

United States
Department of
Agriculture

Forest Service

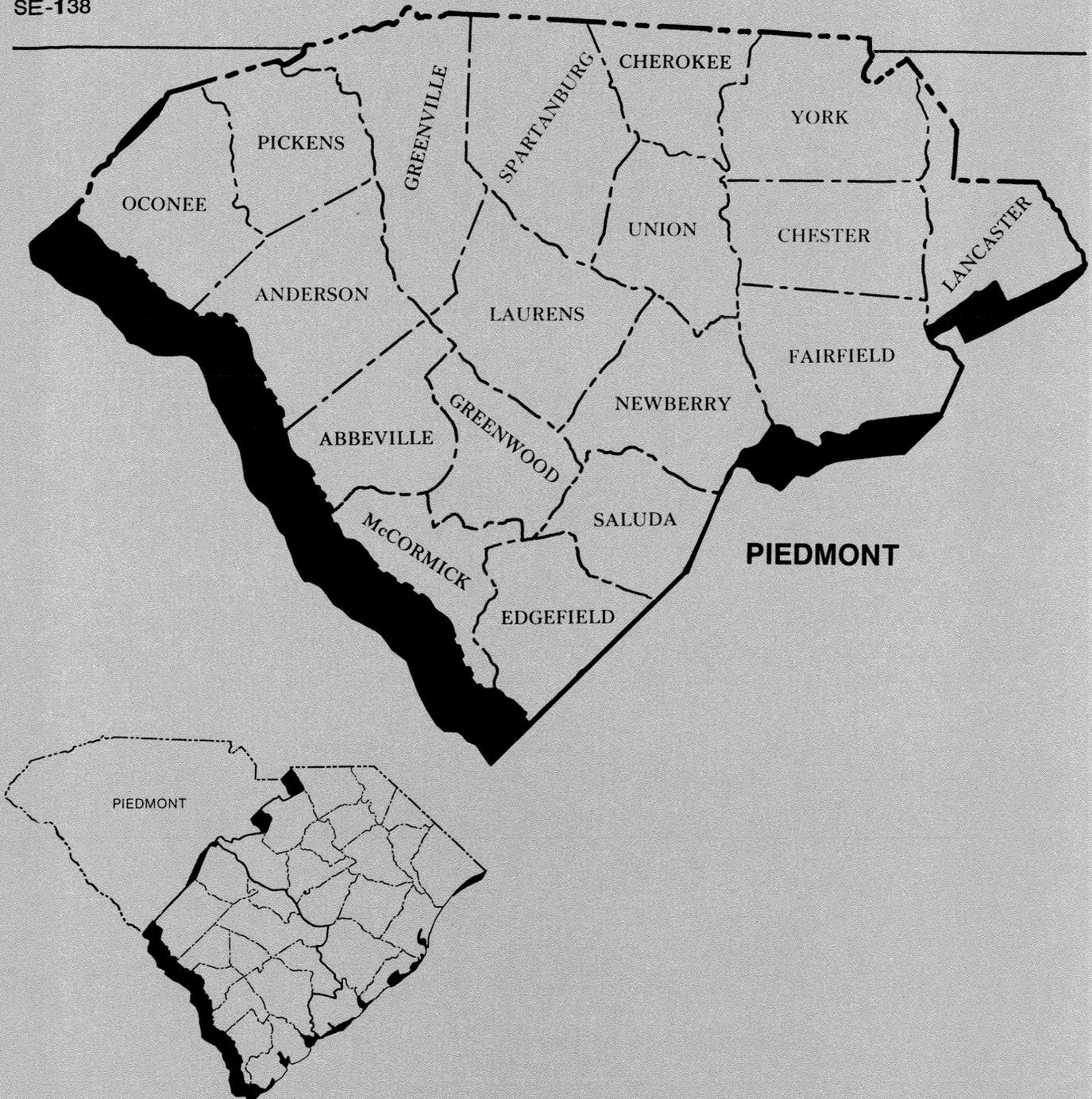


Southeastern Forest
Experiment Station

Resource Bulletin
SE-138

Forest Statistics for the Piedmont of South Carolina, 1993

Mark J. Brown



July 1993

Southeastern Forest Experiment Station
P.O. Box 2680
Asheville, North Carolina 28802

**Forest Statistics for
the Piedmont of
South Carolina, 1993**

**Mark J. Brown, Resource Analyst
Forest Inventory and Analysis
Asheville, North Carolina**

Foreword

This report highlights the principal findings of the seventh forest survey of the Piedmont of South Carolina. Field work began in September 1992 and was completed in January 1993. Six previous surveys, completed in 1936, 1948, 1957, 1967, 1977, and 1986, provide statistics for measuring changes and trends over the past 57 years. The primary emphasis in this report is on the changes and trends since 1986.

Periodic surveys of forest resources are authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. These surveys are a continuing, nationwide undertaking by the Regional Experiment Stations of the USDA Forest Service. In Florida, Georgia, North Carolina, South Carolina, and Virginia, these surveys are administered by the Forest Inventory and Analysis (Forest Survey) Research Unit at the Southeastern Forest Experiment Station, with headquarters in Asheville, NC. The primary objective of the survey is to periodically inventory and evaluate all forest and related resources. These multiresource data help provide a basis for formulating forest policies and programs and for the orderly development and use of the resources. This report deals only with the extent and condition of forest land, associated timber volumes, and rates of timber growth, mortality, and removals.

Additional information concerning any aspect of this survey may be obtained from:

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

Acknowledgments

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the South Carolina Forestry Commission in collecting field data. Appreciation is also expressed for the excellent cooperation of other public agencies, forest industry, and other private landowners in providing information and access to the sample locations.

The following members of the FIA staff collected the field data:

George Baraket
Mark Bloomfield
Robert Bowman
Robert Browning
Michael Buchanan
Rachael Buchanan
Robert Clark
Sarah Combs
Jim Compton
Wesley Floyd

Mark Frizzell
Jack Hampton
Ben Koontz
Dave Lambert
Ellen Law
James McCall
Bill Moody
Mike Norris
Michael O'Quinn
David Phlegar

Heather Quinn
Terry Riley
Byron Rominger
John Simpson
Greg Smith
Kyle Smith
Warren Tucker
James Twaroski
Cynthia Whitten
James Wiggins

Contents

	<i>Page</i>
Introduction	1
Highlights	1
How the Inventory is Made	4
Statistical Reliability	5
Definitions	7
Conversion Factors	12
Index of Tables	13
Tables 1-47*	15

* All tables in this report are available in Lotus 1-2-3® worksheet files. These files will be supplied, upon request, on 3½- or 5¼-inch diskettes.

The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

Introduction

This report summarizes results from a 1993 inventory of the forest resources of the Piedmont of South Carolina. Current estimates of forest area, associated characteristics, and timber volumes are highlighted and compared with the 1986 and earlier inventory findings. Average annual rates of growth, removals, and mortality since the previous inventory are reported. Adjustments have been made to inventory volumes reported in prior surveys for valid comparisons under current compilation methods.

The forest resources in this region did not escape the impact of Hurricane Hugo in 1989. Damage was limited, however, to the four easternmost counties of this survey unit. Notable increases in weather-related damage and mortality were measured in these counties, and are reported in the totals for the region.

Highlights

Since 1986 in the Piedmont of South Carolina—

- *area of timberland has increased by 29,000 acres, or less than 1 percent.* Timberland in this region now totals nearly 4.5 million acres. Altogether, 352,000 acres experienced changes in land use during the re-measurement period. These changes included 161,000 acres of timberland diverted to other land uses. Nearly two-thirds of the diverted acres went to urban development, agriculture, and water. Urban uses claimed almost 64,000 acres of former timberland, agriculture nearly 30,000 acres, and water 11,000 acres. More than one-third of the total diversions, 56,000 acres, resulted from the reclassification of timberland to reserved forestland. The addition of more than 190,000 acres of timberland from nonforest land, such as idle cropland and pasture, more than offset the diversions. Timberland now covers 67 percent of the land in this 18-county area.

- *area of timberland owned by nonindustrial private forest (NIPF) landowners has increased by 221,000 acres, or by 7 percent.* Over three-fourths, or 3.4 million acres, of this region's timberland is under NIPF ownership. Timberland held by farmers dropped 18 percent to 941,000 acres, while that owned by individuals other than farmers increased 14 percent to almost 1.8 million acres. Timberland held by corporations that do not manufacture forest products jumped 50 percent to 649,000 acres. Timberland controlled by forest industry decreased by 17 percent to 680,000 acres, leaving 15 percent of this region's timberland under forest industry control. Public ownership of timberland dropped 11 percent to 417,000 acres, due primarily to the transfer of acreage to reserved timberland status. Public timberland accounts for less than 10 percent of the regional total.

- *area of timberland supporting softwood types dropped by almost 4 percent to less than 2.1 million acres.* Softwood types cover 46 percent of the timberland in this region. The overall reduction in softwood types was largely driven by a decline in acreage of shortleaf pine type, which dropped by 28 percent to 245,000 acres. Loblolly pine type acreage rose slightly to 1.6 million acres. This species now accounts for three-fourths of the softwood acreage. Area of natural pine stands decreased by 215,000 acres, or by 15 percent, to 1.2 million acres. The area of pine plantations increased 139,000 acres, or by 20 percent, to 827,000 acres. Pine plantations now account for 40 percent of the softwood acreage in this region. Timberland with a hardwood forest type dropped by 2 percent. Hardwood stands cover 1.7 million acres, and 85 percent of these stands are classified as one of the oak-hickory types. In contrast to reductions in stands dominated by softwoods or hardwoods, increases of 25 percent were recorded for mixed oak-pine stands. Oak-pine stands now occupy 716,000 acres.

- *area harvested and retained in timberland averaged 95,000 acres annually, up about 8 percent from that harvested between 1977 and 1986.* Seventy percent of the harvested acreage was NIPF land. Forest industry land accounted for 25 percent and public land for 5 percent of the area experiencing a final harvest. Sixty-two percent of the area receiving a final harvest was in a pine type, 12 percent was in oak-pine, and 26 percent was in a hardwood type. During the same period, partial harvests or selective cuttings took place on 19,000 acres each year and commercial thinnings accounted for another 21,000 acres annually. Natural disturbances such as fire, insects, diseases, and weather damaged

some 83,000 acres annually, up substantially from 48,000 acres in the last survey period. Hurricane Hugo was responsible for the elevated weather damage and weather-related mortality near the eastern edge of this region.

● *area artificially regenerated averaged 37,000 acres annually, an 8-percent decrease from the previous rate.* Artificial regeneration increased 23 percent on public land and 31 percent on NIPF land, but decreased 32 percent on forest industry land. Even so, forest industry accounted for 45 percent of the artificial regeneration, NIPF for 48 percent, and public land for 7 percent. More than 3,000 acres of nonforest land were artificially regenerated annually. In addition to the artificial regeneration, another 63,000 acres were regenerated by natural means each year. Natural regeneration increased 22 percent from the previous rate. Ninety-one percent of the natural regeneration and all of its increase occurred on NIPF land. More than 10,000 acres a year reverted from nonforest to forest. Combining both artificial and natural regeneration, 100,000 acres were regenerated annually. This area exceeded the harvested area by 5 percent. The area of new pine stands established was only 88 percent as large as the area of pine stands harvested annually. In contrast, new oak-pine stands were created at nearly double the rate of their harvest, and hardwood stands were created at a rate at least equal to the rate of harvest.

● *average basal area of live trees 5.0 inches d.b.h. and larger has dropped less than 1 percent, averaging 66 square feet per acre.* Current average net volume of softwoods and hardwoods together averages 1,513 cubic feet per acre. Acreage in stands classified as fully stocked has remained stable at 1.8 million acres. Acreage in medium-stocked stands has decreased by 3 percent to less than 2.1 million acres. However, areas of poorly stocked and nonstocked stands have increased by 22 percent to 593,000 acres. Poorly stocked and nonstocked stands now make up 13 percent of the timberland in the region, compared with 11 percent in 1986.

● *volume of softwood growing stock has dropped 3 percent from 3.3 to 3.2 billion cubic feet.* Softwoods account for one-half of the region's growing-stock inventory. Softwood volume increased in the 6-inch diameter class, decreased in the 8- through 14-inch diameter classes, and increased in all diameter classes 16 inches and larger. Softwood volume was down 3 percent on NIPF land to 2.1 billion cubic feet, and 5 percent on forest industry land to 539 million cubic feet. Softwood volume increased less than 1 percent on public land to 550 million cubic feet. Planted pine stands now account for 25 percent of the softwood growing stock compared with 20 percent in 1986. Loblolly pine, the predominant softwood species with 2.2 billion cubic feet,

increased 1 percent since 1986. Second in abundance, shortleaf pine volume decreased by 18 percent to 533 million cubic feet. Virginia pine, third in volume with 301 million cubic feet, declined by 7 percent. Volume of softwood growing stock includes 11.1 billion board feet of sawtimber.

● *volume of hardwood growing stock has increased more than 3 percent, from 3.1 to 3.2 billion cubic feet.* Hardwood volume increased in all diameter classes above 10 inches, except for the 14-inch class which remained stable. All diameter classes below 12 inches decreased in volume. Hardwood volume was down 11 percent on public land to 352 million cubic feet and down 28 percent on forest industry to 204 million cubic feet. All the increase in hardwood volume occurred on NIPF land, where it rose by 9 percent to nearly 2.7 billion cubic feet. Collectively, the oaks make up 45 percent of the region's hardwood volume. The oak volume is divided equally between the red oak group and the white oak group. Sweetgum contains the most volume of any individual species with 536 million cubic feet. Yellow-poplar is next with 465 million cubic feet, followed by hickories with 229 million cubic feet. Volume of hardwood growing stock includes 9.7 billion board feet of sawtimber.

● *net annual growth of softwood growing stock increased by 19 percent to 168 million cubic feet between 1986 and 1993.* This increase reverses a 43-percent decline recorded for softwood growth between 1977 and 1986. Past peaks in plantation establishment, substantiated by increases in numbers of 2-, 4-, and 6-inch yellow pines, contributed to the increase in softwood net annual growth. NIPF owners accounted for 61 percent of total softwood net growth, forest industry land contributed 29 percent, and public land provided 10 percent. Softwood net growth increased by 12 percent on NIPF and 53 percent on forest industry land, but it dropped by 7 percent on public land. Net annual growth of softwoods included 643 million board feet of sawtimber. Net annual growth of hardwood growing stock was up 12 percent to 99 million cubic feet. About 85 percent of total net annual hardwood growth occurred on NIPF land; 9 percent was on public land; and only 6 percent was on forest industry holdings. Hardwood net growth was down 26 percent on forest industry and 11 percent on public land, but it rose 19 percent on NIPF land. Net annual growth of hardwoods included 392 million board feet of sawtimber.

● *annual removals of softwood growing stock were up by 7 percent to 181 million cubic feet.* Softwoods accounted for 69 percent of the total annual volume removed. NIPF lands provided 64 percent of the softwood removals, forest industry 28 percent, and public lands 8 percent. Removals of softwood growing stock included

667 million board feet of sawtimber, up by 11 percent. Annual removals of hardwood growing stock increased 49 percent to 83 million cubic feet. Over two-thirds of the hardwood removals came from NIPF land, and 16 percent each from forest industry and public lands. Removals of hardwood growing stock included 252 million board feet of sawtimber, up by 58 percent. All ownerships combined, removals of softwood exceeded growth by 7 percent. In contrast, hardwood growth exceeded removals by 19 percent.

- *annual mortality of both hardwood and softwood growing stock increased and totaled 80 million cubic feet.* Virtually all of the increase in mortality occurred in Lancaster, York, and Chester Counties, where Hurricane Hugo's impact was greatest. Softwood mortality rose 18

percent to 50 million cubic feet. NIPF land accounted for 77 percent of the softwood mortality. Weather was identified as the cause of 41 percent of the softwood mortality as compared with only 7 percent in the previous period. Insects and diseases accounted for 25 and 17 percent of the softwood mortality, respectively. Softwood mortality included 162 million board feet of sawtimber, up 44 percent. Hardwood mortality increased 56 percent to 30 million cubic feet. NIPF land accounted for 73 percent of the hardwood mortality. Weather was the leading identifiable cause of death to hardwoods with 35 percent of the mortality compared with 19 percent before. Hardwood mortality included 80 million board feet of sawtimber, up 64 percent. Mortality reduced the potential net growth by 23 percent for both softwoods and hardwoods.

How the Inventory is Made

Procedures used in the seventh inventory of the forest resources in the Piedmont of South Carolina included several basic steps.

1. Initial estimates of forest and nonforest areas were based on the classification of 30,531 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 1,859 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 the initial estimates of area for change 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 1,211 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. Equations prepared from detailed measurements collected on standing trees in this Survey Unit, 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. Forest biomass estimates were made from equations developed by the Utilization of Southern Timber Research Work Unit, Southeastern Forest Experiment Station, Athens, GA.

4. Felled trees were measured at 35 active cutting operations. These data will supplement the standing-tree volume data and be used to generate utilization factors for product and species groups.

5. Estimates of growth, removals, and mortality were determined from the remeasurement of 1,246 permanent sample plots established in the sixth survey.

6. Ownership information was collected from correspondence, public records, and local contacts. In counties where the sample missed a particular ownership class, temporary sample plots were added.

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

Statistical Reliability

FIA inventories employ sampling methods designed to achieve reliable statistics at the Survey Unit and State levels. A measure of reliability of inventory statistics is provided by sampling errors. These sampling errors mean that the chances are two out of three that the true population value is within the limits indicated by a confidence interval. Sampling errors (in percent) and associated confidence intervals around the sample estimates for timberland area, inventory volumes, and components of change are presented in the following table.

Item	Sample estimate and confidence interval	Sampling error (percent)
Timberland (1,000 acres)	4,470.4 ± 16.5	0.37
Growing stock (M ft³)		
Inventory	6,409.4 ± 159.0	2.48
Net annual growth	266.8 ± 9.3	3.50
Annual removals	263.8 ± 17.4	6.58
Annual mortality	79.9 ± 6.4	8.01
Sawtimber (M fbm)		
Inventory	20,732.4 ± 719.4	3.47
Net annual growth	1,034.7 ± 39.7	3.84
Annual removals	919.2 ± 70.8	7.70
Annual mortality	242.3 ± 23.7	9.79

Sampling error increases as the area or volume considered decreases in magnitude. Sampling errors and associated confidence intervals are often unacceptably high for small components of the total resource. Statistical confidence may be computed for any subdivision of Survey Unit or State totals using the following formula.

Sampling errors obtained from this method are only approximations of reliability because this process assumes constant variance across all subdivisions of totals.

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

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.

For example, the estimate of sampling error for growing-stock volume on other private timberland is computed as:

$$SE_s = 2.48 \frac{\sqrt{6,409.4}}{\sqrt{4,764.7}} = 2.88.$$

Thus, the sampling error is 2.88 percent, and the resulting confidence interval (two times out of three) for growing-stock inventory on other private timberland is 4,764.7 ± 137.2 million cubic feet.

County statistics are provided, but users are cautioned that the accuracy of individual county data is highly variable. Individual county statistics are provided so that any combination of counties may be added together until the totals are large enough to meet the desired degree of reliability. Sampling errors for key resource items for individual counties are provided in the following table.

**Sampling errors for county and unit totals,
in terms of one standard error,
Piedmont of South Carolina, 1993**

County	Timberland area	Cubic-foot volume of growing stock		
		Inventory	Growth	Removals
<i>Sampling error^a</i>				
Abbeville	1.33	11.57	11.73	33.54
Anderson	2.18	12.14	14.08	27.23
Cherokee	1.79	13.32	13.34	33.64
Chester	1.27	10.37	16.20	24.57
Edgefield	1.75	12.49	9.72	22.72
Fairfield	0.61	7.99	8.31	22.22
Greenville	1.86	8.28	12.11	34.93
Greenwood	1.77	14.31	11.31	24.27
Lancaster	1.45	11.04	87.77	26.95
Laurens	1.73	10.76	11.32	21.01
McCormick	1.08	10.90	11.73	25.80
Newberry	1.77	11.45	14.05	20.67
Oconee	0.92	6.78	17.23	30.63
Pickens	1.57	9.26	13.44	32.97
Saluda	2.87	13.16	12.61	37.11
Spartanburg	2.24	10.65	11.79	33.53
Union	0.76	7.85	9.29	32.60
York	1.31	9.35	16.11	28.64
Total	0.37	2.48	3.50	6.58

^a By random-sampling formula (in percent).

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, constitute 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 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 non-contiguous 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 non-contiguous 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 sawlog 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 red-cedar, 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

<i>D.b.h. class</i>	<i>Trees per acre for full stocking</i>	<i>Basal area per acre</i>
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.

Unproductive forest land. (see: Woodland).

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.

Woodland. Forest land incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions.

CONVERSION FACTORS

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	60.7	61.0	68.2	60.0
8	68.6	68.1	76.0	68.4
10	73.3	73.1	81.4	73.4
12	76.6	76.7	85.2	76.4
14	79.0	79.4	88.2	78.4
16	80.6	81.6	90.4	79.8
18	81.9	83.3	92.3	80.8
20	82.7	84.8	93.8	81.5
22	83.3	86.0	95.1	82.1
24+	84.6	87.9	97.9	83.0
Average	74.5	74.0	80.9	74.6

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 (4.5 feet) = 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 Tables*

County Tables

1. Area, by county and land class
2. Area of timberland, by county and ownership class
3. Area of timberland, by county and forest-type group
4. Area of timberland, by county and stand-size class
5. Area of timberland, by county and site class
6. Area of timberland, by county and stocking class of growing-stock trees
7. Volume of growing stock and sawtimber on timberland, by county and species group
8. Average net annual growth of growing stock and sawtimber on timberland, by county and species group
9. Average annual removals of growing stock and sawtimber on timberland, by county and species group
18. Volume of growing stock on timberland, by broad management class, species group, and stand-age class
19. Average net annual growth on timberland, by broad management class, species group, and stand-age class
20. Average annual removals of growing stock on timberland, by broad management class, species group, and stand-age class
21. Merchantable volume of live trees and growing stock on timberland, by forest-type and species group

Unit Tables

10. Area of timberland, by forest type and ownership class
11. Area of timberland, by ownership and stocking classes of growing stock trees
12. Area of timberland, by forest type and stand-size class
13. Area of timberland, by stand-age and broad management classes, all ownerships
14. Area of timberland, by stand-age and broad management classes, public ownerships
15. Area of timberland, by stand-age and broad management classes, forest industry
16. Area of timberland, by stand-age and broad management classes, other private ownerships
17. Area of timberland, by broad management and stand-volume classes
22. Area of timberland treated or disturbed annually and retained in timberland, by treatment or disturbance and ownership class
23. Area of timberland treated or disturbed annually and retained in timberland, by treatment or disturbance and broad management class
24. Area of timberland regenerated annually, by type of regeneration and broad management class
25. Area of timberland, by treatment opportunity and broad management classes
26. Area of timberland, by treatment opportunity and ownership classes
27. Merchantable volume of live trees and growing stock on timberland, by ownership class and species group
28. Volume of sawtimber on timberland, by ownership class and species group
29. Average net annual growth and removals of growing stock on timberland, by ownership class and species group
30. Average net annual growth and removals of sawtimber on timberland, by ownership class and species group
31. Volume of timber on timberland, by class of timber and species group

- | | |
|---|---|
| <p>32. Number of live trees on timberland, by species and diameter class</p> <p>33. Number of growing-stock trees on timberland, by species and diameter class</p> <p>34. Merchantable volume of live trees on timberland, by species and diameter class</p> <p>35. Volume of growing stock on timberland, by species and diameter class</p> <p>36. Volume of sawtimber on timberland, by species and diameter class</p> <p>37. Volume of sawtimber on timberland, by species, size class, and tree grade</p> <p>38. Cubic volume in the merchantable saw-log portion of sawtimber trees on timberland, by species and diameter class</p> <p>39. Total volume of live trees on timberland, by species and diameter class</p> <p>40. Green weight of forest biomass on timberland, by species and diameter class</p> | <p>41. Average net annual growth and removals of live timber and growing stock on timberland, by species</p> <p>42. Average net annual growth and removals of sawtimber on timberland, by species</p> <p>43. Average annual removals of growing stock on timberland, by species and diameter class</p> <p>44. Average annual mortality of live timber, growing stock, and sawtimber on timberland, by species</p> <p>45. Change in number of live trees on timberland, by species group, survey completion date, and diameter class</p> <p>46. Land area, by land use class, major forest type, and survey completion date</p> <p>47. Volume of sawtimber, growing stock, and live timber on timberland, by species group, survey completion date, and diameter class</p> |
|---|---|

^a Tables 1–12, 27, 29–33, 35–38, 41, 42, and 44 are common to all Forest Inventory and Analysis forest resource statistical reports of the Eastern United States.

Table 1--Area, by county and land class, Piedmont of South Carolina, 1993

County	All land ^a	Forest land			Reserved timberland	Nonforest land ^b
		Total	Timberland	Woodland		
<i>Acres</i>						
Abbeville	316,419	219,194	212,431	--	6,763	97,225
Anderson	459,546	204,656	204,261	--	395	254,890
Cherokee	251,334	152,214	150,351	--	1,863	99,120
Chester	371,559	290,996	290,472	--	524	80,563
Edgefield	321,222	244,811	244,811	--	--	76,411
Fairfield	439,398	383,305	383,087	--	218	56,093
Greenville	506,937	280,084	247,175	--	32,909	226,853
Greenwood	291,539	202,667	201,403	--	1,264	88,872
Lancaster	351,373	264,666	262,985	--	1,681	86,707
Laurens	456,423	313,012	312,772	--	240	143,411
McCormick	230,138	203,392	200,025	--	3,367	26,746
Newberry	403,719	289,625	288,965	--	660	114,094
Oconee	400,064	292,470	274,690	--	17,780	107,594
Pickens	318,029	219,625	212,646	--	6,979	98,404
Saluda	288,877	189,821	189,821	--	--	99,056
Spartanburg	519,033	269,731	262,766	--	6,965	249,302
Union	329,094	267,867	267,748	--	119	61,227
York	436,832	272,566	264,029	--	8,537	164,266
Total	6,691,536	4,560,702	4,470,438	--	90,264	2,130,834

^a From the U.S. Bureau of the Census, 1990.

^b Includes 16,372 acres of water according to Forest Inventory and Analysis standards of area classification, but defined by the Bureau of Census as land.

Table 2--Area of timberland, by county and ownership class, Piedmont of South Carolina, 1993

County	All ownerships	Ownership class							
		National forest	Miscellaneous Federal	State	County and municipal	Forest industry ^a	Other private		
<i>Acres</i>									
							Farmer	Corporate	Individual
Abbeville	212,431	20,913	7,295	--	89	49,993	44,714	24,077	65,350
Anderson	204,261	--	9,057	5,928	418	4,625	68,552	25,707	89,974
Cherokee	150,351	--	--	--	140	21,074	41,780	15,193	72,164
Chester	290,472	11,241	--	--	649	84,999	71,697	35,849	86,037
Edgefield	244,811	27,144	607	75	300	49,985	25,646	8,549	132,505
Fairfield	383,087	10,373	--	141	119	91,835	48,502	51,966	180,151
Greenville	247,175	--	--	15	1,605	8,180	28,649	53,205	155,521
Greenwood	201,403	8,491	--	--	748	34,974	55,229	21,242	80,719
Lancaster	262,985	--	--	56	616	43,746	48,570	45,101	124,896
Laurens	312,772	16,668	--	928	1,164	48,595	58,235	54,075	133,107
McCormick	200,025	48,902	23,760	1,503	430	48,931	23,538	11,769	41,192
Newberry	288,965	57,615	--	5	198	59,974	75,635	19,904	75,634
Oconee	274,690	63,800	5,383	4,631	891	270	39,943	65,361	94,411
Pickens	212,646	--	777	14,175	754	1,783	34,439	65,052	95,666
Saluda	189,821	4,452	--	21	198	26,457	75,379	11,902	71,412
Spartanburg	262,766	--	--	--	3,695	9,523	79,566	47,016	122,966
Union	267,748	59,495	--	--	264	55,919	40,799	40,799	70,472
York	264,029	--	--	249	1,107	38,937	80,405	52,438	90,893
Total	4,470,438	329,094	46,879	27,727	13,385	679,800	941,278	649,205	1,783,070

^a Includes 28,869 acres of other private land under long-term lease.

Table 3--Area of timberland, by county and forest-type group, Piedmont of South Carolina, 1993

County	All type groups	Forest-type group										
		White pine--hemlock	Spruce--fir	Longleaf--slash	Loblolly--shortleaf	Oak--pine	Oak--hickory	Oak--gum--cypress	Elm--ash--cottonwood	Maple--beech--birch		
Abbeville	212,431	--	--	--	86,201	43,015	79,776	--	3,439	--	--	
Anderson	204,261	--	--	--	56,038	50,094	85,276	8,569	4,284	--	--	
Cherokee	150,351	--	--	--	51,830	26,587	68,136	3,798	--	--	--	
Chester	290,472	--	--	--	170,872	63,403	43,231	9,418	3,548	--	--	
Edgefield	244,811	--	--	--	128,614	34,878	63,561	13,484	4,274	--	--	
Fairfield	383,087	--	--	--	234,975	46,975	79,383	11,362	10,392	--	--	
Greenville	247,175	--	--	--	68,828	36,833	135,003	2,418	4,093	--	--	
Greenwood	201,403	--	--	--	118,410	20,747	53,750	8,496	--	--	--	
Lancaster	262,985	--	--	6,939	104,782	36,321	104,536	10,407	--	--	--	
Laurens	312,772	--	--	--	146,390	29,118	130,125	7,139	--	--	--	
McCormick	200,025	--	--	--	112,553	46,094	33,228	8,150	--	--	--	
Newberry	288,965	--	--	--	191,196	21,212	53,822	18,754	3,981	--	--	
Oconee	274,690	--	--	--	100,805	80,283	93,602	--	--	--	--	
Pickens	212,646	11,479	--	--	28,005	30,611	138,724	--	3,827	--	--	
Saluda	189,821	--	--	3,967	132,962	10,587	30,404	11,901	--	--	--	
Spartanburg	262,766	--	--	--	85,474	54,249	112,194	3,616	7,233	--	--	
Union	267,748	--	--	--	114,030	38,781	86,667	18,046	10,224	--	--	
York	264,029	--	--	--	103,186	46,658	100,202	13,983	--	--	--	
Total	4,470,438	11,479	--	10,906	2,035,151	716,446	1,491,620	149,541	55,295	--	--	

Table 4--Area of timberland, by county and stand-size class, Piedmont of South Carolina, 1993

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling-seedling	
<i>Acres</i>					
Abbeville	212,431	58,140	75,397	78,894	--
Anderson	204,261	63,189	55,139	81,648	4,285
Cherokee	150,351	64,338	44,605	37,610	3,798
Chester	290,472	110,407	82,371	97,694	--
Edgefield	244,811	87,306	51,954	105,551	--
Fairfield	383,087	134,660	105,172	143,255	--
Greenville	247,175	155,449	45,961	45,765	--
Greenwood	201,403	80,912	53,745	66,746	--
Lancaster	262,985	38,779	99,744	124,462	--
Laurens	312,772	101,997	86,541	124,234	--
McCormick	200,025	94,131	46,132	56,064	3,698
Newberry	288,965	145,179	42,543	98,412	2,831
Oconee	274,690	170,076	66,962	37,652	--
Pickens	212,646	122,379	58,310	31,957	--
Saluda	189,821	70,729	55,461	63,631	--
Spartanburg	262,766	112,195	79,678	70,893	--
Union	267,748	113,727	97,979	56,042	--
York	264,029	82,973	104,619	76,437	--
Total	4,470,438	1,806,566	1,252,313	1,396,947	14,612

Table 5--Area of timberland, by county and site class, Piedmont of South Carolina, 1993

County	All classes	Site class (cubic feet per acre per year)				
		>164	120-164	85-119	50-84	20-49
<i>Acres</i>						
Abbeville	212,431	--	--	44,383	148,204	19,844
Anderson	204,261	--	--	43,086	154,627	6,548
Cherokee	150,351	--	--	15,194	120,335	14,822
Chester	290,472	--	7,096	48,666	219,759	14,951
Edgefield	244,811	--	15,289	103,579	108,846	17,097
Fairfield	383,087	--	--	60,409	272,232	50,446
Greenville	247,175	8,186	13,883	104,751	120,355	--
Greenwood	201,403	--	--	60,424	132,482	8,497
Lancaster	262,985	--	--	44,940	171,316	46,729
Laurens	312,772	--	1,164	82,769	220,519	8,320
McCormick	200,025	--	4,075	61,208	119,276	15,466
Newberry	288,965	--	3,980	125,413	159,572	--
Oconee	274,690	10,894	26,842	56,846	152,907	27,201
Pickens	212,646	11,479	15,307	54,561	123,646	7,653
Saluda	189,821	3,967	--	61,635	124,219	--
Spartanburg	262,766	--	7,311	52,810	199,028	3,617
Union	267,748	--	7,683	52,216	189,803	18,046
York	264,029	--	3,496	45,694	190,367	24,472
Total	4,470,438	34,526	106,126	1,118,584	2,927,493	283,709

Table 6--Area of timberland, by county and stocking class of growing--stock trees, Piedmont of South Carolina, 1993

County	All classes	Stocking class (percent) ^a				
		>130	100-130	60-99	16.7-59	<16.7
<i>Acres</i>						
Abbeville	212,431	10,364	88,514	105,351	8,202	--
Anderson	204,261	4,285	54,719	115,265	25,707	4,285
Cherokee	150,351	10,652	52,943	60,540	22,418	3,798
Chester	290,472	24,906	112,401	124,597	28,568	--
Edgefield	244,811	4,274	82,927	122,557	23,839	11,214
Fairfield	383,087	12,332	146,037	183,568	41,150	--
Greenville	247,175	8,186	71,993	115,453	51,543	--
Greenwood	201,403	8,496	91,679	89,472	11,756	--
Lancaster	262,985	6,017	72,855	138,252	45,861	--
Laurens	312,772	14,279	107,968	136,443	54,082	--
McCormick	200,025	7,775	89,931	84,585	14,036	3,698
Newberry	288,965	10,794	116,454	140,130	18,756	2,831
Oconee	274,690	14,524	76,514	142,997	40,655	--
Pickens	212,646	11,480	54,510	101,021	41,808	3,827
Saluda	189,821	21,131	105,441	44,749	11,902	6,598
Spartanburg	262,766	13,027	81,122	119,426	41,958	7,233
Union	267,748	19,854	101,124	125,822	20,948	--
York	264,029	13,983	87,745	116,250	42,555	3,496
Total	4,470,438	216,359	1,594,877	2,066,478	545,744	46,980

^a See stocking standards under "stocking" in definitions.

Table 7--Volume of growing stock and sawtimber on timberland, by county and species group, Piedmont of South Carolina, 1993

County	Growing stock					Sawtimber				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
<i>Thousand cubic feet</i>						<i>Thousand board feet</i>				
Abbeville	271,915	87,446	10,522	82,401	91,546	784,408	262,091	8,985	250,749	262,583
Anderson	288,429	86,470	2,702	68,827	130,430	886,479	282,410	9,849	264,266	329,954
Cherokee	201,219	69,783	3,913	44,582	82,941	601,762	202,519	6,431	137,095	255,717
Chester	409,500	267,816	9,786	64,115	67,783	1,290,728	974,800	18,785	148,464	148,679
Edgefield	333,220	212,126	--	76,728	44,366	1,413,781	1,021,662	--	267,399	124,720
Fairfield	460,648	281,440	11,367	72,076	95,765	1,373,430	923,921	12,188	196,654	240,667
Greenville	471,075	153,834	1,082	120,870	195,289	1,613,357	545,790	7,166	409,234	651,167
Greenwood	267,666	169,797	1,556	56,612	39,701	961,299	643,637	3,545	202,702	111,415
Lancaster	219,733	90,889	3,387	70,645	54,812	460,833	182,689	6,223	156,319	115,602
Laurens	410,361	215,044	3,688	79,464	112,165	1,302,073	741,402	4,208	218,823	337,640
McCormick	327,930	194,713	3,319	67,767	62,131	1,202,064	845,366	4,415	210,654	141,629
Newberry	434,559	248,598	6,131	91,407	88,423	1,601,821	1,047,601	8,619	290,448	255,153
Oconee	485,972	201,462	38,250	79,028	167,232	1,585,289	618,143	205,050	258,003	504,093
Pickens	352,642	67,745	25,947	74,127	184,823	1,137,966	233,805	84,883	248,890	570,388
Saluda	302,041	199,856	1,773	46,659	53,753	1,018,466	659,172	1,965	121,326	236,003
Spartanburg	391,119	161,202	6,184	86,981	136,752	1,187,746	480,251	11,696	249,669	446,130
Union	442,652	184,078	7,762	107,925	142,887	1,434,455	563,935	14,100	377,014	479,406
York	338,700	141,996	7,631	85,605	103,468	876,466	402,608	10,836	201,538	261,484
Total	6,409,381	3,034,295	145,000	1,375,819	1,854,267	20,732,423	10,631,802	418,944	4,209,247	5,472,430

Table 8--Average net annual growth of growing stock and sawtimber on timberland, by county and species group, Piedmont of South Carolina, 1986-1992

County	Growing stock					Sawtimber				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	<i>Thousand cubic feet</i>					<i>Thousand board feet</i>				
Abbeville	12,603	7,129	668	1,847	2,959	40,149	21,385	653	5,185	12,926
Anderson	10,479	3,981	76	1,705	4,717	44,537	18,114	141	8,373	17,909
Cherokee	7,828	3,648	41	1,585	2,554	32,564	10,591	184	7,875	13,914
Chester	15,310	10,207	422	2,378	2,303	54,724	41,126	948	5,761	6,889
Edgefield	15,731	11,340	21	2,902	1,468	68,534	50,670	--	11,506	6,358
Fairfield	27,109	20,177	827	3,466	2,639	91,282	69,293	543	11,951	9,495
Greenville	13,538	5,006	56	3,467	5,009	66,368	23,241	413	18,816	23,898
Greenwood	15,571	11,337	-52	2,071	2,215	59,194	46,706	--	6,973	5,515
Lancaster	3,860	1,220	98	3,056	-514	1,072	-4,221	296	5,922	-925
Laurens	20,119	11,901	-127	4,488	3,857	74,610	45,522	-328	13,746	15,670
McCormick	14,767	11,592	110	1,536	1,529	54,609	45,432	238	5,381	3,558
Newberry	18,949	14,683	51	2,513	1,702	87,342	66,535	123	9,536	11,148
Oconee	15,108	6,609	1,461	2,511	4,527	68,317	33,422	7,272	10,413	17,210
Pickens	9,510	1,558	1,267	2,739	3,946	46,090	9,381	6,282	11,414	19,013
Saluda	18,418	14,978	139	1,635	1,666	60,257	43,841	27	6,695	9,694
Spartanburg	14,378	6,787	358	3,620	3,613	55,055	24,898	492	12,121	17,544
Union	20,835	13,549	243	3,217	3,826	77,703	48,244	354	11,967	17,138
York	12,670	6,340	582	3,084	2,664	52,248	31,092	92	13,949	7,115
Total	266,783	162,042	6,241	47,820	50,680	1,034,655	625,272	17,730	177,584	214,069

Table 9--Average annual removals of growing stock and sawtimber on timberland, by county and species group, Piedmont of South Carolina, 1986-1992

County	Growing stock					Sawtimber				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	<i>Thousand cubic feet</i>					<i>Thousand board feet</i>				
Abbeville	7,256	5,662	564	614	416	27,775	25,373	569	1,833	--
Anderson	14,966	8,107	91	1,129	5,639	56,454	31,723	--	4,834	19,897
Cherokee	7,245	3,842	--	849	2,554	25,244	14,612	--	3,456	7,176
Chester	13,988	8,135	713	2,571	2,569	45,220	26,278	1,810	8,131	9,001
Edgefield	19,225	14,650	--	2,267	2,308	71,606	63,024	--	2,270	6,312
Fairfield	22,838	17,914	216	3,592	1,116	82,149	66,878	435	10,847	3,989
Greenville	8,639	2,563	--	1,196	4,880	28,801	9,624	--	2,132	17,045
Greenwood	14,784	10,283	--	2,302	2,199	47,553	37,091	--	5,610	4,852
Lancaster	14,219	10,510	59	2,159	1,491	44,979	34,692	--	6,404	3,883
Laurens	22,742	8,936	200	5,529	8,077	70,692	29,766	625	15,924	24,377
McCormick	14,822	14,000	60	235	527	54,982	54,011	--	482	489
Newberry	26,374	21,785	154	2,058	2,377	92,777	79,954	395	5,635	6,793
Oconee	7,561	3,323	118	553	3,567	22,112	10,039	570	487	11,016
Pickens	11,338	4,319	--	3,896	3,123	46,656	13,864	--	20,084	12,708
Saluda	10,355	9,014	--	812	529	40,756	36,396	--	2,700	1,660
Spartanburg	12,576	7,751	176	1,306	3,343	36,041	23,196	--	1,798	11,047
Union	17,441	15,659	76	635	1,071	69,631	65,758	--	799	3,074
York	17,403	11,473	477	3,015	2,438	55,768	40,176	350	10,495	4,747
Total	263,772	177,926	2,904	34,718	48,224	919,196	662,455	4,754	103,921	148,066

**Table 10--Area of timberland, by forest type and ownership class,
Piedmont of South Carolina, 1993**

Forest type	Ownership class					
	All ownerships	National forest	Other public	Forest industry	Forest industry-- leased	Other private
<i>Acres</i>						
Softwood types						
White pine-hemlock	11,479	--	--	--	--	11,479
Spruce-fir	--	--	--	--	--	--
Longleaf pine	3,469	--	--	--	--	3,469
Slash pine	7,437	--	--	--	--	7,437
Loblolly pine	1,583,633	174,812	23,592	444,178	26,948	914,103
Shortleaf pine	244,649	14,190	9,601	7,311	1,921	211,626
Virginia pine	162,958	7,974	--	--	--	154,984
Sand pine	--	--	--	--	--	--
Eastern redcedar	39,923	3,306	--	--	--	36,617
Pond pine	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--
Pitch pine	3,988	3,988	--	--	--	--
Table Mountain pine	--	--	--	--	--	--
Total	2,057,536	204,270	33,193	451,489	28,869	1,339,715
Hardwood types						
Oak-pine	716,446	50,374	18,316	60,714	--	587,042
Oak-hickory	1,444,576	55,813	36,482	116,097	--	1,236,184
Chestnut oak	42,769	--	--	--	--	42,769
Southern scrub oak	4,275	--	--	--	--	4,275
Oak-gum-cypress	149,541	15,332	--	15,873	--	118,336
Elm-ash-cottonwood	55,295	3,305	--	6,758	--	45,232
Maple-beech-birch	--	--	--	--	--	--
Total	2,412,902	124,824	54,798	199,442	--	2,033,838
All types	4,470,438	329,094	87,991	650,931	28,869	3,373,553

Table 11--Area of timberland, by ownership and stocking classes of growing-stock trees, Piedmont of South Carolina, 1993

Ownership class	All classes	Stocking class (percent) ^a				
		>130	100-130	60-99	16.7-59	<16.7
<i>Acres</i>						
National forest	329,094	10,866	165,643	127,908	24,677	--
Other public	87,991	--	26,812	57,424	3,755	--
Forest industry	650,931	68,774	309,881	183,058	73,119	16,099
Forest industry-leased	28,869	--	18,594	10,275	--	--
Other private	3,373,553	136,719	1,073,947	1,687,813	444,193	30,881
All ownerships	4,470,438	216,359	1,594,877	2,066,478	545,744	46,980

^a See stocking standards under "stocking" in definitions.

Table 12--Area of timberland, by forest type and stand-size class, Piedmont of South Carolina, 1993

Forest type	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling-seedling	
<i>Acres</i>					
Softwood types					
White pine-hemlock	11,479	11,479	--	--	--
Spruce-fir	--	--	--	--	--
Longleaf pine	3,469	--	--	3,469	--
Slash pine	7,437	3,967	--	3,470	--
Loblolly pine	1,583,633	592,830	437,557	546,617	6,629
Shortleaf pine	244,649	94,582	96,450	53,617	--
Virginia pine	162,958	83,515	49,669	29,774	--
Sand pine	--	--	--	--	--
Eastern redcedar	39,923	10,387	14,737	14,799	--
Pond pine	--	--	--	--	--
Spruce pine	--	--	--	--	--
Pitch pine	3,988	3,988	--	--	--
Table Mountain pine	--	--	--	--	--
Total	2,057,536	800,748	598,413	651,746	6,629
Hardwood types					
Oak-pine	716,446	242,004	158,064	312,680	3,698
Oak-hickory	1,444,576	602,739	441,199	396,353	4,285
Chestnut oak	42,769	35,475	7,294	--	--
Southern scrub oak	4,275	--	4,275	--	--
Oak-gum-cypress	149,541	85,080	36,031	28,430	--
Elm-ash-cottonwood	55,295	40,520	7,037	7,738	--
Maple-beech-birch	--	--	--	--	--
Total	2,412,902	1,005,818	653,900	745,201	7,983
All types	4,470,438	1,806,566	1,252,313	1,396,947	14,612

Table 13--Area of timberland, by stand-age and broad management classes, all ownerships, Piedmont of South Carolina, 1993

Stand-age class (years)	Broad management class					
	All classes	Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<i>Acres</i>						
0-10	887,858	351,639	157,322	171,288	189,874	17,735
11-20	602,014	237,552	135,501	95,050	125,836	8,075
21-30	399,886	107,229	149,067	61,737	81,853	--
31-40	469,028	101,375	219,758	58,870	74,145	14,880
41-50	454,355	22,522	209,153	61,828	149,865	10,987
51-60	506,202	--	161,052	53,285	249,183	42,682
61-70	379,054	--	104,395	61,350	182,563	30,746
71-80	179,126	--	21,020	33,525	112,646	11,935
81+	131,816	--	19,008	31,620	64,381	16,807
No manageable stand	461,099	6,961	53,982	87,893	261,274	50,989
All classes	4,470,438	827,278	1,230,258	716,446	1,491,620	204,836

Table 14--Area of timberland, by stand-age and broad management classes, public ownerships, Piedmont of South Carolina, 1993

Stand-age class (years)	Broad management class					
	All classes	Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<i>Acres</i>						
0-10	49,344	25,612	7,400	4,196	9,888	2,248
11-20	29,066	10,212	7,636	7,230	3,988	--
21-30	32,754	14,443	15,006	3,305	--	--
31-40	6,479	2,248	--	--	4,231	--
41-50	42,752	3,305	19,684	7,902	11,861	--
51-60	86,337	--	67,689	--	18,648	--
61-70	66,578	--	36,087	16,492	13,999	--
71-80	28,363	--	5,827	4,075	14,386	4,075
81+	59,774	--	19,008	15,950	14,969	9,847
No manageable stand	15,638	--	3,306	9,540	325	2,467
All classes	417,085	55,820	181,643	68,690	92,295	18,637

Table 15--Area of timberland, by stand-age and broad management classes, forest industry,^a Piedmont of South Carolina, 1993

Stand-age class (years)	All classes	~ Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<i>Acres</i>						
0-10	204,362	155,295	10,244	25,581	13,242	--
11-20	172,974	146,731	8,985	2,831	14,427	--
21-30	73,051	51,723	14,679	2,548	4,101	--
31-40	54,415	28,732	14,500	4,763	3,210	3,210
41-50	34,978	2,980	11,679	6,982	10,127	3,210
51-60	36,075	--	14,405	2,631	13,073	5,966
61-70	25,372	--	11,167	--	6,939	7,266
71-80	--	--	--	--	--	--
81+	6,677	--	--	3,698	--	2,979
No manageable stand	71,896	2,980	6,258	11,680	50,978	--
All classes	679,800	388,441	91,917	60,714	116,097	22,631

^a Includes 28,869 acres of other private land under long-term lease.

Table 16--Area of timberland, by stand-age and broad management classes, other private ownerships,^a Piedmont of South Carolina, 1993

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<i>Acres</i>						
0-10	634,152	170,732	139,678	141,511	166,744	15,487
11-20	399,974	80,609	118,880	84,989	107,421	8,075
21-30	294,081	41,063	119,382	55,884	77,752	--
31-40	408,134	70,395	205,258	54,107	66,704	11,670
41-50	376,625	16,237	177,790	46,944	127,877	7,777
51-60	383,790	--	78,958	50,654	217,462	36,716
61-70	287,104	--	57,141	44,858	161,625	23,480
71-80	150,763	--	15,193	29,450	98,260	7,860
81+	65,365	--	--	11,972	49,412	3,981
No manageable stand	373,565	3,981	44,418	66,673	209,971	48,522
All classes	3,373,553	383,017	956,698	587,042	1,283,228	163,568

^a Excludes 28,869 acres of other private land under long-term lease to forest industry.

Table 17--Area of timberland, by broad management and stand-volume classes, Piedmont of South Carolina, 1993

Broad management class	All classes	Stand-volume class (cubic feet of growing stock per acre)				
		0-499	500-999	1000-1499	1500-1999	2000+
<i>Acres</i>						
Pine plantation	827,278	392,825	113,041	97,209	74,350	149,853
Natural pine	1,230,258	269,656	156,161	153,650	165,611	485,180
Oak-pine	716,446	273,606	103,401	90,428	107,222	141,789
Upland hardwood	1,491,620	340,291	232,294	209,172	230,250	479,613
Lowland hardwood	204,836	33,288	28,418	23,620	18,930	100,580
All classes	4,470,438	1,309,666	633,315	574,079	596,363	1,357,015

Table 18 -- Volume of growing stock on timberland, by broad management class, species group, and stand-age class, Piedmont of 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+							
<i>Thousand cubic feet</i>																		
Pine plantation																		
Softwood	794,607	5,733	37,706	236,228	205,096	253,429	56,415	--	--	--	--	--	--	--	--	--	--	--
Hardwood	27,373	--	7,848	5,438	6,124	6,468	1,495	--	--	--	--	--	--	--	--	--	--	--
Total	821,980	5,733	45,554	241,666	211,220	259,897	57,910	--	--	--	--	--	--	--	--	--	--	--
Natural pine																		
Softwood	1,853,412	15,944	31,690	76,717	177,949	380,667	421,950	386,559	272,755	57,300	31,881							
Hardwood	264,004	3,586	6,516	14,873	17,631	36,244	54,062	61,692	53,938	9,421	6,041							
Total	2,117,416	19,530	38,206	91,590	195,580	416,911	476,012	448,251	326,693	66,721	37,922							
Oak-pine																		
Softwood	361,144	21,128	16,353	27,890	34,627	37,248	47,698	48,283	54,297	31,567	42,053							
Hardwood	454,683	18,639	36,699	18,075	27,672	47,223	64,863	71,822	66,633	45,024	58,033							
Total	815,827	39,767	53,052	45,965	62,299	84,471	112,561	120,105	120,930	76,591	100,086							
Upland hardwood																		
Softwood	165,035	7,689	9,664	12,193	9,955	15,236	18,225	38,002	32,574	12,773	8,724							
Hardwood	2,085,007	137,241	52,724	66,739	74,001	93,630	277,496	561,284	376,168	292,819	152,905							
Total	2,250,042	144,930	62,388	78,932	83,956	108,866	295,721	599,286	408,742	305,592	161,629							
Lowland hardwood																		
Softwood	5,097	567	--	--	--	649	--	943	414	2,524	--							
Hardwood	399,019	29,921	7,636	7,947	--	33,575	30,632	105,005	81,453	42,999	59,851							
Total	404,116	30,488	7,636	7,947	--	34,224	30,632	105,948	81,867	45,523	59,851							
All types																		
Softwood	3,179,295	51,061	95,413	353,028	427,627	687,229	544,288	473,787	360,040	104,164	82,658							
Hardwood	3,230,086	189,387	111,423	113,072	125,428	217,140	428,548	799,803	578,192	390,263	276,830							
Total	6,409,381	240,448	206,836	466,100	553,055	904,369	972,836	1,273,590	938,232	494,427	359,488							

Table 19--Average net annual growth of growing stock on timberland, by broad management class, species group, and stand-age class, Piedmont of South Carolina, 1986-1992

Broad management class ^a and species group	All classes	No manageable stand	Stand-age class ^a (years)										Total
			0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81+		
<i>Thousand cubic feet</i>													
Pine plantation													
Softwood	71,630	233	28,499	22,517	16,008	3,488	777	108	--	--	--	--	
Hardwood	1,225	--	398	77	394	169	119	68	--	--	--	--	
Total	72,855	233	28,897	22,594	16,402	3,657	896	176	--	--	--	--	
Natural pine													
Softwood	77,886	1,876	4,645	16,403	15,848	16,868	10,830	8,291	2,376	266	483		
Hardwood	13,739	146	344	919	1,837	3,199	3,081	3,307	594	110	202		
Total	91,625	2,022	4,989	17,322	17,685	20,067	13,911	11,598	2,970	376	685		
Oak-pine													
Softwood	15,448	1,104	3,344	2,795	1,111	2,183	1,848	824	1,232	348	659		
Hardwood	13,661	863	1,777	1,302	865	2,063	2,453	1,793	1,327	489	729		
Total	29,109	1,967	5,121	4,097	1,976	4,246	4,301	2,617	2,559	837	1,388		
Upland hardwood													
Softwood	3,332	432	1,046	577	558	109	-541	204	552	146	249		
Hardwood	60,784	4,342	3,768	3,013	4,780	5,930	16,079	11,668	7,491	750	2,963		
Total	64,116	4,774	4,814	3,590	5,338	6,039	15,538	11,872	8,043	896	3,212		
Lowland hardwood													
Softwood	-13	-34	--	--	16	--	16	-71	60	--	--		
Hardwood	9,091	1,893	109	1,114	-704	514	1,882	2,723	778	49	733		
Total	9,078	1,859	109	1,114	-688	514	1,898	2,652	838	49	733		
All types													
Softwood	168,283	3,611	37,534	42,292	33,541	22,648	12,930	9,356	4,220	760	1,391		
Hardwood	98,500	7,244	6,396	6,425	7,172	11,875	23,614	19,559	10,190	1,398	4,627		
Total	266,783	10,855	43,930	48,717	40,713	34,523	36,544	28,915	14,410	2,158	6,018		

^a Classifications at the beginning of the remeasurement period.

Table 20 -- Average annual removals of growing stock on timberland, by broad management class, species group, and stand-age class, Piedmont of South Carolina, 1986-1992

Broad management class ^a and species group	All classes	No manageable stand	Stand-age class ^a (years)								81+
			0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	
<i>Thousand cubic feet</i>											
Pine plantation											
Softwood	50,158	--	58	8,023	25,060	12,551	2,679	1,787	--	--	--
Hardwood	654	--	--	--	94	407	--	153	--	--	--
Total	50,812	--	58	8,023	25,154	12,958	2,679	1,940	--	--	--
Natural pine											
Softwood	110,455	427	2,088	5,246	17,969	30,120	30,940	16,219	5,290	2,156	--
Hardwood	9,680	--	318	580	1,570	1,433	3,476	2,164	139	--	--
Total	120,135	427	2,406	5,826	19,539	31,553	34,416	18,383	5,429	2,156	--
Oak-pine											
Softwood	13,814	257	1,014	1,175	686	2,065	4,016	2,912	1,689	--	--
Hardwood	9,966	--	226	567	--	2,277	3,314	3,015	567	--	--
Total	23,780	257	1,240	1,742	686	4,342	7,330	5,927	2,256	--	--
Upland hardwood											
Softwood	6,252	221	266	216	97	923	1,816	1,050	832	505	326
Hardwood	54,743	4,078	2,220	633	776	3,205	12,398	13,758	9,077	8,014	584
Total	60,995	4,299	2,486	849	873	4,128	14,214	14,808	9,909	8,519	910
Lowland hardwood											
Softwood	151	--	--	--	--	--	151	--	--	--	--
Hardwood	7,899	--	--	--	--	2,502	541	2,721	--	--	2,135
Total	8,050	--	--	--	--	2,502	692	2,721	--	--	2,135
All types											
Softwood	180,830	905	3,426	14,660	43,812	45,659	39,602	21,968	7,811	2,661	326
Hardwood	82,942	4,078	2,764	1,780	2,440	9,824	19,729	21,811	9,783	8,014	2,719
Total	263,772	4,983	6,190	16,440	46,252	55,483	59,331	43,779	17,594	10,675	3,045

^a Classifications at the beginning of the remeasurement period.

Table 21 -- Merchantable volume of live trees and growing stock on timberland, by forest-type and species groups, Piedmont of South Carolina, 1993

Forest-type group	Live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
<i>Thousand cubic feet</i>										
White pine-hemlock	30,312	1,946	19,855	3,702	4,809	27,772	1,946	19,855	1,750	4,221
Spruce-fir	--	--	--	--	--	--	--	--	--	--
Longleaf-slash pine	9,534	9,534	--	--	--	9,534	9,534	--	--	--
Loblolly-shortleaf pine	2,965,741	2,584,279	46,298	187,516	147,648	2,902,090	2,572,060	44,624	166,020	119,386
Oak-pine	874,322	307,973	54,521	193,867	317,961	815,827	307,248	53,896	176,932	277,751
Oak-hickory	2,431,581	140,684	27,380	838,576	1,424,941	2,250,042	139,473	25,562	782,879	1,302,128
Oak-gum-cypress	312,374	4,034	1,063	194,296	112,981	281,035	4,034	1,063	170,434	105,504
Elm-ash-cottonwood	140,149	--	--	90,288	49,861	123,081	--	--	77,804	45,277
Maple-beech-birch	--	--	--	--	--	--	--	--	--	--
All types	6,764,013	3,048,450	149,117	1,508,245	2,058,201	6,409,381	3,034,295	145,000	1,375,819	1,854,267

Table 22 -- Area of timberland treated or disturbed annually and retained in timberland, by treatment or disturbance and ownership class, Piedmont of South Carolina, 1986 to 1993

Treatment or disturbance	Ownership class				
	All ownerships	Public	Forest industry	Forest industry - leased	Other private
<i>Acres^a</i>					
Final harvest	95,203	4,575	24,317	--	66,311
Partial harvest ^b	18,796	3,013	690	--	15,093
Commercial thinning	21,455	993	4,493	658	15,311
Other stand improvement	6,718	1,028	785	--	4,905
Site preparation	33,766	2,174	15,538	--	16,054
Artificial regeneration ^c	37,436	2,773	16,824	--	17,839
Natural regeneration ^c	62,532	1,787	3,946	--	56,799
Other treatment	32,684	1,536	3,316	--	27,832
Natural disturbance	82,561	6,237	8,762	1,232	66,330

^a Since some acres experience more than one treatment or disturbance, there are no column totals.

^b Includes high-grading and some selective cutting.

^c Includes establishment of trees for timber production on forest and nonforest land.

Table 23-- Area of timberland treated or disturbed annually and retained in timberland, by treatment or disturbance and broad management class, Piedmont of South Carolina, 1986 to 1993

Treatment or disturbance	All classes	Broad management class ^a				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<i>Acres^b</i>						
Final harvest	95,203	12,348	46,536	11,047	22,654	2,618
Partial harvest ^c	18,796	1,815	6,453	6,121	3,838	569
Commercial thinning	21,455	12,555	7,940	433	527	--
Other stand improvement	6,718	1,051	3,057	1,515	1,095	--
Site preparation	33,766	465	15,664	6,701	10,936	--
Other treatment	32,684	2,632	10,447	4,856	13,698	1,051
Natural disturbance	82,561	14,469	36,398	7,643	21,406	2,645

^a Classification before treatment or disturbance.

^b Since some acres experience more than one treatment or disturbance, there are no column totals.

^c Includes high-grading and some selective cutting.

Table 24-- Area of timberland regenerated annually, by type of regeneration and broad management class, Piedmont of South Carolina, 1986 to 1993

Type of regeneration	All classes	Broad management class ^a				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<i>Acres</i>						
Artificial regeneration following harvest	25,039	21,600	--	3,439	--	--
Natural regeneration following harvest	38,380	--	10,564	10,807	16,164	845
Other artificial regeneration on forest land	8,908	8,410	--	498	--	--
Other natural regeneration on forest land	13,906	--	3,357	3,748	6,801	--
Artificial regeneration on nonforest land	3,489	3,489	--	--	--	--
Natural reversion of nonforest land	10,246	--	4,419	2,646	2,639	542
Total	99,968	33,499	18,340	21,138	25,604	1,387

^a Classification after regeneration.

Table 25 – Area of timberland, by treatment opportunity and broad management classes, Piedmont of South Carolina, 1993

Treatment opportunity class	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<i>Acres</i>						
Salvage	48,249	10,449	33,974	--	3,826	--
Harvest	110,656	--	26,166	22,934	40,674	20,882
Commercial thinning	207,358	134,612	65,054	4,075	3,617	--
Other stand improvement	423,025	35,821	128,782	86,759	167,388	4,275
Stand conversion	29,954	--	--	7,983	21,971	--
Regeneration	433,833	6,961	53,982	76,656	245,245	50,989
Stand in relatively good condition	3,082,460	639,435	906,620	480,035	927,680	128,690
Adverse sites ^a	134,903	--	15,680	38,004	81,219	--
All classes	4,470,438	827,278	1,230,258	716,446	1,491,620	204,836

^a Areas where management opportunities are severely limited because of steep slopes or poor drainage.

Table 26 – Area of timberland, by treatment opportunity and ownership classes, Piedmont of South Carolina, 1993

Treatment opportunity class	All ownerships	Ownership class			
		Public	Forest industry	Forest industry-leased	Other private
<i>Acres</i>					
Salvage	48,249	6,791	10,511	--	30,947
Harvest	110,656	51,210	10,224	--	49,222
Commercial thinning	207,358	11,367	76,944	4,531	114,516
Other stand improvement	423,025	9,326	37,387	--	376,312
Stand conversion	29,954	3,457	--	--	26,497
Regeneration	433,833	15,638	71,896	--	346,299
Stand in relatively good condition	3,082,460	288,183	443,969	24,338	2,325,970
Adverse sites ^a	134,903	31,113	--	--	103,790
All classes	4,470,438	417,085	650,931	28,869	3,373,553

^a Areas where management opportunities are severely limited because of steep slopes or poor drainage.

Table 27 -- Merchantable volume of live trees and growing stock on timberland, by ownership class and species group, Piedmont of South Carolina, 1993

Ownership class	Live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
<i>Thousand cubic feet</i>										
National forest	735,110	424,139	32,120	138,096	140,755	712,121	424,139	32,120	132,347	123,515
Other public	200,314	91,900	1,975	36,103	70,336	189,887	91,280	1,975	34,104	62,528
Forest industry	739,528	499,530	8,586	107,459	123,953	710,618	498,092	8,586	91,726	112,214
Forest industry--leased	32,007	32,007	--	--	--	32,007	32,007	--	--	--
Other private	5,057,054	2,000,874	106,436	1,226,587	1,723,157	4,764,748	1,988,777	102,319	1,117,642	1,556,010
All ownerships	6,764,013	3,048,450	149,117	1,508,245	2,058,201	6,409,381	3,034,295	145,000	1,375,819	1,854,267

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

Ownership class	Small sawtimber ^a					Large sawtimber ^b				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
<i>Thousand board feet</i>										
National forest	909,114	645,060	23,663	91,943	148,448	2,059,587	1,343,456	116,657	362,688	236,786
Other public	318,839	231,929	--	33,795	53,115	384,983	174,830	6,827	67,285	136,041
Forest industry	1,132,878	949,403	3,461	83,574	96,440	671,783	295,497	--	180,782	195,504
Forest industry--leased	59,278	59,278	--	--	--	14,478	14,478	--	--	--
Other private	7,772,074	4,685,079	151,140	1,150,090	1,785,765	7,409,409	2,232,792	117,196	2,239,090	2,820,331
All ownerships	10,192,183	6,570,749	178,264	1,359,402	2,083,768	10,540,240	4,061,053	240,680	2,849,845	3,388,662

^a Volume of sawtimber trees less than 15.0 inches at d.b.h.

^b Volume of sawtimber trees 15.0 inches and larger at d.b.h.

Table 29 -- Average net annual growth and removals of growing stock on timberland, by ownership class and species group, Piedmont of South Carolina, 1986-1992

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
<i>Thousand cubic feet</i>										
National forest	18,508	12,040	941	3,200	2,327	13,375	8,870	76	2,388	2,041
Other public	6,766	3,247	282	1,281	1,956	15,057	5,795	377	2,123	6,762
Forest industry	52,223	45,426	638	2,375	3,784	63,822	49,762	565	6,078	7,417
Forest industry--leased	3,121	3,121	--	--	--	379	379	--	--	--
Other private	186,165	98,208	4,380	40,964	42,613	171,139	113,120	1,886	24,129	32,004
All ownerships	266,783	162,042	6,241	47,820	50,680	263,772	177,926	2,904	34,718	48,224

Table 30 -- Average net annual growth and removals of sawtimber on timberland, by ownership class and species group, Piedmont of South Carolina, 1986-1992

Ownership class	Net annual growth					Annual timber removals				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	<i>Thousand board feet</i>									
National forest	82,860	55,601	4,225	12,766	10,268	59,315	43,657	--	7,711	7,947
Other public	31,477	18,174	408	4,497	8,398	59,460	25,755	1,139	6,981	25,585
Forest industry	140,302	118,832	255	8,199	13,016	211,546	175,238	435	16,398	19,475
Forest industry--leased	7,574	7,574	--	--	--	999	999	--	--	--
Other private	772,442	425,091	12,842	152,122	182,387	587,876	416,806	3,180	72,831	95,059
All ownerships	1,034,655	625,272	17,730	177,584	214,069	919,196	662,455	4,754	103,921	148,066

Table 31 -- Volume of timber on timberland, by class of timber and species group, Piedmont of South Carolina, 1993

Class of timber	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	<i>Thousand cubic feet</i>				
Sawtimber trees					
Saw--log portion	3,861,189	1,979,990	72,415	753,807	1,054,977
Upper--stem portion ^a	539,701	206,662	6,580	128,001	198,458
Total	4,400,890	2,186,652	78,995	881,808	1,253,435
Poletimber trees					
All growing--stock trees	2,008,491	847,643	66,005	494,011	600,832
	6,409,381	3,034,295	145,000	1,375,819	1,854,267
Rough trees					
Sawtimber size	102,899	3,901	1,146	37,119	60,733
Poletimber size	214,010	9,271	1,774	78,636	124,329
Total	316,909	13,172	2,920	115,755	185,062
Rotten trees					
Sawtimber size	34,049	983	1,197	14,959	16,910
Poletimber size	3,674	--	--	1,712	1,962
Total	37,723	983	1,197	16,671	18,872
Salvable dead trees					
Sawtimber size	8,085	7,379	156	121	429
Poletimber size	3,682	3,165	146	103	268
Total	11,767	10,544	302	224	697
Total, all timber	6,775,780	3,058,994	149,419	1,508,469	2,058,898

^a Includes cull sections in the saw--log portion.

Table 33 -- Number of growing stock trees on timberland, by species and diameter class, Piedmont of South Carolina, 1993

Species	Diameter class (inches at breast height)													29.0 and larger	
	All classes	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			
<i>Thousand trees</i>															
Softwood															
Longleaf pine	29	--	--	--	--	--	--	--	--	--	--	--	--	29	--
Slash pine	812	232	--	119	129	93	134	72	20	--	13	--	--	--	--
Shortleaf pine	154,772	60,586	39,325	20,792	15,863	9,676	4,904	2,118	886	444	146	32	--	--	--
Loblolly pine	707,659	305,918	166,447	112,342	55,691	28,234	17,745	11,050	5,466	2,713	1,249	776	28	--	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	142,150	95,884	28,239	10,790	5,274	1,155	436	286	59	16	--	11	--	--	--
Total softwoods	1,090,756	495,504	251,901	154,759	87,319	46,291	27,085	14,916	6,894	3,503	1,539	966	79		
Hardwood															
Select white oaks	83,244	34,092	15,511	10,625	6,737	5,549	4,247	2,878	1,701	973	484	418	29	--	--
Select red oaks	17,222	6,820	3,147	1,539	1,503	1,402	750	878	412	313	238	194	26	--	--
Chestnut oak	12,994	4,148	3,020	1,656	1,255	692	937	698	227	144	83	128	6	--	--
Other white oaks	29,619	10,270	8,320	3,888	3,139	1,954	1,138	509	295	64	--	42	--	--	--
Other red oaks	149,362	79,527	26,174	13,165	10,491	7,948	5,599	2,494	1,922	919	673	406	44	--	--
Hickory	74,872	35,581	18,980	8,405	4,945	3,135	1,620	868	583	398	183	157	17	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	7,026	3,825	1,986	821	1,79	110	34	27	39	--	--	--	5	--	--
Soft maple	69,624	41,369	13,719	6,185	3,780	2,211	908	640	306	232	135	133	6	--	--
Beech	8,936	4,609	1,552	1,082	954	209	143	173	96	17	26	70	5	--	--
Sweetgum	315,156	201,082	57,855	26,877	13,787	6,601	4,088	2,436	1,243	696	308	161	22	--	--
Tupelo and blackgum	24,308	14,060	6,077	1,612	1,161	705	382	126	116	57	12	--	--	--	--
Ash	13,926	5,209	2,893	1,608	1,605	941	534	547	330	67	128	58	6	--	--
Cottonwood	800	217	252	--	70	49	--	--	17	27	26	95	47	--	--
Basswood	272	--	--	246	--	--	--	--	20	--	--	--	6	--	--
Yellow-poplar	73,435	36,746	14,925	5,423	4,441	3,006	2,881	1,979	1,653	795	700	832	54	--	--
Bay and magnolia	977	410	434	--	71	62	--	--	--	--	--	--	--	--	--
Black cherry	33,923	24,455	7,200	1,414	474	339	41	--	--	--	--	--	--	--	--
Black walnut	1,555	--	205	816	223	209	77	--	--	--	--	14	11	--	--
Sycamore	4,639	2,514	855	396	--	125	115	174	219	138	37	50	16	--	--
Black locust	723	240	239	--	--	174	--	--	24	34	--	12	--	--	--
Elm	49,866	23,650	13,350	6,963	3,599	1,082	812	150	196	29	14	17	4	--	--
Other eastern hardwoods	15,869	6,663	3,477	2,568	1,154	706	585	327	145	114	36	94	--	--	--
Total hardwoods	988,348	535,487	200,171	95,289	59,588	37,209	24,891	14,904	9,544	5,017	3,097	2,878	293		
All species	2,079,104	1,030,991	452,072	250,048	146,887	83,500	51,976	29,820	16,438	8,520	4,636	3,844	372		

Table 34 -- Merchantable volume of live trees on timberland, by species and diameter class, Piedmont of South Carolina, 1993

Species	Diameter class (inches at breast height)											21.0- 28.9 larger
	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 larger			
<i>Thousand cubic feet</i>												
Softwood												
Longleaf pine	1,655	--	--	--	--	--	1,655	--	--	--	--	--
Slash pine	8,960	428	1,230	1,322	2,474	2,032	679	--	795	--	--	--
Shortleaf pine	535,989	63,045	109,375	122,739	98,445	65,210	39,127	24,664	10,511	2,873	--	--
Loblolly pine	2,178,013	253,625	326,345	333,859	363,654	330,035	231,476	156,730	91,621	83,213	7,455	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	306,019	34,406	62,787	85,924	62,688	32,876	14,369	10,695	2,274	--	--	--
Pitch pine	17,814	1,917	3,756	2,596	4,527	2,694	1,362	--	962	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	49,583	1,173	7,272	2,885	5,126	2,825	837	3,074	6,125	11,582	8,684	--
Eastern hemlock	15,175	--	2,743	2,774	1,997	1,792	661	1,018	--	3,216	974	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	84,359	27,071	29,520	11,654	6,544	5,843	1,430	654	--	1,643	--	--
Total softwoods	3,197,567	381,665	543,028	563,753	545,455	443,307	289,941	198,490	111,326	103,489	17,113	--
Hardwood												
Select white oaks	545,892	35,781	47,674	71,605	89,268	86,062	72,395	54,468	34,225	46,007	8,407	--
Select red oaks	155,828	5,553	11,610	18,925	15,363	25,767	17,146	16,378	16,888	22,120	6,078	--
Chestnut oak	107,074	4,663	8,375	8,977	19,215	21,446	9,756	7,861	6,927	16,382	3,472	--
Other white oaks	103,943	11,591	20,393	21,336	20,636	11,961	11,868	3,155	--	3,003	--	--
Other red oaks	595,687	40,680	70,436	92,978	103,240	68,892	76,017	48,988	46,621	39,833	8,002	--
Hickory	241,560	25,222	32,321	37,405	33,685	27,731	25,710	25,471	12,675	17,101	4,239	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	8,563	2,167	1,369	1,516	617	608	1,547	--	--	--	739	--
Soft maple	186,905	29,695	30,905	34,769	21,323	19,689	12,107	12,282	10,436	14,708	991	--
Beech	38,898	2,936	6,175	2,456	2,834	5,334	3,999	689	1,457	11,268	1,750	--
Sweetgum	563,270	78,078	94,490	84,851	83,334	77,166	54,897	41,670	23,584	20,507	4,693	--
Tupelo and blackgum	41,562	4,646	8,597	8,449	6,742	3,846	4,198	3,836	1,248	--	--	--
Ash	101,889	9,262	12,096	16,068	12,911	17,251	14,892	2,862	8,778	6,740	1,029	--
Cottonwood	30,657	--	552	594	--	--	976	1,840	2,341	10,971	13,383	--
Basswood	4,433	1,369	957	--	--	--	1,050	--	--	--	1,057	--
Yellow-poplar	478,133	19,736	33,425	38,534	63,115	59,197	71,350	43,815	50,123	87,136	11,702	--
Bay and magnolia	3,195	--	1,946	1,249	--	--	--	--	--	--	--	--
Black cherry	25,858	11,743	6,558	5,366	1,707	484	--	--	--	--	--	--
Black walnut	10,745	2,266	2,000	2,478	1,560	--	98	--	1,106	1,237	--	--
Sycamore	39,905	2,129	505	1,910	2,971	5,017	8,930	7,933	2,631	5,220	2,659	--
Black locust	5,862	--	--	2,031	--	--	816	2,212	--	803	--	--
Elm	96,078	19,366	21,058	17,635	17,745	5,226	8,642	1,628	1,145	2,266	1,367	--
Other eastern hardwoods	180,509	56,258	33,407	24,360	20,037	14,247	7,997	6,723	2,666	14,080	734	--
Total hardwoods	3,566,446	363,141	444,849	493,492	516,303	449,924	404,391	281,811	222,851	319,382	70,302	--
All species	6,764,013	744,806	987,877	1,057,245	1,061,758	893,231	694,332	480,301	334,177	422,871	87,415	--

Table 35—Volume of growing stock on timberland, by species and diameter class, Piedmont of South Carolina, 1993

Species	Diameter class (inches at breast height)											29.0 and larger	
	All classes	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			
	Thousand cubic feet												
Softwood													
Longleaf pine	1,655	--	--	--	--	--	--	1,655	--	--	--	--	--
Slash pine	8,960	428	1,230	1,322	2,474	2,032	679	--	795	--	--	--	--
Shortleaf pine	533,183	61,848	108,370	122,135	98,445	65,210	39,127	24,664	10,511	2,873	--	--	--
Loblolly pine	2,171,265	251,834	323,261	333,412	363,654	329,645	230,440	156,730	91,621	83,213	7,455	--	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	301,418	33,001	61,998	85,243	61,790	32,876	13,541	10,695	2,274	--	--	--	--
Pitch pine	17,814	1,917	3,756	2,596	4,527	2,694	1,362	--	--	962	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	48,958	1,173	7,272	2,885	5,126	2,825	837	3,074	6,125	10,957	8,684	--	--
Eastern hemlock	15,175	--	2,743	2,774	1,997	1,792	661	1,018	--	3,216	974	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	80,867	25,297	29,520	10,508	6,544	5,843	1,430	654	--	1,071	--	--	--
Total softwoods	3,179,295	375,498	538,150	560,875	544,557	442,917	288,077	198,490	111,326	102,292	17,113		
Hardwood													
Select white oaks	529,931	32,666	45,470	69,616	88,211	84,761	72,395	53,612	33,291	44,975	4,934	--	--
Select red oaks	151,377	4,949	11,172	18,313	15,363	25,027	17,146	16,378	16,888	20,063	6,078	--	--
Chestnut oak	91,794	4,212	7,016	8,522	17,853	18,931	8,995	7,031	5,398	13,041	795	--	--
Other white oaks	98,323	11,311	19,559	20,025	19,601	11,551	10,507	2,766	--	3,003	--	--	--
Other red oaks	574,596	38,637	68,822	88,581	101,588	66,156	73,879	46,963	44,285	37,683	8,002	--	--
Hickory	228,600	21,881	30,153	36,641	33,016	26,119	25,101	22,832	12,293	16,325	4,239	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	7,981	1,997	957	1,516	617	608	1,547	--	--	--	739	--	--
Soft maple	145,505	18,969	24,739	25,215	17,063	16,003	10,775	11,068	8,654	12,028	991	--	--
Beech	33,493	2,648	5,860	2,456	2,834	5,334	3,999	689	1,457	7,237	979	--	--
Sweetgum	536,096	69,731	89,845	80,993	81,297	77,166	53,198	40,420	22,027	17,188	4,231	--	--
Tupelo and blackgum	33,909	3,619	6,584	7,859	5,734	2,951	3,616	2,825	721	--	--	--	--
Ash	88,045	5,564	10,247	12,550	10,845	16,726	13,824	2,862	8,778	5,620	1,029	--	--
Cottonwood	28,868	--	552	594	--	--	976	1,840	2,341	10,275	12,290	--	--
Basswood	2,980	873	--	--	--	--	1,050	--	--	--	1,057	--	--
Yellow-poplar	464,691	17,272	32,350	37,888	60,613	58,692	70,548	43,244	48,997	84,527	10,560	--	--
Bay and magnolia	1,243	--	618	625	--	--	--	--	--	--	--	--	--
Black cherry	11,631	4,117	3,278	3,708	528	--	--	--	--	--	--	--	--
Black walnut	9,797	2,266	1,773	2,478	1,056	--	--	--	1,106	1,118	--	--	--
Sycamore	38,175	1,627	--	1,910	2,248	5,017	8,930	7,933	2,631	5,220	2,659	--	--
Black locust	5,465	--	--	2,031	--	--	816	1,815	--	803	--	--	--
Elm	83,930	16,254	19,533	14,403	14,816	4,745	8,160	1,628	1,145	1,879	1,367	--	--
Other eastern hardwoods	63,656	6,455	6,748	8,595	11,229	7,615	5,258	5,441	2,345	9,970	--	--	--
Total hardwoods	3,230,086	265,048	385,276	444,519	484,512	427,402	390,720	269,347	212,357	290,955	59,950		
All species	6,409,381	640,546	923,426	1,005,394	1,029,069	870,319	678,797	467,837	323,683	393,247	77,063		

Table 36 -- Volume of sawtimber on timberland, by species and diameter class, Piedmont of South Carolina, 1993

Species	Diameter class (inches at breast height)										29.0 and larger	
	All classes	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				
Thousand board feet												
Softwood												
Longleaf pine	10,212	--	--	--	--	10,212	--	--	--	--	--	--
Slash pine	36,880	5,195	11,706	11,008	3,894	--	5,077	--	--	--	--	--
Shortleaf pine	1,680,358	451,832	444,158	334,907	219,833	146,097	65,098	18,433	--	--	--	--
Loblolly pine	7,984,477	1,195,400	1,645,326	1,702,395	1,297,759	947,495	580,219	560,379	55,504	--	--	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	865,324	310,120	262,194	155,385	68,209	56,878	12,538	--	--	--	--	--
Pitch pine	54,551	7,755	19,993	13,375	7,286	--	--	6,142	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	233,063	9,784	22,142	14,192	4,458	17,276	36,737	69,661	58,813	--	--	--
Eastern hemlock	62,225	10,332	8,246	8,602	3,345	5,634	--	19,888	6,178	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	123,656	42,764	31,675	30,527	8,005	3,858	--	6,827	--	--	--	--
Total softwoods	11,050,746	2,033,182	2,445,440	2,270,391	1,612,789	1,187,450	699,669	681,330	120,495	681,330	681,330	120,495
Hardwood												
Select white oaks	1,656,969	--	302,380	337,316	320,014	255,281	167,976	244,977	29,025	--	--	--
Select red oaks	516,109	--	51,780	96,594	72,148	74,335	80,722	102,089	38,441	--	--	--
Chestnut oak	300,638	--	59,187	72,871	38,328	32,194	25,569	68,032	4,457	--	--	--
Other white oaks	200,867	--	71,855	48,789	49,303	13,990	--	16,930	--	--	--	--
Other red oaks	1,695,138	--	363,848	274,501	337,109	230,056	229,502	209,517	50,605	--	--	--
Hickory	624,597	--	114,103	106,287	112,591	111,676	63,722	90,171	28,047	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	15,313	--	2,219	2,350	6,662	--	--	--	4,082	--	--	--
Soft maple	319,860	--	55,140	60,678	45,334	49,653	41,605	61,999	5,451	--	--	--
Beech	89,135	--	10,312	20,355	15,612	2,721	5,894	30,063	4,178	--	--	--
Sweetgum	1,344,673	--	290,245	331,948	255,929	212,310	122,570	103,791	27,880	--	--	--
Tupelo and blackgum	60,582	--	18,039	11,262	15,308	12,549	43,834	30,161	6,039	--	--	--
Ash	251,215	--	34,936	63,839	59,181	13,225	12,449	58,449	79,492	--	--	--
Cottonwood	164,552	--	--	--	4,686	9,476	--	--	5,952	--	--	--
Basswood	10,616	--	--	--	4,664	--	--	--	--	--	--	--
Yellow-poplar	1,928,285	--	218,970	254,310	348,954	232,074	279,572	522,404	72,001	--	--	--
Bay and magnolia	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	1,630	--	1,630	--	--	--	--	--	--	--	--	--
Black walnut	12,704	--	3,420	--	--	--	4,555	4,729	--	--	--	--
Sycamore	159,339	--	7,010	18,809	38,406	37,451	13,284	28,585	15,794	--	--	--
Black locust	13,292	--	--	--	3,059	7,032	--	3,201	--	--	--	--
Elm	134,867	--	50,643	18,822	35,071	7,530	5,369	9,652	7,780	--	--	--
Other eastern hardwoods	181,296	--	39,445	29,277	22,661	25,534	12,600	51,779	--	--	--	--
Total hardwoods	9,681,677	--	1,695,162	1,748,008	1,785,020	1,327,087	1,112,847	1,636,529	377,224	1,636,529	1,636,529	377,224
All species	20,732,423	2,033,182	4,140,602	4,018,399	3,397,809	2,514,537	1,812,316	2,317,859	497,719	2,317,859	2,317,859	497,719

Table 37 -- Volume of sawtimber on timberland, by species, size class, and tree grade, Piedmont of South Carolina, 1993

Species	All size classes				Trees 15.0 inches d.b.h. and larger				
	All grades				All grades				
	1	2	3	4	1	2	3	4	
Softwood									
Yellow pines ^a	10,631,802	2,079,190	2,913,977	5,638,635	--	4,061,053	1,172,918	1,278,510	1,609,625
Eastern white pine ^b	233,063	45,090	124,500	63,473	--	186,945	45,090	113,955	27,900
Spruce and fir ^b	--	--	--	--	--	--	--	--	--
Cypress ^c	--	--	--	--	--	--	--	--	--
Other eastern softwoods ^b	185,881	--	41,079	110,844	33,958	53,735	--	19,567	21,633
Total	11,050,746	2,124,280	3,079,556	5,812,952	33,958	4,301,733	1,218,008	1,412,032	1,659,158
Hardwood^c									
Select white and red oaks	2,173,078	391,277	737,540	968,938	75,323	1,385,008	391,277	578,481	389,159
Other white and red oaks	2,196,643	181,425	661,232	1,144,544	209,442	1,305,592	181,425	566,744	472,362
Hickory	624,597	58,839	239,694	289,197	36,867	404,207	58,839	208,663	119,228
Yellow birch	--	--	--	--	--	--	--	--	--
Hard maple	15,313	--	--	15,313	--	10,744	--	--	10,744
Sweetgum	1,344,673	141,776	496,599	639,380	66,918	722,480	141,776	374,233	184,494
Ash, walnut, and black cherry	265,549	38,787	82,794	134,172	9,796	161,724	38,787	61,401	53,619
Yellow - poplar	1,928,285	535,921	747,418	575,248	69,698	1,455,005	535,921	634,849	241,415
Other eastern hardwoods	1,133,539	207,304	234,390	548,328	143,517	793,747	207,304	212,539	303,288
Total	9,681,677	1,555,329	3,199,667	4,315,120	611,561	6,238,507	1,555,329	2,636,910	1,774,309
All species	20,732,423	3,679,609	6,279,223	10,128,072	645,519	10,540,240	2,773,337	4,048,942	3,433,467

^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 Southeastern Forest Experiment 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 38 -- Cubic volume in the merchantable saw-log portion of sawtimber trees on timberland, by species and diameter class, Piedmont of South Carolina, 1993

Species	Diameter class (inches at breast height)										29.0 and larger
	All classes	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		
Softwood											
Longleaf pine	1,626	--	--	--	--	1,626	--	--	--	--	--
Slash pine	6,775	1,105	2,272	1,950	661	--	787	--	--	--	--
Shortleaf pine	324,537	97,534	89,187	62,086	38,156	24,321	10,408	2,845	--	--	--
Loblolly pine	1,456,236	259,057	327,184	311,944	223,343	154,246	90,699	82,382	7,381	--	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	179,996	68,684	55,251	30,696	12,873	10,290	2,202	--	--	--	--
Pitch pine	10,820	1,962	4,106	2,521	1,294	--	--	937	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	38,177	2,191	4,535	2,636	792	2,940	5,920	10,661	8,502	--	--
Eastern hemlock	11,329	2,283	1,742	1,654	619	971	--	3,115	945	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--
Cedars	22,909	8,488	5,930	5,456	1,362	629	--	1,044	--	--	--
Total softwoods	2,052,405	441,304	490,207	418,943	279,100	195,023	110,016	100,984	16,828		
Hardwood											
Select white oaks	323,637	--	63,497	69,676	63,459	48,679	30,890	42,673	4,763	--	--
Select red oaks	98,319	--	10,940	19,966	14,428	14,223	14,953	18,047	5,762	--	--
Chestnut oak	60,664	--	12,994	15,586	7,852	6,334	4,923	12,219	756	--	--
Other white oaks	38,675	--	14,446	9,592	9,275	2,524	--	2,838	--	--	--
Other red oaks	317,557	--	72,147	54,192	64,652	42,427	40,868	35,590	7,681	--	--
Hickory	118,640	--	23,915	21,529	21,854	20,834	11,336	15,309	4,063	--	--
Yellow birch	--	--	--	--	--	--	--	--	704	--	--
Hard maple	2,996	--	462	488	1,342	--	--	--	--	--	--
Soft maple	62,754	--	11,495	12,652	9,130	9,689	7,793	11,068	927	--	--
Beech	19,209	--	2,013	4,376	3,417	599	1,301	6,597	906	--	--
Sweetgum	247,363	--	56,991	63,962	47,255	37,426	20,856	16,685	4,188	--	--
Tupelo and blackgum	12,453	--	3,860	2,375	3,093	2,476	649	--	--	--	--
Ash	49,999	--	7,473	13,490	11,988	2,577	8,145	5,330	996	--	--
Cottonwood	26,512	--	--	--	871	1,693	2,179	9,763	12,006	--	--
Basswood	1,941	--	--	--	930	--	--	--	1,011	--	--
Yellow-poplar	332,122	--	42,417	48,206	62,772	39,965	46,365	81,942	10,455	--	--
Bay and magnolia	--	--	--	--	--	--	--	--	--	--	--
Black cherry	348	--	348	--	--	--	--	--	--	--	--
Black walnut	2,681	--	683	--	--	--	987	1,011	--	--	--
Sycamore	29,588	--	1,422	3,817	7,518	7,020	2,396	4,879	2,536	--	--
Black locust	2,946	--	--	--	672	1,564	--	710	--	--	--
Elm	26,630	--	10,388	3,844	6,952	1,437	1,016	1,717	1,276	--	--
Other eastern hardwoods	33,750	--	7,554	6,000	4,482	4,699	1,966	9,049	--	--	--
Total hardwoods	1,808,784	--	343,045	349,751	341,942	243,966	196,623	275,427	58,030		
All species	3,861,189	441,304	833,252	768,694	621,042	438,989	306,639	376,411	74,858		

Table 39 -- Total volume of live trees on timberland, by species and diameter class, Piedmont of South Carolina, 1993

Species	Diameter class (inches at breast height)											19.0- 20.9	21.0- 28.9	29.0 and larger				
	All classes	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							
Softwood																		
Longleaf pine	1,850	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Slash pine	10,842	95	291	558	1,448	1,520	2,804	2,281	760	1,850	--	--	--	--	--	--	--	--
Shortleaf pine	698,282	17,595	45,998	86,685	132,281	142,532	112,498	73,867	44,090	27,725	11,792	3,219	--	--	--	--	--	--
Loblolly pine	2,835,220	78,121	174,802	363,785	397,981	389,399	416,000	374,084	261,014	176,023	102,676	93,029	8,306	--	--	--	--	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	390,029	5,883	21,776	45,589	75,292	100,206	72,336	37,709	16,434	12,206	2,598	--	--	--	--	--	--	--
Pitch pine	23,250	859	1,385	2,459	4,522	3,040	5,225	3,099	1,562	--	--	--	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	61,063	1,467	1,649	1,567	8,807	3,416	5,984	3,272	967	3,545	7,050	13,371	9,968	--	--	--	--	--
Eastern hemlock	18,091	265	180	--	3,334	3,252	2,321	2,061	757	1,161	--	--	--	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	173,609	25,754	34,151	41,973	37,930	14,378	7,922	7,005	1,705	777	--	--	--	--	--	--	--	--
Total softwoods	4,212,036	130,039	280,232	542,616	661,595	657,743	625,090	503,378	327,289	223,287	125,001	116,387	19,379					
Hardwood																		
Select white oaks	728,679	13,255	25,070	52,410	62,418	90,630	111,690	106,844	89,549	67,289	42,140	56,798	10,586	--	--	--	--	--
Select red oaks	202,585	3,105	5,467	7,698	14,846	23,674	19,061	31,851	21,125	20,172	20,777	27,361	7,448	--	--	--	--	--
Chestnut oak	141,216	2,490	5,163	6,818	10,709	11,201	23,929	26,287	11,894	9,653	8,473	20,098	4,801	--	--	--	--	--
Other white oaks	155,345	4,642	14,662	17,558	27,201	27,420	26,152	15,048	14,900	3,989	--	--	--	--	--	--	--	--
Other red oaks	841,127	33,515	47,771	63,092	93,848	118,610	129,051	85,238	93,637	60,478	57,204	48,945	9,738	--	--	--	--	--
Hickory	350,744	15,889	27,603	39,432	42,607	46,991	41,398	33,761	31,084	30,811	15,388	20,885	5,095	--	--	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	21,587	5,092	5,302	3,292	1,780	1,874	749	735	1,858	--	--	--	--	--	--	--	--	--
Soft maple	316,239	35,127	46,799	42,563	38,955	42,499	25,782	23,747	14,496	14,707	12,630	17,742	1,192	--	--	--	--	--
Beech	55,161	2,273	2,763	4,524	8,174	3,119	3,546	6,612	4,934	848	1,806	14,114	2,448	--	--	--	--	--
Sweetgum	838,120	65,679	88,811	115,182	117,396	100,551	96,574	88,447	62,907	47,353	26,888	23,301	5,331	--	--	--	--	--
Tupelo and blackgum	72,077	10,095	11,013	6,501	10,736	10,125	8,021	4,559	4,969	4,596	1,462	--	--	--	--	--	--	--
Ash	134,760	4,692	9,382	12,828	14,922	18,980	14,983	19,839	17,049	3,262	9,986	7,673	1,164	--	--	--	--	--
Cottonwood	36,375	216	613	--	675	708	--	--	1,129	2,124	2,699	12,624	15,587	--	--	--	--	--
Basswood	5,245	--	--	1,696	1,141	--	--	--	1,207	--	--	--	1,201	--	--	--	--	--
Yellow-poplar	580,805	10,681	23,990	26,144	39,767	44,449	71,797	66,959	80,402	49,290	56,317	97,823	13,186	--	--	--	--	--
Bay and magnolia	4,652	123	585	--	2,421	1,523	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	77,527	24,049	20,397	16,015	8,038	6,429	2,023	576	--	--	--	--	--	--	--	--	--	--
Black walnut	14,050	21	390	3,253	2,485	3,003	1,899	--	188	--	--	--	--	--	--	--	--	--
Sycamore	49,379	1,082	1,532	2,843	604	2,281	3,487	5,841	10,372	9,181	3,040	6,052	3,064	--	--	--	--	--
Black locust	7,636	188	205	--	--	2,517	--	--	--	--	--	--	--	--	--	--	--	--
Elm	172,050	21,889	29,261	27,989	26,673	21,261	21,109	6,168	10,199	1,902	1,338	2,673	1,588	--	--	--	--	--
Other eastern hardwoods	436,459	91,662	105,147	84,246	43,482	30,520	24,848	17,357	9,742	8,172	3,282	17,106	895	--	--	--	--	--
Total hardwoods	5,241,818	345,765	471,926	534,084	568,878	608,365	625,799	539,869	482,343	336,548	264,734	379,278	84,229					
All species	9,453,854	475,804	752,158	1,076,700	1,230,473	1,266,108	1,250,889	1,043,247	809,632	559,835	389,735	495,665	103,608					

Table 40—Green weight of forest biomass on timberland, by species and diameter class, Piedmont of South Carolina, 1993

Species	Diameter class (inches at breast height)												19.0— 20.9	21.0— 28.9	29.0 and larger		
	All classes	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					
<i>Hundred thousand pounds</i>																	
Softwood																	
Longleaf pine	1,464	--	--	--	--	--	--	--	--	--	--	--	1,464	--	--	--	--
Slash pine	8,329	84	272	413	1,096	1,168	2,216	1,788	600	692	--	--	--	--	--	--	--
Shortleaf pine	476,392	9,772	27,916	51,605	90,117	100,853	80,651	52,994	31,704	20,008	8,467	2,305	--	--	--	--	--
Loblolly pine	2,031,802	38,838	103,422	264,926	297,583	286,525	303,526	273,871	188,836	127,322	74,246	66,853	5,854	--	--	--	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	292,282	5,072	17,815	35,186	56,283	73,775	53,466	27,696	12,174	8,891	1,924	--	--	--	--	--	--
Pitch pine	15,842	750	1,262	1,525	2,886	2,011	3,540	2,100	1,058	--	--	710	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	37,079	593	747	1,072	5,795	2,286	4,112	2,141	603	2,245	4,257	7,808	5,420	--	--	--	--
Eastern hemlock	13,280	162	117	--	2,662	2,674	1,793	1,456	585	778	--	2,340	713	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	119,460	15,456	21,860	29,727	27,612	10,641	5,817	5,158	1,298	559	--	1,332	--	--	--	--	--
Total softwoods	2,995,930	70,727	173,411	384,454	484,034	479,933	455,121	367,204	236,858	161,267	89,586	81,348	11,987				
Hardwood																	
Select white oaks	585,035	10,425	18,534	37,574	48,924	72,416	89,688	87,083	72,853	55,512	35,158	47,622	9,246	--	--	--	--
Select red oaks	163,813	2,620	4,183	5,629	11,800	19,166	15,503	26,167	17,062	16,507	16,796	21,883	6,497	--	--	--	--
Chestnut oak	110,558	2,259	4,040	4,691	8,297	8,648	18,180	20,509	9,352	7,708	6,748	16,128	3,998	--	--	--	--
Other white oaks	121,269	3,270	10,011	11,671	20,712	22,222	21,325	12,772	12,551	3,465	--	3,270	--	--	--	--	--
Other red oaks	686,243	27,387	35,783	43,617	72,676	96,345	107,451	71,620	79,673	51,447	48,996	42,348	8,900	--	--	--	--
Hickory	281,291	13,879	24,154	27,059	32,846	36,754	32,852	27,269	25,394	25,702	13,168	17,734	4,480	--	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	18,119	4,178	4,497	2,562	1,514	1,549	671	666	1,640	--	--	--	842	--	--	--	--
Soft maple	230,453	26,679	33,251	29,560	29,607	31,983	18,753	17,542	10,524	10,586	8,901	12,291	776	--	--	--	--
Beech	44,105	1,841	2,345	2,825	6,259	2,478	2,758	5,322	3,998	728	1,580	11,940	2,031	--	--	--	--
Sweetgum	595,717	43,535	59,103	75,100	83,190	72,578	71,025	65,251	46,950	35,859	20,685	18,209	4,232	--	--	--	--
Tupelo and blackgum	49,213	7,911	8,124	3,712	6,653	6,470	5,401	3,145	3,528	3,201	1,068	--	--	--	--	--	--
Ash	83,355	2,792	5,931	9,552	10,476	12,063	9,111	11,609	9,779	1,942	5,438	4,086	576	--	--	--	--
Cottonwood	26,849	139	410	--	438	477	--	--	790	1,522	1,924	9,308	11,841	--	--	--	--
Basswood	3,507	--	--	1,072	794	--	--	--	798	--	--	--	843	--	--	--	--
Yellow-poplar	411,763	7,911	15,882	16,134	26,740	30,868	50,540	47,855	57,920	35,790	40,994	71,380	9,749	--	--	--	--
Bay and magnolia	2,821	74	380	--	1,437	930	--	--	--	--	--	--	--	--	--	--	--
Black cherry	45,731	11,391	13,634	9,433	5,220	4,247	1,397	409	--	--	--	--	--	--	--	--	--
Black walnut	11,682	12	317	2,387	2,120	2,511	1,677	--	195	--	1,111	1,352	--	--	--	--	--
Sycamore	35,325	708	1,044	1,411	403	1,336	2,369	4,138	7,586	6,827	2,323	4,717	2,463	--	--	--	--
Black locust	7,211	149	180	--	--	2,291	--	--	945	2,671	--	975	--	--	--	--	--
Elm	112,591	15,838	20,490	17,146	16,860	13,028	13,690	3,991	6,609	1,262	826	1,803	1,048	--	--	--	--
Other eastern hardwoods	342,324	77,617	89,745	57,475	32,630	22,246	18,281	13,941	7,463	6,499	2,486	13,542	399	--	--	--	--
Total hardwoods	3,988,975	260,615	352,038	358,610	419,596	460,606	480,672	419,289	375,610	267,228	208,202	298,588	67,921				
All species	6,984,905	331,342	525,449	743,064	903,630	940,539	935,793	786,493	612,468	428,495	297,788	379,936	79,908				

Table 41 -- Average net annual growth and removals of live timber and growing stock on timberland, by species, Piedmont of South Carolina, 1986–1992

Species	Live timber ^a		Growing stock	
	Net annual growth	Annual timber removals	Net annual growth	Annual timber removals
<i>Thousand cubic feet</i>				
Softwood				
Yellow pines	163,637	181,028	162,042	177,926
Eastern white pine	2,186	240	2,274	240
Spruce and fir	--	--	--	--
Cypress	--	--	--	--
Other eastern softwoods	4,106	2,664	3,967	2,664
Total softwoods	169,929	183,932	168,283	180,830
Hardwood				
Select white and red oaks	21,703	15,910	21,914	15,514
Other white and red oaks	21,055	25,834	20,562	24,006
Hickory	5,239	4,540	5,074	4,454
Yellow birch	--	--	--	--
Hard maple	431	--	385	--
Sweetgum	17,555	16,657	17,186	16,059
Ash, walnut, and black cherry	2,714	2,166	2,228	1,892
Yellow–poplar	18,952	11,288	18,667	10,875
Tupelo and blackgum	823	780	791	727
Bay and magnolia	33	--	14	--
Other eastern hardwoods	14,885	12,055	11,679	9,415
Total hardwoods	103,390	89,230	98,500	82,942
All species	273,319	273,162	266,783	263,772

^a Merchantable portion only.

Table 42--Average net annual growth and removals of sawtimber on timberland, by species, Piedmont of South Carolina, 1986-1992

Species	Net annual growth	Annual timber removals
<i>Thousand board feet</i>		
Softwood		
Yellow pines	625,272	662,455
Eastern white pine	11,725	570
Spruce and fir	--	--
Cypress	--	--
Other eastern softwoods	6,005	4,184
Total softwoods	643,002	667,209
Hardwood		
Select white and red oaks	92,693	49,385
Other white and red oaks	89,894	74,453
Hickory	17,458	14,024
Yellow birch	--	--
Hard maple	583	--
Sweetgum	48,267	36,593
Ash, walnut, and black cherry	7,210	3,008
Yellow-poplar	92,322	50,676
Tupelo and blackgum	2,357	1,775
Bay and magnolia	--	--
Other eastern hardwoods	40,869	22,073
Total hardwoods	391,653	251,987
All species	1,034,655	919,196

Table 43--Average annual removals of growing stock on timberland, by species and diameter class, Piedmont of South Carolina, 1986-1992

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
<i>Thousand cubic feet</i>											
Softwood											
Yellow pines	177,926	14,394	26,392	35,817	36,015	28,269	16,442	10,482	5,716	4,399	--
Eastern white pine	240	--	122	--	--	118	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--
Cypress	--	--	--	--	--	--	--	--	--	--	--
Other eastern softwoods	2,664	1,221	483	557	403	--	--	--	--	--	--
Total softwoods	180,830	15,615	26,997	36,374	36,418	28,387	16,442	10,482	5,716	4,399	--
Hardwood											
Select white and red oaks	15,514	965	1,507	1,946	1,322	2,569	2,866	1,628	1,042	1,538	131
Other white and red oaks	24,006	1,661	2,600	3,495	3,420	3,653	3,202	1,637	1,481	2,347	510
Hickory	4,454	646	602	288	295	468	558	439	382	441	335
Yellow birch	--	--	--	--	--	--	--	--	--	--	--
Hard maple	--	--	--	--	--	--	--	--	--	--	--
Sweetgum	16,059	2,228	2,492	3,137	2,892	1,673	1,333	1,417	287	600	--
Ash, walnut, and black cherry	1,892	548	265	361	107	363	--	--	--	248	--
Yellow-poplar	10,875	254	277	713	1,128	1,294	1,647	1,116	771	3,675	--
Tupelo and blackgum	727	59	300	--	--	--	131	112	--	125	--
Bay and magnolia	--	--	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	9,415	813	2,173	1,292	913	752	1,409	485	308	1,153	117
Total hardwoods	82,942	7,174	10,216	11,232	10,077	10,772	11,146	6,834	4,271	10,127	1,093
All species	263,772	22,789	37,213	47,606	46,495	39,159	27,588	17,316	9,987	14,526	1,093

Table 44-- Average annual mortality of live timber, growing stock, and sawtimber on timberland, by species, Piedmont of South Carolina, 1986-1992

Species	Live timber ^a	Growing stock	Sawtimber
	<i>Thousand cubic feet</i>		<i>Thousand board feet</i>
Softwood			
Yellow pines	50,164	48,818	158,484
Eastern white pine	290	160	1,082
Spruce and fir	--	--	--
Cypress	--	--	--
Other eastern softwoods	1,281	1,238	2,524
Total softwoods	51,735	50,216	162,090
Hardwood			
Select white and red oaks	5,778	4,630	13,032
Other white and red oaks	13,464	12,552	36,198
Hickory	1,818	1,584	4,715
Yellow birch	--	--	--
Hard maple	--	--	--
Sweetgum	4,071	3,196	8,536
Ash, walnut, and black cherry	2,094	1,267	3,729
Yellow-poplar	1,495	1,273	4,615
Tupelo and blackgum	55	--	--
Bay and magnolia	--	--	--
Other eastern hardwoods	8,701	5,203	9,349
Total hardwoods	37,476	29,705	80,174
All species	89,211	79,921	242,264

^a Merchantable portion only.

Table 45--Change in number of live trees on timberland, by species group, survey completion date and diameter class, Piedmont of South Carolina

Species group and year	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 and larger
<i>Thousand trees</i>									
Yellow pine									
1986	913,669	411,070	192,629	116,654	81,434	53,975	31,146	15,231	11,530
1993	1,007,734	450,489	231,748	146,040	81,327	44,833	26,232	14,503	12,562
Change	+94,065	+39,419	+39,119	+29,386	-107	-9,142	-4,914	-728	+1,032
Other softwood									
1986	196,428	140,740	34,425	12,644	5,564	1,680	645	301	429
1993	182,398	126,786	33,256	11,949	6,726	1,842	896	439	504
Change	-14,030	-13,954	-1,169	-695	+1,162	+162	+251	+138	+75
Hardwood									
1986	2,122,044	1,420,451	367,382	152,314	75,097	44,421	25,772	16,085	20,522
1993	2,248,714	1,562,800	366,136	139,743	71,888	42,558	27,077	15,953	22,559
Change	+126,670	+142,349	-1,246	-12,571	-3,209	-1,863	+1,305	-132	+2,037

Table 46--Land area, by land use class, major forest type, and survey completion date, Piedmont of South Carolina

Land use class	Survey completion date			Change 1986-1993
	1977	1986	1993	
<i>Acres</i>				
Forest land				
Timberland				
Pine and oak-pine types	2,929,453	2,704,657	2,773,982	+69,325
Hardwood types	1,598,583	1,736,534	1,696,456	-40,078
Total	4,528,036	4,441,191	4,470,438	+29,247
Reserved timberland	38,746	33,815	90,264	+56,449
Woodland	--	--	--	--
Total forest land	4,566,782	4,475,006	4,560,702	+85,696
Nonforest land				
Cropland	741,685	746,205	606,746	-139,459
Pasture and range	728,065	648,148	627,492	-20,656
Other	607,247	737,740	880,224	+142,484
Total	2,076,997	2,132,093	2,114,462	-17,631
All land^a	6,643,779	6,607,099	6,675,164	+68,065

^a Excludes all water areas.

Table 47 -- Volume of sawtimber, growing stock, and live timber on timberland, by species group, survey completion date, and diameter class, Piedmont of South Carolina

Species group and year	Diameter class (inches at breast height)										21.0 and larger	
	All classes	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 thousand board feet)												
Softwood												
1977	11,049,511	--	--	2,763,175	2,772,507	2,164,168	1,566,995	902,065	385,704	494,897		
1986	11,216,598	--	--	2,410,135	2,786,712	2,278,404	1,489,753	1,161,826	485,924	603,844		
1993	11,050,746	--	--	2,033,182	2,445,440	2,270,391	1,612,789	1,187,450	699,669	801,825		
Hardwood												
1977	7,689,468	--	--	--	1,666,491	1,543,600	1,408,664	1,035,259	741,505	1,293,949		
1986	8,728,948	--	--	--	1,597,667	1,766,622	1,611,795	1,279,661	902,167	1,571,036		
1993	9,681,677	--	--	--	1,695,162	1,748,008	1,785,020	1,327,087	1,112,647	2,013,753		
GROWING STOCK (in thousand cubic feet)												
Softwood												
1977	3,638,819	501,535	752,702	765,868	620,951	427,802	281,617	152,024	61,796	74,524		
1986	3,265,966	339,778	551,196	668,090	624,186	450,409	267,723	195,804	77,855	90,925		
1993	3,179,295	375,498	538,150	560,875	544,557	442,917	288,077	198,490	111,326	119,405		
Hardwood												
1977	2,952,241	347,607	419,809	456,755	472,485	374,160	307,849	207,933	140,115	225,528		
1986	3,125,199	318,771	405,795	465,994	452,925	428,189	352,221	257,011	170,471	273,822		
1993	3,230,086	265,048	385,276	444,519	484,512	427,402	390,720	269,347	212,357	350,905		
LIVE TIMBER^a (in thousand cubic feet)												
Softwood												
1977	3,685,535	512,489	769,161	776,533	624,522	429,881	283,127	152,023	61,796	76,003		
1986	3,304,752	347,662	563,741	677,452	627,914	452,516	269,144	195,803	77,855	92,665		
1993	3,197,567	381,665	543,028	563,753	545,455	443,307	289,941	198,490	111,326	120,602		
Hardwood												
1977	3,338,455	461,384	488,285	510,774	518,910	400,065	323,236	224,176	150,642	260,983		
1986	3,519,611	424,286	471,745	521,209	497,479	457,847	369,790	277,080	183,317	316,858		
1993	3,566,446	363,141	444,849	493,492	516,303	449,924	404,391	281,811	222,851	389,684		

^a Merchantable volume.

The Forest Service, U.S. Department of Agriculture, is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

USDA policy prohibits discrimination because of race, color, national origin, sex, age, religion, or handicapping condition. Any person who believes he or she has been discriminated against in any USDA-related activity should immediately contact the Secretary of Agriculture, Washington, DC 20250.