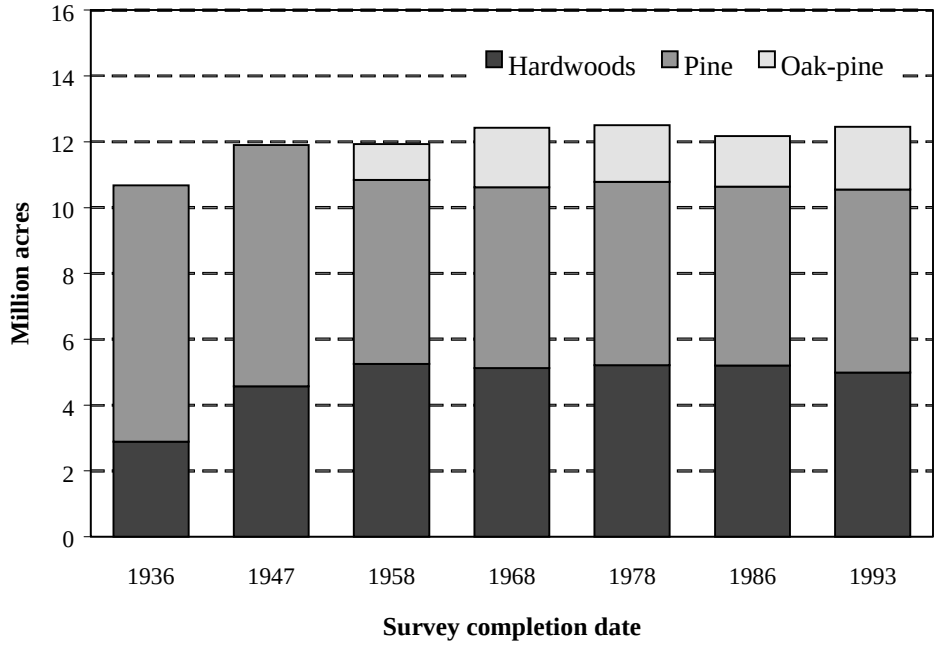


Figure 6—Area of timberland by forest-type group and survey completion date, South Carolina.

Sapling-seedling stands have increased by more than 35 percent, and now occupy nearly 4.5 million acres. Softwoods account for almost half, 47 percent, of the sapling-seedling stands. Softwood sapling-seedling stands increased by 446,000 acres since 1986, while the area predominantly stocked by hardwood saplings and seedlings increased by more than 706,000 acres. To some extent, the recent increase in sapling-seedling stands is in response to the regeneration of storm-damaged acres.

Stand Origin: Natural Pine Stands and Plantations

The upward trend in softwood acres can be traced to increased planting efforts over the past 20 years, particularly the levels reached in the late 1980's (fig. 8). Efforts such as the Soil Bank Program of the mid-1950's and the Federal Conservation Reserve Program of the mid-1980's, offered incentives to private landowners to plant trees on part of their land. Total area planted in a single year peaked at

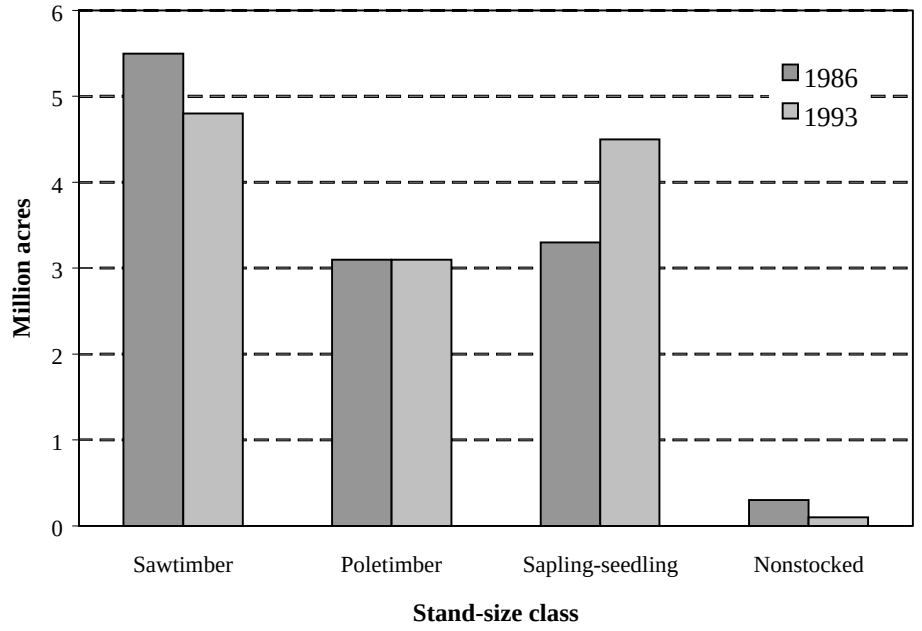


Figure 7—Area of timberland by stand-size class, South Carolina, 1986 and 1993.

over 237,000 acres in 1988 (U.S. Department of Agriculture, Forest Service 1988b). Planting levels have dropped considerably from that peak year, falling to just over 128,000 acres in 1993 (U.S. Department of Agriculture, Forest Service 1993).

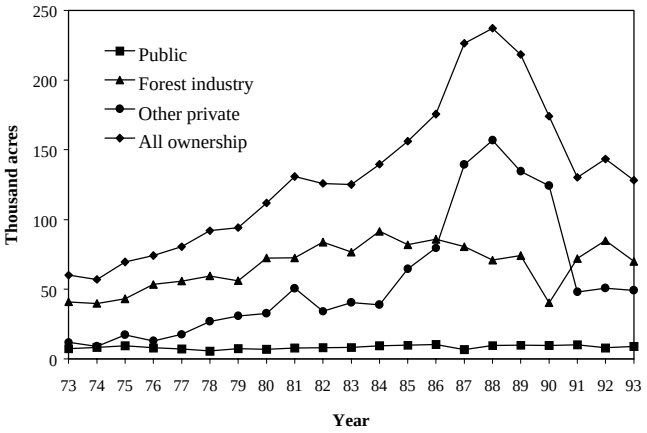


Figure 8—Acres of forest planting by ownership, South Carolina, 1973-1993.

Currently, there are almost 2.7 million acres of pine plantations in South Carolina (fig. 9). This represents an increase of 662,000 acres, or 33 percent, since 1986. Pine plantations now make up 21 percent of the total timberland area. A portion of the more recent planting is a direct result of attempts to restock acres heavily damaged by Hurricane Hugo. Nearly 211,000 acres—almost one-third of the increase—support stands of planted pine/oak–pine that are 3 years of age or less, indicating they were established after the hurricane struck in 1989.

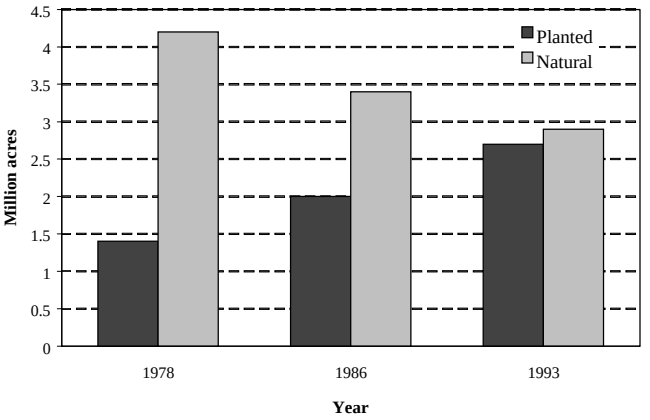


Figure 9—Acres of planted and natural pine, South Carolina, 1978, 1986, and 1993.

As the acres of planted pine continued to increase, the area of natural pine declined. Natural pine stands occupied 4.2 million acres in 1978, and planted pine occupied only 1.4 million acres. By 1993, natural and planted pine stands occupied nearly the same acreage, 2.9 million, and 2.7 million acres, respectively. This trend suggests that acres of planted pine may soon exceed those of natural stands.
A majority of the current area in pine plantations is evenly distributed between forest industry and nonindustrial private ownership classes, with roughly 1.2 million acres each. The remaining 228,000 acres of planted pine are under public ownership.

Planting has changed significantly the composition of South Carolina's forest resource. Most notably, loblolly pine acreage has increased steadily since 1958, now surpassing original area estimates recorded in 1936 (fig. 10). Loblolly pine currently occupies more than 4.3 million acres, equivalent to 78 percent of the entire area in softwood types. Moreover, of the area in pine plantations in South Carolina, loblolly pine accounts for 2.4 million of the total 2.7 million acres. Loblolly pine is typically the species of choice for planting, and Hurricane Hugo helped fuel an increase in the acres of loblolly pine as recovery efforts followed the storm.

The long-term increase in the acreage of loblolly pine may have come at the expense of other pine types. The area of all other softwoods combined has decreased from 2.0 million acres in 1936, to about 870,000 acres in 1993. Longleaf pine, for instance, has declined from almost 1.8 million acres in 1936, to just under 369,000 acres in 1993. The area of longleaf pine has been declining since colonial times. Thousands of acres that once supported stands of longleaf pine have been converted to agricultural, urban, or other nonforest uses. More recently, many acres have been converted to plantations of loblolly and other pine forest types. The ecological and economic importance of the longleaf ecosystem has been recognized (Landers and others 1995, Walker and Boyer 1993). Efforts are currently underway to restore the longleaf forest type to some of its original range.

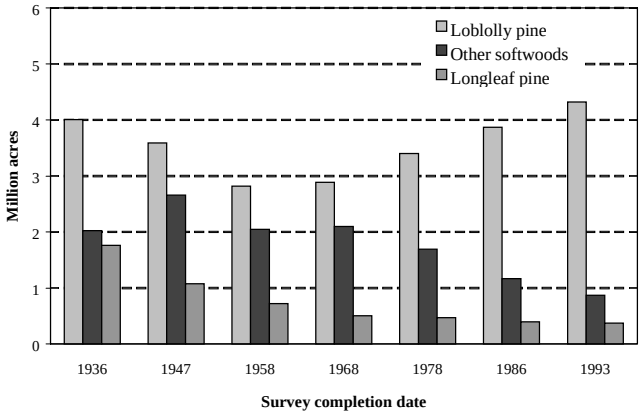


Figure 10—Acres of loblolly pine, longleaf pine, and other softwoods by survey completion date, South Carolina.

Photo Courtesy of South Carolina Forestry Commission

Volume

The decline in inventory volume perhaps best illustrates the magnitude of destruction Hurricane Hugo had on South Carolina's forests. Total growing-stock volume dropped to 16.7 billion cubic feet in 1993, a decrease of 1.3 billion cubic feet from the previous survey. Both softwoods and hardwoods suffered significant losses.

Softwood Growing Stock

The previous analytical report (Tansey and Hutchins 1988) showed that softwood growing-stock volume in South Carolina declined for the first time since estimates from the 1936 timber survey were published. The reduction in softwood that occurred between 1977 and 1986 amounted to 233.9 million cubic feet, a decrease of 3 percent. This decline pales by comparison, however, to the hurricane-driven reduction in volume that followed. Between 1986 and 1993, total softwood growing-stock volume dropped by 910.0 million cubic feet (10 percent) and now stands at just over 8.0 billion cubic feet. It likely will never be known whether the decline in softwood volume noted in the previous analytical report marked the beginning of a downward trend. What is known is that Hurricane Hugo helped create a second consecutive decrease in softwood volume Statewide.

The current reduction in softwood inventory occurred in two of the State's three regions. In the Piedmont, softwood volume fell by 3 percent, to about 3.2 billion cubic feet. This marks consecutive surveys in which softwood inventory volume in this region has declined. In the Northern Coastal Plain—the area hardest hit by the storm—softwood growing-stock volume dropped by nearly 895.0 million cubic feet, a 26-percent decline. This loss more than wipes out the 4-percent increase in softwood volume the region experi-enced between 1978 and 1986. The Southern Coastal Plain was the only region to show an increase in softwood inven-tory, reversing the decline that occurred during the prev-ious survey. Softwood volume there increased by 71.0 million cubic feet and now totals more than 2.3 billion cubic feet.

Most of the volume in softwoods is now on private timberland. More than 5.1 billion cubic feet, 64 percent, of the softwood growing-stock volume is on NIPF land. An additional 1.7 billion cubic feet is on forest industry timberland, including 54.0 million cubic feet on NIPF land that is leased by industry. The remaining 1.2 billion cubic feet of softwood inventory is on public lands, of which 582.4 million cubic feet occurs on national forest land.

Pine plantations currently account for 28 percent of South Carolina's total softwood inventory, and 14 percent of all growing-stock volume. Softwood volume in natural pine stands amounts to over 3.9 billion cubic feet, almost half of the softwood inventory.

Although much reduced, softwood growing stock still accounts for about 48 percent of South Carolina's total inventory volume. Southern yellow pine species total more than 7.4 billion cubic feet, or 92 percent of the total softwood growing stock. Individually, loblolly pine remains the predominant softwood species and accounts for 5.4 billion cubic feet, or about two-thirds of the volume in softwoods (fig. 11). The current volume of loblolly pine is down from 5.7 billion cubic feet in 1986. The volume of longleaf pine continued to decline, falling from 656.9 million cubic feet in 1986 to 513.5 million cubic feet in 1993. Slash pine volume declined from 486.5 million cubic feet to 357.6 million, a decrease of nearly 27 percent.

Softwood inventory declined throughout the range of diameter classes since 1986, except for the 6-inch class, which has recorded a 14-percent increase (fig. 12). Storm damage was greater for tall, large diameter trees than for smaller trees (Sheffield and Thompson 1992). A volume drop in the 10- and 12-inch classes amounted to over 470.0 million cubic feet, or more than half of the reported decline. The remaining, larger diameter classes all showed volume declines compared to previous inventory levels.

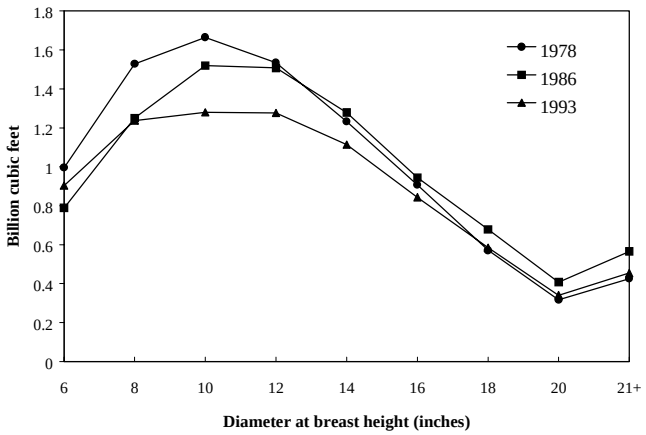


Figure 12—Softwood growing-stock volume by tree diameter at breast height class, South Carolina, 1978, 1986, and 1993.

Moreover, softwood growing-stock volume in diameter classes under 18 inches has fallen to levels below those reported in 1978.

Hardwood Growing Stock

South Carolina's hardwoods fared better during the storm than did the softwood resource. Nonetheless, losses were substantial, and are reflected in hardwood volume decline since 1986. Total hardwood growing stock fell 5 percent, from nearly 9.1 billion cubic feet to less than 8.7 billion cubic feet. This survey marks the first reported decrease in

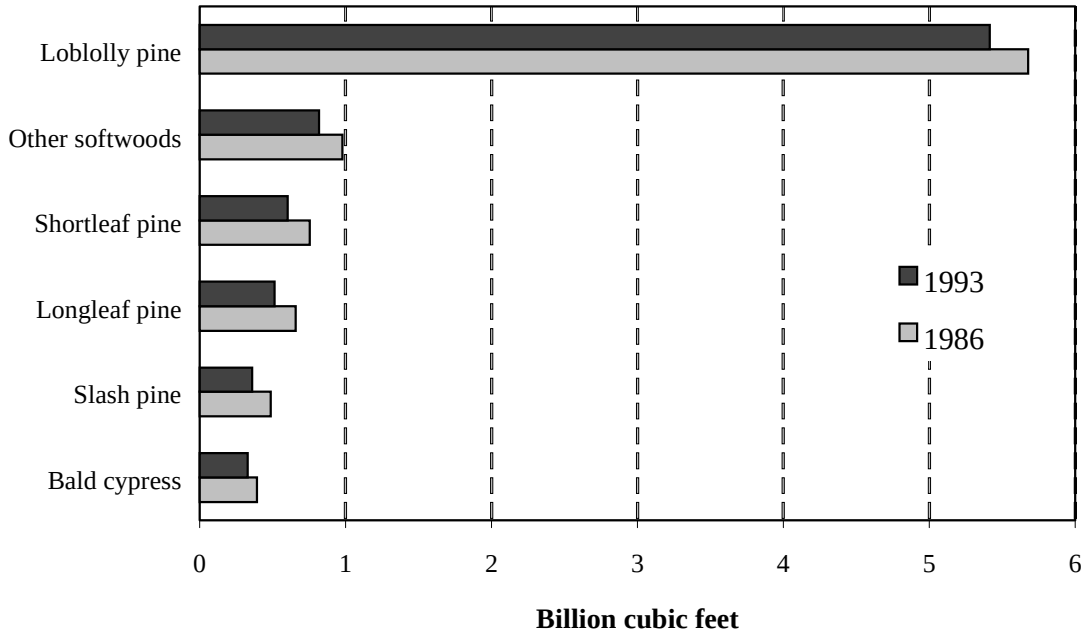


Figure 11—Distribution of softwood growing-stock volume by species, South Carolina, 1986 and 1993.

Photo Courtesy of South Carolina Forestry Commission

hardwood inventory volume. Hardwood volume increased by almost 105 million cubic feet in the Piedmont. This increase, however, was not enough to offset declines of more than 483 million cubic feet, and 35 million cubic feet in the Northern Coastal and Southern Coastal Plains, respectively.

Nonindustrial private landowners control 77 percent of the current hardwood volume, or almost 6.7 billion cubic feet. Hardwood growing stock on forest industry and industry-leased land amounts to almost 1.3 billion cubic feet. Hardwood volume on public land amounts to 730.7 million cubic feet, of which 368.8 million cubic feet is on national forest land.

Oak species are the predominant hardwoods, accounting for 3.0 billion cubic feet of the hardwood inventory. Volume in select white oak species increased by 3 percent between 1986 and 1993, to 733.2 million cubic feet (fig. 13). Select red oak volume declined, falling from

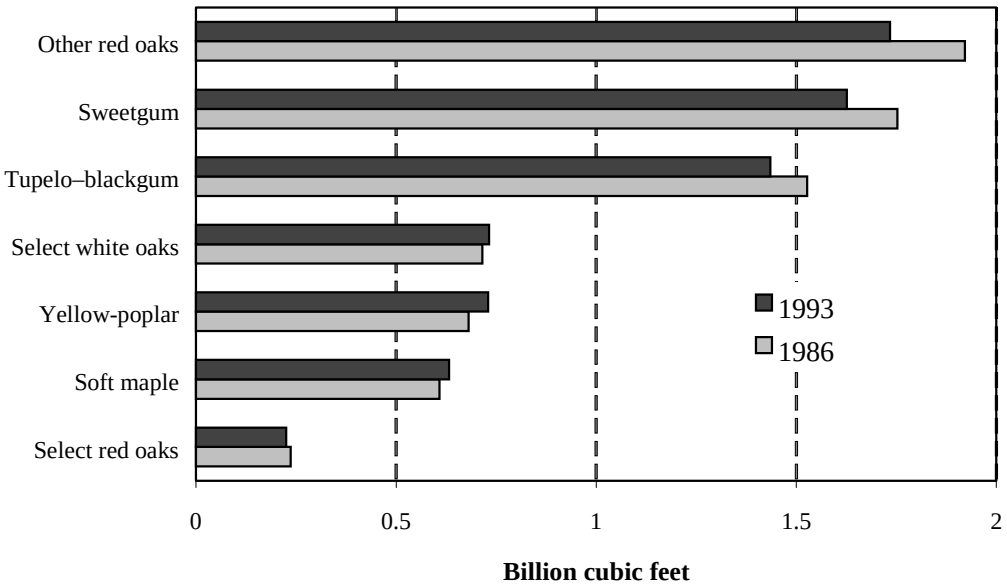


Figure 13—Distribution of hardwood growing-stock volume by species, South Carolina, 1986 and 1993.

236.6 million cubic feet in 1986 to 225.6 million cubic feet by 1993. Select oak species, such as white oak and northern red oak, are preferred for hardwood lumber and other timber products. Volume of all other red oaks combined fell 10 percent to 1.7 billion cubic feet by 1993. Sweetgum accounts for 1.6 billion cubic feet of growing stock and is the predominant individual hardwood species.

The extent of the decline in hardwood volume is, again, a reflection of Hurricane Hugo's impact on the resource. When compared to 1986 levels, hardwood growing stock declined in all but the 14-inch diameter class (fig. 14). Volume in the 14-inch class increased by less than 1 percent, to just over 1.2 billion cubic feet. Hardwood volume in all larger diameter classes combined, decreased by 194.6 million cubic feet since 1986. Inventory in the largest diameter class (³ 21 inches) alone, dropped by 10 percent, to 985.5 million cubic feet. Most gains in hardwood volume over the previous 15 years were virtually erased, much as they were with softwoods. The current inventory in individual diameter classes under 14 inches is less than the volume present in 1978. The same is true for volume in the ³ 21-inch diameter class. Volume in each of the remaining classes is only slightly higher than that reported in 1978.

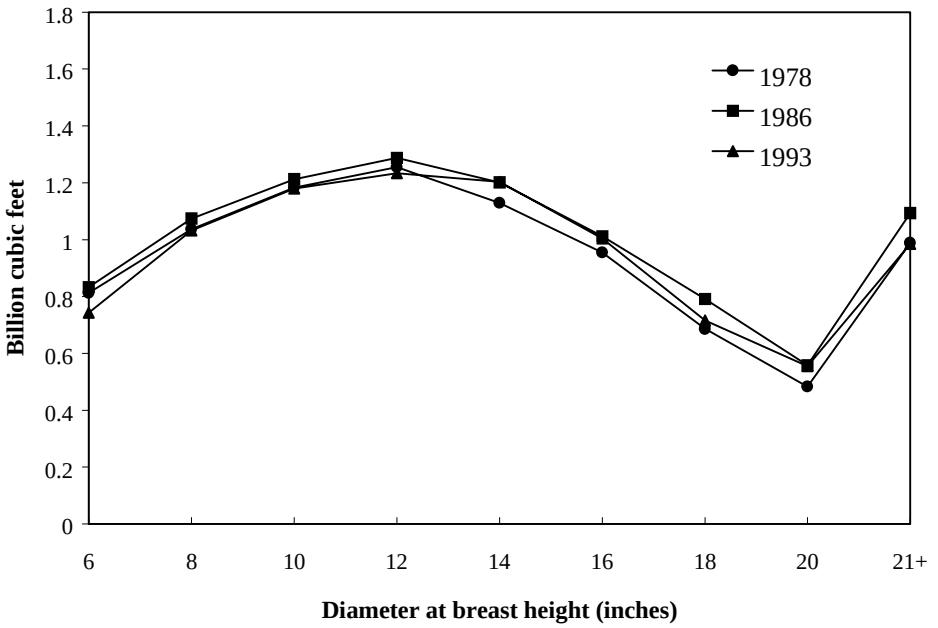


Figure 14—Hardwood growing-stock volume by tree diameter at breast height, South Carolina, 1978, 1986, and 1993.

Components of Change: Net Growth, Mortality, and Removals

Forests are in a constant state of change. In relatively undisturbed stands, change can take place over a considerably long time. It takes years for trees to become established, mature, and eventually die, gradually altering the character of the stand. Change also can happen over the span of a few days, or even a few hours, such as in the case of timber harvesting, wildfire, or severe weather activity. Hurricane Hugo is a clear example of forces effecting rapid and dramatic change to forests. One means of gauging the rate of change occurring in South Carolina's forests is by tracking trends in growing-stock volume. These trends, or changes in volume, can be quantified by three primary components: net annual growth, mortality, and removals.

Gross growth of growing stock on all timberland increased by 11 percent, averaging nearly 932.8 million cubic feet per year between 1986 and 1993 (table II). However, annual mortality averaged 407.2 million cubic feet, an increase of 183 percent over annual mortality between 1978 and 1985. The result is an average net growth rate of 525.6 million cubic feet per year for all growing-stock species Statewide. Compared to the previous survey period, the current rate of net growth of growing stock is a decrease of about 166.9 million cubic feet per year.

Tree mortality occurred throughout the State, but was distributed disproportionately among inventory units as a result of the hurricane. Roughly 68 percent of the volume lost to mortality occurred within the Northern Coastal Plain. Gross growth on all timberland in this unit averaged over 327.3 million cubic feet per year between 1986 and 1992, but that was reduced by 276.1 million cubic feet of annual mortality. The result was a net annual growth for the region of just over 51.2 million cubic feet; a fivefold decrease since the 1978-85 survey period. Net growth in the Southern Coastal Plain increased by 11 percent to about 207.6 million cubic feet per year. In the Piedmont, net growth is up 16 percent, to 266.8 million cubic feet per year. These increases, although significant, were not enough to offset losses from the storm.

Total removals from growing stock have increased 16 percent since the previous inventory, and currently average almost 728.0 million cubic feet per year. This increase was evident for both softwoods and hardwoods in all three regions. The largest increase was in the Southern Coastal Plain, where removals were up 20 percent, averaging almost 201.8 million cubic feet per year. Removals increased 17 percent in the Piedmont to about 263.7 million cubic feet annually. In both regions, net annual growth exceeded removals, albeit by a small margin. This was not the case for the storm-ravaged Northern Coastal

Table II—Annual components of change in the volume of growing stock on South Carolina's timberland, by survey unit and species group, 1986-1992

Survey unit and species group	Gross growth	Components of growth: Survivor growth	Ingrowth	Growth on ingrowth	Growth on removals	Growth on mortality	Mortality	Net growth	Removals	Net change
				Million cubic feet						
Southern										
Coastal Plain										
Softwood	176.0	139.9	26.3	4.5	4.4	0.9	29.0	147.0	136.1	+10.9
Hardwood	82.8	73.6	7.3	0.6	0.9	0.4	22.2	60.6	65.7	-5.1
Total	258.8	213.5	33.6	5.1	5.3	1.3	51.2	207.6	201.8	+5.8
Northern										
Coastal Plain										
Softwood	202.0	165.2	23.9	3.9	4.5	4.5	173.7	28.3	175.3	-147.0
Hardwood	125.3	108.6	12.6	1.0	1.3	1.8	102.4	22.9	87.1	-64.2
Total	327.3	273.8	36.5	4.9	5.8	6.3	276.1	51.2	262.4	-211.2
Piedmont										
Softwood	218.5	177.4	30.5	3.9	5.2	1.5	50.2	168.3	180.8	-12.5
Hardwood	128.2	113.5	11.5	1.0	1.6	0.6	29.7	98.5	82.9	+15.6
Total	346.7	290.9	42.0	4.9	6.8	2.1	79.9	266.8	263.7	+3.1
State										
Softwood	596.5	482.5	80.7	12.3	14.1	6.9	252.9	343.6	492.2	-148.6
Hardwood	336.3	295.7	31.4	2.6	3.8	2.8	154.3	182.0	235.7	-53.7
Total	932.8	778.2	112.1	14.9	17.9	9.7	407.2	525.6	727.9	-202.3

Plain, where removals were up 12 percent, to an average of 262.4 million cubic feet per year. The current rate of removals exceeds net growth by 211.3 million cubic feet annually. The growth-to-cut ratio for the region was 0.2. This means that for each cubic foot of wood added to inventory through tree growth, more than 5 cubic feet were removed through harvest.

Softwood Net Annual Growth and Removals

The gap between softwood net annual growth and removals has been narrowing since average growth peaked sometime between 1968 and 1977 (fig. 15). Average annual removals for softwoods exceeded net annual growth for the first time between 1978 and 1985. Over that 7-year period, softwood

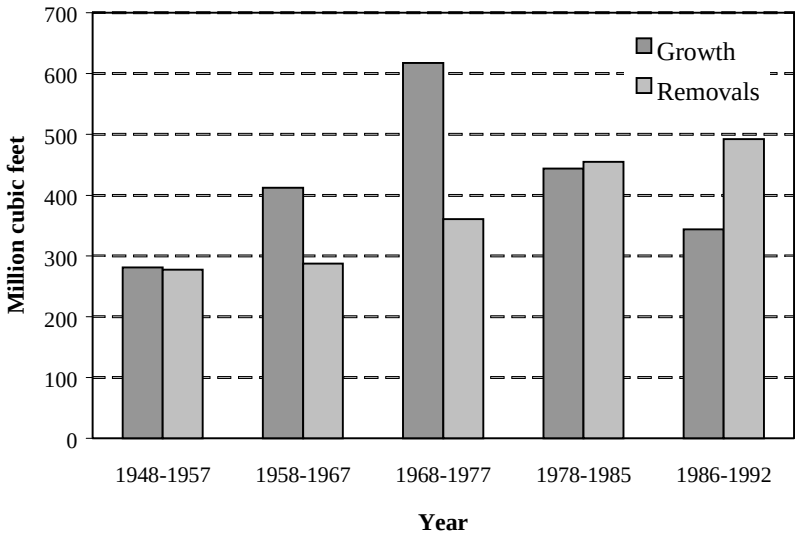


Figure 15—Net annual growth and removals of softwood growing stock, South Carolina, 1948-1992.

net growth averaged 443.8 million cubic feet per year and annual removals averaged 454.6 million cubic feet. Results from the most recent survey show that softwood net annual growth has fallen to an average of 343.6 million cubic feet per year, a 23-percent decline since 1985. Softwood removals averaged 492.2 million cubic feet per year between 1986 and 1992, and exceeded net annual growth by 43 percent.

Softwood net growth may have exceeded removals during the latest survey period had it not been for Hurricane Hugo's effects on mortality and removals levels. Net annual growth for softwood growing stock in undamaged counties exceeded removals by a substantial margin:

	Undamaged counties	Hurricane damaged counties
	Million cubic feet	
Gross growth	290.9	305.7
Mortality	-36.2	-216.8
Net growth	254.7	88.9
Removals	-229.7	-262.5
Net change in inventory	25.0	-173.6

The 254.7 million cubic feet of net annual growth for softwoods in undamaged counties exceeded removals by an average of 25.0 million cubic feet per year. A comparable scenario likely would have occurred in the remaining counties if hurricane damage had not altered the condition of thousands of softwood acres. Softwood mortality in damaged counties amounted to 216.8 million cubic feet per year over the survey period, the bulk of it occurring in 1989. Removals from softwood growing stock averaged 262.5 million cubic feet, and exceeded net annual growth by 173.6 million cubic feet. Undoubtedly, the storm made the current growth-to-cut relationship for softwoods much worse than it would have been otherwise. Removals in excess of net growth in a single year, or averaged over a few years, is not necessarily cause for concern. However, removals now have exceeded average net annual growth for softwoods in successive surveys, a period of more than 15 years. Obviously, this is a situation that can not continue indefinitely.

Hardwood Net Annual Growth and Removals

Historically, net annual growth for South Carolina's hardwoods has exceeded removals by a wide margin. This primarily has been due to past low demand and utilization of the hardwood resource. Average net annual growth for hardwoods also peaked during the 1968 to1977 survey period, at about 345.6 million cubic feet (fig. 16). The subsequent decline in net growth after 1977 is due, in part, to the comparatively low rate of utilization. This has resulted in overstocked stands and stands predominantly

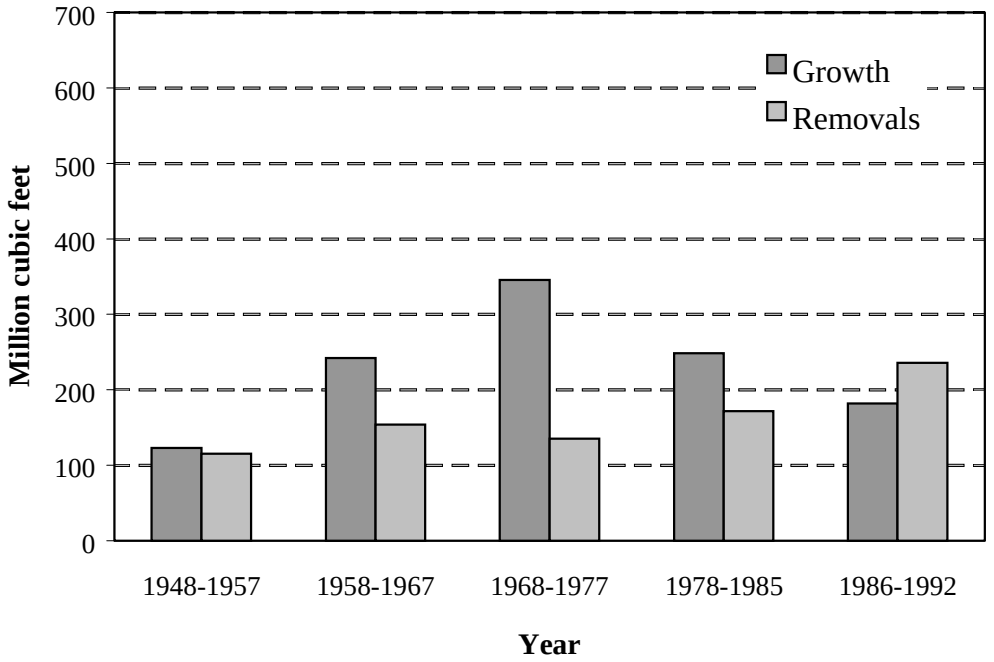


Figure 16—Net annual growth and removals of hardwood growing stock, South Carolina, 1948-1992.

stocked with older, slow-growing trees. Such stands also tend to have relatively higher rates of tree mortality. The slow rate of growth and the higher mortality rate help explain why hardwood net annual growth declined by almost 97 million cubic feet between 1978 and 1985. Hardwood removals over this period increased from 135.4 million cubic feet per year, to 171.9 million cubic feet.

Since the previous inventory, storm-related increases in hardwood removals and mortality have resulted in cut exceeding net growth in hardwoods for the first time. Between 1986 and 1992, hardwood net annual growth averaged 182.0 million cubic feet, a 27-percent decline. Annual removals rose to 235.7 million cubic feet, exceeding net growth by 30 percent.

As was the case for softwoods, evidence suggests that the long-standing trend of hardwood net growth exceeding removals would have continued if not for Hurricane Hugo. Hardwood growing-stock volume in undamaged counties showed a net increase comparable to that of softwoods:

	Undamaged counties	**Hurricane damaged counties**
	Million cubic feet	
Gross growth	156.0	180.2
Mortality	-28.5	-125.8
Net growth	127.5	54.4
Removals	-106.5	-129.6
Net change in inventory	21.3	-75.2

As a result of the generally low mortality and removals rates, hardwood growing stock in undamaged counties increased by 21.3 million cubic feet. Growing stock in damaged counties, however, declined by 75.2 million cubic feet. Net annual growth was only 54.4 million cubic feet, after deducting mortality of 125.8 million cubic feet from gross growth. Mortality in damaged counties was nearly 4.5 times greater than that in counties with little or no hurricane damage. Mortality losses this high eliminated any possibility of a Statewide increase in hardwood growing-stock volume.

Net Annual Growth and Removals by Broad Management Class

The distribution of growth and removals by broad management class partly explains the current growth-cut relationships. Broad management class is a classification of timberland based on forest type and stand origin. Natural pine stands were the hardest hit by Hugo and mortality was exceptionally high. This lowered average net annual growth to 120.8 million cubic feet (fig. 17). Removals from natural pine stands averaged 318.1 million cubic feet per year during the last survey period, more than 2.5 times net annual growth.

Only on pine plantation acreage does net growth exceed removals, even though removals from pine plantations have nearly doubled since 1985. Net annual growth on plantations averaged 208.1 million cubic feet between 1986 and 1992, while removals averaged 133.7 million cubic feet. Storm-related mortality was comparatively low on plantation acres. The low rate of mortality and the high rate of growth in young, planted pine stands help explain the positive growth-to-cut relationship for plantations.

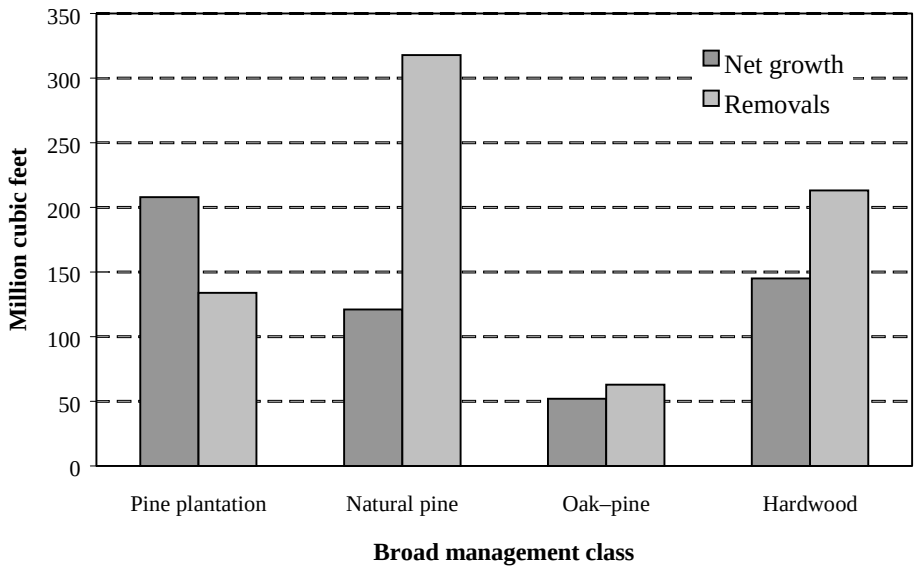


Figure 17—Net annual growth and removals by broad management class, South Carolina, 1992.

Timber Products Output

Timber products output (TPO) data are collected annually through canvasses of all primary wood processing plants in South Carolina. These data supplement FIA's periodic inventory of timber volume and removals, and are necessary to track changes and trends in plant output levels. Total output, averaged over each survey period, is the sum of the volume of roundwood products from all sources and the volume of plant byproducts.

Total output of timber products, including domestic fuelwood, has averaged more than 826.8 million cubic feet per year since 1986. Eighty-nine percent of the total output was from roundwood products, and the remainder was processed from plant byproducts. Timber products output for the previous survey period, from 1978 to 1985, averaged about 626.2 million cubic feet per year. Small increases in average annual TPO volume are normal and expected; therefore, the 32-percent increase shown by the latest survey results is unusual. Hurricane damage forced many land managers to harvest some stands sooner than they expected. This increased harvesting temporarily flooded South Carolina's timber processing mills with substantially larger amounts of raw material, resulting in a higher than normal level of output. As in the past, softwood species supplied most of the volume needed to produce the current output level and product mix. Nearly 73 percent of the total TPO volume was processed from softwood species.

Although the storm provided an increase in raw material to supply the State's mills, the distribution of total volume among products remained relatively constant. Pulpwood remains the primary wood product produced by South Carolina's mills. Over the last survey period, pulpwood accounted for more than 410.8 million cubic feet of the total TPO volume. Current pulpwood production is more than 100 million cubic feet higher than the level reached during either of the previous two surveys (fig. 18). However, pulpwood still accounts for about one-half of the total timber product volume, just as it did between 1968-77 (52 percent), and 1978-85 (49 percent).

Saw logs—typically used to produce dimension lumber—totaled 276.9 million cubic feet, or just over one-third of the remaining timber products volume. Saw logs accounted for about one-third of the total output volume during the past three survey periods.

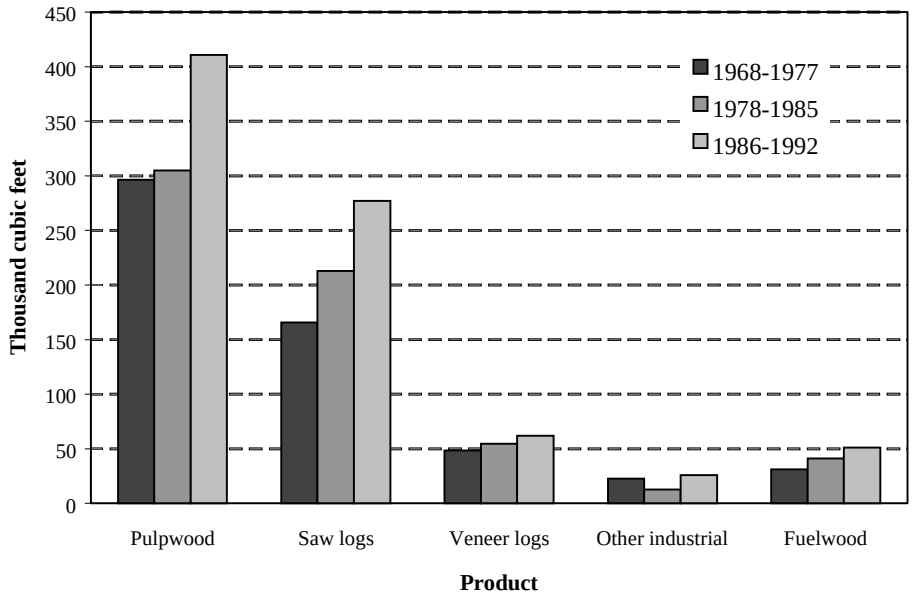


Figure 18—Average annual output of timber products by product, South Carolina, 1968-1992.

Average annual output of roundwood products (including fuelwood) increased from 552.5 million cubic feet during the previous survey period, to an average of 735.9 million cubic feet between 1986 and 1992. Just over 82 percent of the current roundwood products volume came from growing-stock trees, split between sawtimber (63 percent) and poletimber (19 percent) trees. One important difference to note is the product volume recovered from salvable dead trees. Typically, salvable dead trees account for less than 1 percent of the output of roundwood products. Hurricane Hugo provided ample opportunity to harvest dead material, as evidenced by the 77.1 million cubic feet in roundwood products processed from salvable dead trees during the latest survey period.

Timber Supply Outlook

South Carolina, like other Southern States, has a thriving timber industry. Many individuals depend on timber extraction and wood milling for their livelihood. Therefore, an assessment of current and future supply of timber is critical. This section of the report focuses on the timber supply situation.

The Aggregate Timberland Assessment System (ATLAS) (Mills and Kincaid 1992) model was used to project timber inventory for this report. Input needed to run ATLAS include: stand volumes based on empirical yield tables; initial timberland acreage by management units and age class, inventory volume, and rates of net annual growth and removals from the 1993 survey. Estimates of future harvest levels were taken from the 1993 Resources Planning Act Timber Assessment Update (Haynes and others 1995). The ATLAS model simulates growth, harvest, and regeneration on timberland acres within each management unit and age class. Future timber inventory is projected for 30 years at 5-year intervals, using 1993 as the base year.

To project future inventory, it was assumed that all nonreserved timberland acres were available for timber production and harvest. Availability problems arising from adverse terrain, permanent water or temporary flooding, tract size, restricted-use areas, owner attitudes, or other factors that might limit harvesting, or prohibit logging entirely, were not considered. Screening out acres with adverse site conditions, for instance, would eliminate those areas not likely to be harvested and would reduce the volume available to meet current and future demands. Therefore, inventory projections included here indicate a greater supply of wood than will probably be available.

Projected Trends in Timberland Area

A primary determinant of current and future inventory levels is the extent of change in area by stand type. The current trend indicates declining area of natural pine/oak–pine stands and a concurrent but increasing trend in planted pine/oak–pine stands (fig. 19). Projected changes in area by management unit from 1993 to 2023 were taken from the South's Fourth Forest (U.S. Department of Agriculture, Forest Service 1988a) study. The projected acreage figures were adjusted to coincide with estimates from the 1993 survey. The projections show planted pine/oak–pine stands exceeding the area of natural pine/oak–pine by the year 2013. At that time, planted pine/oak–pine will amount to 3.8 million acres, and is expected to increase to nearly 4.0 million acres by 2023. Natural pine/oak–pine stands will occupy 3.7 million acres by 2013, and decline to less than 3.6 million by 2023. Hardwood acres are expected to remain relatively unchanged over the next three decades. By 2023, hardwoods will increase by just 1 percent, to about 5.1 million acres.

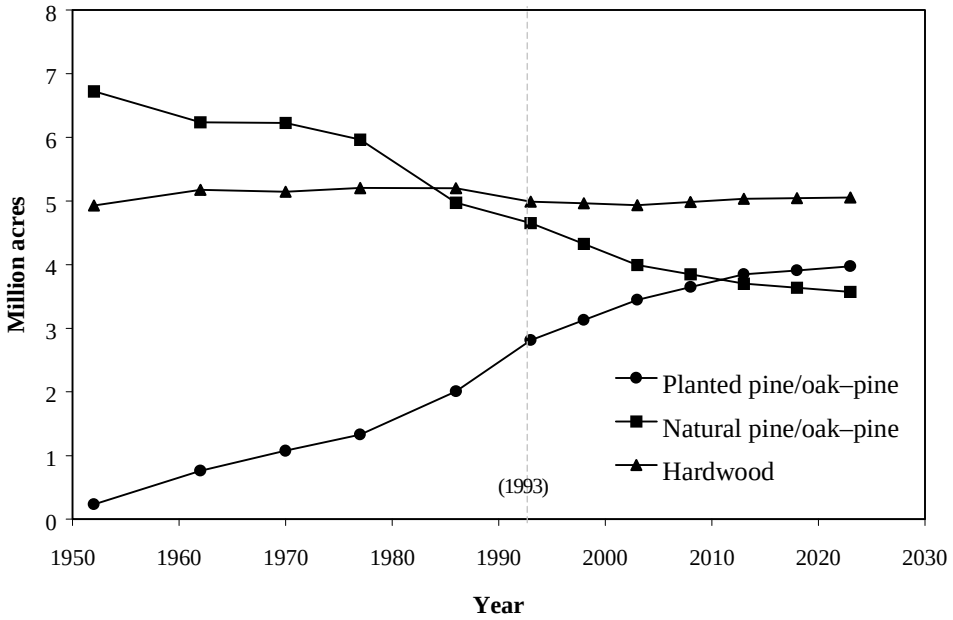


Figure 19—Past trends and projected changes in timberland area by stand type, South Carolina, 1952-2023.

Inventory Projections

The ATLAS model is area-based and, therefore, represents inventory as acres and volume per acre by age class aggregated into inventory units. Two inventory units were identified for the projections: yellow pine species and hardwoods. The hardwood group includes other softwoods because cypress (the predominant other softwood species) is primarily a component of stands FIA classifies as a hardwood forest type.

Inventory in southern yellow pines is expected to decline slightly over the initial 5-year projection period (1993-98), falling less than 1 percent to just under 7.4 billion cubic feet (fig. 20). After this initial period, pine growing stock will continually increase, rising to more than 9.0 billion cubic feet by 2023. If the projection assumptions hold true, by 2023 the volume in southern yellow pine species alone will exceed the total volume for all softwoods reported in 1986.

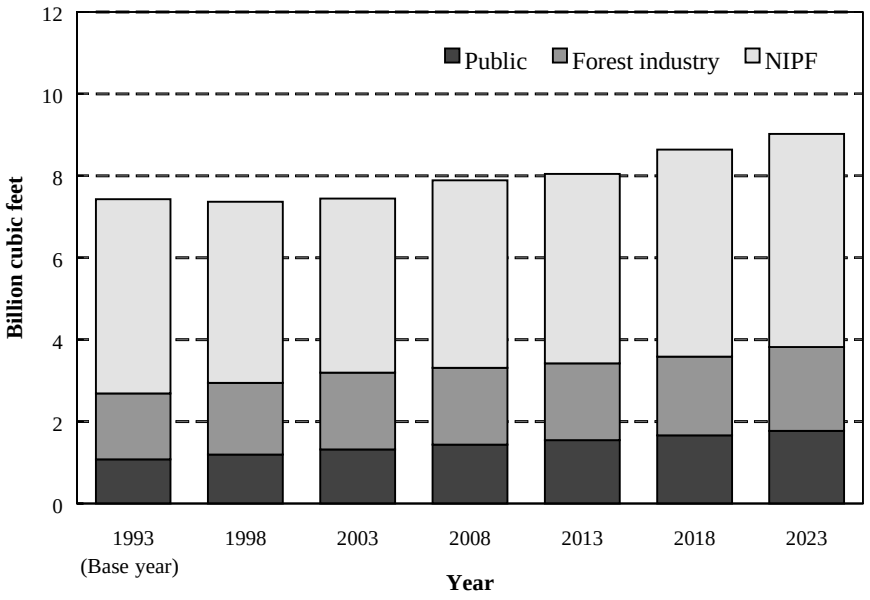


Figure 20—Projected trends in inventory of southern yellow pines by owner group, South Carolina, 1993-2023.

Pine inventory on NIPF land is projected to decline from 4.7 billion cubic feet in 1993, to 4.4 billion in 1998, and to 4.2 billion cubic feet by 2003. After that 10-year decline, NIPF pine inventory will increase to 5.2 billion cubic feet over the next 10 years. By 2023, less than 58 percent of the pine volume in South Carolina will be on NIPF land, down from 64 percent in 1993. On forest industry land, pine volume will increase during the first 10 years, then decline slightly by 2008. By the end of the projection period, pine inventory on industry land will rise from 1.6 billion cubic feet to more than 2.0 billion cubic feet. Proportionally, industry will control 23 percent of the pine volume, an increase of only 1 percent from 1993. The largest increase in southern yellow pine inventory is expected to occur on public land. Volume on that acreage will increase by 64 percent, up from 1.1 billion cubic feet in 1993, to 1.8 billion in 2023. If these projections are accurate, one-fifth of the pine volume in the South Carolina will be under public ownership in 30 years.

Total hardwood inventory (including cypress and cedars) is projected to increase by 20 percent over the next 30 years, eventually totaling 11.1 billion cubic feet (fig. 21). If hardwood inventory does, in fact, accumulate to that level, it will surpass all previously reported estimates of hardwood volume.

Most of the projected increase in hardwood inventory will occur on NIPF land. Hardwood inventory currently amounts to 7.0 billion cubic feet there, and is expected to increase steadily to 8.7 billion cubic feet by 2023. By that time, private landowners will have 79 percent of the hardwood inventory, 3 percent more than in 1993. Hardwood inventory on forest industry land is expected to decrease from 1.4 billion cubic feet in 1993, to 1.2 billion in 2008. Hardwood volume will then increase to 1.5 billion cubic feet by the end of the projection period. Public timberland acres now account for 9 percent of the hardwood inventory, or 835 million cubic feet. Hardwood volume on public land will rise 5 percent by 2023, to 875 million cubic feet.

Projected Net Annual Growth and Removals for Pine

Pine net annual growth is predicted to increase, albeit at a decreasing rate, over the next 30 years (fig. 22). The greatest increase will occur between 1993 and 1998 when pine net growth rises 59 percent, from 332.2 million cubic feet per year to 529.4 million. A significant increase in net growth over this period is to be expected, as tree mortality, recently inflated by Hurricane Hugo, returns to normal levels. During the 1998 to 2003 projection period, pine net growth increases by 15 percent to 609.8 million cubic feet annually. By 2023, net growth will average 692.5 million cubic feet per year, up just 1 percent from the rate of growth for the previous period.

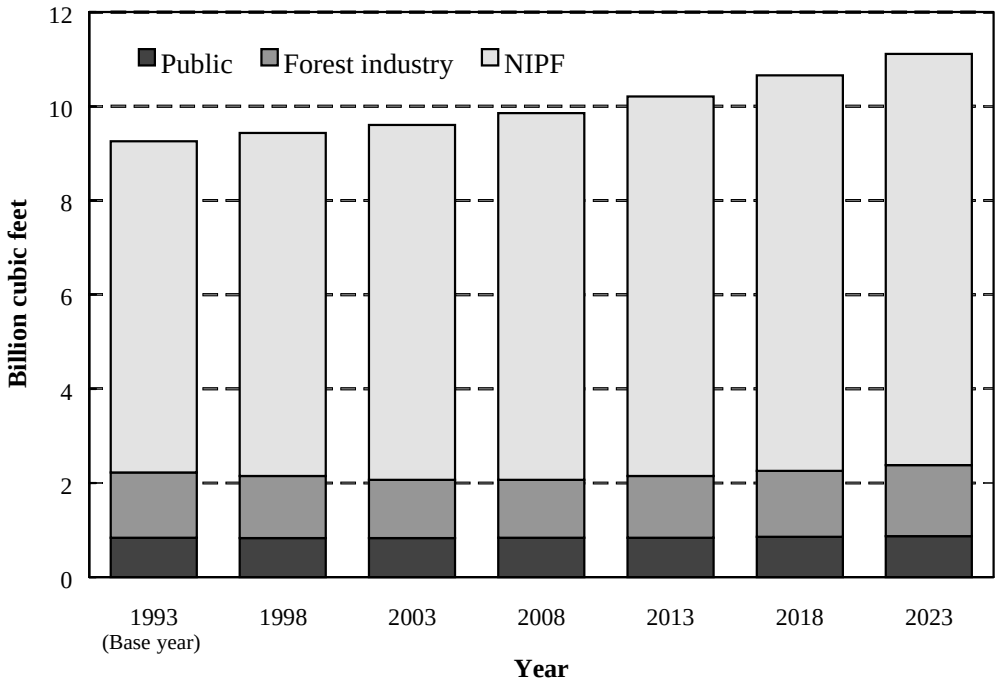


Figure 21—Projected trends in inventory of hardwoods by owner group, South Carolina, 1993-2023.

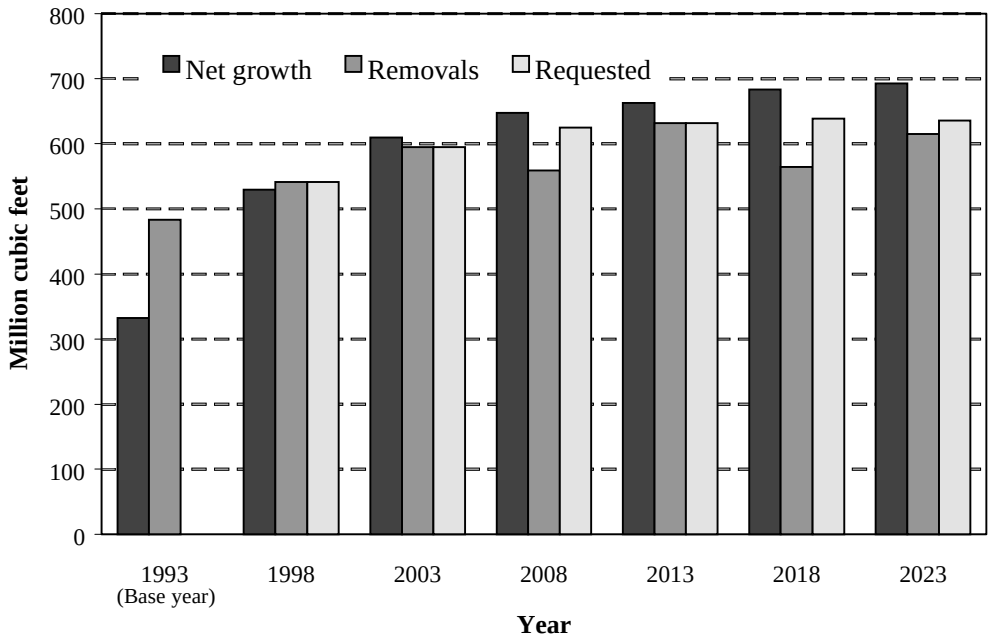


Figure 22—Projected trends in net annual growth, removals, and volume requested for southern yellow pine, South Carolina, 1993-2023.

Pine removals are also expected to increase. The future removals levels depicted in figure 22 were based on projected changes in softwood removals described in the 1993 RPA Timber Assessment Update (Haynes and others 1995), using 1993 as the base year. Projected increases in demand for pine volume are represented by the "requested" columns in figure 22. The "removals" column represents volume available for harvest. In ATLAS, availability for harvest is simply a function of stands older than a minimum harvest age. Minimum age varies by ownership and management unit (Sheffield, in press). A minimum harvest age of 18 years is required for planted pine/oak–pine stands on NIPF and forest industry timberland. Natural pine/oak–pine stands must be 28 years old, and hardwood stands must be at least 38 years. On public timberland, the minimum harvest ages are 23, 33, and 43 years, respectively.

During the initial 5-year period, pine removals are projected to increase by 12 percent, from 483.2 million cubic feet per year to 541.2 million cubic feet. In this instance, there was enough pine volume available to meet the projected increase. To do so, however, removals will exceed net annual growth by an average of 12 million cubic feet (2 percent) per year during the first 5 years. This is the only instance over the 30-year projection period where pine removals exceed net growth.

By 2003, pine volume requested will increase to 594.9 million cubic feet, and enough volume is available from pine inventory to meet the projected increase. This is not the case for much of the remaining projection period. Pine volume requested in 2008 rises to 624.8 million cubic feet. However, only 558.7 million cubic feet are available, resulting in a shortfall of 66.1 million cubic feet. The requested 631.8 million cubic feet of volume is met in 2013, but a shortfall occurs in both the remaining projection periods. In 2018, requested volume increases to 638.8 million cubic feet, while available volume is 564.2 million cubic feet. Although pine removals volume increases to 615.2 million cubic feet in the final period, it falls short of the projected request for 635.9 million cubic feet.

Projected Net Annual Growth and Removals for Hardwoods

The projections for hardwood net annual growth follow a pattern similar to those described for pine. Hardwood net growth increases steadily but at a decreasing rate over much of the 30-year period (fig. 23). As with pines, the largest increase in net annual growth of hardwoods occurs between 1993 and 1998. During this first 5-year period, hardwood net growth rises from 193.5 million cubic feet per year to 313.3 million cubic feet, a 62-percent increase. The 1998 estimate of net growth, again, reflects the return to levels of mortality and growth that characterized the pre-hurricane condition of South Carolina's hardwood stands. After this initial surge, net annual growth levels off considerably, increasing just 7 percent to 336.6 million cubic feet by 2003. However, hardwood net annual growth is predicted to decline slightly between 2018 and 2023.

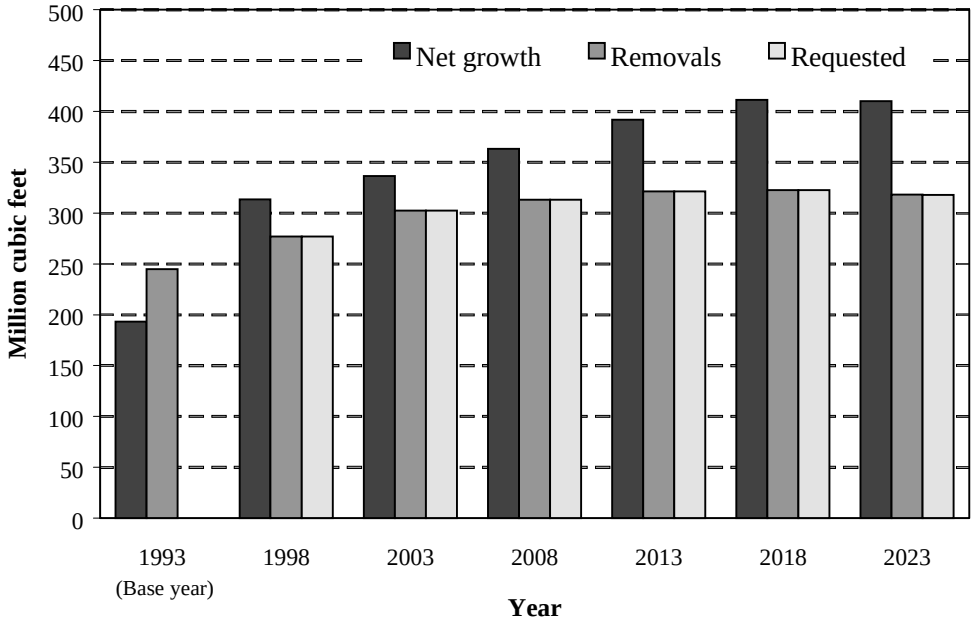


Figure 23—Projected trends in net annual growth, removals, and volume requested for hardwoods, South Carolina, 1993-2023.

Unlike in the projections for pine, there is no shortfall in available hardwood volume needed to meet the predicted increase in demand. The projected volume that is requested in each period is available from existing inventory. However, some caution is necessary when discussing the availability of hardwood growing-stock volume. As has been mentioned earlier, no attempt was made to screen out inoperable, remote, or other areas that would limit or prohibit harvesting. The hardwood volume available likely would be less than that shown here if these areas were not included in the projections.

Net annual growth is projected to exceed removals over the entire 30-year period. From 1993 to 1998, volume requested will increase 13 percent, to 277.2 million cubic feet. Hardwood net annual growth for the same period will exceed removals by 36.1 million cubic feet. The projected volume requested and the projected removals volume will both peak at 322.6 million cubic feet in 2018. Net growth also will peak at 411.3 million cubic feet, exceeding removals by 27 percent. By 2023, hardwood net growth declines by less than 1 percent to 410.0 million cubic feet per year. Removals volume falls 1 percent in the final period, to 318.1 million cubic feet.

Photo Courtesy of South Carolina Forestry Commission

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Appendix

Procedure

The procedures used in the seventh Statewide inventory and evaluation of South Carolina's forest resources included several basic steps.

1. Initial estimates of forest and nonforest areas were based on the classification of 90,126 sample clusters systematically spaced on the latest available aerial photographs. A subsample of 6,867 of the 16-point clusters was ground checked, and a linear regression was fitted to the data to develop the relationship between the photo and ground classification of the subsample. This procedure provides a means for adjusting initial estimates of area for changes in land use since date of photography and for photo misclassification.

2. Estimates of timber volume and forest classification were based on measurements recorded at 4,356 ground-sample locations systematically distributed on timberland. The plot design at each location was based on a cluster of 10 points. In most cases, variable plots, established by using a basal-area factor of 37.5 square feet per acre, were systematically spaced within a single forest condition at 5 of the 10 cluster points. Trees less than 5 inches d.b.h. were tallied on a fixed-radius plot around each point center.

3. Seedlings, shrubs, vines, grasses, forbs, and other lesser vegetation occurring within a 35-foot radius of selected point centers were identified and recorded at each forest sample location. Each distinctive zone of lesser vegetation was classified by height, density, and species composition. When merged with the tree tally, this information provided a vegetative profile of each condition sampled. Additional nontimber attributes measured or classified included land use, terrain features, soils, erosion, litter, water, snags, tree cavities, livestock grazing, and recreational use.

4. Equations prepared from detailed measurements collected on standing trees in South Carolina, and similar measurements taken throughout the Southeast, were used to compute the volume of individual tally trees. A mirror caliper and sectional aluminum poles were used to obtain the additional measurements required to construct volume equations (Cost 1978). Forest biomass estimates were made with equations developed by the Utilization of Southern Timber Research Work Unit of the Southern Research Station in Athens, GA. In addition, felled trees were measured at 102 active cutting operations to provide utilization factors for the different timber products and species groups, and to supplement the standing-tree volume study.

5. Growth, removals, and mortality were estimated from the remeasurement of 4,453 permanent sample plots established at the time of the sixth inventory. Periodic surveys of timber products output, conducted in cooperation with the South Carolina Forestry Commission, along with the annual pulpwood production study for the South, provided additional information for breakdowns of removals by product.

6. Ownership information was collected from correspondence, public records, and local contacts. In counties where the sample missed a particular ownership class, temporary samples were added and measured to describe forest conditions within the ownership class.

7. All field data were sent to the Southern Research Station in Asheville for editing and were entered into disk and magnetic tape storage for processing. Final estimates were based on statistical summaries of the data.

Reliability of the Data

Statistical analysis of these data indicates a sampling error of ± 0.25 percent for timberland acreage, 1.51 percent for total growing-stock volume, 4.14 percent for growing-stock growth, and 3.63 percent for growing-stock removals. As the totals are broken down by forest type, species, tree diameter, or other subdivisions, the sampling error increases. If homogeneity of variances is assumed, the order of this increase may be approximated by using the following tabulation, showing the sampling errors in terms of one standard error, or two chances out of three. For example, a subset of the State totals with an estimate of 11.8 billion cubic feet would have an estimated sampling error of 1.80 percent, or 0.21 billion cubic feet. This means that, two times out of three, the true growing-stock volume for this subset would be within the range defined by 11.8 ± 0.21, or from 11.6 to 12.0 billion cubic feet.

Sampling error for selected areas and volumes[a]

Sampling error[b]	Timberland	Volume of growing stock		
		Inventory	Net growth	Removals
Percent	*M acres*	*Million cubic feet*		
1	778.4	—	—	—
2	194.6	9,511.1	—	—
3	86.5	4,227.1	—	—
4	48.7	2,377.8	—	599.5
5	31.1	1,521.8	360.3	383.7
10	7.8	380.4	90.1	95.9
15	3.5	169.1	40.0	42.6
20	1.9	95.1	22.5	24.0
25	1.2	60.9	14.4	15.3

[a] Sampling error of value or area totals in question may be computed with the following formula:

$$SE_s = SE_t \frac{\sqrt{X_t}}{\sqrt{X_s}},$$

where

SE_s = sampling error for subdivision of survey unit or State total,

SE_t = sampling error for survey unit or State total,

X_s = sum of values for the variable of interest (area or volume) for subdivision of survey unit or State,

X_t = total area or volume for survey unit or State.

[b] By random-sampling formula.

Definitions

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

Biomass. The aboveground green weight of solid wood and bark in live trees 1.0 inch d.b.h. and larger from the ground to the tip of the tree. All foliage is excluded. The weight of wood and bark in lateral limbs, secondary limbs, and twigs under 0.5 inch in diameter at the point of occurrence on sapling-size trees is included but is excluded on poletimber and sawtimber-size trees.

Bole. That portion of a tree between a 1-foot stump and a 4-inch top diameter outside bark (d.o.b.) in trees 5.0 inches d.b.h. and larger.

Broad management class. A classification of timberland based on forest type and stand origin.

Pine plantation. Stands that have been artificially regenerated by planting or direct seeding and with a southern yellow pine, white pine-hemlock, or other softwood forest type.

Natural pine. Stands that have not been artificially regenerated and with a southern yellow pine, white pine-hemlock, or other softwood forest type.

Oak-pine. Stands with a forest type of oak-pine.

Upland hardwood. Stands with a forest type of oak-hickory, chestnut oak, southern scrub oak, or maple-beech-birch.

Lowland hardwood. Stands with a forest type of oak-gum-cypress, elm-ash-cottonwood, palm, or other tropical.

Census water. Streams, sloughs, estuaries, canals, and other moving bodies of water 200 feet wide and greater, and lakes, reservoirs, ponds, and other permanent bodies of water 4.5 acres in area and greater.

Commercial forest land. (see: Timberland).

Commercial species. Tree species currently or potentially suitable for industrial wood products. Noncommercial species are excluded.

Cropland. Land under cultivation within the past 24 months, including orchards and land in soil-improving crops but excluding land cultivated in developing improved pasture. Also includes idle farmland.

D.b.h. Tree diameter in inches (outside bark) at breast height (4.5 feet above the ground).

Diameter class. A classification of trees based on tree d.b.h. Two-inch diameter classes are commonly used by Forest Inventory and Analysis, with the even inch as the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0-6.9 inches d.b.h.

Farm. Land on which agricultural operations are being conducted and sale of agricultural products totaled $1,000 or more during the year.

Farm operator. A person who operates a farm, either doing the work or directly supervising the work.

Farmer-owned land. (see: Other private land).

Forest industry land. Land owned by companies or individuals operating primary wood-using plants.

Forest industry-leased land. Land leased or under management contracts to forest industry from other owners for periods of one forest rotation or longer. Land under cutting contracts is not included.

Forest land. Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Forest type. A classification of forest land based on the species forming a plurality of live-tree stocking.

White pine-hemlock. Forests in which eastern white pine, red pine, or jack pine, singly or in combination, constitute a plurality of the stocking. (Common associates include hemlock, birch, and maple.)

Spruce-fir. Forests in which spruce or true firs, singly or in combination, constitute a plurality of the stocking. (Common associates include maple, birch, and hemlock.)

Longleaf-slash pine. Forests in which longleaf or slash pine, singly or in combination, constitute a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Loblolly-shortleaf pine. Forests in which loblolly pine, shortleaf pine, or other southern yellow pines, except longleaf or slash pine, singly or in combination, constitute a plurality of the stocking. (Common associates include oak, hickory, and gum.)

Oak-pine. Forests in which hardwoods (usually upland oaks) constitute a plurality of the stocking but in which pines account for 25 to 50 percent of the stocking. (Common associates include gum, hickory, and yellow-poplar.)

Oak-hickory. Forests in which upland oaks or hickory, singly or in combination, constitute a plurality of the stocking, except where pines account for 5 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include yellow-poplar, elm, maple, and black walnut.)

Oak-gum-cypress. Bottom-land forests in which tupelo, blackgum, sweetgum, oaks, or southern cypress, singly or in combination, constitue a plurality of the stocking, except where pines account for 25 to 50 percent, in which case the stand would be classified oak-pine. (Common associates include cottonwood, willow, ash, elm, hackberry, and maple.)

Elm-ash-cottonwood. Forests in which elm, ash, or cottonwood, singly or in combination, constitute a plurality of the stocking. (Common associates include willow, sycamore, beech, and maple.)

Maple-beech-birch. Forests in which maple, beech, or yellow birch, singly or in combination, constitute a plurality of the stocking. (Common associates include hemlock, elm, basswood, and white pine.)

Palm, other tropicals. Forests in which palms and other tropicals constitute a plurality of the stocking.

Gross growth. Annual increase in merchantable volume of trees in the absence of cutting and mortality. (Gross growth includes survivor growth, ingrowth, growth on ingrowth, growth on removals prior to removal, and growth on mortality prior to death.)

Growing-stock trees. Live sawtimber-size trees of commercial species containing at least a 12-foot log, or two noncontiguous saw logs each 8 feet or longer, meeting minimum grade requirements (hardwoods must qualify as a log grade of either 3 or 4; softwoods must qualify as a log grade 3) with at least one-third of the gross board-foot volume (International 1/4-inch rule) between a 1-foot stump and the minimum saw-log top being sound, or a live tree below sawtimber size that will prospectively qualify under the above standards.

Growing-stock volume. Volume (cubic feet) of solid wood in growing-stock trees 5.0 inches d.b.h. and larger, from a 1-foot stump to a minimum 4.0-inch top diameter, outside bark, on the central stem. Volume of solid wood in primary forks from the point of occurrence to a minimum 4.0-inch top diameter outside bark is included.

Hardwoods. Angiosperms; dicotyledonous trees (including all palm species which are monocotyledonous), usually broadleaf and deciduous.

Soft hardwoods. Soft-textured hardwoods such as boxelder, red and silver maples, hackberry, loblolly-bay, sweetgum, yellow-poplar, magnolia, sweetbay, water tupelo, blackgum, sycamore, cottonwood, black cherry, willow, basswood, and elm.

Hard hardwoods. Hard-textured hardwoods such as sugar maple, birch, hickory, dogwood, persimmon (forest grown), black locust, beech, ash, honeylocust, holly, black walnut, mulberry, and all commercial oaks.

Idle farmland. Cropland, orchard, improved pasture, and farm sites not tended within the past 2 years, and currently less than 16.7 percent stocked with live trees.

Improved pasture. Land currently improved for grazing by cultivation, seeding, irrigation, or clearing of trees or brush.

Industrial wood. All roundwood products except fuelwood.

Ingrowth. The number or net volume of trees that grow large enough during a specified year to qualify as saplings, poletimber, or sawtimber.

Land area. The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river floodplains (omitting tidal flats below mean high tide), streams, sloughs, estuaries, and canals less than 200 feet wide, and lakes, reservoirs, and ponds less than 4.5 acres in area.

Live trees. All trees 1.0 inch d.b.h. and larger which are not dead at the time of inventory.

Live-tree volume. Volume (cubic feet) of wood above the ground line in live trees 1.0 inch d.b.h. and larger. The volume in twigs and lateral limbs smaller than 0.5 inch in diameter at the point of occurrence on sapling-size trees is included but is excluded on poletimber and sawtimber-size trees.

Log grade. A classification of logs based on external characteristics as indicators of quality or value.

Logging residues. The unused merchantable portion of growing-stock trees cut or destroyed during logging operations.

Manageable stand. Timberland at least 60 percent stocked with growing-stock trees that can be featured together under a management scheme.

Merchantable portion. That portion of live trees 5.0 inches d.b.h. and larger between a 1-foot stump and a minimum 4.0-inch top diameter outside bark on the central stem. That portion of primary forks from the point of occurrence to a minimum 4.0-inch top diameter outside bark is included.

Merchantable volume. Solid-wood volume in merchantable portion of live trees.

Miscellaneous Federal land. Federal land other than National forests, land administered by the Bureau of Land Management, and land administered by the Bureau of Indian Affairs.

Miscellaneous private land. (see: Other private land).

Mortality. The merchantable volume in trees that have died from natural causes during a specified period.

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

Net annual growth. The net change in merchantable volume for a specific year in the absence of cutting (gross growth minus mortality for that specified year).

Net volume. Gross volume of wood less deductions for rot, sweep, or other defect affecting use for timber products.

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

Nonforest land. Land that has never supported forests and land formerly forested where timber production is precluded by development for other uses.

Nonindustrial private forest (NIPF) land. (see: Other private land).

Nonstocked forest land. Timberland less than 16.7 percent stocked with growing-stock trees.

Other forest land. Forest land other than timberland and productive forest land. It includes available and reserved forest land which is incapable of producing annually 20 cubic feet per acre of industrial wood under natural conditions, because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other private land. Privately owned land excluding forest industry land or forest industry-leased land. Also referred to as nonindustrial private forest (NIPF) land.

Farmer-owned land. Owned by farm operators, excluding incorporated farm ownerships.

Other individual land. Owned by individuals other than farm operators.

Other corporate land. Owned by corporations, including incorporated farm ownerships.

Other removals. The growing-stock volume of trees removed from the inventory by cultural operations such as timber stand improvement, land clearing, and other changes in land use that result in the removal of the trees from timberland.

Plant residues. Wood material generated in the production of timber products at primary manufacturing plants.

Coarse residues. Material, such as slabs, edgings, trim, veneer cores and ends, which is suitable for chipping.

Fine residues. Material, such as sawdust, shavings, and veneer chippings, which is not suitable for chipping.

Plant byproducts. Residues (coarse or fine) utilized in the further manufacture of industrial products or for consumer use, or utilized as fuel.

Unused plant residues. Residues (coarse or fine) that are not used for any product, including fuel.

Poletimber-size trees. Live trees at least 5.0 inches d.b.h. but smaller than sawtimber size.

Primary wood-using plants. Industries that receive roundwood or chips from roundwood for the manufacture of products such as veneer, pulp, and lumber.

Productive-reserved forest land. (see: Reserved timberland).

Rangeland. Land on which the natural vegetation is predominantly native grasses, grasslike plants, forbs, or shrubs valuable for forage, not qualifying as timberland and not developed for another land use. Rangeland includes natural grassland and savannah.

Reserved timberland. Forest land sufficiently productive to qualify as timberland, but withdrawn from timber utilization through statute or administrative designation.

Rotten trees. Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of rot or missing sections, and with less than one-third of the gross board-foot tree volume in sound material.

Rough trees. Live trees of commercial species that do not contain at least one 12-foot saw log, or two noncontiguous saw logs, each 8 feet or longer, now or prospectively, primarily because of roughness, poor form, splits, and cracks, and with less than one-third of the gross board-foot tree volume in sound material; and live trees of noncommercial species.

Roundwood (roundwood logs). Logs, bolts, or other round sections cut from trees for industrial or consumer uses.

Roundwood chipped. Any timber cut primarily for pulpwood, delivered to nonpulpmills, chipped, and then sold to pulpmills as residues, including chipped tops, jump sections, whole trees, and pulpwood sticks.

Roundwood products. Any primary product such as lumber, poles, pilings, pulp, or fuelwood which is produced from roundwood.

Salvable dead trees. Standing or down dead trees considered utilizable by Forest Inventory and Analysis standards.

Saplings. Live trees 1.0 to 5.0 inches d.b.h.

Saw log. A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum diameter inside bark for softwoods of 6 inches (8 inches for hardwoods).

Saw-log portion. That part of the bole of sawtimber trees between a 1-foot stump and the saw-log top, including the portion of forks large enough to contain a saw log.

Saw-log top. The point on the bole of sawtimber trees above which a conventional saw log cannot be produced. The minimum saw-log top is 7.0 inches in diameter outside bark (d.o.b.) for softwoods and 9.0 inches (d.o.b.) for hardwoods.

Sawtimber-size trees. Softwoods 9.0 inches d.b.h. and larger and hardwoods 11.0 inches d.b.h. and larger.

Sawtimber volume. Growing-stock volume in the saw-log portion of sawtimber-size trees in board feet (International 1/4-inch rule).

Seedlings. Trees less than 1.0 inch in d.b.h. Only seedlings of a commercial species that are not overtopped and are more than 6 inches tall for softwoods and 1 foot tall for hardwoods are counted.

Site class. A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands, by annual production capacity.

Softwoods. Gymnosperms; in the order Coniferales, usually evergreen (includes the genus *Taxodium* which is deciduous), having needles or scalelike leaves.

Pines. Yellow pine species which include loblolly, longleaf, slash, pond, shortleaf, pitch, Virginia, sand, spruce, and Table Mountain pines.

Other softwoods. Cypress, eastern redcedar, white cedar, eastern white pine, eastern hemlock, spruce, and fir.

Stand-size class. A classification of forest land based on the diameter class distribution of live trees in the stand.

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

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

Sapling-seedling stands. Stands at least 16.7 percent stocked with live trees of which more than half of total stocking is saplings and seedlings.

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

Stocking. The degree of occupancy of land by trees, measured by basal area or the number of trees in a stand and spacing in the stand, compared with a minimum standard, depending on tree size, required to fully utilize the growth potential of the land.

Fully stocked. 100 percent or more stocking.

Medium stocked. 60 to 99 percent stocking.

Poorly stocked. Less than 60 percent stocking.

Density of trees and basal area per acre required for full stocking

D.b.h. class	Trees per acre for full stocking	Basal area per acre
Seedlings	600	—
2	560	—
4	460	—
6	340	67
8	240	84
10	155	85
12	115	90
14	90	96
16	72	101
18	60	106
20	51	111

Survivor growth. The merchantable volume increment on trees 5.0 inches d.b.h. and larger in the inventory at the beginning of the year and surviving to its end.

Timberland. Forest land that is capable of producing 20 cubic feet of industrial wood per acre per year and not withdrawn from timber utilization.

Timber products. Roundwood products and byproducts.

Timber removals. The merchantable volume of trees removed from the inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use.

Top. The portion of the main stem and forks from a 4.0-inch diameter outside bark to the tips of the main stem and forks, plus all other limbs above the 4.0-inch top at least 0.5 inch in diameter at their point of occurrence.

Treatment opportunity. A classification of the management or treatment that would most improve for timber production the existing condition of the stand being sampled.

Tree. Woody plants having one erect perennial stem or trunk at least 3 inches d.b.h., a more or less definitely formed crown of foliage, and a height of at least 13 feet.

Tree grade. A classification of sawtimber trees based on the log grade of the butt log in the tree.

Upper-stem portion. That part of the main stem or fork of sawtimber trees above the saw-log top to minimum top diameter 4.0 inches outside bark or to the point where the main stem or fork breaks into limbs.

Urban and other areas. Areas developed for residential, industrial, or recreational purposes, school yards, cemeteries, roads, railroads, airports, beaches, powerlines and other rights-of-way, or other nonforest land not included in any other specified land use class.

Conversion Factors

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	60.6	61.0	68.2	60.0
8	68.5	68.1	76.0	68.4
10	73.4	73.1	81.4	73.4
12	76.7	76.7	85.2	76.4
14	79.0	79.4	88.2	78.4
16	80.7	81.6	90.4	79.8
18	81.9	83.3	92.3	80.8
20	82.9	84.8	93.8	81.5
22	83.7	86.0	95.1	82.1
24+	85.1	87.7	97.8	83.1
Average	75.2	73.7	84.1	75.2

Rough cord per M cubic feet (without bark) =

$$a + b\left(\frac{1}{d.b.h.}\right) + c\left(\frac{1}{d.b.h.}\right)^2$$

Where	*Pine*	*Other softwoods*	*Hardwoods*
a =	10.01850	9.15960	11.68410
b =	34.42135	28.75973	3.74431
c =	22.73994	25.54418	157.39417

Metric equivalents of units used in this report

1 acre = 4,046.86 square meters or 0.404686 hectare
1 cubic foot = 0.028317 cubic meter
1 inch = 2.54 centimeters or 0.0254 meter
Breast height = 1.4 meters above ground level
1 square foot = 929.03 square centimeters or 0.0929 square meter
1 square foot per acre basal area = 0.229568 square meter per hectare
1 pound = 0.454 kilogram
1 ton = 0.907 metric ton

Index of Detailed Tables

Area

1. Area by land class
2. Area of timberland by ownership class
3. Area of timberland by stand-size and ownership classes
4. Area of timberland by stand-volume and ownership classes
5. Area of timberland by stocking class of growing-stock trees and ownership class
6. Area of timberland by site and ownership classes
7. Area of timberland by forest type and site index class
8. Area of timberland by forest type and ownership class
9. Area of timberland by forest type and stand-size class
10. Area of timberland by forest-type group, detailed forest type, and survey unit
11. Area of timberland by stand-age class and forest management type, all ownerships
12. Area of timberland by stand-age class and forest management type, public ownerships
13. Area of timberland by stand-age class and forest management type, forest industry ownerships
14. Area of timberland by stand-age class and forest management type, other private ownerships
15. Basal area per acre of live trees 5.0 inches d.b.h. and larger by forest management type, species group, and ownership class
16. Area of reserved timberland by forest-type group and ownership class

Inventory of Trees, Volumes, and Biomass

17. Number of live trees on timberland by species and diameter class
18. Number of growing-stock trees on timberland by species and diameter class
19. Merchantable volume of live trees on timberland by species and diameter class
20. Volume of growing stock on timberland by species and diameter class
21. Volume of sawtimber on timberland by species and diameter class
22. Volume of sawtimber on timberland by species, size class, and tree grade
23. Volume of live timber and associated green weight of forest biomass on timberland by class of material, softwood, and hardwood
24. Total volume of live trees on timberland by species and diameter class
25. Green weight of forest biomass on timberland by species and diameter class
26. Volume of growing stock on timberland by species and forest-type group
27. Volume of growing stock on timberland by ownership class, species group, and diameter class
28. Volume of sawtimber on timberland by ownership class, species group, and diameter class
29. Volume of growing stock on timberland by broad management class, species group, and stand-age class

Growth, Removals, and Mortality

30. Average net annual growth and removals of live timber and growing stock on timberland by species

31. Average net annual growth and removals of growing stock on timberland by ownership class, softwood, and hardwood

32. Average net annual growth and removals of sawtimber on timberland by species

33. Average net annual growth and removals of sawtimber on timberland by ownership class, softwood, and hardwood

34. Average annual mortality of live timber, growing stock, and sawtimber on timberland by species

35. Average annual mortality of growing stock and sawtimber on timberland by ownership class, softwood, and hardwood

36. Average annual mortality of growing stock and sawtimber on timberland by cause of death, softwood, and hardwood

Utilization

37. Average annual output of timber products by product, species group, and type of material

38. Average annual output of roundwood products by product, species group, and source of material

39. Average annual timber removals from growing stock on timberland by item, softwood, and hardwood

40. Average annual timber removals from live sawtimber on timberland by item, softwood, and hardwood

41. Disposal of average annual volume of residue at primary wood-using plants by product, species group, and type of residue

Trend Tables

42. Land area by land use class, major forest type, and survey completion date

43. Volume of sawtimber, growing stock, and live timber on timberland by species group, survey completion date, and diameter class

44. Merchantable volume of live timber by species group, survey unit, and survey completion date

County Tables

45. Land area and total forest by county

46. Area of timberland by county and ownership class

47. Area of timberland by county and forest management type

48. Merchantable volume of live timber 5.0 inches d.b.h. and larger on timberland by county and species group

49. Volume of growing stock on timberland by county and species group

50. Volume of sawtimber on timberland by county and species group

51. Net annual change of growing stock on timberland by county and species group

52. Net annual change of sawtimber on timberland by county and species group

53. Green weight of forest biomass on timberland by county and species group

Table 1—Area by land class, South Carolina, 1993

Land class	Area
	Thousand acres
Forest land	
Timberland	12,454.9
Reserved timberland	190.6
Other	—
Total	12,645.6
Nonforest land	
Cropland	3,051.2
Pasture and range	875.2
Other[a]	2,690.4
Total	6,616.8
All land[b]	19,262.4

Numbers in rows and columns may not sum to totals due to rounding.
A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.
[a] Includes swampland, industrial, and urban areas, other nonforest land, and 37.4 thousand acres classed as water by Forest Inventory and Analysis standards but defined by Bureau of Census as land.
[b] From the U.S. Bureau of Census, 1990.

Table 2—Area of timberland by ownership class, South Carolina, 1993

Ownership class	Area
	Thousand acres
National forest	560.0
Other Federal	
Bureau of Land Management	—
Indian	—
Miscellaneous Federal	343.5
Total	343.5
State	177.4
County and municipal	33.1
Forest industry	2,322.0
Forest industry-leased	72.3
Other private	
Farmer	2,711.5
Other individual	4,603.3
Other corporate	1,631.8
Total	8,946.7
All ownerships	12,454.9

Numbers in rows and columns may not sum to totals due to rounding.
A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 3—Area of timberland by stand-size and ownership classes, South Carolina, 1993

		Ownership class				
Stand-size class	All ownerships	National forest	Other public	Forest industry	Forest industry-leased	Other private
			Thousand acres			
Sawtimber	4,764.6	277.1	310.5	715.7	14.4	3,447.0
Poletimber	3,138.4	125.8	128.5	663.9	40.0	2,180.2
Sapling-seedling	4,460.1	157.1	108.0	913.5	17.9	3,263.7
Nonstocked	91.7	—	7.0	28.9	—	55.8
All classes	12,454.9	560.0	554.0	2,322.0	72.3	8,946.7

Numbers in rows and columns may not sum to totals due to rounding.
A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 4—Area of timberland by stand-volume and ownership classes, South Carolina, 1993

Stand-volume class	All ownerships	Ownership class: National forest	Other public	Forest industry	Forest industry-leased	Other private
Board feet/acre[a]			*Thousand acres*			
Less than 2,000	6,021.8	206.1	197.1	1,422.2	51.1	4,145.3
2,000 - 3,999	1,617.8	56.6	71.2	191.5	8.0	1,290.5
4,000 - 5,999	1,240.2	50.7	65.6	151.5	8.5	963.8
6,000 - 7,999	979.3	53.5	43.4	139.7	2.7	740.1
8,000 - 9,999	671.6	32.8	44.2	113.5	1.0	480.1
10,000 or more	1,924.2	160.4	132.5	303.6	0.9	1,326.9
All classes	12,454.9	560.0	554.0	2,322.0	72.3	8,946.7

Numbers in rows and columns may not sum to totals due to rounding.

[a] International 1/4-inch rule.

Table 5—Area of timberland by stocking class of growing-stock trees and ownership class, South Carolina, 1993

Stocking class	All ownerships	Ownership class: National forest	Other public	Forest industry	Forest industry-leased	Other private
			Thousand acres			
Overstocked	574.7	15.8	18.5	190.5	1.0	348.9
Fully stocked	4,400.1	250.9	201.8	1,034.2	42.5	2,870.8
Moderately stocked	5,388.8	211.3	221.1	785.0	27.0	4,144.4
Poorly stocked	1,814.7	79.5	97.7	262.3	1.7	1,373.6
Nonstocked	276.6	2.5	15.0	50.1	—	209.0
All classes	12,454.9	560.0	554.0	2,322.0	72.3	8,946.7

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 6—Area of timberland by site and ownership classes, South Carolina, 1993

Site class	All ownerships	Ownership class: National forest	Other public	Forest industry	Forest industry-leased	Other private
Ft^3/acre/year			*Thousand acres*			
> 164	42.0	—	—	—	—	42.0
120-164	399.4	48.6	18.7	74.0	—	258.1
85-119	3,328.2	218.8	157.2	679.2	23.3	2,249.6
50-84	7,352.1	250.1	254.6	1,397.0	47.9	5,402.5
20-49	1,333.1	42.4	123.4	171.9	1.0	994.4
All classes	12,454.9	560.0	554.0	2,322.0	72.3	8,946.7

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 7—Area of timberland by forest type and site index class, South Carolina, 1993

Forest type	All classes	Site index class (50-year base)								
		< 50	50-59	60-69	70-79	80-89	90-99	100-109	110-119	> 119
	Thousand acres									
Softwood types										
White pine–hemlock	11.5	—	—	—	—	3.8	3.8	3.8	—	—
Longleaf pine	369.1	5.0	102.4	120.8	103.1	26.4	11.4	—	—	—
Slash pine	240.1	—	25.5	52.3	82.8	61.3	15.7	2.5	—	—
Loblolly pine	4,322.9	9.3	115.3	644.2	1,926.3	1,051.3	454.3	119.5	2.6	—
Shortleaf pine	264.8	10.4	58.0	101.0	71.3	16.2	7.9	—	—	—
Virginia pine	165.8	—	26.3	62.5	61.6	11.7	3.6	—	—	—
Eastern redcedar	44.5	3.5	4.2	11.3	15.3	10.4	—	—	—	—
Pond pine	138.8	2.0	31.3	49.6	41.2	9.6	5.2	—	—	—
Pitch pine	4.0	4.0	—	—	—	—	—	—	—	—
Total	5,561.5	34.2	363.0	1,041.7	2,301.5	1,190.8	501.8	125.9	2.6	—
Hardwood types										
Oak–pine	1,902.1	16.2	199.2	479.9	647.7	318.7	191.4	32.6	16.5	—
Oak–hickory	2,255.8	—	132.7	420.6	850.8	522.2	221.7	81.4	22.3	4.1
Chestnut oak	42.8	—	3.8	12.0	15.2	3.8	7.9	—	—	—
Southern scrub oak	203.5	12.1	131.8	39.2	20.3	—	—	—	—	—
Oak–gum–cypress	2,390.4	4.4	98.4	275.3	849.2	584.9	409.4	138.3	30.4	—
Elm–ash–cottonwood	98.9	2.8	8.0	4.7	23.1	27.9	23.6	8.9	—	—
Total	6,893.4	35.5	573.9	1,231.8	2,406.3	1,457.5	854.0	261.2	69.1	4.1
All types	12,454.9	69.6	936.8	2,273.5	4,707.9	2,648.3	1,355.8	387.1	71.7	4.1

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 8—Area of timberland by forest type and ownership class, South Carolina, 1993

Forest type	All ownerships	Ownership class				
		National forest	Other public	Forest industry	Forest industry-leased	Other private
	Thousand acres					
Softwood types						
White pine–hemlock	11.5	—	—	—	—	11.5
Longleaf pine	369.1	18.7	96.6	15.5	—	238.3
Slash pine	240.1	2.5	45.8	68.3	—	123.5
Loblolly pine	4,322.9	258.1	155.8	1,320.7	51.0	2,537.3
Shortleaf pine	264.8	14.2	9.6	7.3	1.9	231.8
Virginia pine	165.8	8.0	—	—	—	157.8
Eastern redcedar	44.5	3.3	—	—	—	41.2
Pond pine	138.8	2.5	14.2	27.6	—	94.6
Pitch pine	4.0	4.0	—	—	—	—
Total	5,561.5	311.2	322.0	1,439.4	52.9	3,436.0
Hardwood types						
Oak–pine	1,902.1	87.8	74.4	168.1	12.9	1,558.9
Oak–hickory	2,255.8	63.9	61.3	203.1	—	1,927.4
Chestnut oak	42.8	—	—	—	—	42.8
Southern scrub oak	203.5	—	15.5	4.3	—	183.7
Oak–gum–cypress	2,390.4	93.8	80.7	487.6	1.0	1,727.3
Elm–ash–cottonwood	98.9	3.3	—	19.5	5.4	70.7
Total	6,893.4	248.8	232.0	882.6	19.3	5,510.7
All types	12,454.9	560.0	554.0	2,322.0	72.3	8,946.7

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 9—Area of timberland by forest type and stand-size class, South Carolina, 1993

Forest type	All stands	Stand-size class			
		Sawtimber	Poletimber	Sapling-seedling	Nonstocked areas
		Thousand acres			
Softwood types					
White pine–hemlock	11.5	11.5	—	—	—
Longleaf pine	369.1	186.2	67.6	106.0	9.2
Slash pine	240.1	110.9	74.5	46.9	7.8
Loblolly pine	4,322.9	1,390.4	1,127.4	1,779.1	26.0
Shortleaf pine	264.8	102.4	101.1	61.3	—
Virginia pine	165.8	83.5	49.7	32.6	—
Eastern redcedar	44.5	10.4	17.0	17.1	—
Pond pine	138.8	54.6	30.8	53.4	—
Pitch pine	4.0	4.0	—	—	—
Total	5,561.5	1,953.9	1,468.1	2,096.5	43.0
Hardwood types					
Oak–pine	1,902.1	534.5	414.4	944.5	8.7
Oak–hickory	2,255.8	857.9	652.6	736.4	8.9
Chestnut oak	42.8	35.5	7.3	—	—
Southern scrub oak	203.5	—	59.2	134.5	9.8
Oak–gum–cypress	2,390.4	1,326.7	522.1	522.7	18.9
Elm–ash–cottonwood	98.9	56.1	14.8	25.5	2.5
Total	6,893.4	2,810.7	1,670.4	2,363.6	48.8
All types	12,454.9	4,764.6	3,138.4	4,460.1	91.7

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 10—Area of timberland by forest-type group, detailed forest type, and survey unit, South Carolina, 1993

Forest-type group and detailed forest type	State	Southern Coastal Plain	Northern Coastal Plain	Piedmont
		Thousand acres		
White pine–hemlock				
White pine	7.7	—	—	7.7
White pine–hemlock	3.8	—	—	3.8
Total	11.5	—	—	11.5
Longleaf–slash				
Longleaf pine	369.1	195.5	170.1	3.5
Slash pine	240.1	136.9	95.8	7.4
Total	609.2	332.4	265.8	10.9
Loblolly–shortleaf				
Loblolly pine	4,322.9	1,208.6	1,530.6	1,583.6
Shortleaf pine	264.8	13.0	7.1	244.6
Virginia pine	165.8	2.9	—	163.0
Eastern redcedar	44.5	—	4.6	39.9
Pond pine	138.8	39.4	99.5	—
Pitch pine	4.0	—	—	4.0
Total	4,940.9	1,263.9	1,641.8	2,035.2
Total, all softwoods	5,561.5	1,596.3	1,907.6	2,057.5
Oak–pine				
White pine–n. red oak–white ash	31.6	—	—	31.6
Eastern redcedar–hardwood	75.8	—	5.4	70.4
Longleaf pine–scrub oak	148.6	69.4	79.2	—
Shortleaf pine–oak	187.7	12.2	6.9	168.5
Virginia pine–s. red oak	90.9	—	—	90.9
Loblolly pine–hardwood	1,228.4	294.9	590.3	343.3
Slash pine–hardwood	52.9	28.6	20.1	4.2
Other oak–pine	86.1	28.6	49.9	7.6
Total	1,902.1	433.7	751.9	716.4
Oak–hickory				
Post oak–black oak	42.9	7.8	8.3	26.8
Chestnut oak	42.8	—	—	42.8
White oak–red oak–hickory	457.0	23.5	72.3	361.2
White oak	30.7	3.0	—	27.7
Yellow-poplar–white oak–n. red oak	216.9	3.0	7.3	206.5
Southern scrub oak	203.5	118.6	80.6	4.3
Sweetgum–yellow-poplar	716.0	63.5	230.1	422.4
Mixed hardwood	792.3	185.7	206.7	399.9
Total	2,502.1	405.2	605.3	1,491.6
Oak–gum–cypress				
Swamp chestnut oak–cherrybark oak	71.8	21.7	46.2	4.0
Sweetgum–water oak–willow oak	1,169.9	445.8	655.8	68.3
Sugarberry–elm–green ash	208.7	33.0	101.0	74.8
Overcup oak–water hickory	27.7	15.3	12.4	—
Cypress–water tupelo	375.7	137.5	238.1	—
Sweetbay–blackgum–red maple	536.5	164.9	369.3	2.4
Total	2,390.4	818.1	1,422.8	149.5
Elm–ash–cottonwood				
River birch–sycamore	44.5	7.4	6.8	30.3
Cottonwood	11.9	2.5	2.7	6.6
Willow	12.3	—	8.0	4.3
Sycamore–pecan–elm	30.2	2.8	13.4	14.0
Total	98.9	12.7	30.9	55.3
Total, all hardwoods	6,794.5	1,669.7	2,810.8	2,412.9
All types	12,356.0	3,266.0	4,718.4	4,470.4

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 11—Area of timberland by stand-age class and forest management type, all ownerships, South Carolina, 1993

Stand-age class	All classes	Forest management type: Pine plantation	Natural pine	Oak–pine	Upland hardwood	Lowland hardwood
Years			*Thousand acres*			
0-10	3,023.5	1,225.0	514.8	569.2	395.2	319.3
11-20	1,605.8	710.5	321.9	248.4	200.2	124.8
21-30	1,024.7	354.6	318.6	138.2	135.4	77.9
31-40	1,101.4	279.7	426.5	113.6	128.7	152.8
41-50	1,069.6	57.1	444.7	136.8	242.4	188.6
51-60	1,074.9	—	310.8	123.5	331.2	309.4
61-70	831.5	—	213.0	106.8	214.3	297.5
71-80	432.9	—	56.6	53.1	130.0	193.2
81+	475.7	—	40.3	50.4	80.1	304.9
No manageable stand	1,814.9	45.0	242.3	362.0	644.7	520.9
All classes	12,454.9	2,672.0	2,889.5	1,902.1	2,502.1	2,489.3

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 12—Area of timberland by stand-age class and forest management type, public ownerships, South Carolina, 1993

Stand-age class	All classes	Forest management type: Pine plantation	Natural pine	Oak–pine	Upland hardwood	Lowland hardwood
Years			*Thousand acres*			
0-10	176.6	68.6	48.8	23.6	21.6	14.0
11-20	86.2	35.4	21.2	17.4	4.0	8.1
21-30	88.6	43.2	37.8	6.1	0.5	0.9
31-40	112.0	64.6	27.0	—	6.9	13.5
41-50	104.1	14.4	41.5	20.3	12.7	15.3
51-60	144.4	—	88.6	8.4	21.4	25.9
61-70	114.7	—	57.2	19.4	14.0	24.2
71-80	48.1	—	16.4	4.1	14.4	13.2
81+	99.4	—	25.5	16.0	17.5	40.5
No manageable stand	140.0	2.3	40.8	47.0	27.7	22.1
All classes	1,114.0	228.5	404.7	162.2	140.7	177.8

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 13—Area of timberland by stand-age class and forest management type, forest industry ownerships,[a] South Carolina, 1993

Stand-age class	All classes	Forest management type: Pine plantation	Natural pine	Oak–pine	Upland hardwood	Lowland hardwood
Years		*Thousand acres*				
0-10	706.0	508.6	40.5	71.9	37.2	47.8
11-20	491.7	401.6	35.7	16.3	21.6	16.4
21-30	275.3	198.2	35.2	22.1	4.1	15.8
31-40	152.9	71.3	49.4	9.2	5.6	17.5
41-50	133.6	10.7	51.6	10.8	16.9	43.5
51-60	120.9	—	28.8	16.3	15.6	60.1
61-70	86.8	—	11.2	2.3	14.5	58.8
71-80	36.8	—	—	—	—	36.8
81+	110.9	—	—	6.7	3.0	101.2
No manageable stand	279.4	13.5	36.1	25.3	89.0	115.5
All classes	2,394.3	1,203.9	288.4	181.0	207.5	513.5

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes 72.3 thousand acres of other private land under long-term lease.

Table 14—Area of timberland by stand-age class and forest management type, other private ownerships,[a] South Carolina, 1993

Stand-age class	All classes	Forest management type: Pine plantation	Natural pine	Oak–pine	Upland hardwood	Lowland hardwood
Years		*Thousand acres*				
0-10	2,140.9	647.8	425.5	473.6	336.4	257.5
11-20	1,028.0	273.5	265.0	214.7	174.6	100.3
21-30	660.8	113.2	245.6	110.0	130.8	61.2
31-40	836.5	143.8	350.2	104.4	116.3	121.8
41-50	831.9	32.0	351.6	105.7	212.8	129.8
51-60	809.7	—	193.5	98.8	294.1	223.3
61-70	630.1	—	144.7	85.1	185.8	214.5
71-80	348.0	—	40.2	49.1	115.6	143.1
81+	265.4	—	14.8	27.7	59.7	163.2
No manageable stand	1,395.5	29.2	165.3	289.7	527.9	383.3
All classes	8,946.7	1,239.6	2,196.4	1,558.9	2,153.9	1,797.9

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Excludes 72.3 thousand acres of other private land under long-term lease.

Table 15—Basal area per acre of live trees 5.0 inches d.b.h. and larger by forest management type, species group, and ownership class, South Carolina, 1993

Forest management type and species group	All ownerships	Ownership class: National forest	Other public	Forest industry	Forest industry-leased	Other private
		Square feet				
Pine plantation						
Softwood	46.0	52.6	54.3	51.9	79.1	37.9
Hardwood	1.9	5.4	1.7	1.7	1.4	2.0
Total	47.9	58.0	55.9	53.5	80.6	39.9
Natural pine						
Softwood	53.8	52.6	67.6	53.1	22.6	53.0
Hardwood	11.6	11.7	11.0	9.7	—	11.9
Total	65.4	64.2	78.6	62.8	22.6	64.9
Oak–pine						
Softwood	20.3	19.9	30.7	17.7	22.6	20.1
Hardwood	26.6	27.9	34.5	25.8	15.0	26.4
Total	46.9	47.8	65.2	43.5	37.6	46.5
Upland hardwood						
Softwood	5.2	5.9	5.9	2.5	—	5.4
Hardwood	53.5	73.0	53.4	34.6	—	54.8
Total	58.7	78.9	59.3	37.1	—	60.2
Lowland hardwood						
Softwood	10.0	23.0	20.4	10.8	7.6	8.5
Hardwood	81.6	70.9	83.9	90.3	47.6	79.6
Total	91.6	93.9	104.3	101.1	55.1	88.1
All classes						
Softwood	28.5	37.1	43.3	36.0	52.9	24.8
Hardwood	34.9	31.1	29.0	28.0	11.5	37.5
Total	63.4	68.3	72.3	64.0	64.4	62.3

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 16—Area of reserved timberland by forest-type group and ownership class, South Carolina, 1993

Forest-type group	All areas	Ownership class: National forest	Miscellaneous Federal	State	County
		Thousand acres			
Longleaf–slash pine	10.0	1.3	3.7	5.0	0.0
Loblolly–shortleaf pine	49.6	8.9	10.9	25.4	4.3
Oak–hickory	80.2	13.6	8.2	43.2	15.3
Oak–gum–cypress	50.8	8.0	16.5	25.3	0.9
All types	190.6	31.9	39.4	98.9	20.6

Numbers in rows and columns may not sum to totals due to rounding.

Table 17—Number of live trees on timberland by species and diameter class, South Carolina, 1993

Species	All classes	Diameter class (inches at breast height) 1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
						Thousand trees							
Softwood													
Longleaf pine	96,746	38,655	16,467	15,150	8,897	5,504	5,188	3,754	1,974	780	324	53	—
Slash pine	73,430	20,901	16,241	13,242	10,706	5,755	3,617	1,620	857	345	71	75	—
Shortleaf pine	181,890	77,328	43,337	23,755	16,989	10,520	5,645	2,427	1,139	531	158	61	—
Loblolly pine	2,009,817	956,123	457,687	288,059	144,104	70,141	40,637	25,433	14,181	7,167	3,415	2,749	121
Pond pine	46,911	16,517	10,691	7,023	5,091	2,582	2,351	1,240	707	377	188	139	5
Virginia pine	75,594	28,447	16,810	10,424	8,492	6,428	3,206	1,128	400	217	42	—	—
Pitch pine	5,465	2,519	1,155	582	561	241	243	109	44	—	—	11	—
Spruce pine	4,129	3,241	302	115	217	78	24	32	41	41	18	20	—
Eastern white pine	10,288	6,375	1,308	449	1,076	290	345	102	21	69	89	119	45
Eastern hemlock	1,987	916	228	—	376	235	115	51	21	15	—	24	6
Baldcypress	31,021	8,666	5,719	4,272	3,048	2,451	2,029	1,512	954	1,037	544	717	72
Pondcypress	28,668	12,755	5,660	2,501	2,955	2,122	1,325	597	392	205	76	76	4
Cedars	180,589	125,755	34,201	12,419	5,841	1,512	436	286	59	39	9	32	—
Total softwoods	2,746,535	1,298,198	609,806	377,991	208,353	107,859	65,161	38,291	20,790	10,823	4,934	4,076	253
Hardwood													
Select white oaks[a]	156,548	78,776	26,961	16,224	11,170	8,131	5,943	4,068	2,270	1,528	705	707	65
Select red oaks[b]	37,268	19,165	6,359	3,411	2,237	1,861	1,114	1,221	701	423	342	354	80
Chestnut oak	19,772	9,153	3,717	1,923	1,502	799	1,052	833	271	180	122	186	34
Other white oaks	114,056	66,364	19,930	10,631	6,704	4,088	2,571	1,495	881	482	239	550	121
Other red oaks	923,183	627,706	141,189	59,027	36,372	24,192	14,628	7,664	4,938	2,929	2,067	2,117	354
Hickory	208,069	132,116	36,358	16,784	9,902	5,532	2,936	1,814	1,107	693	359	411	57
Hard maple	32,275	25,827	4,734	1,170	267	146	60	27	39	—	—	—	5
Soft maple	727,403	522,421	114,235	44,049	21,779	10,262	6,253	3,731	1,802	1,341	787	691	52
Beech	20,844	14,638	2,750	1,330	1,092	312	165	210	123	39	26	141	18
Sweetgum	1,176,597	824,063	187,046	74,361	40,284	21,206	12,300	8,042	4,518	2,419	1,204	1,048	106
Tupelo and blackgum	509,114	291,498	91,626	40,243	27,437	19,839	14,221	11,655	6,016	3,262	1,768	1,434	115
Ash	196,301	134,336	37,469	9,373	5,374	3,823	2,189	1,572	1,193	396	272	266	38
Cottonwood	6,616	3,562	1,021	460	588	264	217	143	73	70	35	112	71
Basswood	659	—	—	372	240	—	—	21	20	—	—	—	6
Yellow-poplar	128,900	69,218	21,674	10,786	7,374	5,315	4,563	3,214	2,696	1,338	1,216	1,399	107
Bay and magnolia	115,883	95,725	12,864	4,694	1,471	658	214	84	81	54	9	22	7
Black cherry	165,175	128,877	24,273	8,731	2,283	630	274	83	13	11	—	—	—
Black walnut	2,201	214	348	816	335	243	140	15	22	20	14	34	—
Sycamore	10,458	6,812	1,158	951	186	195	256	215	272	160	83	142	28
Black locust	1,745	1,102	382	—	—	174	—	—	24	51	—	12	—
Elm	206,015	147,641	33,011	13,700	5,786	2,597	1,729	649	478	164	132	118	10
Other Eastern hardwoods	1,301,590	997,997	211,891	61,258	19,418	5,769	2,627	1,482	497	256	151	237	7
Total hardwoods	6,060,672	4,197,211	978,996	380,294	201,801	116,036	73,452	48,238	28,035	15,816	9,531	9,981	1,281
All species	8,807,207	5,495,409	1,588,802	758,285	410,154	223,895	138,613	86,529	48,825	26,639	14,465	14,057	1,534

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 18—Number of growing-stock trees on timberland by species and diameter class, South Carolina, 1993

Species	All classes	Diameter class (inches at breast height) 1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
						Thousand trees							
Softwood													
Longleaf pine	91,390	34,537	15,539	15,059	8,846	5,360	5,164	3,754	1,974	780	324	53	—
Slash pine	71,210	19,612	16,009	12,793	10,588	5,677	3,563	1,620	857	345	71	75	—
Shortleaf pine	166,228	64,560	41,467	23,003	16,800	10,463	5,619	2,427	1,139	531	158	61	—
Loblolly pine	1,904,702	873,887	440,675	284,427	142,587	69,589	40,612	25,365	14,108	7,167	3,415	2,749	121
Pond pine	43,138	14,480	9,829	6,379	4,983	2,547	2,292	1,240	690	377	177	139	5
Virginia pine	68,755	24,228	15,199	9,685	8,349	6,367	3,163	1,128	377	217	42	—	—
Pitch pine	5,007	2,061	1,155	582	561	241	243	109	44	—	—	11	—
Spruce pine	3,515	2,636	302	115	217	78	24	32	41	41	9	20	—
Eastern white pine	9,814	5,908	1,308	449	1,076	290	345	102	21	69	89	112	45
Eastern hemlock	1,758	687	228	—	376	235	115	51	21	15	—	24	6
Baldcypress	27,772	6,229	5,568	4,149	2,901	2,345	1,958	1,443	940	968	535	686	50
Pondcypress	25,945	11,095	5,055	2,347	2,779	2,079	1,303	579	379	187	69	70	3
Cedars	150,587	100,559	30,413	11,589	5,841	1,350	436	286	59	28	9	17	—
Total softwoods	2,569,821	1,160,479	582,747	370,577	205,904	106,621	64,837	38,136	20,650	10,725	4,898	4,017	230
Hardwood													
Select white oaks[a]	113,785	44,910	21,389	14,134	10,688	7,882	5,732	3,945	2,257	1,468	691	649	40
Select red oaks[b]	26,033	10,016	4,983	3,040	2,137	1,781	1,067	1,175	701	423	317	315	78
Chestnut oak	12,994	4,148	3,020	1,656	1,255	692	937	698	227	144	83	128	6
Other white oaks	65,484	27,120	15,347	8,876	5,798	3,572	2,186	1,147	629	252	164	334	59
Other red oaks	615,062	366,614	109,148	51,633	33,208	22,282	13,777	7,061	4,600	2,689	1,868	1,883	299
Hickory	126,554	62,635	28,575	14,366	8,838	5,250	2,820	1,657	1,075	608	318	370	42
Hard maple	7,640	4,439	1,986	821	179	110	34	27	39	—	—	—	5
Soft maple	306,703	179,805	63,026	29,414	15,795	7,897	4,481	2,815	1,433	1,005	573	439	20
Beech	10,532	5,795	1,721	1,190	954	243	143	210	123	39	26	83	5
Sweetgum	822,455	535,526	140,114	63,262	36,349	19,368	11,461	7,685	4,205	2,316	1,102	977	90
Tupelo and blackgum	271,560	107,014	59,624	31,883	23,322	16,947	12,238	10,030	5,296	2,764	1,472	928	42
Ash	66,204	33,135	15,465	5,469	3,933	3,036	1,841	1,448	1,047	331	264	205	30
Cottonwood	4,099	1,300	1,021	323	535	225	217	143	73	59	35	104	64
Basswood	355	—	—	246	62	—	—	21	20	—	—	—	6
Yellow-poplar	107,994	53,854	19,077	9,032	6,935	5,110	4,375	3,174	2,606	1,299	1,125	1,318	89
Bay and magnolia	30,840	21,371	4,996	2,880	753	485	160	70	81	32	—	8	4
Black cherry	66,792	49,325	11,643	4,014	1,184	480	128	18	—	—	—	—	—
Black walnut	1,697	—	205	816	270	243	103	15	—	20	14	11	—
Sycamore	6,835	3,583	1,158	717	124	153	214	215	272	149	83	142	25
Black locust	723	240	239	—	—	174	—	—	24	34	—	12	—
Elm	76,725	36,141	19,420	11,230	5,268	1,977	1,456	476	430	106	121	90	10
Other Eastern hardwoods	39,514	20,240	7,361	5,092	2,729	1,419	990	878	356	189	109	151	—
Total hardwoods	2,780,580	1,567,211	529,518	260,094	160,316	99,326	64,360	42,908	25,494	13,927	8,365	8,147	914
All species	5,350,401	2,727,690	1,112,265	630,671	366,220	205,947	129,197	81,044	46,144	24,652	13,263	12,164	1,144

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 19—Merchantable volume of live trees on timberland by species and diameter class, South Carolina, 1993

Species	All classes	Diameter class (inches at breast height) 5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
					Million cubic feet						
Softwood											
Longleaf pine	516.3	43.3	58.4	69.3	102.8	106.5	75.4	36.6	19.2	4.8	—
Slash pine	360.3	35.3	68.6	70.3	71.7	47.0	35.7	19.3	4.8	7.6	—
Shortleaf pine	605.2	69.3	116.1	134.4	113.5	75.4	49.7	29.8	11.4	5.7	—
Loblolly pine	5,438.3	663.8	828.1	823.7	810.4	751.0	592.2	405.7	247.8	290.8	24.7
Pond pine	215.3	16.5	29.7	27.4	40.3	33.6	25.0	17.9	11.8	12.6	0.6
Virginia pine	306.0	34.4	62.8	85.9	62.7	32.9	14.4	10.7	2.3	—	—
Pitch pine	17.8	1.9	3.8	2.6	4.5	2.7	1.4	—	—	1.0	—
Spruce pine	11.8	0.3	1.5	0.9	0.6	0.9	2.0	2.3	1.1	2.1	—
Eastern white pine	49.6	1.2	7.3	2.9	5.1	2.8	0.8	3.1	6.1	11.6	8.7
Eastern hemlock	15.2	—	2.7	2.8	2.0	1.8	0.7	1.0	—	3.2	1.0
Baldcypress	340.5	13.2	21.4	31.1	37.2	41.6	34.9	50.0	32.9	66.1	12.0
Pondcypress	123.8	9.1	17.1	25.9	23.4	15.2	13.4	9.2	4.2	5.7	0.7
Cedars	94.2	29.3	32.6	13.6	6.5	5.8	1.4	1.5	0.6	2.8	—
Total softwoods	8,094.2	917.6	1,250.1	1,290.7	1,280.8	1,117.1	847.0	587.1	342.1	413.9	47.7
Hardwood											
Select white oaks[a]	758.6	47.8	72.1	99.6	118.5	116.4	93.1	81.6	47.1	71.6	10.6
Select red oaks[b]	234.2	11.2	15.4	23.7	21.4	34.3	29.6	22.2	23.5	34.9	17.8
Chestnut oak	107.1	4.7	8.4	9.0	19.2	21.4	9.8	7.9	6.9	16.4	3.5
Other white oaks	298.3	26.7	39.6	40.1	42.3	31.8	26.5	17.0	13.7	42.1	18.5
Other red oaks	1,841.5	167.6	224.2	269.3	257.8	201.3	182.3	143.2	130.8	200.3	64.6
Hickory	421.7	41.4	57.7	60.0	57.0	50.6	44.2	36.8	22.9	39.0	12.1
Hard maple	9.9	2.6	1.4	1.9	1.2	0.6	1.5	—	—	—	0.7
Soft maple	809.1	131.7	135.8	114.7	109.5	92.3	62.5	58.4	43.2	53.9	7.0
Beech	45.7	3.1	6.2	3.5	3.4	6.3	5.0	1.9	1.5	12.8	2.0
Sweetgum	1,721.4	188.5	254.8	253.4	240.0	245.4	188.9	133.2	83.1	113.3	20.8
Tupelo and blackgum	1,625.4	120.4	172.5	223.9	253.4	297.3	209.9	141.3	97.1	98.2	11.5
Ash	309.8	24.7	33.3	47.2	44.5	46.3	47.6	19.3	18.4	23.3	5.1
Cottonwood	56.6	0.9	3.3	3.6	4.5	4.3	2.9	3.8	2.9	12.3	18.1
Basswood	5.3	1.4	1.2	—	—	0.6	1.1	—	—	—	1.1
Yellow-poplar	757.5	33.7	50.7	67.2	93.0	95.1	110.4	71.0	81.0	136.9	18.5
Bay and magnolia	40.6	11.7	8.0	7.5	3.6	2.2	2.6	1.9	0.4	1.2	1.5
Black cherry	49.9	22.9	14.0	6.6	4.1	1.5	0.5	0.3	—	—	—
Black walnut	14.3	2.3	2.3	2.9	2.0	0.5	0.1	0.9	1.1	2.2	—
Sycamore	62.9	3.6	1.6	2.7	4.6	6.3	11.3	8.9	5.8	13.5	4.5
Black locust	5.9	—	—	2.0	—	—	0.8	2.2	—	0.8	—
Elm	193.8	31.3	33.1	32.3	31.2	16.1	18.0	8.1	9.8	11.2	2.7
Other Eastern hardwoods	406.6	128.8	90.2	55.3	40.9	32.8	17.3	10.9	9.0	20.4	1.1
Total hardwoods	9,775.9	1,007.1	1,226.0	1,326.2	1,352.4	1,303.3	1,066.0	771.0	598.0	904.3	221.5
All species	17,870.1	1,924.7	2,476.1	2,617.0	2,633.1	2,420.5	1,913.0	1,358.2	940.1	1,318.3	269.2

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 20—Volume of growing stock on timberland by species and diameter class, South Carolina, 1993

Species	All classes	Diameter class (inches at breast height) 5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
					Million cubic feet						
Softwood											
Longleaf pine	513.5	43.1	58.2	67.5	102.3	106.5	75.4	36.6	19.2	4.8	—
Slash pine	357.6	34.5	68.1	69.7	70.9	47.0	35.7	19.3	4.8	7.6	—
Shortleaf pine	601.9	68.1	114.9	133.7	113.3	75.4	49.7	29.8	11.4	5.7	—
Loblolly pine	5,414.5	657.3	819.3	819.2	810.0	749.3	590.5	405.7	247.8	290.8	24.7
Pond pine	211.7	15.1	29.2	27.1	39.7	33.6	24.7	17.9	11.3	12.6	0.6
Virginia pine	301.4	33.0	62.0	85.2	61.8	32.9	13.5	10.7	2.3	—	—
Pitch pine	17.8	1.9	3.8	2.6	4.5	2.7	1.4	—	—	1.0	—
Spruce pine	11.2	0.3	1.5	0.9	0.6	0.9	2.0	2.3	0.5	2.1	—
Eastern white pine	49.0	1.2	7.3	2.9	5.1	2.8	0.8	3.1	6.1	11.0	8.7
Eastern hemlock	15.2	—	2.7	2.8	2.0	1.8	0.7	1.0	—	3.2	1.0
Baldcypress	330.0	13.0	20.7	30.4	36.7	40.4	34.6	48.2	32.4	64.6	8.8
Pondcypress	120.6	8.7	16.7	25.4	23.2	14.9	13.1	8.7	3.8	5.4	0.6
Cedars	89.7	27.3	32.6	12.4	6.5	5.8	1.4	1.2	0.6	1.6	—
Total softwoods	8,034.1	903.6	1,236.9	1,279.9	1,276.5	1,114.0	843.5	584.6	340.3	410.4	44.4
Hardwood											
Select white oaks[a]	733.2	43.3	69.5	96.5	115.9	113.6	92.8	79.5	46.2	68.6	7.1
Select red oaks[b]	225.6	10.4	15.0	22.9	20.9	33.2	29.6	22.2	22.0	31.9	17.5
Chestnut oak	91.8	4.2	7.0	8.5	17.9	18.9	9.0	7.0	5.4	13.0	0.8
Other white oaks	240.6	23.0	35.5	35.7	37.4	26.4	20.7	10.5	10.8	29.5	11.2
Other red oaks	1,734.5	150.8	211.2	255.0	248.5	189.0	174.6	136.3	122.8	187.1	59.2
Hickory	395.0	36.4	53.3	58.1	55.2	46.9	43.2	33.5	21.2	36.7	10.6
Hard maple	8.0	2.0	1.0	1.5	0.6	0.6	1.5	—	—	—	0.7
Soft maple	632.9	94.4	105.3	91.9	86.0	76.0	52.5	48.9	36.1	38.8	3.1
Beech	38.3	2.9	5.9	2.8	2.8	6.3	5.0	1.9	1.5	8.3	1.0
Sweetgum	1,626.1	166.2	237.0	237.5	229.7	237.7	181.3	129.4	79.6	108.6	19.1
Tupelo and blackgum	1,435.5	98.6	150.6	199.1	227.6	268.2	193.4	128.6	87.5	75.0	6.9
Ash	271.0	16.4	26.5	40.2	39.7	44.2	44.2	17.0	18.0	20.6	4.3
Cottonwood	53.5	0.7	3.2	2.9	4.5	4.3	2.9	3.5	2.9	11.6	17.0
Basswood	3.8	0.9	0.3	—	—	0.6	1.1	—	—	—	1.1
Yellow-poplar	730.6	29.3	48.6	65.5	90.1	94.2	108.0	69.7	77.4	131.4	16.5
Bay and magnolia	28.4	8.0	4.3	5.9	2.7	1.9	2.6	1.2	—	0.6	1.2
Black cherry	26.2	11.0	7.7	4.9	2.2	0.5	—	—	—	—	—
Black walnut	12.4	2.3	2.1	2.9	1.5	0.5	—	0.9	1.1	1.1	—
Sycamore	59.5	2.7	1.1	2.3	3.9	6.3	11.3	8.5	5.8	13.5	4.1
Black locust	5.5	—	—	2.0	—	—	0.8	1.8	—	0.8	—
Elm	167.6	26.3	30.1	26.0	27.2	13.4	17.2	6.0	9.3	9.5	2.7
Other Eastern hardwoods	131.0	12.9	16.8	17.6	18.9	20.9	12.7	9.1	7.2	14.8	—
Total hardwoods	8,651.1	742.6	1,031.8	1,179.8	1,233.2	1,203.5	1,004.3	715.5	554.7	801.4	184.1
All species	16,685.2	1,646.3	2,268.7	2,459.7	2,509.8	2,317.5	1,847.8	1,300.1	895.0	1,211.8	228.5

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 21—Volume of sawtimber on timberland by species and diameter class, South Carolina, 1993

Species	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
				Million board feet					
Softwood									
Longleaf pine	2,148.3	273.7	492.2	571.5	435.0	222.6	121.6	31.8	—
Slash pine	1,235.4	258.4	325.7	246.7	204.3	117.7	30.9	51.6	—
Shortleaf pine	1,958.7	496.7	511.9	387.4	278.7	176.5	70.6	36.9	—
Loblolly pine	19,947.2	2,940.6	3,650.5	3,864.4	3,331.9	2,447.7	1,569.7	1,961.2	181.1
Pond pine	855.4	101.7	181.2	173.3	137.5	105.2	70.0	82.0	4.4
Virginia pine	865.3	310.1	262.2	155.4	68.2	56.9	12.5	—	—
Pitch pine	54.6	7.8	20.0	13.4	7.3	—	—	6.1	—
Spruce pine	52.7	3.9	2.8	4.7	11.1	13.5	3.2	13.6	—
Eastern white pine	233.1	9.8	22.1	14.2	4.5	17.3	36.7	69.7	58.8
Eastern hemlock	62.2	10.3	8.2	8.6	3.3	5.6	—	19.9	6.2
Baldcypress	1,424.1	92.7	139.8	176.4	165.3	247.1	174.7	372.5	55.5
Pondcypress	402.5	81.1	90.6	66.4	63.6	44.7	20.9	31.3	3.9
Cedars	142.1	50.4	31.7	30.5	8.0	7.3	3.6	10.6	—
Total softwoods	29,381.5	4,637.1	5,739.1	5,713.0	4,718.7	3,462.0	2,114.6	2,687.1	309.9
Hardwood									
Select white oaks[a]	2,306.7	—	397.0	454.9	412.3	381.5	234.4	383.5	43.2
Select red oaks[b]	833.4	—	69.6	129.8	130.8	103.8	108.8	172.7	117.9
Chestnut oak	300.6	—	59.2	72.9	38.3	32.2	25.6	68.0	4.5
Other white oaks	672.7	—	135.9	109.6	95.2	50.8	54.7	160.2	66.3
Other red oaks	5,314.8	—	914.9	805.1	815.7	683.2	649.2	1,072.3	374.3
Hickory	1,117.5	—	191.1	190.0	194.0	163.5	109.5	203.6	65.8
Hard maple	15.3	—	2.2	2.4	6.7	—	—	—	4.1
Soft maple	1,404.5	—	280.6	290.3	221.8	221.8	173.2	199.7	17.2
Beech	105.9	—	10.3	23.9	19.4	7.7	5.9	34.5	4.2
Sweetgum	4,620.1	—	819.5	1,022.1	873.8	677.2	443.6	657.0	126.9
Tupelo and blackgum	4,056.6	—	703.7	1,022.5	834.2	603.9	439.2	410.3	42.9
Ash	794.9	—	129.8	170.0	190.2	79.8	89.8	110.2	25.2
Cottonwood	257.5	—	15.9	17.8	13.5	17.8	15.2	66.4	110.8
Basswood	12.9	—	—	2.3	4.7	—	—	—	6.0
Yellow-poplar	3,004.6	—	323.5	409.2	533.1	373.0	441.0	812.3	112.5
Bay and magnolia	43.2	—	8.6	7.4	11.4	5.6	—	2.6	7.5
Black cherry	9.1	—	7.3	1.8	—	—	—	—	—
Black walnut	19.5	—	4.9	1.7	—	3.6	4.6	4.7	—
Sycamore	251.4	—	12.2	23.8	48.7	40.0	29.3	73.0	24.5
Black locust	13.3	—	—	—	3.1	7.0	—	3.2	—
Elm	354.6	—	93.1	52.2	73.8	27.3	44.3	48.6	15.2
Other Eastern hardwoods	364.4	—	66.7	83.1	55.9	43.4	36.6	78.6	—
Total hardwoods	25,873.6	—	4,246.1	4,892.6	4,576.6	3,522.9	2,904.9	4,561.6	1,168.9
All species	55,255.1	4,637.1	9,985.2	10,605.6	9,295.3	6,985.0	5,019.5	7,248.6	1,478.8

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 22—Volume of sawtimber on timberland by species, size class, and tree grade, South Carolina, 1993

Species	All size classes					Trees 15.0 inches d.b.h. and larger				
	All grades	Tree grade				All grades	Tree grade			
		1	2	3	4		1	2	3	4
	Million board feet									
Softwood										
Yellow pines[a]	27,117.6	5,837.3	7,451.5	13,828.8	—	11,861.4	3,900.2	3,553.2	4,408.1	—
Eastern white pines[b]	233.1	45.1	124.5	63.5	—	186.9	45.1	114.0	27.9	—
Cypress[c]	1,826.5	645.3	525.8	638.3	17.2	1,179.5	645.3	393.4	132.6	8.1
Other Eastern softwoods[b]	204.3	—	42.5	120.5	41.3	64.5	—	19.6	25.1	19.9
Total	29,381.5	6,527.7	8,144.2	14,651.0	58.5	13,292.4	4,590.6	4,080.1	4,593.6	28.0
Hardwood[c]										
Select white and red oaks	3,140.1	623.2	1,082.3	1,344.7	89.9	2,088.8	623.2	875.2	561.8	28.6
Other white and red oaks	6,288.2	740.4	1,783.9	3,124.0	639.9	4,190.6	740.4	1,583.8	1,569.6	296.9
Hickory	1,117.5	110.8	398.4	538.3	70.0	736.5	110.8	345.2	251.0	29.4
Hard maple	15.3	—	—	15.3	—	10.7	—	—	10.7	—
Sweetgum	4,620.1	799.0	1,601.6	2,076.3	143.2	2,778.5	799.0	1,232.4	696.3	50.8
Ash, walnut, and black cherry	823.5	106.9	296.0	390.0	30.7	508.0	106.9	232.1	153.3	15.7
Yellow-poplar	3,004.6	809.7	1,155.5	949.5	89.9	2,271.9	809.7	965.4	441.1	55.7
Other Eastern hardwoods	6,864.3	951.6	2,127.0	3,375.1	410.7	4,149.9	951.6	1,620.9	1,373.5	203.8
Total	25,873.6	4,141.6	8,444.6	11,813.1	1,474.4	16,734.9	4,141.6	6,855.0	5,057.4	680.9
All species	55,255.1	10,669.3	16,588.8	26,464.2	1,532.9	30,027.3	8,732.2	10,935.1	9,651.0	708.9

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] For yellow pines, tree grade is based on "Southern Pine Tree Grades for Yard and Structural Lumber," Research Paper SE-40, published by the Southern Research Station, Asheville, NC, 1968. Tree grade 4 does not apply to yellow pine.

[b] For other softwoods (excluding cypress), tree grade is based on "Tree Grades for Eastern White Pine," Research Paper NE-214, published by the Northeastern Forest Experiment Station, Radnor, PA, 1971.

[c] For hardwoods and cypress, tree grades 1, 2, and 3 are based on "Hardwood Tree Grades for Factory Lumber," Research Paper NE-333, published by the Northeastern Forest Experiment Station, Radnor, PA, 1976. Grade 4 trees are sawtimber trees not qualifying as tree grades 1, 2, or 3. The butt log of these trees qualify as construction (tie and timber) logs based on "A Guide to Hardwood Log Grading (revised)," General Technical Report NE-1, published by the Northeastern Forest Experiment Station, Radnor, PA, 1971.

Table 23—Volume of live timber and associated green weight of forest biomass on timberland by class of material, softwood, and hardwood, South Carolina, 1993

Class of material	Volume[a]			Associated green weight[b]		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet			*Thousand tons*		
Sawtimber trees						
Saw-log portion	10,205.2	5,376.3	4,829.0	382,064.8	197,592.5	184,472.3
Upper stem	1,385.3	517.4	867.9	51,683.1	18,991.7	32,691.4
Total[c]	11,590.5	5,893.7	5,696.8	433,747.8	216,584.1	217,163.7
Poletimber trees[c]	5,094.8	2,140.5	2,954.3	182,162.9	77,632.5	104,530.4
All growing stock[c]	16,685.2	8,034.1	8,651.1	615,910.7	294,216.6	321,694.1
Rough trees[c]	987.0	48.0	939.0	37,363.4	1,788.1	35,575.3
Rotten trees[c]	197.8	12.0	185.8	7,696.4	468.3	7,228.2
Saplings[d]	3,100.8	908.6	2,192.2	108,763.2	27,025.8	81,737.4
Stumps, tops, and limbs[e]	3,984.1	1,532.5	2,451.6	146,357.7	55,639.7	90,718.0
Total, all classes	24,955.0	10,535.2	14,419.7	916,091.3	379,138.4	536,952.9

Numbers in rows and columns may not sum to totals due to rounding.

[a] Excludes bark.

[b] Includes bark.

[c] Bole portion only.

[d] Includes entire tree aboveground.

[e] Of live trees 5.0 inches d.b.h. and larger.

Table 24—Total volume of live trees on timberland by species and diameter class, South Carolina, 1993

Species	All classes	Diameter class (inches at breast height) 1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
						Million cubic feet							
Softwood													
Longleaf pine	632.5	9.5	22.6	60.5	70.6	80.2	117.0	120.0	84.6	41.0	21.4	5.3	—
Slash pine	447.8	5.9	19.0	49.1	82.8	81.3	81.5	52.8	40.0	21.6	5.4	8.4	—
Shortleaf pine	782.2	18.7	48.1	95.3	140.4	156.0	129.6	85.4	56.1	33.5	12.8	6.4	—
Loblolly pine	7,102.6	207.7	441.6	949.2	1,011.0	960.6	927.3	851.3	667.7	455.8	277.8	325.1	27.5
Pond pine	266.0	3.0	10.9	22.6	35.9	31.9	46.4	38.3	28.4	20.3	13.4	14.2	0.7
Virginia pine	390.0	5.9	21.8	45.6	75.3	100.2	72.3	37.7	16.4	12.2	2.6	—	—
Pitch pine	23.3	0.9	1.4	2.5	4.5	3.0	5.2	3.1	1.6	—	—	1.1	—
Spruce pine	14.4	0.6	0.2	0.5	1.8	1.1	0.7	1.0	2.2	2.6	1.3	2.4	—
Eastern white pine	61.1	1.5	1.6	1.6	8.8	3.4	6.0	3.3	1.0	3.5	7.1	13.4	10.0
Eastern hemlock	18.1	0.3	0.2	—	3.3	3.3	2.3	2.1	0.8	1.2	—	3.7	1.1
Baldcypress	429.7	2.1	8.7	19.6	27.7	38.8	45.6	50.6	42.3	60.2	39.4	79.3	15.3
Pondcypress	176.3	4.1	7.5	15.0	24.2	33.9	30.2	19.3	17.0	11.7	5.3	7.2	1.0
Cedars	191.2	27.4	37.4	45.3	41.9	16.7	7.9	7.0	1.7	1.8	0.7	3.4	—
Total softwoods	10,535.2	287.5	621.1	1,306.6	1,528.1	1,510.4	1,471.9	1,272.0	959.7	665.4	387.0	469.9	55.6
Hardwood													
Select white oaks[a]	1,013.6	18.6	35.2	69.9	94.5	126.1	148.3	144.7	115.4	100.9	58.1	88.6	13.3
Select red oaks[b]	305.4	4.4	8.6	15.6	19.8	29.8	26.7	42.4	36.5	27.3	29.0	43.2	22.1
Chestnut oak	141.2	2.5	5.2	6.8	10.7	11.2	23.6	26.3	11.9	9.7	8.5	20.1	4.8
Other white oaks	426.6	14.2	27.1	41.8	52.8	51.5	53.5	40.0	33.2	21.3	16.8	51.7	22.8
Other red oaks	2,702.7	134.4	185.0	262.4	301.5	346.1	324.8	251.3	226.7	177.8	162.1	249.4	81.1
Hickory	605.3	26.9	42.4	64.6	76.2	75.4	70.1	61.6	53.6	44.6	27.8	47.4	14.8
Hard maple	23.8	5.5	5.5	3.8	1.8	2.3	1.4	0.7	1.9	—	—	—	0.9
Soft maple	1,321.6	124.9	179.1	188.4	172.0	140.6	133.0	111.7	75.3	70.5	52.3	65.0	8.8
Beech	65.0	2.9	3.1	4.9	8.3	4.5	4.2	7.8	6.1	2.4	1.8	16.2	2.8
Sweetgum	2,462.3	164.0	226.3	279.7	317.0	300.3	279.0	281.8	215.9	151.7	94.6	128.5	23.6
Tupelo and blackgum	2,271.5	79.0	124.4	179.0	224.7	282.4	316.1	368.7	259.6	176.0	120.8	125.1	15.8
Ash	448.7	34.8	45.5	35.4	41.1	56.0	51.8	53.5	54.8	22.1	20.9	26.8	6.0
Cottonwood	68.8	0.7	1.7	1.4	4.2	4.2	5.3	5.0	3.4	4.4	3.3	14.1	21.0
Basswood	6.2	—	—	1.7	1.5	—	—	0.6	1.2	—	—	—	1.2
Yellow-poplar	915.3	15.9	32.4	45.1	60.6	77.5	106.0	107.6	124.5	79.9	91.3	153.8	20.9
Bay and magnolia	92.8	22.1	17.0	18.2	10.3	9.1	4.3	2.6	3.0	2.3	0.5	1.5	1.8
Black cherry	139.5	42.2	33.0	31.5	17.2	7.9	4.9	1.8	0.6	0.3	—	—	—
Black walnut	18.6	0.0	0.6	3.3	2.9	3.6	2.4	0.5	0.2	1.1	1.3	2.7	—
Sycamore	77.2	1.5	2.0	4.8	1.9	3.3	5.4	7.4	13.1	10.3	6.7	15.6	5.2
Black locust	7.8	0.3	0.3	—	—	2.5	—	—	1.0	2.7	—	1.0	—
Elm	315.5	29.9	44.5	45.3	41.8	39.0	37.2	19.2	21.3	9.6	11.4	13.2	3.2
Other Eastern hardwoods	990.3	214.9	233.8	192.2	117.6	69.3	50.9	40.0	21.0	13.4	11.0	24.8	1.3
Total hardwoods	14,419.7	939.7	1,252.6	1,495.8	1,578.3	1,642.4	1,649.0	1,575.4	1,280.2	928.2	718.2	1,088.8	271.2
All species	24,955.0	1,227.2	1,873.6	2,802.4	3,106.4	3,152.8	3,121.0	2,847.4	2,239.9	1,593.7	1,105.2	1,558.7	326.8

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 25—Green weight of forest biomass on timberland by species and diameter class, South Carolina, 1993

Species	All classes	Diameter class (inches at breast height) 1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
						Thousand tons							
Softwood													
Longleaf pine	24,714.1	389.2	952.7	2,113.3	2,685.4	3,110.4	4,605.2	4,768.6	3,372.8	1,644.2	860.0	212.3	—
Slash pine	17,295.0	227.5	881.8	1,787.5	3,168.5	3,134.3	3,150.4	2,048.5	1,539.4	827.2	206.8	323.5	—
Shortleaf pine	26,734.4	520.4	1,461.9	2,834.9	4,781.7	5,516.1	4,649.2	3,060.5	2,015.2	1,206.0	459.3	229.5	—
Loblolly pine	254,262.5	5,094.5	13,055.6	34,366.9	37,830.4	35,358.8	33,924.8	31,190.9	24,199.3	16,503.2	10,056.7	11,699.0	982.5
Pond pine	9,370.3	81.3	305.6	783.9	1,275.1	1,146.2	1,668.6	1,369.1	1,022.2	719.1	471.9	501.7	25.8
Virginia pine	14,614.1	253.6	890.8	1,759.3	2,814.2	3,688.8	2,673.3	1,384.8	608.7	444.6	96.2	—	—
Pitch pine	792.1	37.5	63.1	76.3	144.3	100.6	177.0	105.0	52.9	—	—	35.5	—
Spruce pine	503.6	22.7	10.7	12.5	59.3	37.5	23.1	36.5	78.6	93.0	45.2	84.8	—
Eastern white pine	1,854.0	29.7	37.4	53.6	289.8	114.3	205.6	107.1	30.2	112.3	212.9	390.4	271.0
Eastern hemlock	664.0	8.1	5.9	—	133.1	133.7	89.7	72.8	29.3	38.9	—	117.0	35.7
Baldcypress	16,120.4	52.6	274.4	497.9	861.7	1,320.7	1,666.3	1,908.1	1,643.9	2,386.3	1,595.3	3,253.7	659.7
Pondcypress	5,628.9	113.0	236.7	331.6	658.8	1,046.7	1,002.6	674.5	613.1	432.9	200.8	278.0	40.5
Cedars	6,585.3	823.5	1,196.2	1,608.2	1,525.3	617.6	290.9	257.9	64.9	65.0	23.7	112.2	—
Total softwoods	379,138.4	7,653.3	19,372.5	46,225.7	56,227.3	55,325.4	54,126.4	46,984.1	35,270.2	24,472.4	14,228.7	17,237.5	2,015.2
Hardwood	—												
Select white oaks[a]	40,986.7	738.5	1,311.1	2,496.4	3,717.9	5,057.6	5,996.0	5,950.5	4,735.4	4,189.4	2,440.9	3,770.7	582.7
Select red oaks[b]	12,586.6	184.8	332.3	548.9	782.1	1,203.3	1,094.6	1,760.7	1,516.5	1,138.5	1,207.6	1,804.3	1,013.3
Chestnut oak	5,527.9	113.0	202.0	234.6	414.9	432.4	909.0	1,025.5	467.6	385.4	337.4	806.4	199.9
Other white oaks	17,615.9	512.1	944.5	1,384.4	2,048.8	2,110.5	2,220.7	1,732.7	1,444.1	970.3	755.7	2,405.4	1,087.0
Other red oaks	108,528.4	5,692.2	6,992.7	9,350.9	11,955.9	13,939.0	13,372.7	10,385.6	9,417.3	7,411.2	6,691.6	10,112.0	3,207.5
Hickory	24,553.6	1,169.9	1,858.7	2,256.8	2,949.3	2,995.3	2,808.5	2,519.5	2,214.0	1,870.7	1,189.7	2,055.9	665.6
Hard maple	1,004.5	227.5	231.3	152.5	75.7	96.2	63.9	33.3	82.0	—	—	—	42.1
Soft maple	47,752.5	4,736.6	6,354.9	6,488.0	6,447.6	5,193.7	4,833.7	4,070.1	2,710.5	2,520.4	1,840.8	2,260.2	296.2
Beech	2,608.7	119.7	131.8	151.5	318.0	178.4	163.9	313.7	250.4	97.7	79.0	686.5	118.3
Sweetgum	87,992.6	5,409.9	7,512.2	8,987.2	11,229.4	10,841.9	10,222.2	10,432.5	8,084.8	5,748.2	3,623.3	4,965.6	935.6
Tupelo and blackgum	77,172.4	2,732.6	4,263.2	4,455.7	6,820.6	9,108.0	10,676.5	12,969.3	9,371.3	6,562.2	4,591.7	4,947.7	673.9
Ash	13,749.1	1,060.4	1,443.2	1,297.6	1,445.4	1,769.6	1,563.0	1,564.7	1,557.0	628.0	571.1	701.6	147.7
Cottonwood	2,484.3	22.6	58.4	40.8	138.0	140.8	181.9	175.2	121.5	159.2	118.8	523.1	804.2
Basswood	210.1	—	—	53.6	51.5	—	—	23.0	39.9	—	—	—	42.2
Yellow-poplar	32,484.4	587.8	1,071.7	1,369.4	2,049.0	2,695.2	3,729.9	3,848.3	4,496.4	2,904.6	3,324.8	5,632.5	775.1
Bay and magnolia	2,770.3	670.2	521.4	460.2	317.0	279.3	136.1	84.3	101.0	77.1	15.5	50.0	58.5
Black cherry	4,114.0	1,001.5	1,104.2	922.1	559.5	261.8	167.4	62.1	21.8	13.7	—	—	—
Black walnut	781.2	0.6	25.9	119.4	123.1	148.4	106.7	23.5	9.8	47.6	55.6	120.9	—
Sycamore	2,781.0	48.6	67.2	121.9	57.4	100.6	186.6	260.4	479.5	384.0	256.6	611.3	207.3
Black locust	367.7	11.2	12.4	—	—	114.6	—	—	47.3	133.6	—	48.8	—
Elm	10,302.2	1,083.8	1,551.6	1,384.9	1,320.9	1,206.0	1,201.3	628.5	695.0	318.2	370.0	437.3	104.9
Other Eastern hardwoods	40,579.4	9,189.1	10,435.0	7,392.0	4,720.7	2,657.6	1,917.8	1,540.2	811.7	512.7	401.4	964.9	36.6
Total hardwoods	536,952.9	35,312.0	46,425.4	49,668.4	57,542.0	60,529.7	61,552.0	59,403.1	48,674.3	36,072.4	27,871.0	42,904.8	10,998.1
All species	916,091.3	42,965.3	65,797.9	95,894.0	113,769.2	115,855.1	115,678.4	106,387.2	83,944.4	60,544.8	42,099.6	60,142.2	13,013.3

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 26—Volume of growing stock on timberland by species and forest-type group, South Carolina, 1993

Species	All types	Forest-type group					
		White pine–hemlock	Longleaf–slash	Loblolly–shortleaf	Oak–pine	Oak–hickory	Oak–gum–cypress
	Million cubic feet						
Softwood							
Longleaf pine	513.5	—	352.8	70.3	69.2	20.3	0.9
Slash pine	357.6	—	285.8	36.5	31.1	0.9	3.3
Shortleaf pine	601.9	1.2	3.5	404.1	106.3	85.7	1.2
Loblolly pine	5,414.5	—	64.9	4,502.3	561.4	130.4	154.1
Pond pine	211.7	—	11.1	139.8	43.6	1.0	16.4
Virginia pine	301.4	0.7	—	226.8	50.8	23.1	—
Pitch pine	17.8	—	—	15.1	—	2.7	—
Spruce pine	11.2	—	—	1.3	6.6	1.6	1.8
Eastern white pine	49.0	15.0	—	2.1	23.6	8.2	—
Eastern hemlock	15.2	4.8	—	—	9.0	1.3	—
Baldcypress	330.0	—	—	0.9	0.5	3.5	323.3
Pondcypress	120.6	—	2.1	5.3	6.1	0.3	106.9
Cedars	89.7	—	—	43.3	26.2	17.6	2.6
Total softwoods	8,034.1	21.8	720.1	5,447.9	934.3	296.5	610.5
Hardwood							
Select white oaks[a]	733.2	3.4	—	39.6	84.2	528.7	77.0
Select red oaks[b]	225.6	—	—	12.6	20.1	149.2	43.7
Chestnut oak	91.8	—	—	2.6	8.7	80.4	—
Other white oaks	240.6	—	1.6	39.0	35.9	92.1	71.3
Other red oaks	1,734.5	—	11.2	148.7	321.8	588.6	656.5
Hickory	395.0	—	1.2	20.1	65.4	232.3	73.4
Hard maple	8.0	—	—	0.6	—	5.4	2.0
Soft maple	632.9	0.6	1.6	28.5	51.5	120.4	416.2
Beech	38.3	—	—	0.4	0.5	35.3	2.1
Sweetgum	1,626.1	—	8.3	171.2	153.9	460.4	803.1
Tupelo and blackgum	1,435.5	—	3.5	36.8	46.5	44.2	1,303.7
Ash	271.0	—	—	2.1	6.6	16.2	222.3
Cottonwood	53.5	—	—	—	1.2	2.6	24.8
Basswood	3.8	—	—	—	—	3.0	0.8
Yellow-poplar	730.6	0.6	—	43.8	84.1	403.3	187.7
Bay and magnolia	28.4	0.6	0.4	0.6	4.5	1.2	21.0
Black cherry	26.2	—	0.6	7.0	6.5	8.2	4.0
Black walnut	12.4	—	—	0.9	—	6.6	4.9
Sycamore	59.5	—	—	0.9	1.2	12.9	24.8
Black locust	5.5	—	—	—	0.6	4.8	—
Elm	167.6	—	—	19.0	19.7	42.0	81.1
Other Eastern hardwoods	131.0	0.8	—	3.1	5.5	13.6	82.3
Total hardwoods	8,651.1	6.0	28.3	577.3	918.5	2,851.5	4,102.9
All species	16,685.2	27.8	748.5	6,025.2	1,852.8	3,147.9	4,713.4

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes white, swamp white, swamp chestnut, and chinkapin oaks.

[b] Includes cherrybark, northern red, and shumard oaks.

Table 27—Volume of growing stock on timberland by ownership class, species group, and diameter class, South Carolina, 1993

Ownership class and species group	All classes	Diameter class (inches at breast height) 5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
					Million cubic feet						
National forest											
Softwood	582.4	38.2	64.4	58.0	67.8	73.3	76.4	69.7	53.7	67.4	13.4
Hardwood	368.8	31.1	39.9	47.5	49.3	56.1	39.2	26.8	26.8	36.5	15.7
Total	951.2	69.3	104.3	105.5	117.1	129.4	115.6	96.5	80.5	103.9	29.1
Other public											
Softwood	604.4	57.0	74.4	78.1	101.4	110.9	78.9	33.9	26.0	41.6	2.2
Hardwood	361.9	32.5	38.0	53.6	50.6	43.7	43.0	26.4	24.8	41.7	7.6
Total	966.3	89.5	112.3	131.7	152.0	154.7	121.9	60.2	50.8	83.3	9.9
Forest industry											
Softwood	1,672.0	297.2	355.5	343.3	259.6	176.2	107.5	57.0	26.1	44.7	5.0
Hardwood	1,262.3	106.8	134.8	159.6	170.6	171.2	155.0	102.6	95.2	129.0	37.5
Total	2,934.3	404.0	490.2	502.9	430.1	347.4	262.4	159.6	121.4	173.7	42.4
Forest industry-leased											
Softwood	54.0	10.3	14.4	13.8	6.7	5.6	2.6	0.5	—	—	—
Hardwood	8.0	1.5	1.9	0.3	0.5	0.3	2.3	0.5	—	—	0.7
Total	61.9	11.8	16.3	14.1	7.2	5.9	4.9	1.0	—	—	0.7
Other private											
Softwood	5,121.4	500.9	728.3	786.7	841.1	747.9	578.0	423.5	234.4	256.7	23.8
Hardwood	6,650.2	570.8	817.3	918.8	962.3	932.2	764.9	559.2	407.9	594.2	122.6
Total	11,771.6	1,071.7	1,545.6	1,705.5	1,803.3	1,680.1	1,342.9	982.7	642.4	850.9	146.5
All ownerships											
Softwood	8,034.1	903.6	1,236.9	1,279.9	1,276.5	1,114.0	843.5	584.6	340.3	410.4	44.4
Hardwood	8,651.1	742.6	1,031.8	1,179.8	1,233.2	1,203.5	1,004.3	715.5	554.7	801.4	184.1
Total	16,685.2	1,646.3	2,268.7	2,459.7	2,509.8	2,317.5	1,847.8	1,300.1	895.0	1,211.8	228.5

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 28—Volume of sawtimber on timberland by ownership class, species group, and diameter class, South Carolina, 1993

Ownership class and species group	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0 and larger
				Million board feet					
National forest									
Softwood	2,606.6	206.2	305.3	375.7	426.7	416.6	336.4	445.5	94.1
Hardwood	1,154.9	—	171.8	227.3	177.0	134.8	140.8	206.7	96.4
Total	3,761.4	206.2	477.1	603.0	603.7	551.4	477.2	652.3	190.6
Other public									
Softwood	2,431.2	291.7	466.8	569.7	445.2	202.7	162.1	276.6	16.4
Hardwood	1,092.8	—	173.0	177.5	195.9	131.0	130.7	237.5	47.2
Total	3,524.0	291.7	639.8	747.3	641.1	333.7	292.8	514.1	63.6
Forest industry									
Softwood	4,674.5	1,224.6	1,158.7	895.4	593.7	332.2	155.3	281.4	33.2
Hardwood	3,912.1	—	569.5	681.6	698.8	498.0	496.2	731.3	236.7
Total	8,586.6	1,224.6	1,728.2	1,577.0	1,292.5	830.2	651.5	1,012.7	269.8
Forest industry-leased									
Softwood	123.9	47.9	29.5	29.2	14.5	2.9	—	—	—
Hardwood	19.8	—	1.9	1.1	10.5	2.4	—	—	3.9
Total	143.7	47.9	31.4	30.3	25.0	5.3	—	—	3.9
Other private									
Softwood	19,545.3	2,866.8	3,778.7	3,843.0	3,238.6	2,507.7	1,460.8	1,683.5	166.3
Hardwood	19,694.0	—	3,329.9	3,805.0	3,494.5	2,756.6	2,137.3	3,386.1	784.6
Total	39,239.4	2,866.8	7,108.7	7,648.0	6,733.1	5,264.3	3,598.0	5,069.6	950.9
All ownerships									
Softwood	29,381.5	4,637.1	5,739.1	5,713.0	4,718.7	3,462.0	2,114.6	2,687.1	309.9
Hardwood	25,873.6	—	4,246.1	4,892.6	4,576.6	3,522.9	2,904.9	4,561.6	1,168.9
Total	55,255.1	4,637.1	9,985.2	10,605.6	9,295.3	6,985.0	5,019.5	7,248.6	1,478.8

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 29—Volume of growing stock on timberland by broad management class, species group, and stand-age class, South Carolina, 1993

Broad management class and species group	All classes	No manageable stand	Stand-age class (years)								
			0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81+
			Million cubic feet								
Pine plantation											
Softwood	2,255.7	18.7	93.8	700.6	664.8	628.8	149.0	—	—	—	—
Hardwood	68.1	—	14.0	13.3	16.8	18.8	5.2	—	—	—	—
Total	2,323.8	18.7	107.8	713.9	681.6	647.5	154.2	—	—	—	—
Natural pine											
Softwood	3,934.1	67.0	135.7	192.8	413.5	763.3	929.6	719.5	508.6	135.7	68.5
Hardwood	543.5	8.6	29.7	30.9	43.2	82.5	124.2	101.6	95.2	15.9	11.5
Total	4,477.7	75.6	165.4	223.7	456.7	845.8	1,053.8	821.1	603.9	151.6	80.0
Oak–pine											
Softwood	934.3	109.5	78.6	77.1	80.7	93.0	128.4	136.4	110.2	62.4	58.0
Hardwood	918.5	62.3	95.3	54.2	65.2	79.5	138.5	137.5	131.8	75.3	79.0
Total	1,852.8	171.8	173.9	131.3	145.8	172.6	266.9	273.8	242.0	137.7	137.0
Upland hardwood											
Softwood	296.5	42.3	17.2	23.4	22.2	26.2	34.5	60.0	39.3	15.6	15.7
Hardwood	2,851.5	247.1	97.3	101.0	113.6	170.6	438.0	717.0	448.8	337.2	180.9
Total	3,147.9	289.3	114.6	124.4	135.8	196.8	472.4	777.0	488.1	352.8	196.6
Lowland hardwood											
Softwood	613.6	31.5	15.7	13.0	15.9	29.3	52.1	105.5	85.8	76.2	188.7
Hardwood	4,269.5	321.4	89.2	95.1	79.9	262.3	408.1	771.7	807.0	519.2	915.5
Total	4,883.1	352.8	104.9	108.1	95.8	291.6	460.2	877.2	892.8	595.4	1,104.2
All types											
Softwood	8,034.1	268.9	341.0	1,006.9	1,197.1	1,540.5	1,293.6	1,021.4	743.9	290.0	330.9
Hardwood	8,651.1	639.3	325.6	294.5	318.8	613.7	1,114.0	1,727.8	1,482.9	947.6	1,186.9
Total	16,685.2	908.2	666.6	1,301.5	1,515.8	2,154.2	2,407.5	2,749.1	2,226.8	1,237.6	1,517.8

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 30—Average net annual growth and removals of live timber and growing stock on timberland by species, South Carolina, 1986-1992

Species	Live timber[a]		Growing stock	
	Net annual growth	Annual timber removals	Net annual growth	Annual timber removals
	Million cubic feet			
Softwood				
Yellow pines	334.3	488.5	332.1	483.1
Eastern white pine	2.2	0.2	2.3	0.2
Cypress	5.4	6.6	5.2	6.2
Other Eastern softwoods	4.1	2.7	4.0	2.7
Total softwoods	346.0	498.0	343.6	492.2
Hardwood				
Select white and red oaks	24.4	27.6	24.7	27.0
Other white and red oaks	34.1	77.0	34.9	71.0
Hickory	7.7	9.8	7.3	9.5
Hard maple	0.5	—	0.4	—
Sweetgum	35.3	55.3	34.4	52.8
Ash, walnut, and black cherry	4.3	8.3	4.1	7.3
Yellow-poplar	25.9	19.2	25.6	18.5
Tupelo and blackgum	19.7	24.1	21.2	20.5
Bay and magnolia	1.0	0.3	1.0	0.2
Other Eastern hardwoods	34.7	37.3	28.3	28.9
Total hardwoods	187.7	258.9	182.0	235.7
All species	533.7	756.9	525.6	728.0

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Merchantable portion only.

Table 31—Average net annual growth and removals of growing stock on timberland by ownership class, softwood, and hardwood, South Carolina, 1986-1992

Ownership class	Net annual growth			Annual timber removals		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet					
National forest	-8.0	-10.1	2.0	19.9	14.4	5.4
Other public	25.7	18.6	7.1	37.0	22.0	15.0
Forest industry	145.8	127.5	18.3	175.4	131.3	44.1
Forest industry-leased	4.9	5.3	-0.4	1.1	0.4	0.8
Other private	357.2	202.2	155.0	494.6	324.2	170.4
All ownerships	525.6	343.6	182.0	728.0	492.2	235.7

Numbers in rows and columns may not sum to totals due to rounding.

Table 32—Average net annual growth and removals of sawtimber on timberland by species, South Carolina, 1986-1992

Species	Net annual growth	Annual timber removals
	Million board feet	
Softwood		
Yellow pines	1,143.6	1,939.5
Eastern white pine	11.7	0.6
Cypress	25.5	30.6
Other Eastern softwoods	5.4	4.2
Total softwoods	1,186.2	1,974.8
Hardwood		
Select white and red oaks	104.1	92.8
Other white and red oaks	118.7	241.9
Hickory	19.9	33.0
Hard maple	0.6	—
Sweetgum	119.3	151.8
Ash, walnut, and black cherry	17.9	22.1
Yellow-poplar	124.5	81.2
Tupelo and blackgum	88.9	66.7
Bay and magnolia	1.3	—
Other Eastern hardwoods	83.3	84.8
Total hardwoods	678.4	774.4
All species	1,864.6	2,749.2

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 33—Average net annual growth and removals of sawtimber on timberland by ownership class, softwood, and hardwood, South Carolina, 1986-1992

Ownership class	Net annual growth			Annual timber removals		
	All species	Softwood	Hardwood	All species	Softwood	Hardwood
			Million board feet			
National forest	-56.4	-63.5	7.0	86.2	69.2	16.9
Other public	115.8	85.8	30.1	148.4	94.4	54.0
Forest industry	434.3	367.1	67.2	599.9	460.4	139.4
Forest industry-leased	8.1	12.9	-4.8	3.8	1.0	2.8
Other private	1,362.8	783.9	578.8	1,911.0	1,349.8	561.2
All ownerships	1,864.6	1,186.2	678.4	2,749.2	1,974.8	774.4

Numbers in rows and columns may not sum to totals due to rounding.

Table 34—Average annual mortality of live timber, growing stock, and sawtimber on timberland by species, South Carolina, 1986-1992

Species	Live timber[a]	Growing stock	Sawtimber
	Million cubic feet		*Million board feet*
Softwood			
Yellow pines	250.3	247.0	1,056.1
Eastern white pine	0.3	0.2	1.1
Cypress	4.4	4.3	19.8
Other Eastern softwoods	1.6	1.6	3.9
Total softwoods	256.5	253.0	1,080.8
Hardwood			
Select white and red oaks	15.9	14.1	56.7
Other white and red oaks	74.0	65.9	254.9
Hickory	5.1	4.6	19.2
Sweetgum	30.1	26.7	83.8
Ash, walnut, and black cherry	9.1	6.3	15.3
Yellow-poplar	7.7	6.9	30.9
Tupelo and blackgum	13.6	8.5	24.1
Bay and magnolia	0.9	0.5	0.7
Other Eastern hardwoods	34.9	20.8	59.3
Total hardwoods	191.1	154.3	545.0
All species	447.7	407.3	1,625.8

Numbers in rows and columns may not sum to totals due to rounding.

[a] Merchantable portion only.

Table 35—Average annual mortality of growing stock and sawtimber on timberland by ownership class, softwood, and hardwood, South Carolina, 1986-1992

	Growing stock			Sawtimber		
Ownership class	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet			*Million board feet*		
National forest	46.2	37.4	8.8	221.1	188.8	32.3
Other public	20.8	14.1	6.7	78.5	56.6	21.9
Forest industry	68.7	39.2	29.4	237.6	129.3	108.3
Forest industry-leased	1.5	0.2	1.3	6.7	—	6.7
Other private	270.1	162.0	108.1	1,082.0	706.1	375.9
All ownerships	407.3	253.0	154.3	1,625.8	1,080.8	545.0

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 36—Average annual mortality of growing stock and sawtimber on timberland by cause of death, softwood, and hardwood, South Carolina, 1986-1992

	Growing stock			Sawtimber		
Ownership class	All species	Softwood	Hardwood	All species	Softwood	Hardwood
	Million cubic feet			*Million board feet*		
Fire	3.2	1.9	1.3	4.1	2.7	1.5
Insects	18.8	18.5	0.3	71.7	71.1	0.6
Disease	33.0	15.4	17.6	95.4	44.5	51.0
Weather	297.6	191.6	106.0	1,330.6	897.3	433.3
Suppression	17.5	8.7	8.8	14.2	8.6	5.6
Animals	3.8	0.2	3.6	10.6	1.1	9.5
Undetermined	33.4	16.6	16.8	99.1	55.6	43.5
All causes	407.3	253.0	154.3	1,625.8	1,080.8	545.0

Numbers in rows and columns may not sum to totals due to rounding.

Table 37—Average annual output of timber products by product, species group, and type of material, South Carolina, 1986-1992

Product and species group	Standard units	Total output		Roundwood products		Plant byproducts	
		Number of units	Million cubic feet	Number of units	Million cubic feet	Number of units	Million cubic feet
Saw logs	*k fbm*[a]						
Softwood		1,295,492	233.4	1,263,158	227.6	32,334	5.8
Hardwood		259,761	43.5	254,519	42.6	5,242	0.9
Total		1,555,253	276.9	1,517,677	270.2	37,576	6.7
Veneer logs and bolts	*k fbm*[a]						
Softwood		293,792	51.7	293,792	51.7	—	—
Hardwood		62,198	10.2	62,198	10.2	—	—
Total		355,990	61.9	355,990	61.9	—	—
Pulpwood[b]	*Cords*[c]						
Softwood		4,147,639	284.5	3,352,668	230.0	794,971	54.5
Hardwood		1,791,149	126.3	1,656,199	116.8	134,950	9.5
Total		5,938,788	410.8	5,008,867	346.8	929,921	64.0
Poles and piling	*h pieces*						
Softwood		2,297	4.5	2,297	4.5	—	—
Hardwood		—	—	—	—	—	—
Total		2,297	4.5	2,297	4.5	—	—
Posts (round and split)	*k pieces*						
Softwood		519	0.4	519	0.4	—	—
Hardwood		47	0.0	47	0.0	—	—
Total		566	0.4	566	0.4	—	—
Other[d]	*k ft*^{3}						
Softwood		17,705	17.7	598	0.6	17,107	17.1
Hardwood		3,387	3.4	1,212	1.2	2,175	2.2
Total		21,092	21.1	1,810	1.8	19,282	19.3
Total industrial products							
Softwood		—	592.3	—	514.8	—	77.5
Hardwood		—	183.4	—	170.8	—	12.6
Total		—	775.6	—	685.6	—	90.0
Fuelwood[e]	*Cords*						
Softwood		110,685	7.6	105,481	7.2	5,204	0.4
Hardwood		593,692	43.6	586,757	43.1	6,935	0.5
Total		704,377	51.2	692,238	50.3	12,139	0.9
All products							
Softwood		—	599.9	—	522.0	—	77.8
Hardwood		—	226.9	—	213.9	—	13.1
Total		—	826.8	—	735.9	—	90.9

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] International 1/4-inch rule.

[b] Roundwood figures include an estimated 17.1 million cubic feet of roundwood chipped at other primary wood-using plants.

[c] Rough-wood basis (includes chips converted to equivalent standard cords).

[c] Includes liter, mulch, particleboard, charcoal, and other specialty products.

[e] Excludes approximately 53.6 million cubic feet of wood residues and 45.0 million cubic feet of bark used for industrial fuel.

Table 38—Average annual output of roundwood products by product, species group, and source of material, South Carolina, 1986-1992

Product and species group	All sources	Growing-stock trees[a]			Cull trees[a]	Salvable dead trees[a]	Other sources[b]
		Total	Sawtimber	Poletimber			
				Million cubic feet			
Saw logs							
Softwood	227.6	192.4	189.3	3.1	1.3	30.5	3.4
Hardwood	42.6	39.1	38.3	0.8	1.8	1.4	0.4
Total	270.2	231.5	227.6	3.8	3.1	31.9	3.8
Veneer logs and bolts							
Softwood	51.7	44.1	43.8	0.4	—	7.0	0.6
Hardwood	10.2	10.0	10.0	—	—	—	0.1
Total	61.9	54.2	53.8	0.4	—	7.0	0.8
Pulpwood							
Softwood	230.0	184.4	102.5	81.9	3.4	28.9	13.3
Hardwood	116.8	97.1	51.1	46.0	8.5	5.4	5.8
Total	346.8	281.4	153.6	127.9	11.9	34.3	19.2
Poles and piling							
Softwood	4.5	3.9	3.9	—	—	0.6	0.1
Hardwood	—	—	—	—	—	—	—
Total	4.5	3.9	3.9	—	—	0.6	0.1
Posts (round and split)							
Softwood	0.4	0.2	0.1	0.1	—	0.0	0.1
Hardwood	0.0	0.0	0.0	0.0	—	—	0.0
Total	0.4	0.2	0.1	0.1	—	0.0	0.1
Other							
Softwood	0.6	0.5	0.4	0.1	—	0.1	0.0
Hardwood	1.2	1.0	0.8	0.2	0.2	—	0.0
Total	1.8	1.5	1.1	0.3	0.2	0.1	0.0
Total industrial products							
Softwood	514.8	425.4	339.9	85.5	4.7	67.0	17.6
Hardwood	170.8	147.2	100.2	47.0	10.4	6.8	6.3
Total	685.6	572.7	440.2	132.5	15.1	73.8	24.0
Fuelwood							
Softwood	7.2	3.4	1.9	1.6	0.5	1.5	1.8
Hardwood	43.1	28.8	23.0	5.8	4.9	1.8	7.6
Total	50.3	32.3	24.9	7.4	5.4	3.3	9.4
All products							
Softwood	522.0	428.9	341.8	87.1	5.2	68.5	19.5
Hardwood	213.9	176.0	123.2	52.8	15.4	8.6	13.9
Total	735.9	604.9	465.0	139.9	20.5	77.1	33.4

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] On timberland.

[b] Includes trees less than 5.0 inches in diameter, tree tops and limbs from timberland, or material from other forest land or nonforest land such as fence rows or suburban areas.

Table 39—Average annual timber removals from growing stock on timberland by item, softwood, and hardwood, South Carolina, 1986-1992

Item	All species	Softwood	Hardwood
		Million cubic feet	
Roundwood products			
Saw logs	231.5	192.4	39.1
Veneer logs and bolts	54.2	44.1	10.0
Pulpwood	281.4	184.4	97.1
Poles and piling	3.9	3.9	—
Posts	0.2	0.2	0.0
Other	1.5	0.5	1.0
Fuelwood	32.3	3.4	28.8
All products	604.9	428.9	176.0
Logging residues	54.8	28.8	26.0
Other removals	68.3	34.6	33.7
Total removals	728.0	492.2	235.7

Numbers in rows and columns may not sum to totals due to rounding.
A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 40—Average annual timber removals from live sawtimber on timberland by item, softwood, and hardwood, South Carolina, 1986-1992

Item	All species	Softwood	Hardwood
		Million board feet	
Roundwood products			
Saw logs	1,310.5	1,075.0	235.5
Veneer logs and bolts	321.3	259.7	61.6
Pulpwood	672.6	478.1	194.5
Poles and piling	23.3	23.3	—
Posts	0.5	0.4	0.1
Other	6.7	2.1	4.6
Fuelwood	140.5	9.5	131.0
All products	2,475.3	1,848.1	627.2
Logging residues	63.0	29.4	33.6
Other removals	210.9	97.3	113.5
Total removals	2,749.2	1,974.8	774.4

Numbers in rows and columns may not sum to totals due to rounding.
A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 41—Disposal of average annual volume of residue at primary wood-using plants by product, species group, and type of residue, South Carolina, 1986-1992

Product and species group	All types	Bark	Coarse[a]	Fine[b]
		Million cubic feet		
Fiber products				
Softwood	54.5	—	52.1	2.5
Hardwood	9.5	0.1	9.2	0.2
Total	64.0	0.1	61.3	2.7
Particleboard				
Softwood	7.0	—	0.1	6.8
Hardwood	0.7	—	0.4	0.3
Total	7.6	—	0.5	7.1
Sawn products				
Softwood	5.8	—	5.8	—
Hardwood	0.9	—	0.9	—
Total	6.7	—	6.7	—
Industrial fuel				
Softwood	77.5	34.9	3.6	39.0
Hardwood	21.1	10.1	1.8	9.2
Total	98.6	45.0	5.4	48.2
Domestic fuel				
Softwood	0.4	0.0	0.3	—
Hardwood	0.5	0.1	0.4	0.0
Total	0.9	0.1	0.8	0.0
Miscellaneous				
Softwood	10.2	4.5	0.1	5.6
Hardwood	1.5	0.8	0.1	0.6
Total	11.7	5.3	0.2	6.2
Not used				
Softwood	0.3	0.2	0.1	0.1
Hardwood	0.4	0.2	0.0	0.1
Total	0.7	0.4	0.1	0.2
All products				
Softwood	155.7	39.6	62.1	54.0
Hardwood	34.5	11.2	12.9	10.5
Total	190.2	50.8	75.0	64.4

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of .>0.0 but <0.05 for the cell.

[a] Material such as slabs and edgings.

[b] Material such as sawdust and shavings.

Table 42—Land area by land use class, major forest type, and survey completion date, South Carolina

Land use class	Survey completion date			Change
	1978	1986	1993	1986-1993
	Thousand acres			
Forest land				
Timberland				
Pine and oak–pine types	7,289.5	6,980.8	7,463.6	482.8
Hardwood types	5,213.4	5,198.0	4,991.4	-206.6
Total	12,502.9	12,178.8	12,454.9	276.2
Reserved timberland	72.4	78.2	190.6	112.4
Other	3.9	—	—	—
Total forest land	12,579.2	12,257.0	12,645.6	388.6
Nonforest land				
Cropland	3,607.0	3,573.1	3,051.2	-521.9
Pasture and range	1,007.0	898.2	875.2	-23.0
Other	1,926.2	2,338.4	2,652.9	314.6
Total	6,540.2	6,809.7	6,579.4	-230.3
All land[a]	19,119.4	19,066.7	19,225.0	158.3

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Excludes all water areas.

Table 43—Volume of sawtimber, growing stock, and live timber on timberland by species group, survey completion date, and diameter class, South Carolina

Species group and year	All classes	Diameter class *(inches at breast height)* 5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0 and larger
					Sawtimber *(in million board feet)*					
Softwood										
1978	32,022.3	—	—	5,988.6	6,838.1	6,202.7	4,973.3	3,332.4	1,929.3	2,758.1
1986	34,220.4	—	—	5,495.9	6,765.0	6,505.6	5,243.6	4,009.4	2,512.2	3,688.7
1993	29,381.5	—	—	4,637.1	5,739.1	5,713.0	4,718.7	3,462.0	2,114.6	2,997.0
Hardwood										
1978	24,851.6	—	—	—	4,274.8	4,561.2	4,326.7	3,386.4	2,537.6	5,764.8
1986	27,086.9	—	—	—	4,452.6	4,886.2	4,601.7	3,889.6	2,921.1	6,335.7
1993	25,873.6	—	—	—	4,246.1	4,892.6	4,576.6	3,522.9	2,904.9	5,730.5
					Growing Stock *(in million cubic feet)*					
Softwood										
1978	9,178.0	995.9	1,528.9	1,664.8	1,534.4	1,232.6	906.2	571.5	317.8	425.9
1986	8,944.1	789.4	1,251.2	1,519.4	1,507.2	1,279.2	945.2	678.4	408.2	566.1
1993	8,034.1	903.6	1,236.9	1,279.9	1,276.5	1,114.0	843.5	584.6	340.3	454.8
Hardwood										
1978	8,527.6	813.3	1,036.0	1,183.2	1,255.1	1,128.8	954.1	685.8	482.8	988.3
1986	9,064.5	832.8	1,074.5	1,212.9	1,288.4	1,201.2	1,012.3	791.3	557.6	1,093.4
1993	8,651.1	742.6	1,031.8	1,179.8	1,233.2	1,203.5	1,004.3	715.5	554.7	985.5
					Live Timber[a] *(in million cubic feet)*					
Softwood										
1978	9,376.0	1,044.5	1,583.5	1,701.4	1,553.1	1,243.3	914.5	573.6	320.9	441.2
1986	9,041.2	808.7	1,274.0	1,538.6	1,515.4	1,285.8	950.5	681.8	410.4	576.0
1993	8,094.2	917.6	1,250.1	1,290.7	1,280.8	1,117.1	847.0	587.1	342.1	461.6
Hardwood										
1978	10,306.9	1,182.5	1,329.2	1,439.0	1,480.0	1,292.9	1,054.3	775.8	547.7	1,205.5
1986	10,454.8	1,106.8	1,283.6	1,397.4	1,452.6	1,330.8	1,095.0	870.1	618.9	1,299.5
1993	9,775.9	1,007.1	1,226.0	1,326.2	1,352.4	1,303.3	1,066.0	771.0	598.0	1,125.9

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Merchantable volume.

Table 44—Merchantable volume of live timber by species group, survey unit, and survey completion date, South Carolina

Species group and survey unit	1978	1986	Change 1978-1986	1993	Change 1986-1993
	Million cubic feet	*Million cubic feet*	*Percent*	*Million cubic feet*	*Percent*
Softwood					
Southern Coastal Plain	2,335.9	2,292.0	+1.9	2,352.9	+2.7
Northern Coastal Plain	3,354.5	3,444.5	+2.7	2,543.7	-26.2
Piedmont	3,685.5	3,304.8	-10.3	3,197.6	-3.2
All units	9,373.0	9,041.2	-3.6	8,094.2	-10.5
Hardwood					
Southern Coastal Plain	2,691.2	2,710.3	+0.7	2,616.5	-3.5
Northern Coastal Plain	4,277.3	4,224.9	-1.2	3,592.9	-15.0
Piedmont	3,338.5	3,519.6	+5.4	3,566.4	+1.3
All units	10,306.9	10,454.8	+1.4	9,775.9	-6.5

Numbers in rows and columns may not sum to totals due to rounding.

Table 45—Land area and total forest by county, South Carolina, 1993

County	All land[a]	Total forest[b]	
	Thousand acres	*Thousand acres*	*Percent*
Abbeville	316.4	219.2	69.27
Aiken	686.8	484.7	70.57
Allendale	261.3	166.6	63.77
Anderson	459.5	204.7	44.53
Bamberg	251.7	165.9	65.92
Barnwell	351.0	245.7	69.99
Beaufort	375.7	132.9	35.37
Berkeley	703.7	552.9	78.57
Calhoun	243.4	153.6	63.12
Charleston	587.1	285.7	48.66
Cherokee	251.3	152.2	60.56
Chester	371.6	291.0	78.32
Chesterfield	511.2	369.4	72.26
Clarendon	388.6	222.7	57.29
Colleton	676.1	459.0	67.88
Darlington	359.7	191.8	53.33
Dillon	259.1	145.5	56.16
Dorchester	367.9	258.5	70.28
Edgefield	321.2	244.8	76.21
Fairfield	439.4	383.3	87.23
Florence	511.5	294.1	57.50
Georgetown	521.5	381.7	73.19
Greenville	506.9	280.1	55.25
Greenwood	291.5	202.7	69.52
Hampton	358.4	254.3	70.95
Horry	725.6	460.2	63.42
Jasper	418.8	311.8	74.47
Kershaw	464.8	376.5	81.00
Lancaster	351.4	264.7	75.32
Laurens	456.4	313.0	68.58
Lee	262.6	138.4	52.72
Lexington	448.5	255.5	56.96
Marion	313.0	219.6	70.14
Marlboro	307.0	184.8	60.18
McCormick	230.1	203.4	88.38
Newberry	403.7	289.6	71.74
Oconee	400.1	292.5	73.11
Orangeburg	707.8	402.2	56.83
Pickens	318.0	219.6	69.06
Richland	484.2	323.8	66.87
Saluda	288.9	189.8	65.71
Spartanburg	519.0	269.7	51.97
Sumter	425.9	237.8	55.83
Union	329.1	267.9	81.40
Williamsburg	597.8	409.3	68.47
York	436.8	272.6	62.40
Total	19,262.4	12,645.6	65.65

Numbers in rows and columns may not sum to totals due to rounding.

[a] Excludes inland water.

[b] Includes timberland, reserved timberland, and woodland.

Table 46—Area of timberland by county and ownership class, South Carolina, 1993

County	All ownerships	Ownership class			
		National forest	Other public	Forest industry[a]	Other private
	Thousand acres				
Abbeville	212.4	20.9	7.4	50.0	134.1
Aiken	483.1	—	70.6	58.3	354.2
Allendale	166.6	—	4.2	42.3	120.1
Anderson	204.3	—	15.4	4.6	184.2
Bamberg	165.5	—	0.4	23.9	141.2
Barnwell	245.4	—	113.1	24.2	108.1
Beaufort	128.4	—	4.7	33.2	90.4
Berkeley	548.1	183.8	27.9	162.6	173.8
Calhoun	153.6	—	1.8	6.1	145.8
Charleston	270.4	47.1	14.8	53.8	154.6
Cherokee	150.4	—	0.1	21.1	129.1
Chester	290.5	11.2	0.6	85.0	193.6
Chesterfield	361.9	—	87.0	35.9	239.0
Clarendon	221.8	—	7.2	44.3	170.3
Colleton	457.1	—	3.0	133.3	320.8
Darlington	188.9	—	3.0	29.1	156.7
Dillon	144.5	—	0.1	32.7	111.7
Dorchester	257.5	—	1.2	81.0	175.3
Edgefield	244.8	27.1	1.0	50.0	166.7
Fairfield	383.1	10.4	0.3	91.8	280.6
Florence	293.4	—	2.9	50.0	240.5
Georgetown	379.2	—	4.7	208.9	165.6
Greenville	247.2	—	1.6	8.2	237.4
Greenwood	201.4	8.5	0.7	35.0	157.2
Hampton	254.1	—	6.8	70.5	176.8
Horry	449.0	—	3.4	104.7	340.9
Jasper	299.6	—	2.2	103.5	193.9
Kershaw	375.9	—	2.3	69.8	303.9
Lancaster	263.0	—	0.7	43.7	218.6
Laurens	312.8	16.7	2.1	48.6	245.4
Lee	135.9	—	0.2	12.8	122.8
Lexington	255.4	—	0.5	5.0	249.9
Marion	217.5	—	0.9	92.6	124.1
Marlboro	184.7	—	0.1	57.8	126.8
McCormick	200.0	48.9	25.7	48.9	76.5
Newberry	289.0	57.6	0.2	60.0	171.2
Oconee	274.7	63.8	10.9	0.3	199.7
Orangeburg	399.7	—	4.8	55.0	339.9
Pickens	212.6	—	15.7	1.8	195.2
Richland	302.5	—	52.6	24.1	225.8
Saluda	189.8	4.5	0.2	26.5	158.7
Spartanburg	262.8	—	3.7	9.5	249.5
Sumter	235.4	—	45.5	13.0	177.0
Union	267.7	59.5	0.3	55.9	152.1
Williamsburg	409.3	—	0.1	86.1	323.2
York	264.0	—	1.4	38.9	223.7
Total	12,454.9	560.0	554.0	2,394.3	8,946.7

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Includes 72.3 thousand acres of other private land under long-term lease.

Table 47—Area of timberland by county and forest management type, South Carolina, 1993

County	All ownerships	Forest management type				
		Pine plantation	Natural pine	Oak–pine	Upland hardwood	Lowland hardwood
			Thousand acres			
Abbeville	212.4	56.0	30.2	43.0	79.8	3.4
Aiken	483.1	135.7	115.4	85.7	97.1	49.3
Allendale	166.6	69.9	25.5	18.0	10.5	42.6
Anderson	204.3	19.5	36.5	50.1	85.3	12.9
Bamberg	165.5	52.7	25.7	20.2	16.0	50.9
Barnwell	245.4	110.0	43.8	13.6	27.9	50.1
Beaufort	128.4	22.8	37.7	16.5	25.3	26.1
Berkeley	548.1	108.8	177.6	75.4	28.7	157.7
Calhoun	153.6	51.8	25.7	32.3	23.0	20.9
Charleston	270.4	30.0	78.3	52.5	22.1	87.5
Cherokee	150.4	14.2	37.6	26.6	68.1	3.8
Chester	290.5	82.7	88.1	63.4	43.2	13.0
Chesterfield	361.9	98.2	74.0	68.9	76.9	43.9
Clarendon	221.8	36.4	14.5	48.9	15.6	106.4
Colleton	457.1	128.3	104.4	54.8	36.1	133.4
Darlington	188.9	25.5	26.6	57.2	36.9	42.7
Dillon	144.5	22.5	27.1	24.9	12.7	57.3
Dorchester	257.5	60.8	48.2	33.0	21.5	93.9
Edgefield	244.8	61.6	67.1	34.9	63.6	17.8
Fairfield	383.1	64.4	170.6	47.0	79.4	21.8
Florence	293.4	29.3	76.0	43.7	31.6	112.8
Georgetown	379.2	118.8	81.0	42.3	14.6	122.5
Greenville	247.2	23.8	45.0	36.8	135.0	6.5
Greenwood	201.4	38.2	80.2	20.7	53.8	8.5
Hampton	254.1	87.8	25.3	22.5	10.0	108.6
Horry	449.0	49.7	126.3	60.0	44.8	168.2
Jasper	299.6	112.7	60.0	22.0	9.5	95.4
Kershaw	375.9	101.2	80.2	62.0	81.7	50.8
Lancaster	263.0	57.1	54.6	36.3	104.5	10.4
Laurens	312.8	84.5	61.8	29.1	130.1	7.1
Lee	135.9	38.9	27.0	10.5	24.2	35.3
Lexington	255.4	30.5	66.0	58.4	82.3	18.3
Marion	217.5	26.0	37.0	29.5	35.1	89.9
Marlboro	184.7	49.0	21.4	11.3	27.5	75.4
McCormick	200.0	36.7	75.9	46.1	33.2	8.2
Newberry	289.0	71.6	119.6	21.2	53.8	22.7
Oconee	274.7	19.5	81.3	80.3	93.6	—
Orangeburg	399.7	112.2	43.5	56.7	45.9	141.4
Pickens	212.6	13.3	26.2	30.6	138.7	3.8
Richland	302.5	47.2	76.7	61.8	56.7	60.2
Saluda	189.8	66.4	70.6	10.6	30.4	11.9
Spartanburg	262.8	16.8	68.7	54.2	112.2	10.8
Sumter	235.4	36.7	31.2	43.0	36.5	88.1
Union	267.7	60.9	53.1	38.8	86.7	28.3
Williamsburg	409.3	51.3	83.2	60.0	59.7	155.0
York	264.0	40.0	63.2	46.7	100.2	14.0
Total	12,454.9	2,672.0	2,889.5	1,902.1	2,502.1	2,489.3

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 48—Merchantable volume of live timber 5.0 inches d.b.h. and larger on timberland by county and species group, South Carolina, 1993

County	All species	Softwoods			Hardwoods		
		All softwoods	Yellow pine	Other softwood	All hardwoods	Soft hardwood	Hard hardwood
	Million cubic feet						
Abbeville	289.0	98.5	88.0	10.5	190.5	90.3	100.2
Aiken	569.1	336.1	332.1	4.0	233.0	125.3	107.7
Allendale	238.1	121.3	114.4	6.9	116.9	69.5	47.4
Anderson	304.9	89.8	87.1	2.7	215.1	78.6	136.5
Bamberg	171.1	79.2	60.5	18.8	91.9	58.7	33.2
Barnwell	377.1	207.3	191.5	15.8	169.8	120.4	49.3
Beaufort	247.4	99.6	96.5	3.1	147.8	74.8	73.0
Berkeley	559.6	270.7	234.4	36.3	288.9	177.5	111.4
Calhoun	173.4	79.9	76.8	3.1	93.5	62.6	31.0
Charleston	348.0	147.4	126.0	21.4	200.5	120.6	80.0
Cherokee	209.7	73.7	69.8	3.9	136.0	48.1	87.9
Chester	428.0	279.3	269.3	10.0	148.7	72.1	76.6
Chesterfield	421.9	208.6	208.1	0.5	213.4	135.1	78.2
Clarendon	220.1	74.0	50.4	23.5	146.2	109.5	36.7
Colleton	826.0	465.1	434.6	30.5	361.0	202.5	158.5
Darlington	235.0	106.1	91.6	14.5	129.0	72.5	56.4
Dillon	273.3	106.9	92.4	14.5	166.4	125.0	41.4
Dorchester	412.8	164.4	131.9	32.5	248.3	145.8	102.5
Edgefield	353.3	213.2	212.9	0.3	140.2	86.2	54.0
Fairfield	488.2	295.8	284.0	11.7	192.5	85.9	106.6
Florence	395.9	149.5	134.6	14.9	246.4	159.8	86.6
Georgetown	514.9	267.0	240.3	26.7	247.9	176.5	71.4
Greenville	515.5	159.0	158.0	1.1	356.5	134.1	222.3
Greenwood	277.8	171.9	170.0	1.9	105.9	61.4	44.5
Hampton	500.5	177.8	147.9	29.8	322.8	190.7	132.0
Horry	830.5	343.2	296.1	47.1	487.3	376.8	110.5
Jasper	559.5	268.4	231.3	37.1	291.1	149.0	142.1
Kershaw	328.2	164.1	160.4	3.7	164.0	94.4	69.6
Lancaster	231.8	95.2	91.8	3.4	136.6	75.4	61.2
Laurens	434.8	219.0	215.3	3.7	215.8	89.4	126.4
Lee	136.0	54.8	54.8	—	81.2	56.1	25.0
Lexington	315.0	173.6	172.7	0.9	141.4	62.0	79.5
Marion	385.4	106.3	73.5	32.8	279.1	213.2	65.9
Marlboro	336.3	120.7	113.3	7.5	215.6	162.8	52.8
McCormick	337.3	198.0	194.7	3.3	139.3	69.9	69.4
Newberry	447.8	256.2	249.4	6.7	191.6	96.8	94.9
Oconee	512.9	240.2	201.5	38.7	272.7	83.1	189.6
Orangeburg	579.4	180.2	157.1	23.1	399.1	235.5	163.7
Pickens	380.5	94.3	67.7	26.6	286.2	77.5	208.7
Richland	407.0	172.9	168.0	4.8	234.1	119.6	114.5
Saluda	309.4	202.2	200.4	1.8	107.2	51.5	55.7
Spartanburg	418.7	168.1	161.9	6.2	250.6	95.4	155.2
Sumter	294.3	88.7	78.2	10.5	205.6	144.6	61.0
Union	468.9	192.4	184.7	7.8	276.5	119.5	157.0
Williamsburg	450.1	162.8	153.2	9.7	287.3	161.5	125.8
York	355.5	150.9	142.0	8.9	204.6	93.1	111.5
Total	17,870.1	8,094.2	7,471.0	623.2	9,775.9	5,410.7	4,365.2

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 49—Volume of growing stock on timberland by county and species group, South Carolina, 1993

County	All species	Softwoods			Hardwoods		
		All softwoods	Yellow pine	Other softwood	All hardwoods	Soft hardwood	Hard hardwood
	Million cubic feet						
Abbeville	271.9	98.0	87.4	10.5	173.9	82.4	91.5
Aiken	524.3	333.7	329.7	4.0	190.5	108.8	81.8
Allendale	223.7	120.7	113.8	6.9	103.0	60.3	42.7
Anderson	288.4	89.2	86.5	2.7	199.3	68.8	130.4
Bamberg	158.6	79.0	60.5	18.6	79.6	50.9	28.6
Barnwell	361.0	206.6	190.7	15.8	154.5	111.2	43.3
Beaufort	218.1	99.5	96.4	3.1	118.6	68.6	50.0
Berkeley	511.9	268.0	233.0	35.0	243.9	154.5	89.4
Calhoun	161.5	79.3	76.2	3.1	82.2	54.5	27.7
Charleston	321.1	146.1	125.9	20.2	175.0	109.7	65.3
Cherokee	201.2	73.7	69.8	3.9	127.5	44.6	82.9
Chester	409.5	277.6	267.8	9.8	131.9	64.1	67.8
Chesterfield	390.0	207.6	207.3	0.4	182.3	118.1	64.3
Clarendon	198.1	71.4	50.0	21.4	126.7	92.3	34.4
Colleton	791.9	464.4	434.3	30.1	327.5	184.9	142.7
Darlington	212.3	105.5	91.6	13.9	106.8	60.9	45.9
Dillon	257.6	105.7	91.5	14.2	151.9	115.8	36.1
Dorchester	374.9	163.2	131.9	31.3	211.7	127.4	84.4
Edgefield	333.2	212.1	212.1	—	121.1	76.7	44.4
Fairfield	460.6	292.8	281.4	11.4	167.8	72.1	95.8
Florence	355.3	147.7	133.4	14.3	207.6	135.6	72.0
Georgetown	485.9	265.5	239.7	25.9	220.3	159.6	60.7
Greenville	471.1	154.9	153.8	1.1	316.2	120.9	195.3
Greenwood	267.7	171.4	169.8	1.6	96.3	56.6	39.7
Hampton	473.4	176.1	146.3	29.8	297.3	173.1	124.2
Horry	767.7	339.3	294.3	45.0	428.4	335.1	93.3
Jasper	529.2	266.3	230.2	36.1	262.9	131.0	131.9
Kershaw	296.4	160.9	157.1	3.7	135.6	80.2	55.3
Lancaster	219.7	94.3	90.9	3.4	125.5	70.6	54.8
Laurens	410.4	218.7	215.0	3.7	191.6	79.5	112.2
Lee	121.8	54.2	54.2	—	67.6	48.3	19.2
Lexington	275.8	172.9	172.0	0.9	102.9	51.9	51.0
Marion	353.5	105.4	72.6	32.8	248.1	189.3	58.7
Marlboro	318.2	117.8	110.6	7.2	200.5	152.2	48.3
McCormick	327.9	198.0	194.7	3.3	129.9	67.8	62.1
Newberry	434.6	254.7	248.6	6.1	179.8	91.4	88.4
Oconee	486.0	239.7	201.5	38.3	246.3	79.0	167.2
Orangeburg	533.0	177.7	155.8	21.9	355.3	208.9	146.4
Pickens	352.6	93.7	67.7	25.9	259.0	74.1	184.8
Richland	378.3	172.2	167.4	4.8	206.0	106.6	99.5
Saluda	302.0	201.6	199.9	1.8	100.4	46.7	53.8
Spartanburg	391.1	167.4	161.2	6.2	223.7	87.0	136.8
Sumter	270.4	87.9	77.6	10.3	182.5	131.6	50.9
Union	442.7	191.8	184.1	7.8	250.8	107.9	142.9
Williamsburg	412.1	160.4	151.3	9.1	251.7	140.8	110.9
York	338.7	149.6	142.0	7.6	189.1	85.6	103.5
Total	16,685.2	8,034.1	7,429.8	604.4	8,651.1	4,837.8	3,813.3

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 50—Volume of sawtimber on timberland by county and species group, South Carolina, 1993

County	All species	Softwoods			Hardwoods		
		All softwoods	Yellow pine	Other softwood	All hardwoods	Soft hardwood	Hard hardwood
	Million board feet						
Abbeville	784.4	271.1	262.1	9.0	513.3	250.7	262.6
Aiken	1,769.2	1,200.3	1,181.1	19.2	568.8	357.6	211.2
Allendale	804.7	448.1	415.6	32.4	356.6	199.0	157.6
Anderson	886.5	292.3	282.4	9.8	594.2	264.3	330.0
Bamberg	466.2	255.1	180.7	74.3	211.1	149.9	61.2
Barnwell	1,241.5	788.7	732.2	56.5	452.9	321.3	131.6
Beaufort	837.7	414.1	406.9	7.2	423.7	231.8	191.9
Berkeley	1,543.0	822.1	697.4	124.6	720.9	402.8	318.2
Calhoun	529.0	294.2	281.3	12.9	234.8	167.3	67.5
Charleston	1,073.6	578.1	499.4	78.7	495.5	307.8	187.7
Cherokee	601.8	209.0	202.5	6.4	392.8	137.1	255.7
Chester	1,290.7	993.6	974.8	18.8	297.1	148.5	148.7
Chesterfield	1,227.1	696.7	696.7	—	530.5	365.6	164.9
Clarendon	546.9	227.8	168.0	59.8	319.1	226.0	93.1
Colleton	2,740.3	1,737.5	1,625.3	112.1	1,002.9	488.6	514.2
Darlington	727.6	466.0	399.7	66.3	261.6	182.9	78.7
Dillon	951.3	517.9	443.5	74.4	433.4	334.8	98.7
Dorchester	1,200.3	629.3	498.0	131.2	571.0	323.2	247.8
Edgefield	1,413.8	1,021.7	1,021.7	—	392.1	267.4	124.7
Fairfield	1,373.4	936.1	923.9	12.2	437.3	196.7	240.7
Florence	1,299.0	640.7	585.4	55.3	658.3	450.0	208.3
Georgetown	1,602.1	959.7	855.2	104.4	642.4	435.8	206.6
Greenville	1,613.4	553.0	545.8	7.2	1,060.4	409.2	651.2
Greenwood	961.3	647.2	643.6	3.5	314.1	202.7	111.4
Hampton	1,747.6	672.2	544.5	127.6	1,075.4	583.2	492.2
Horry	2,726.6	1,506.1	1,326.8	179.3	1,220.5	878.9	341.6
Jasper	1,945.6	970.2	826.9	143.3	975.4	450.0	525.4
Kershaw	827.0	465.3	452.1	13.2	361.7	234.0	127.7
Lancaster	460.8	188.9	182.7	6.2	271.9	156.3	115.6
Laurens	1,302.1	745.6	741.4	4.2	556.5	218.8	337.6
Lee	375.7	200.1	200.1	—	175.6	131.6	44.0
Lexington	1,074.1	767.3	764.0	3.3	306.8	165.9	140.9
Marion	1,152.4	453.4	291.6	161.8	699.0	522.0	177.0
Marlboro	1,014.4	438.1	402.4	35.7	576.3	417.1	159.2
McCormick	1,202.1	849.8	845.4	4.4	352.3	210.7	141.6
Newberry	1,601.8	1,056.2	1,047.6	8.6	545.6	290.4	255.2
Oconee	1,585.3	823.2	618.1	205.1	762.1	258.0	504.1
Orangeburg	1,683.4	668.7	588.7	80.0	1,014.8	590.0	424.8
Pickens	1,138.0	318.7	233.8	84.9	819.3	248.9	570.4
Richland	1,258.4	653.8	644.7	9.2	604.5	305.6	298.9
Saluda	1,018.5	661.1	659.2	2.0	357.3	121.3	236.0
Spartanburg	1,187.7	491.9	480.3	11.7	695.8	249.7	446.1
Sumter	867.5	259.1	219.2	39.9	608.4	468.5	139.8
Union	1,434.5	578.0	563.9	14.1	856.4	377.0	479.4
Williamsburg	1,290.6	600.4	558.3	42.2	690.1	329.9	360.2
York	876.5	413.4	402.6	10.8	463.0	201.5	261.5
Total	55,255.1	29,381.5	27,117.6	2,263.9	25,873.6	14,230.3	11,643.3

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Table 51—Net annual change[a] of growing stock on timberland by county and species group, South Carolina, 1993

County	All species	Softwoods			Hardwoods		
		All softwoods	Yellow pine	Other softwood	All hardwoods	Soft hardwood	Hard hardwood
			Million cubic feet				
Abbeville	5.3	1.6	1.5	0.1	3.8	1.2	2.5
Aiken	8.7	6.6	6.5	0.1	2.0	0.8	1.3
Allendale	-0.7	0.8	0.8	0.0	-1.5	-0.1	-1.5
Anderson	-4.5	-4.1	-4.1	-0.0	-0.3	0.6	-0.9
Bamberg	3.4	2.0	1.8	0.2	1.4	0.6	0.8
Barnwell	6.7	5.6	5.4	0.1	1.1	1.6	-0.5
Beaufort	-0.7	-1.3	-1.4	0.2	0.6	0.2	0.4
Berkeley	-52.5	-43.3	-43.6	0.3	-9.1	-1.9	-7.3
Calhoun	-9.1	-7.0	-7.1	0.0	-2.1	-1.8	-0.3
Charleston	-29.1	-25.5	-25.0	-0.4	-3.7	-1.0	-2.6
Cherokee	0.6	-0.2	-0.2	0.0	0.7	0.7	—
Chester	1.3	1.8	2.1	-0.3	-0.5	-0.2	-0.3
Chesterfield	1.2	1.9	1.8	0.0	-0.6	-0.6	-0.1
Clarendon	-24.7	-10.7	-10.8	0.1	-14.0	-6.3	-7.7
Colleton	0.3	1.7	1.3	0.4	-1.3	-1.2	-0.1
Darlington	-2.1	-1.4	-1.3	-0.1	-0.7	0.6	-1.3
Dillon	2.3	2.0	1.7	0.4	0.2	1.4	-1.2
Dorchester	-11.3	-6.5	-6.0	-0.5	-4.8	-1.2	-3.6
Edgefield	-3.5	-3.3	-3.3	0.0	-0.2	0.6	-0.8
Fairfield	4.3	2.9	2.3	0.6	1.4	-0.1	1.5
Florence	-21.3	-16.6	-14.9	-1.7	-4.7	-0.0	-4.7
Georgetown	-8.1	-5.1	-5.5	0.4	-3.0	0.6	-3.6
Greenville	4.9	2.5	2.4	0.1	2.4	2.3	0.1
Greenwood	0.8	1.0	1.1	-0.1	-0.2	-0.2	0.0
Hampton	6.9	5.4	4.9	0.5	1.5	0.3	1.2
Horry	-7.5	-8.5	-8.6	0.1	1.0	2.9	-1.9
Jasper	7.7	7.0	6.1	0.9	0.7	0.1	0.7
Kershaw	-6.2	-6.1	-6.1	0.1	-0.1	-0.1	0.0
Lancaster	-10.4	-9.3	-9.3	0.0	-1.1	0.9	-2.0
Laurens	-2.6	2.6	3.0	-0.3	-5.3	-1.0	-4.2
Lee	-6.5	-3.9	-3.8	-0.1	-2.6	-1.7	-0.9
Lexington	1.5	0.1	0.1	0.0	1.4	1.4	-0.0
Marion	-14.3	-8.5	-8.0	-0.5	-5.8	-2.4	-3.3
Marlboro	7.6	4.4	4.2	0.1	3.3	2.4	0.8
McCormick	-0.1	-2.4	-2.4	0.1	2.3	1.3	1.0
Newberry	-7.4	-7.2	-7.1	-0.1	-0.2	0.5	-0.7
Oconee	7.5	4.6	3.3	1.3	2.9	2.0	1.0
Orangeburg	-7.6	-3.4	-2.8	-0.6	-4.2	-3.6	-0.6
Pickens	-1.8	-1.5	-2.8	1.3	-0.3	-1.2	0.8
Richland	-2.6	0.4	0.6	-0.3	-2.9	-1.8	-1.2
Saluda	8.1	6.1	6.0	0.1	2.0	0.8	1.1
Spartanburg	1.8	-0.8	-1.0	0.2	2.6	2.3	0.3
Sumter	-16.2	-8.3	-8.3	0.0	-7.9	-4.9	-3.0
Union	3.4	-1.9	-2.1	0.2	5.3	2.6	2.8
Williamsburg	-31.3	-17.8	-17.2	-0.7	-13.5	-5.0	-8.5
York	-4.7	-5.0	-5.1	0.1	0.3	0.1	0.2
Total	-202.4	-148.6	-151.0	2.3	-53.8	-7.6	-46.2

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Average net annual growth minus annual timber removals.

Table 52—Net annual change[a] of sawtimber on timberland by county and species group, South Carolina, 1993

County	All species	Softwoods			Hardwoods		
		All softwoods	Yellow pine	Other softwood	All hardwoods	Soft hardwood	Hard hardwood
	Million board feet						
Abbeville	12.4	-3.9	-4.0	0.1	16.3	3.4	12.9
Aiken	31.6	24.9	24.4	0.5	6.7	2.5	4.2
Allendale	-5.9	-0.8	-1.0	0.2	-5.1	0.0	-5.2
Anderson	-11.9	-13.5	-13.6	0.1	1.6	3.5	-2.0
Bamberg	4.4	1.4	0.5	0.8	3.1	2.8	0.3
Barnwell	24.4	18.3	17.5	0.8	6.1	7.4	-1.3
Beaufort	-6.5	-14.2	-14.6	0.4	7.7	5.8	1.9
Berkeley	-253.4	-218.8	-220.2	1.4	-34.6	-2.8	-31.8
Calhoun	-39.3	-30.6	-30.9	0.2	-8.7	-5.0	-3.7
Charleston	-148.2	-134.7	-132.9	-1.8	-13.5	-3.1	-10.4
Cherokee	7.3	-3.8	-4.0	0.2	11.2	4.4	6.7
Chester	9.5	14.0	14.8	-0.9	-4.5	-2.4	-2.1
Chesterfield	-2.2	1.0	1.0	—	-3.2	-2.2	-1.0
Clarendon	-126.4	-69.4	-68.0	-1.3	-57.1	-23.8	-33.2
Colleton	29.1	22.4	19.9	2.4	6.7	2.2	4.5
Darlington	-18.8	-12.1	-12.1	-0.1	-6.7	0.8	-7.5
Dillon	19.1	15.3	13.0	2.3	3.8	7.7	-3.9
Dorchester	-56.2	-37.2	-35.3	-1.9	-19.0	-3.3	-15.7
Edgefield	-3.1	-12.4	-12.4	—	9.3	9.2	0.0
Fairfield	9.1	2.5	2.4	0.1	6.6	1.1	5.5
Florence	-101.5	-78.8	-69.7	-9.1	-22.7	1.4	-24.1
Georgetown	-35.6	-27.1	-29.1	2.0	-8.5	2.4	-10.9
Greenville	37.6	14.0	13.6	0.4	23.5	16.7	6.9
Greenwood	11.6	9.6	9.6	—	2.0	1.4	0.7
Hampton	25.3	11.7	8.3	3.4	13.7	6.1	7.6
Horry	-29.5	-33.4	-33.9	0.5	3.9	11.9	-8.0
Jasper	22.4	12.8	9.8	3.0	9.6	4.2	5.4
Kershaw	-27.2	-27.8	-27.9	0.1	0.6	-2.3	2.8
Lancaster	-43.9	-38.6	-38.9	0.3	-5.3	-0.5	-4.8
Laurens	3.9	14.8	15.8	-1.0	-10.9	-2.2	-8.7
Lee	-28.8	-15.9	-15.4	-0.5	-12.8	-8.9	-3.9
Lexington	13.9	5.4	5.1	0.3	8.5	6.9	1.6
Marion	-70.0	-45.0	-43.6	-1.5	-25.0	-10.6	-14.4
Marlboro	42.9	29.8	29.1	0.7	13.0	8.5	4.5
McCormick	-0.4	-8.3	-8.6	0.2	8.0	4.9	3.1
Newberry	-5.4	-13.7	-13.4	-0.3	8.3	3.9	4.4
Oconee	46.2	30.1	23.4	6.7	16.1	9.9	6.2
Orangeburg	-22.0	-18.9	-15.6	-3.3	-3.1	-4.0	0.9
Pickens	-0.6	1.8	-4.5	6.3	-2.4	-8.7	6.3
Richland	-15.5	-1.4	0.4	-1.8	-14.1	-8.2	-5.8
Saluda	19.5	7.5	7.4	0.0	12.0	4.0	8.0
Spartanburg	19.0	2.2	1.7	0.5	16.8	10.3	6.5
Sumter	-80.8	-49.3	-49.1	-0.2	-31.4	-16.5	-14.9
Union	8.1	-17.2	-17.5	0.4	25.2	11.2	14.1
Williamsburg	-145.2	-91.7	-88.2	-3.5	-53.5	-18.9	-34.6
York	-3.5	-9.3	-9.1	-0.3	5.8	3.5	2.4
Total	-884.6	-788.6	-796.0	7.4	-96.0	34.5	-130.5

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

[a] Average net annual growth minus annual timber removals.

Table 53—Green weight of forest biomass on timberland by county and species group, South Carolina, 1993

County	All species	Softwoods			Hardwoods		
		All softwoods	Yellow pine	Other softwood	All hardwoods	Soft hardwood	Hard hardwood
				Thousand tons			
Abbeville	16,050.0	5,243.4	4,570.7	672.7	10,806.6	4,838.3	5,968.3
Aiken	30,031.7	16,093.9	15,910.6	183.3	13,937.8	6,055.5	7,882.3
Allendale	11,768.0	5,627.8	5,302.3	325.5	6,140.2	3,292.1	2,848.2
Anderson	15,709.7	4,265.7	4,127.9	137.8	11,444.0	3,712.9	7,731.1
Bamberg	9,164.4	3,937.0	3,030.9	906.1	5,227.5	3,062.7	2,164.8
Barnwell	18,567.9	9,680.6	8,947.5	733.1	8,887.3	5,742.4	3,144.9
Beaufort	12,407.1	4,556.5	4,388.2	168.3	7,850.7	3,556.5	4,294.2
Berkeley	28,988.6	12,937.8	11,242.1	1,695.8	16,050.8	9,274.6	6,776.2
Calhoun	8,877.4	3,792.0	3,648.4	143.6	5,085.5	3,108.9	1,976.6
Charleston	17,582.1	6,828.5	5,825.2	1,003.4	10,753.6	5,880.2	4,873.5
Cherokee	11,299.6	3,580.6	3,376.4	204.2	7,719.0	2,511.9	5,207.2
Chester	21,676.7	13,056.4	12,220.3	836.1	8,620.4	4,041.3	4,579.1
Chesterfield	22,667.2	10,056.8	10,006.0	50.8	12,610.5	6,861.4	5,749.1
Clarendon	11,421.7	3,495.0	2,432.5	1,062.6	7,926.7	5,516.0	2,410.7
Colleton	40,153.8	20,842.1	19,474.3	1,367.9	19,311.7	10,072.3	9,239.5
Darlington	12,573.1	5,076.3	4,399.9	676.4	7,496.9	3,711.2	3,785.7
Dillon	13,427.2	4,710.5	4,008.3	702.2	8,716.7	6,222.6	2,494.1
Dorchester	21,164.6	7,832.1	6,304.3	1,527.8	13,332.6	7,354.0	5,978.6
Edgefield	17,295.4	9,487.1	9,454.7	32.4	7,808.3	4,275.5	3,532.9
Fairfield	26,173.9	14,775.1	13,921.6	853.5	11,398.8	4,772.8	6,626.1
Florence	20,282.8	6,974.3	6,285.6	688.7	13,308.6	8,001.4	5,307.2
Georgetown	26,644.5	12,535.4	11,279.0	1,256.4	14,109.1	9,429.0	4,680.1
Greenville	26,170.5	7,198.5	7,150.2	48.3	18,972.1	6,332.9	12,639.2
Greenwood	14,433.0	8,080.9	7,943.7	137.2	6,352.1	3,349.9	3,002.2
Hampton	24,901.5	8,422.5	7,090.4	1,332.2	16,479.0	9,198.7	7,280.3
Horry	41,023.1	15,260.1	13,056.3	2,203.8	25,763.0	18,803.2	6,959.9
Jasper	27,445.5	12,612.2	10,809.8	1,802.4	14,833.4	7,228.8	7,604.6
Kershaw	18,589.1	8,227.6	8,039.3	188.3	10,361.5	5,126.1	5,235.4
Lancaster	13,101.4	4,989.1	4,711.5	277.6	8,112.4	3,967.6	4,144.8
Laurens	22,736.5	10,449.4	10,158.9	290.5	12,287.1	5,204.0	7,083.2
Lee	6,989.6	2,596.2	2,596.2	—	4,393.5	2,663.4	1,730.1
Lexington	16,657.8	7,719.4	7,671.3	48.2	8,938.4	2,952.0	5,986.5
Marion	19,540.4	5,019.1	3,453.2	1,565.9	14,521.4	10,696.4	3,825.0
Marlboro	16,574.7	5,633.7	5,230.9	402.8	10,941.1	7,727.7	3,213.4
McCormick	16,405.8	8,984.9	8,793.7	191.2	7,420.9	3,453.2	3,967.7
Newberry	21,515.3	11,501.6	11,056.2	445.5	10,013.7	4,779.6	5,234.1
Oconee	26,014.0	10,528.4	9,028.1	1,500.3	15,485.6	4,187.7	11,298.0
Orangeburg	29,816.2	8,598.0	7,554.5	1,043.5	21,218.2	11,373.9	9,844.3
Pickens	19,721.7	4,110.9	2,993.1	1,117.8	15,610.8	3,726.6	11,884.2
Richland	21,783.6	8,342.5	8,016.3	326.3	13,441.1	6,324.5	7,116.6
Saluda	15,389.3	9,462.7	9,348.5	114.2	5,926.6	2,853.5	3,073.1
Spartanburg	21,514.9	7,928.2	7,440.0	488.2	13,586.8	4,710.0	8,876.8
Sumter	15,569.7	4,271.2	3,782.3	488.9	11,298.5	7,296.5	4,002.0
Union	23,868.6	9,063.0	8,576.0	487.0	14,805.6	5,978.0	8,827.6
Williamsburg	23,233.2	7,663.5	7,195.6	467.9	15,569.8	8,215.8	7,354.0
York	19,169.4	7,091.1	6,434.4	656.7	12,078.4	4,895.4	7,183.0
Total	916,091.3	379,138.4	348,285.9	30,852.5	536,952.9	272,337.6	264,615.3

Numbers in rows and columns may not sum to totals due to rounding.

A dash (—) indicates no sample for the cell; 0.0 indicates a value of >0.0 but <0.05 for the cell.

Conner, Roger C. 1998. South Carolina's forests, 1993. Resour. Bull. SRS-25. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 78 p.

Timberland area in South Carolina now totals 12.4 million acres, a 2-percent increase since 1986. Nonindustrial private timberland amounts to 8.9 million acres, up by 648,000 acres. Forest industry timberland declined for the first time, dropping from 2.7 million acres to 2.4 million acres. Area of loblolly pine increased 12 percent to 4.3 million acres. The decline in acres of longleaf pine continued, falling 7 percent to 369,000 acres. Hardwoods now occupy 5.0 million acres, a decline of 206,000 acres since 1986. Softwood growing-stock volume dropped 10 percent to 8.0 billion cubic feet. Hardwood inventory declined to 8.7 billion cubic feet, a 5-percent decrease.
Damage from Hurricane Hugo is responsible for much of the decline in volume. Annual mortality averaged 407.3 million cubic feet, an increase of 263.2 million cubic feet since 1985. Current net annual growth is 525.6 million cubic feet. Total removals from growing stock increased 16 percent, averaging 728.0 million cubic feet per year between 1986 and 1993.

Keywords: Annual removals, growing-stock volume, Hurricane Hugo, net annual growth, timberland area.

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Southern
Research Station
P.O. Box 2680
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