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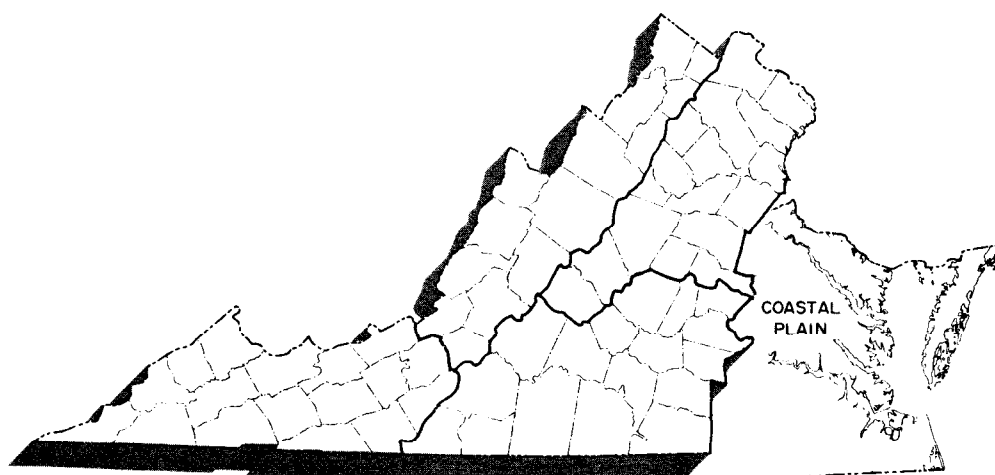
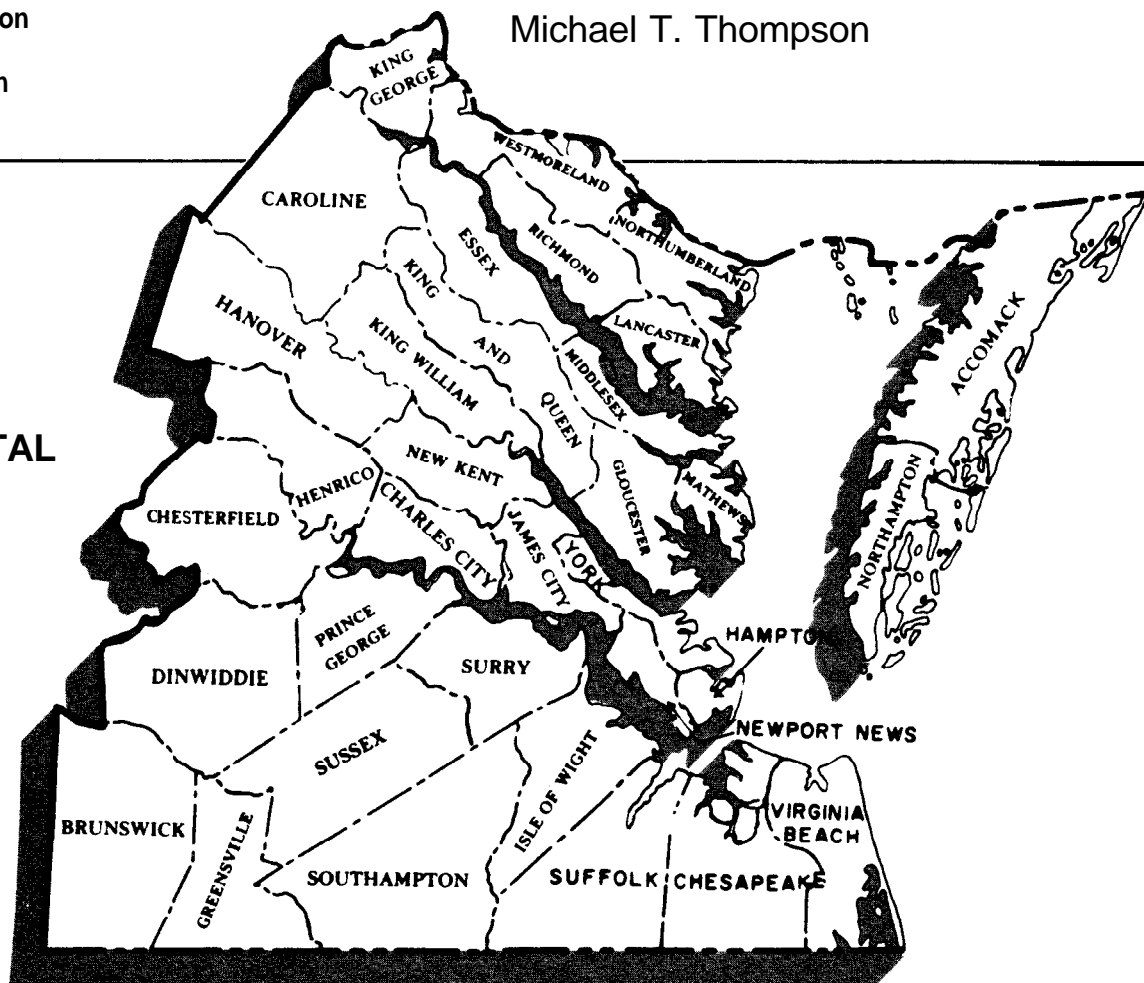
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# Forest Statistics for the Coastal Plain of Virginia, 1991

Michael T. Thompson

COASTAL  
PLAIN



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Southeastern Forest Experiment Station  
P.O. Box 2680  
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# **Forest Statistics for the Coastal Plain of Virginia, 1991**

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## Foreword

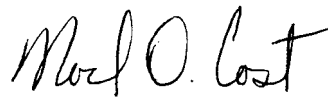
This report highlights the principal findings of the sixth forest survey of the Coastal Plain of Virginia. Field work began in October 1990 and was completed in March 1991. Five previous surveys, completed in 1940, 1956, 1966, 1976, and 1985, provide statistics for measuring changes and trends over the past 51 years. The primary emphasis in this report is on the changes and trends since 1985. Previously reported figures have been adjusted to provide the best estimate of change.

Periodic surveys of the forest resource are authorized by the Forest and Range-land 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 and removals.

The 34-county area covered by this report is one of five survey units in Virginia. A comparable report for the other four units will be issued as the statewide inventory progresses. When completed, the inventory will provide updated statistics on the timber resource for all of Virginia.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the Virginia Division of Forestry, 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.



Noel D. Cost  
Project Leader



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Since 1985 in the Coastal Plain of Virginia--

- area of timberland decreased by 72,000 acres, or by 2 percent. Timberland currently occupies 3.7 million acres, or 58 percent of the land area in this 34-county region. Land use changes occurred on almost 175,000 acres. More than 123,000 acres were diverted to other land uses, while over 51,000 acres were added to the timberland base. Most of the additions came from natural seeding and tree planting on former agricultural land. Forest clearing for urban development accounted for 82 percent of the diversions, with clearing for agriculture and water accounting for 13 and 3 percent, respectively. Timberland reclassified to a reserved status accounted for the remaining 2 percent of the diversions.

. area of timberland held by nonindustrial private forest (NIPF) landowners increased by 24,000 acres, or by less than 1 percent. 'NIPF' owners presently control 2.8 million acres, or **three-fourths** of the timberland in the region. Within the NIPF category, area of farmer-owned timberland dropped 6 percent to 904,000 acres, whereas area of timberland owned by corporations that do not manufacture forest products increased by 34 percent to 329,000 acres. Timberland held by other individuals remained stable at 1.6 million acres. Forest industry holdings declined 12 percent and now total 750,000 acres. This decrease in forest industry acreage resulted in declines in both volume and growth on this ownership category. Timberland controlled by public agencies increased 2 percent to 147,000 acres. Only 4 percent of the timberland in the region is publicly owned.

- area of timberland classified as a pine type increased by 4 percent to over 1.3 million acres. This gain resulted from a 29-percent jump in the area of

planted pine stands. Pine plantations currently account for 55 percent of all pine stands in the region, compared with 44 percent in 1985. Area of loblolly pine type--by far the most extensive pine type in the region--increased by 98,000 acres to nearly 1.3 million acres and was responsible for all of the gain in pine-type area. Area of Virginia pine type fell 33 percent to 68,000 acres. The area supporting oak-pine types declined by over 2 percent to 624,000 acres. Area of hardwood types dropped from 1.9 to 1.7 million acres, or by 6 percent.

- over 70,000 acres were harvested annually and retained in timberland. The mean annual rate of harvest has dropped 3 percent since the previous period. On the average, hardwood stands accounted for 45 percent of the area harvested each year, pine stands constituted 38 percent, and oak-pine stands made up 17 percent. Commercial thinning, primarily in pine plantations, occurred on an average of 12,000 acres annually--nearly a threefold increase since 1976-1985. Partial harvests and other types of timber cutting occurred on an additional 19,000 acres yearly. Natural disturbances such as fire, insects, and disease affected almost 32,000 acres annually.

. the annual rate of stand regeneration increased from 65,000 acres to nearly 84,000 acres per year, or by 28 percent. New pine and oak-pine stands were established through natural regeneration and planting on 55,000 acres annually. In comparison, only 39,000 acres of pine and oak-pine stands were harvested. Across all ownerships, the annual rate of planting increased 9 percent to more than 37,000 acres. Most of this increase occurred on land controlled by forest industry, where the area planted increased by 23 percent to 18,000 acres per year. Artificial regeneration on NIPF land remained at the

same level as in the previous period, but natural regeneration on this ownership increased from 23,000 to over 38,000 acres per year.

. average basal area of live trees 5.0 inches d.b.h. and larger has increased from 75 to 78 square feet per acre. Current merchantable net volume per acre of softwoods and hardwoods averages 1,770 cubic feet per acre. Area in stands classified as fully stocked increased 6 percent to 2.0 million acres, whereas area in stands classified as medium stocked declined by 10 percent to 1.4 million acres. Poorly stocked areas declined 9 percent to 340,000 acres and presently account for 9 percent of the total timberland area.

. volume of softwood growing stock increased from 2.4 to 2.5 billion cubic feet, or by 5 percent. This increase reverses a long-term downward trend in softwood volume in the area. Volume of loblolly pine, the single most dominant species in the region, rose 8 percent to 2.1 billion cubic feet and accounted for nearly all the gain in softwood volume. Volume of Virginia pine, the second leading softwood species, experienced the greatest reduction with a 22-percent decline to 243 million cubic feet. Cypress volume increased by 17 percent to 50 million cubic feet. Softwood inventories on NIPF land increased by 13 percent to 1.7 billion cubic feet. Volume of softwood growing stock declined by 11 percent to 603 million cubic feet on forest industry land and increased by less than 1 percent to 152 million cubic feet on public land. Softwood volume increased in all diameter classes with the exception of the 14- and 16-inch diameter classes. Volume in the 8- and 10-inch size classes, which account for over 36 percent of the softwood growing-stock volume, increased by 9 and 12 percent, respectively. Volume of softwood sawtimber was up by 3 percent to 8.3 billion board feet.

. volume of hardwood growing stock remained at about the same level as in the previous survey at 3.7 billion cubic feet. Collectively, the inventory of oak species declined by less than 1 percent to 1.4 billion cubic feet and remains the dominant hardwood species group in the region. Sweetgum volume dropped 12 percent to 573 million cubic feet. Volume of hardwood growing stock on NIPF land increased by 2 percent to 3.1 billion cubic feet, and volume on public land increased by 31 percent to 254 million cubic feet. These increases in hardwood volume on NIPF and public land were offset by a decline of 22 percent to 380 million cubic feet on land controlled by forest industry. All of the decline in hardwood inventory occurred in the 12-inch and smaller diameter classes. The largest decline of 9 percent occurred in the 10-inch class and the largest increase of 14 percent occurred in the 21-inch and larger size class. Total volume of all hardwood sawtimber rose 4 percent to 11.3 billion board feet.

. net annual growth of softwood growing stock increased from 101 to over 136 million cubic feet, or by 35 percent. Almost nine-tenths of the increase in softwood growth occurred on NIPF land, where net annual growth soared by 53 percent to 90 million cubic feet. Net annual growth of softwood growing stock also increased on forest industry and public land by 10 and 8 percent, respectively. Softwood growth exceeded removals by a margin of 37 percent on NIPF tracts, in contrast to the situation in 1976-1984 when removals exceeded growth by 26 percent. Across all ownerships, softwood growth exceeded removals by 18 percent. Net annual growth of hardwoods fell 3 percent to 128 million cubic feet. In contrast to the 25-percent growth surplus that was recorded in the previous period, hardwood growth exceeded removals by under 3 percent across all ownerships. This tightening of the growth:removal ratio for hardwoods continues a trend observed in other States and survey units. However, there were significant regional

differences in the relationship of hardwood growth and removals. In the 22-county area north of the James River, hardwood growth exceeded removals by 25 percent, whereas in the 12-county area south of the James River, hardwood removals exceeded growth by 18 percent. Mean net growth per year for softwoods and hardwoods jumped from 63 to 73 cubic feet per acre. Net annual growth for all species included 945 million board feet of sawtimber.

• annual removals of hardwood growing stock increased to 125 million cubic feet, a gain of 19 percent. Mean annual removals of hardwood growing stock increased on NIPF and forest industry land, but declined on public land. Annual removals of softwood growing stock remained stable since the previous period at over 115 million cubic feet.

Softwood removals were down by 11 percent to 66 million cubic feet on NIPF land. This decline in removals of softwood growing stock was offset by a 13-percent increase on forest industry land, and a more than twofold increase on public land. Growing-stock removals included 421 million board feet of softwood sawtimber and 412 million board feet of hardwood sawtimber.

• annual mortality of softwood growing stock averaged 19 million cubic feet. Softwood mortality was down 37 percent, whereas annual mortality of hardwood growing stock increased 15 percent to 16 million cubic feet. Softwood mortality reduced gross growth by 12 percent. Hardwood mortality reduced gross growth by 13 percent. Annual mortality of growing stock included 52 million board feet of softwood sawtimber and 52 million board feet of hardwood sawtimber.

## How the Inventory is Made

The method of the inventory is a sampling procedure designed to provide reliable statistics primarily at the State and Survey Unit levels. Individual county statistics are presented so that any combination of counties may be added together until a total is large enough to meet the desired degree of reliability. Procedures were as follows:

1. Initial estimates of forest and nonforest areas were based on the classification of 21,163 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 2,323 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 1,377 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.

4. Felled trees were measured at 36 active cutting operations. These data will supplement the standing-tree volume data and be used to generate utilization factors for product and species groups. Forest biomass estimates were made from equations developed by the Utilization of Southern Timber Research Work Unit of the Southeastern Forest Experiment Station in Athens, GA.

5. Estimates of growth, removals, and mortality were determined from the remeasurement of 1,411 permanent sample plots established in the fifth survey.

6. Ownership information was collected from correspondence, public records, and local contacts. In those 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.

## Reliability of the Data

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

	<u>Percent</u>
Per million acres of timberland .....	1.01
Per billion cubic feet of growing stock. ....	5.73
Per billion cubic feet of net annual growth. ....	1.11
Per billion cubic feet of annual removals. ....	3.34

Sampling errors for county and unit **totals,<sup>a</sup>** in terms of one standard error, Coastal Plain of Virginia, 1991

County	Timberland area	Cubic-foot volume of growing stock		
		Inventory	Growth	Removals
<u>Sampling error<sup>b</sup></u>				
Accomack	3.84	11.24	11.68	64.65
Brunswick	1.32	8.55	7.73	28.59
Caroline	1.75	9.79	8.71	27.74
Charles City	2.51	15.41	12.21	47.22
Chesapeake	7.53	17.82	13.86	46.63
Chesterfield	2.08	8.51	8.29	21.88
Dinwiddie	1.38	9.63	8.59	27.05
Essex	3.14	16.57	14.20	41.07
Gloucester	3.07	11.94	11.07	43.73
Greensville	2.80	14.01	11.98	34.34
Hampton	20.18	.00	.00	.00
Hanover	2.54	8.33	7.58	39.11
<b>Henrico</b>	7.76	16.10	14.64	69.43
Isle of Wight	2.61	16.08	17.16	33.75
James City	4.00	11.79	16.53	100.11
King and Queen	1.61	10.70	10.45	36.14
King George	2.87	11.08	11.98	66.84
King William	2.60	13.58	14.95	28.70
Lancaster	3.09	18.44	21.34	69.30
Mathews	4.43	23.27	26.87	48.31
Middlesex	3.64	17.90	14.09	56.63
New Kent	2.05	11.96	11.16	36.92
Newport News	22.90	50.34	51.90	108.31
Northampton	6.73	20.83	22.46	75.98
Northumberland	2.87	14.24	14.06	48.28
Prince George	2.28	13.10	11.43	38.48
Richmond	2.69	14.68	17.45	60.74
Southampton	1.51	10.53	9.50	22.49
Suffolk	3.39	15.02	12.64	38.53
Surry	2.03	12.90	12.45	33.68
Sussex	1.55	10.25	8.69	24.38
Virginia Beach	11.36	19.77	19.77	60.54
Westmoreland	3.43	11.54	13.37	45.17
York	7.10	19.12	16.67	100.33
Total	<b>.48</b>	2.28	2.14	6.80

<sup>a</sup>Sampling error of breakdowns of county and unit totals may be computed with the following formula:

$$E = \frac{(SE) \sqrt{(\text{Specified volume or area})}}{\sqrt{(\text{Volume or area total in question})}}$$

Where: E = Sampling error of the volume or area total in question

SE = Specified sampling error in table.

<sup>b</sup>By random-sampling formula (in percent).

## Definitions of Terms

**Allowable cut.** The volume of timber that could be cut on timberland during a given period under specified management plans aimed at sustained production of timber products.

**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 as square feet of basal area 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.

**Bureau of Land Management lands.** Federal lands administered by the Bureau of Land Management.

**Census water.** Streams, sloughs, estuaries, canals, and other moving bodies of water one-eighth of a statute mile in width and greater, and lakes, reservoirs, ponds, and other permanent bodies of water 40 acres in area and greater.

**Commercial forest land.**(see: Timberland).

**Commercial species.** Tree species conventionally regarded as being able to develop into trees suitable for the manufacture of industrial timber products. Species that typically exhibit small size, poor form, or inferior quality 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 (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 through 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 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 25 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.

Desirable tree. A tree that qualifies as growing stock and has no serious defects in quality limiting present or prospective use; is of relatively high vigor (30 percent or more live crown ratio); is compatible with the site and

physiographic class; has a total **board-foot** loss not to exceed 15 percent in softwoods or 25 percent in hardwoods as a result of severe sweep, crook, or lean; and has a relatively clear bole.

Acceptable tree. A tree that qualifies as growing stock but does not meet the minimum requirements to qualify as a desirable tree. Included are **sawtimber-size** trees that do not contain a 12-foot saw log because of excessive, natural taper in the butt log but have the potential to produce a **12-foot** saw log as diameter increases.

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. Land including former 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.

Indian land. All lands held in trust by the United States for individual Indians or tribes, or all lands, titles to which are held by individual Indians or tribes, subject to Federal restrictions against alienation.

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.

Inhibiting vegetation. Cover sufficiently dense to prevent the establishment of tree seedlings.

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 one-eighth of a statute mile in width, and lakes, reservoirs, and ponds less than 40 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.

Logging slash. The unmerchantable portion of growing-stock trees (including saplings) plus all cull trees 1.0 inch d.b.h. and larger cut or destroyed during logging operations and not used.



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 the 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.

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

Quality class. A classification of **saw-timber** volume by log or tree grades.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Seedlings. Live trees of commercial species less than 1.0 inch d.b.h. that are expected to survive and develop.

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.

Class 1. 165 or more cubic feet per acre.

Class 2. 120 to 164 cubic feet per acre.

Class 3. 85 to 119 cubic feet per acre.

Class 4. 50 to 84 cubic feet per acre.

Class 5. 20 to 49 cubic feet per acre.

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.

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

capable of producing 20 cubic feet of industrial wood per acre per year and not withdrawn from timber utilization by legislative action.

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 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.

## Stocking Standard

D.b.h. class	Minimum number of trees per acre for full stocking	Minimum basal area per acre for full stocking
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

## Conversion factor<sup>8</sup>

Cubic feet of wood per average cord  
(excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	60.5	61.0	68.2	60.0
8	68.3	68.1	76.0	68.4
10	73.2	73.1	81.4	73.4
12	76.5	76.7	85.2	76.4
14	78.8	79.4	88.2	78.4
16	80.4	81.6	90.4	79.8
18	81.7	83.3	92.3	80.8
20	82.6	84.8	93.8	81.5
22	83.2	86.0	95.1	82.1
<b>24+</b>	84.3	87.6	98.4	83.1
Average	74.5	73.5	90.3	75.0

## Metric equivalents of units used in this report

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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

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# County Tables

The county tables are intended for use in compiling forest resource estimates for groups of counties. Because the sampling procedure used by the Forest Survey was intended primarily to furnish inventory data for the survey unit as a whole, individual county estimates have limited and variable accuracy. As county totals are broken down by various subdivisions, the possibility of error increases and is greatest for the smallest items. The order of this increase can be computed with the formula on page 5.

Table 1--Area, by county and land class, Coastal Plain of Virginia, 1991

County	All land <sup>a</sup>	Forest land			Nonforest land <sup>b</sup>	
		Total	Timberland	Woodland		Reserved timberland
Acres						
Accomack	304,435	96,630	94,507	2,123	--	207,805
Brunswick	360,460	290,950	290,950	--	--	69,510
Caroline	342,695	261,702	261,702	--	--	80,993
Charles City	116,128	85,042	84,737	--	305	31,086
Chesapeake	270,655	101,569	59,974	--	41,595	169,086
Chesterfield	304,448	189,813	187,487	--	2,326	114,635
Dinwiddie	337,213	244,769	244,049	--	720	92,444
Essex	168,051	98,013	98,013	--	--	70,038
Gloucester	144,122	94,613	94,613	--		49,509
Greensville	193,779	135,286	135,286	--		58,493
Hampton	32,832	4,342	4,342		--	28,490
Hanover	299,155	178,376	178,181	--	195	120,779
Henrico	169,210	59,637	59,429	--	208	109,573
Isle of Wight	204,454	114,511	114,161	--	350	89,943
James City	101,293	64,973	60,221	--	4,752	36,320
King and Queen	202,982	152,722	152,722	--	--	50,260
King George	115,245	72,837	70,130	--	2,707	42,408
King William	177,766	111,822	111,822	--	--	65,944
Lancaster	85,043	52,501	52,501	--	—	32,542
Mathews	55,776	34,787	34,787	--	--	20,989
Middlesex	85,728	49,882	49,882	--	--	35,846
New Kent	136,256	98,183	98,183	--		38,073
Newport News	41,792	7,934	7,934	--	--	33,858
Northampton	144,602	30,967	30,351	616	--	113,635
Northumberland	118,106	67,886	67,886		--	50,220
Prince George	178,537	118,271	117,291	--	980	60,266
Richmond	123,335	76,279	76,279	--	--	47,056
Southampton	388,307	240,553	240,492	--	61	147,754
Suffolk	261,869	143,645	111,147	--	32,498	118,224
Surry	180,058	124,151	122,880	--	1,271	55,907
Sussex	314,490	250,668	250,649		19	63,822
Virginia Beach	163,795	40,727	36,581	--	4,146	123,068
Westmoreland	145,049	75,785	74,248	--	1,537	69,264
York	83,277	32,849	28,849	--	4,000	50,428
Total	6,350,943	3,802,675	3,702,266	2,739	97,670	2,548,268

<sup>a</sup>From U.S. Bureau of the Census, 1980.

<sup>b</sup>Includes 92,794 acres of water according to Forest Survey standards of area classification, but defined by the Bureau of Census as land.

Table Z--Area of timberland, by county and ownership class, Coastal Plain of Virginia, 1991

county	All ownerships	Ownership class							
		National forest	Miscellaneous Federal	State	County and municipal	Forest industry <sup>a</sup>	Other private		
							Farmer	Corporate	Individual
Acres									
Accomack	94,507	--	1,412	185	236	9,315	26,890	13,445	43,024
Brunswick	290,950	--	5,326	644	380	80,335	52,376	13,094	138,795
Caroline	261,702		55,565	879	276	20,144	52,811	15,843	116,184
Charles City	84,737		--	4,750	261	15,438	5,844	5,844	52,600
Chesapeake	59,974		1,533	190	1,947	6,125	10,564	21,128	18,487
Chesterfield	187,487	--	863	5,652	1,155	15,814	20,873	59,637	83,493
Dinwiddie	244,049	--	1,676	680	330	64,864	58,448	11,690	99,361
Essex	98,013	--	109	--	385	16,023	28,210	9,403	43,883
Gloucester	94,613	--	--	80	271	7,886	10,162	10,162	66,052
Greensville	135,286	--	--	--	143	50,708	30,490	--	53,945
Hampton	4,342	--	280	44	50	--	--	3,968	--
Hanover	178,181		--	1,103	276	15,246	40,389	17,310	103,857
Henrico	59,429		20	2,264	128	8,430	19,670	19,670	28,099
Isle of Wight	114,161		60	10	925	28,033	58,712	2,936	23,485
James City	60,221	--	1,248	750	1,150	6,766	6,708	10,061	33,538
King and Queen	152,722	--	--	320	334	55,245	30,430	8,299	58,094
King George	70,130	--	1,401	223	309	698	7,788	15,577	44,134
King William	111,822	--	425	317	47	27,586	27,816	7,586	48,045
Lancaster	52,501	--	--	--	461	7,695	8,869	8,869	26,607
Mathews	34,787	--	--	--	15	7,122	2,765	2,765	22,120
Middlesex	49,882		--	--	35	4,774	12,019	--	33,054
New Kent	98,183	--	--	611	210	24,112	18,313	7,848	47,089
Newport News	7,934		3,467	5	2,228	--	--	2,234	--
Northampton	30,351	--	10	125	60	150	5,001	2,501	22,504
Northumberland	67,886	--	--	--	210	11,069	26,956	8,087	21,564
Prince George	117,291		3,166	176	185	29,606	33,153	10,201	40,804
Richmond	76,279	--	--	80	30	15,581	25,966	2,885	31,737
Southampton	240,492	--	19	1,700	150	62,012	113,141	11,038	52,432
Suffolk	111,147	--	189	167	2,557	32,664	45,342	8,637	21,591
Surry	122,880	--	--	1,697	90	35,292	51,481	--	34,320
Sussex	250,649	--	--	133	190	94,760	65,501	5,458	84,607
Virginia Beach	36,531		1,877	650	743	--	3,506	7,013	22,792
Westmoreland	74,248	--	--	--	125	5,163	15,324	5,108	48,528
York	28,849		14,173	305	6,612	--	--	1,108	6,651
Total	3,702,266	--	99,819	23,740	23,194	750,354	904,278	329,405	1,571,476

<sup>a</sup>Includes 0 acres of other private land under long-term lease.

Table 3--Area of timberland, by county and forest-type group, Coastal Plain of Virginia, 1991

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
Acres										
Accomack	94,507	--	--		45,037	24,617	16,134	8,719		--
Brunswick	290,950	--	--	--	131,809	45,968	97,459	5,238	10,476	
Caroline	261,702	--	--	--	94,944	33,976	113,672	10,561	8,549	--
Charles City	84,737	--	--	--	30,710	21,942	24,034	8,051	--	--
Chesapeake	59,974	--	--		13,205	15,995	14,161	16,613		--
Chesterfield	187,487	--	--	--	61,234	35,436	83,990	6,827		--
Dinwiddie	244,049	--	--	--	86,500	69,487	84,130	3,932	--	--
Essex	98,013	--	--	--	34,230	17,117	40,012	3,519	3,135	--
Gloucester	94,613	--	--	--	31,888	5,081	50,022	7,622	--	--
Greensville	135,286	--	--	--	30,469	16,255	48,929	25,642	13,991	--
Hampton	4,342	--	--	--	--	--	374	3,968	--	--
Hanover	178,181	--	--		58,191	34,620	60,765	23,080	1,525	--
Henrico	59,429	--	--	--	11,592	11,240	30,977	5,620	--	--
Isle of Wight	114,161	--	--	--	21,685	31,092	45,773	12,675	2,936	
James City	60,221		--	--	14,048	6,708	39,465	--	--	--
King and Queen	152,722	--	--	--	58,740	33,511	45,952	14,519	--	--
King George	70,130	--	--		5,890	2,596	61,421	223	--	--
King William	111,822	--	--	--	49,849	10,391	43,996	7,586		--
Lancaster	52,501	--			13,999	7,000	31,041	461		
Mathews	34,787	--	--	--	20,947	5,545	5,530	2,765		--
Middlesex	49,882	--	--	--	13,788	18,030	18,029	35	--	
New Kent	98,183	--	--	--	31,040	20,290	42,045	4,808		--
Newport News	7,934	--	--		2,228	1,117	4,589	--		--
Northampton	30,351	--	--		12,502	7,712	7,626	2,511	--	
Northumberland	67,886	--	--	--	15,467	5,391	41,428	5,600	--	
Prince George	117,291	--	--	--	47,649	17,852	44,139	5,101	2,550	
Richmond	76,279	--		--	23,112	2,885	44,512	2,885	2,885	
Southampton	240,492	--		--	107,723	34,024	43,690	47,239	7,816	--
Suffolk	111,147	--	--	--	43,585	14,576	33,365	15,302	4,319	--
Surry	122,880	--	--	--	44,554	13,516	52,078	12,732	--	--
Sussex	250,649	--	--	--	133,425	40,850	43,622	30,045	2,707	--
Virginia Beach	36,581	--	--		11,292	5,632	8,766	10,891	--	--
Westmoreland	74,248	--	--	--	23,874	7,662	42,712	--		--
York	28,849	--	--	--	7,086	5,524	15,934	305	--	--
Total	3,702,266	--	--	--	1,332,292	623,638	1,380,372	305,075	60,889	--

**Table 4--Area of timberland, by county and stand-size class,  
Coastal Plain of Virginia, 1991**

County	All stands	Stand-size class			Nonstocked areas
		Saw timber	Pole timber	Sapling- seedling	
		Acres			
Accomack	94,507	53,339	23,065	18,103	--
Brunswick	290,950	83,786	117,178	89,986	--
Caroline	261,702	112,808	78,086	70,808	--
Charles City	84,737	44,606	21,566	13,437	5,128
Chesapeake	59,974	35,249	14,161	10,564	--
Chesterfield	187,487	79,985	63,465	44,037	--
Dinwiddie	244,049	83,654	73,190	87,205	--
Essex	98,013	40,994	24,231	32,788	--
Gloucester	94,613	43,536	33,025	18,052	--
Greensville	135,286	42,281	35,019	53,377	4,609
Hampton	4,342	4,298	44	--	--
Hanover	178,181	78,221	68,318	27,654	3,988
Henrico	59,429	22,363	25,289	11,777	--
Isle of Wight	114,161	46,765	21,086	46,310	--
James City	60,221	45,598	7,341	7,282	--
King and Queen	152,722	68,765	45,250	38,707	--
King George	70,130	51,259	12,981	5,890	--
King William	111,822	30,999	46,523	29,014	5,286
Lancaster	52,501	34,067	11,434	7,000	--
Mathews	34,787	18,197	2,765	13,825	--
Middlesex	49,882	25,665	12,198	12,019	--
New Kent	98,183	48,857	24,227	25,099	--
Newport News	7,934	7,929	5	--	--
Northampton	30,351	12,723	12,627	5,001	--
Northumberland	67,886	27,164	18,160	22,562	--
Prince George	117,291	53,697	26,712	36,882	--
Richmond	76,279	35,230	26,047	15,002	--
Southampton	240,492	96,894	68,514	72,174	2,910
Suffolk	111,147	35,819	30,665	42,106	2,557
Surry	122,880	55,356	42,844	19,744	4,936
Sussex	250,649	79,255	81,705	81,567	8,122
Virginia Beach	36,581	22,184	8,765	5,632	--
Westmoreland	74,248	39,198	24,709	10,341	--
York	28,849	23,326	2,217	3,306	--
<b>Total</b>	<b>3,702,266</b>	<b>1,584,067</b>	<b>1,103,412</b>	<b>977,251</b>	<b>37,536</b>



**Table 5--Area of timberland, by county and site class,  
Coastal Plain of Virginia, 1991**

County	All classes	Site class (cubic feet per acre per year)				
		>164	120-164	85-119	50-84	20-49
		<u>Acres</u>				
Accomack	94,507	--	5,378	32,869	42,399	13,861
Brunswick	290,950	--	2,976	61,603	220,777	5,594
Caroline	261,702	--	4,655	72,076	179,690	5,281
Charles City	84,737	--	--	24,866	59,871	--
Chesapeake	59,974	--	14,048	15,919	22,084	7,923
Chesterfield	187,487	--	2,982	31,355	134,742	18,408
Dinwiddie	244,049	--	--	57,796	165,090	21,163
Essex	98,013	--	5,423	35,923	56,282	385
Gloucester	94,613	--	--	30,831	63,782	--
Greensville	135,286	--	--	35,183	90,802	9,301
Hampton	4,342	--	--	330	4,012	--
Hanover	178,181	--	5,770	54,976	105,895	11,540
Henrico	59,429	--	--	10,822	45,797	2,810
Isle of Wight	114,161	--	5,871	22,347	83,008	2,935
James City	60,221	--	3,354	28,653	28,214	--
King and Queen	152,722	--	3,453	27,290	116,446	5,533
King George	70,130	--	10,384	26,271	30,655	2,820
King William	111,822	--	--	28,046	81,200	2,576
Lancaster	52,501	--	4,435	8,869	38,736	461
Mathews	34,787	--	--	14,636	17,386	2,765
Middlesex	49,882	--	--	21,034	28,813	35
New Kent	98,183	--	--	24,464	73,509	210
Newport News	7,934	--	--	5,078	2,856	--
Northampton	30,351	--	150	7,571	17,629	5,001
Northumberland	67,886	--	--	22,560	39,725	5,601
Prince George	117,291	--	2,550	23,278	81,261	10,202
Richmond	76,279	2,885	--	21,927	51,467	--
Southampton	240,492	2,759	5,519	93,807	132,888	5,519
Suffolk	111,147	--	4,318	24,211	80,459	2,159
Surry	122,880	--	--	21,910	100,970	--
Sussex	250,649	--	8,188	73,384	152,724	16,353
Virginia Beach	36,581	--	--	5,383	16,801	14,397
Westmoreland	74,248	--	2,554	26,430	40,156	5,108
York	28,849	--	--	16,154	11,282	1,413
<b>Total</b>	<b>3,702,266</b>	<b>5,644</b>	<b>92,008</b>	<b>1,007,852</b>	<b>2,417,408</b>	<b>179,354</b>

Table 6--Area of timberland, by county and stocking class of growing-stock trees, Coastal Plain of Virginia, 1991

County	All classes	Stocking class (percent) <sup>a</sup>				
		>130	100-130	60-99	16.7-59	<16.7
Acres						
Accomack	94,507	13,445	46,730	26,265	8,067	--
Brunswick	290,950	38,802	143,521	81,344	24,664	2,619
Caroline	261,702	13,831	106,885	122,852	15,494	2,640
Charles City	84,737	8,050	47,525	24,034	--	5,128
Chesapeake	59,974	767	33,301	21,318	4,588	--
Chesterfield	187,487	2,635	99,763	79,125	5,964	--
Dinwiddie	244,049	8,013	128,169	88,866	19,001	--
Essex	98,013	11,692	40,995	33,634	11,692	--
Gloucester	94,613	12,704	45,994	28,295	7,620	--
Greensville	135,286	7,035	51,417	44,321	23,294	9,219
Hampton	4,342	50	4,248	44	--	--
Hanover	178,181	16,112	74,088	78,223	5,770	3,988
Henrico	59,429	--	31,448	25,171	2,810	--
Isle of Wight	114,161	7,608	56,862	40,884	8,807	--
James City	60,221	14,571	10,787	28,156	6,707	--
King and Queen	152,722	20,739	68,432	45,579	17,972	--
King George	70,130	2,905	22,170	37,267	7,788	--
King William	111,822	15,401	43,909	31,823	15,403	5,286
Lancaster	52,501	7,000	14,460	22,172	8,869	--
Mathews	34,787	6,326	11,856	8,295	8,310	--
Middlesex	49,882	1,591	27,258	21,033	--	--
New Kent	98,183	9,616	40,161	37,941	10,465	--
Newport News	7,934	3,961	1,117	5	2,851	--
Northampton	30,351	2,511	12,652	15,128	60	--
Northumberland	67,886	--	20,072	39,727	5,392	2,695
Prince George	117,291	7,792	60,403	49,096	--	--
Richmond	76,279	12,118	17,887	38,773	7,501	--
Southampton	240,492	21,171	120,307	90,585	5,519	2,910
Suffolk	111,147	4,507	43,726	40,924	19,433	2,557
Surry	122,880	10,278	45,716	44,790	17,160	4,936
Sussex	250,649	16,334	128,183	89,845	8,165	8,122
Virginia Beach	36,581	4,156	15,779	14,892	1,754	--
Westmoreland	74,248	5,108	36,644	27,388	5,108	--
York	28,849	6,849	13,954	4,740	3,306	--
Total	3,702,266	313,678	1,666,419	1,382,535	289,534	50,100

<sup>a</sup>See stocking standards on page12.

Table 7--Volume of growing **stock** and **sawtimber** on timberland, by county and **species** group, Coastal Plain of Virginia, 1991

County	Growing stock					Saw timber				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Thousand cubic feet <sup>a</sup>					Thousand board feet				
Accomack	189,647	114,068	--	47,617	27,962	670,520	492,202	--	94,557	83,761
Brunswick	401,268	207,389	2,239	79,419	112,221	1,096,193	629,739	--	192,924	273,530
Caroline	434,440	150,396	312	140,627	143,105	1,416,238	480,573	--	507,809	427,856
Charles City	177,075	62,871	8,968	45,412	59,824	573,895	213,476	49,196	103,519	207,704
Chesapeake	132,921	37,966	685	62,141	32,129	538,161	209,654	3,807	198,350	126,350
Chesterfield	330,227	103,795	--	84,541	141,891	954,455	289,997	--	257,689	406,769
Dinwiddie	340,407	157,362	1,251	63,829	117,965	1,016,331	545,831	2,228	167,812	300,460
Essex	165,553	59,031	--	45,618	60,904	519,225	203,392	--	127,926	187,907
Gloucester	208,635	64,728	260	80,083	63,564	679,648	243,622	--	233,591	202,435
Greensville	185,353	55,961	2,768	60,433	66,191	595,907	223,040	11,077	169,611	192,179
Hampton	11,784	--	--	4,283	7,501	29,863	--	--	12,409	17,454
Hanover	290,711	98,111	277	84,047	108,276	823,194	261,794	--	203,869	357,531
Henrico	97,609	28,160	206	25,666	43,577	272,730	106,847	--	43,299	122,584
Isle of Wight	148,556	46,138	--	49,116	53,302	509,406	172,069	--	124,132	213,205
James City	138,394	35,978	402	32,797	69,217	457,321	104,228	--	111,311	241,782
King and Queen	281,876	140,413	4,995	64,508	71,960	811,007	404,144	28,884	168,093	209,886
King George	154,933	17,497	1,685	84,692	51,059	558,728	73,087	5,102	310,017	170,522
King William	159,267	67,354	--	40,013	51,900	404,431	150,933	--	103,452	150,046
Lancaster	95,084	48,207	--	24,677	22,200	309,925	154,032	--	85,423	70,470
Mathews	74,003	51,448	270	11,360	10,925	279,939	206,145	--	19,324	54,470
Middlesex	98,430	44,768	183	26,114	27,365	310,217	135,370	--	80,564	94,283
New Kent	194,785	68,282	--	58,474	68,029	584,372	149,398	--	207,553	227,421
Newport News	20,979	9,639	--	6,500	4,840	83,354	36,889	--	25,333	21,132
Northampton	57,006	28,607	--	18,774	9,625	172,583	122,371	--	25,648	24,564
Northumberland	89,506	28,336	--	29,521	31,649	281,120	99,387	--	82,836	98,897
Prince George	187,235	68,944	8,797	49,857	59,637	624,834	234,869	49,965	154,915	185,085
Richmond	154,550	39,969	--	68,239	46,342	488,090	73,178	--	243,801	171,111
Southampton	382,178	160,163	12,402	136,474	73,139	1,261,200	525,485	63,817	417,846	254,052
Suffolk	157,872	49,064	5,525	60,051	43,232	478,291	147,758	28,923	173,291	128,319
Surry	171,753	70,099	2,201	60,732	38,721	554,607	227,749	11,017	188,365	127,476
Sussex	364,651	213,567	3,958	73,371	73,755	1,199,378	765,491	22,865	179,798	231,224
Virginia Beach	65,065	19,835	984	27,535	16,711	227,605	92,970	4,307	67,044	63,284
Westmoreland	144,700	49,461	265	45,323	49,651	418,234	125,182	--	131,200	161,852
York	96,181	24,203	--	35,718	36,260	395,583	105,166	--	133,608	156,809
Total	6,202,634	2,421,810	58,633	1,827,562	1,894,629	19,596,585	8,006,068	281,188	5,346,919	5,962,410

<sup>a</sup>Factors for converting to cords are shown on page 12.

Table I--Average net annual growth of growing stock and sawtimber on timberland, by county and species group,  
Coastal Plain of Virginia, 1985-1990

County	Growing stock					Sawtimber				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Thousand cubic feet					Thousand board feet				
Accomack	5,698	3,343	--	1,564	791	25,821	17,667	--	4,832	3,322
Brunswick	22,068	14,136	316	3,210	4,406	75,238	50,891	94	7,507	16,746
Caroline	17,535	8,255	6	5,101	4,173	61,496	24,642		20,931	15,923
Charles City	6,676	3,486	166	1,266	1,758	26,630	14,767	995	4,830	6,038
Chesapeake	3,797	930	14	2,011	842	17,625	5,283	88	7,997	4,257
Chesterfield	13,567	6,310	16	2,464	4,777	50,530	25,305	--	7,722	17,503
Dinwiddie	17,388	10,029	42	2,749	4,568	57,664	32,453	68	8,509	16,634
Essex	6,046	2,175	83	1,704	2,084	28,570	9,403	--	8,168	10,999
Gloucester	8,066	3,696	10	2,443	1,917	31,426	12,936	--	10,033	8,457
Greensville	9,082	3,798	91	2,979	2,214	31,249	10,179	409	8,822	11,839
Hampton	400	--	--	115	285	1,385	--	--	384	1,001
Hanover	13,261	6,114	--	3,594	3,553	46,130	20,260	--	12,029	13,841
Henrico	4,121	986	25	1,340	1,770	12,187	4,488	--	2,515	5,184
Isle of Wight	6,250	2,720	--	2,211	1,319	22,873	9,143		8,032	5,698
James City	4,628	1,820	--	1,285	1,523	18,094	7,010	--	4,754	6,330
King and Queen	11,896	6,865	74	2,631	2,326	40,566	22,759	459	8,441	8,907
King George	4,560	447	14	2,664	1,435	23,346	2,876	140	14,299	6,031
King William	8,283	5,122	--	1,629	1,532	26,310	14,959	--	4,623	6,728
Lancaster	3,533	2,027	--	768	738	15,831	7,793	--	3,582	4,456
Mathews	2,353	1,698	6	445	204	12,758	10,589	--	721	1,448
Middlesex	3,561	1,876	44	762	879	11,731	5,778	--	2,481	3,472
New Kent	8,774	4,195	--	2,343	2,236	27,591	9,710	--	7,790	10,091
Newport News	646	298	--	215	133	3,064	1,576		771	717
Northampton	1,997	1,122	--	594	281	7,711	5,479		1,161	1,071
Northumberland	3,156	1,064	--	1,000	1,092	14,022	4,735	--	4,348	4,939
Prince George	8,046	4,271	174	1,756	1,845	24,131	10,370	1,035	5,850	6,876
Richmond	5,918	2,944	--	1,906	1,068	25,096	10,259	--	10,504	4,333
Southampton	17,720	9,989	226	4,981	2,524	57,819	31,966	1,308	15,863	8,682
Suffolk	7,198	3,238	153	2,563	1,244	26,640	10,106	917	10,553	5,064
Surry	8,683	5,011	55	2,002	1,615	27,920	15,686	309	6,693	5,232
Sussex	19,219	12,928	106	3,004	3,181	56,659	36,220	578	8,424	11,437
Virginia Beach	2,229	945	21	866	397	7,391	3,228	121	2,158	1,884
Westmoreland	5,586	2,370	71	1,696	1,449	18,368	5,784	--	7,120	5,464
York	2,362	490	--	1,034	838	10,854	2,892	--	3,768	4,194
Total	264,303	134,698	1,713	66,895	60,997	944,726	457,192	6,521	236,215	244,798

Table 9--Average annual removals of growing stock and sawtimber on timberland, by county and species group, Coastal Plain of Virginia, 1985-1990

County	Growing stock					Saw timber				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Thousand cubic feet					Thousand board feet				
Accomack	2,614	1,736	--	464	414	9,104	7,424	--	1,372	308
Brunswick	14,557	8,229	--	3,858	2,470	48,576	26,167	--	14,865	7,544
Caroline	14,399	7,818	--	1,755	4,826	42,191	24,209	--	3,351	14,631
Charles City	7,003	4,035	--	1,355	1,613	24,902	14,727	--	4,431	5,744
Chesapeake	7,791	1,503	--	5,120	1,168	23,827	7,957	--	14,100	1,770
Chesterfield	16,195	8,663	--	2,102	5,430	48,959	29,482	--	5,000	14,477
Dinwiddie	12,079	6,809	--	1,842	3,428	45,869	30,118	--	4,287	11,464
Essex	6,576	1,144	--	1,835	3,597	29,003	5,802	--	6,343	16,858
Gloucester	6,278	1,331	--	3,251	1,696	27,271	7,257	--	13,050	6,964
Greensville	9,160	6,691	--	560	1,909	33,306	25,932	--	933	6,441
Hampton	1,969	1,344	--	188	437	9,014	6,333	--	665	2,016
Hanover	6,630	3,971	--	1,978	681	20,419	12,889	--	5,935	1,595
Henrico	2,068	221	--	765	1,082	4,281	--	--	2,294	1,987
Isle of Wight	13,110	5,645	--	4,682	2,783	53,693	30,026	--	13,256	10,411
James City	82	--	--	82	--	--	--	--	--	--
King and Queen	8,352	3,263	--	2,247	2,842	26,128	6,186	--	7,031	12,911
King George	1,745	363	--	957	425	7,192	1,913	--	3,628	1,651
King William	11,634	4,489	76	3,707	3,362	38,731	15,177	--	12,273	11,281
Lancaster	2,917	1,922	--	513	482	4,403	2,278	--	1,273	852
Mathews	1,404	678	--	152	574	3,231	2,030	--	404	797
Middlesex	3,454	1,564	--	1,890	--	9,417	2,537	--	6,880	--
New Kent	8,980	6,463	--	1,298	1,219	28,970	20,246	--	4,540	4,184
Newport News	251	--	--	--	251	683	--	--	--	683
Northampton	1,311	962	--	178	171	4,309	3,757	--	552	--
Northumberland	4,786	1,156	--	961	2,669	21,155	6,098	--	4,792	10,265
Prince George	7,357	6,486	--	298	573	21,741	18,607	--	1,218	1,916
Richmond	3,747	2,107	--	727	913	13,063	7,641	--	2,848	2,574
Southampton	21,613	8,221	85	6,451	6,856	77,199	32,633	--	20,452	24,114
Suffolk	6,938	1,783	--	4,027	1,128	28,349	7,574	--	17,672	3,103
Surry	9,134	3,440	--	1,201	4,493	38,034	16,328	--	5,659	16,047
Sussex	19,464	11,846	--	3,556	4,062	62,777	43,389	--	10,457	8,931
Virginia Beach	3,174	603	--	2,097	474	11,527	3,499	--	6,928	1,100
Westmoreland	3,773	698	--	1,159	1,916	15,500	2,578	--	5,468	7,454
York	49	--	--	--	49	--	--	--	--	--
Total	240,594	115,184	161	61,256	63,993	832,824	420,794	--	201,957	210,073

## Unit Tables

Table 10--Area of timberland, by forest type and ownership class,  
Coastal Plain of Virginia, 1991

Forest type	All ownerships	Ownership class				
		National forest	Other public	Forest industry	Forest industry- leased	Other private
<u>Acres</u>						
Softwood types						
White pine-hemlock	--	--	--	--	--	
Spruce-fir	--	--	--	--	--	
Longleaf pine	--	--	--	--	--	--
Slash pine		--	--	--	--	
Loblolly pine	1,259,562	--	58,497	433,166	--	767,899
Shortleaf pine	2,810					2,810
Virginia pine	68,167	--	7,113	16,863	—	44,191
Sand pine	—					
Eastern redcedar	—	--	--	--	--	
Pond pine	1,753	--	--	--	--	1,753
Spruce pine	—	--	--	--	--	--
Pitch pine		--	--	--	--	--
Table Mountain pine		--	--	--	--	--
Total	1,332,292	—	65,610	450,029	--	816,653
Hardwood types						
Oak-pine	623,638	—	12,384	111,194	--	500,060
Oak-hickory	1,369,786	--	57,638	133,238	--	1,178,910
Chestnut oak	10,586	--	—	—	—	10,586
Southern scrub oak	—	--	--	--	—	--
Oak-gum-cypress	305,075	--	7,852	44,754	--	252,469
Elm-ash-cottonwood	60,889	--	3,269	11,139	--	46,481
Maple-beech-birch	—	--	—	--	--	—
Total	2,369,974	--	81,143	300,325	--	1,988,506
All types	3,702,266	--	146,753	750,354	—	2,805,159

Table 11--Area of timberland, by ownership and stocking classes of growing-stock trees, Coastal Plain of Virginia, 1991

Ownership class	All classes	Stocking class (percent) <sup>a</sup>				
		>130	100-130	60-99	16.7-59	<16.7
<u>Acres</u>						
National forest	—	--	—	—	--	—
Other public	146,753	19,939	55,436	55,512	12,056	3,810
Forest industry	750,354	76,666	399,264	210,570	39,474	24,380
Forest industry-leased	—	--	--	—	--	—
Other private	<b>2,805,159</b>	217,073	<b>1,211,719</b>	<b>1,116,453</b>	238,004	21,910
All ownerships	<b>3,702,266</b>	313,678	<b>1,666,419</b>	<b>1,382,535</b>	289,534	50,100

<sup>a</sup>See stocking standards on page 12.

Table 12--Area of timberland, by forest type and stand-size class, Coastal Plain of Virginia, 1991

Forest type	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling-seedling	
<u>Acres</u>					
Softwood types					
White pine-hemlock	--		--		
Spruce-fir	--		--		
<b>Longleaf</b> pine	--		--		
Slash pine			--		
Loblolly pine	<b>1,259,562</b>	417,124	460,300	371,595	10,543
Shortleaf pine	2,810	--	2,810	--	--
Virginia pine	68,167	29,023	30,592	8,552	--
Sand pine	—	--		--	--
Eastern <b>redcedar</b>	--	--		--	--
Pond pine	1,753	1,753		--	--
Spruce pine	--	--		--	--
Pitch pine		--		--	--
Table Mountain pine		--		--	--
Total	<b>1,332,292</b>	447,900	493,702	380,147	10,543
Hardwood types					
Oak-pine	623,638	254,544	158,816	205,043	5,235
Oak-hickory	<b>1,369,786</b>	677,856	358,621	317,143	16,166
Chestnut oak	10,586	7,945	2,641	—	--
Southern scrub oak	--	--	--	--	--
Oak-gum-cypress	305,075	161,476	83,329	54,678	5,592
Elm-ash-cottonwood	60,889	34,346	6,303	20,240	—
Maple-beech-birch	—	--	--	--	--
Total	<b>2,369,974</b>	<b>1,136,167</b>	609,710	597,104	26,993
All types	<b>3,702,266</b>	<b>1,584,067</b>	<b>1,103,412</b>	977,251	37,536

Table 13--Area of timberland, by stand-age and broad management classes, all ownerships, Coastal Plain of Virginia, 1991

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
Acres						
0-10	690,789	241,979	57,084	168,140	206,487	17,099
11-20	580,806	257,201	58,665	89,793	131,778	43,369
21-30	386,826	173,630	78,729	59,271	65,569	9,627
31-40	328,081	59,781	73,133	47,823	129,176	18,168
41-50	341,930	--	126,158	53,199	143,933	18,640
51-60	342,068	--	81,440	62,048	167,798	30,782
61-70	284,082	--	53,674	64,013	134,214	32,181
71-80	193,295	--	16,966	25,288	118,114	32,927
81+	251,647	--	25,505	33,919	133,501	58,722
No manageable stand	302,742	2,619	25,728	20,144	149,802	104,449
All classes	3,702,266	735,210	597,082	623,638	1,380,372	365,964

Table 14--Area of timberland, by stand-age and broad management classes, public ownerships, Coastal Plain of Virginia, 1991

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<u>Acres</u>						
0-10	15,382	5,335	6,536	3,306	205	--
11-20	14,289	3,268	3,843	372	6,806	--
21-30	6,625	--	3,634	257	2,734	--
31-40	3,416	--	3,211	--	205	--
41-50	29,483	--	28,941	334	--	208
51-60	16,387	--	8,135	3,268	3,893	1,091
61-70	15,170	--	--	2,678	12,492	--
71-80	13,203	--	--	--	9,157	4,046
81+	22,055	--	--	--	16,279	5,776
No manageable stand	10,743	--	2,707	2,169	5,867	--
All classes	146,753	8,603	57,007	12,384	57,638	11,121



Table 15--Area of timberland, by stand-age and broad management classes, forest industry,<sup>a</sup> Coastal Plain of Virginia, 1991

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
Acres						
0-10	202,589	121,748	7,101	47,490	24,174	2,076
11-20	149,564	92,211	15,971	13,306	11,524	16,552
21-30	124,243	84,073	24,272	10,894	2,707	2,297
31-40	56,441	32,095	18,801	--	5,545	--
41-50	44,631	--	21,629	8,913	11,381	2,708
51-60	35,148	--	9,500	8,720	13,823	3,105
61-70	30,332	--	2,289	8,982	14,057	5,004
71-80	17,085	--	6,449	1,552	6,892	2,192
81+	36,463	--	8,977	8,630	7,667	11,189
No manageable stand	53,858	--	4,913	2,707	35,468	10,770
All classes	750,354	330,127	119,902	111,194	133,238	55,893

<sup>a</sup>Includes 0 acres of other private land under long-term lease.

Table 16--Area of timberland, by stand-age and broad management classes, other private ownerships,<sup>a</sup> Coastal Plain of Virginia, 1991

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
Acres						
0-10	472,818	114,896	43,447	117,344	182,108	15,023
11-20	416,953	161,722	38,851	76,115	113,448	26,817
21-30	255,958	89,557	50,823	48,120	60,128	7,330
31-40	268,224	27,686	51,121	47,823	123,426	18,168
41-50	267,816	--	75,588	43,952	132,552	15,724
51-60	290,533		63,805	50,060	150,082	26,586
61-70	238,580	--	51,385	52,353	107,665	27,177
71-80	163,007	--	10,517	23,736	102,065	26,689
81+	193,129		16,528	25,289	109,555	41,757
No manageable stand	238.141	2,619	18,108	15,268	108,467	93,679
All classes	805,159	396,480	420,173	500,060	1,189,496	298,950

<sup>a</sup>Excludes 0 acres of other private land under long-term lease to forest industry.

Table 17--Area of timberland, by broad management and stand-volume classes, Coastal Plain of Virginia, 1991

Broad management class	All classes	Stand-volume class (cubic feet of growing stock per acre)				
		0-499	500-999	1000-1499	1500-1999	2000+
		<u>Acres</u>				
Pine plantation	735,210	317,789	101,964	103,277	83,393	128,787
Natural pine	597,082	79,002	36,110	72,355	39,157	370,458
Oak-pine	623,638	181,033	82,494	77,034	68,410	214,667
Upland hardwood	<b>1,380,372</b>	255,167	207,500	179,858	192,945	544,902
Lowland hardwood	365,964	93,517	54,332	43,141	19,529	155,445
All classes	<b>3,702,266</b>	926,508	482,400	475,665	403,434	<b>1,414,259</b>

Table 18--Volume of growing stock on timberland, by broad management class, species group, and stand-age class, Coastal Plain of Virginia, 1991

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+
Thousand cubic feet											
Pine plantation											
Softwood	659,603	- -	7,565	205,678	326,353	120,007	--	--	--	--	--
Hardwood	75,247	- -	6,764	17,353	39,237	11,893	--	--	--	--	--
Total	734,850	- -	14,329	223,031	365,590	131,900	--	--	--	--	--
Natural pine											
Softwood	1,153,465	7,916	7,353	41,045	134,318	159,258	303,696	232,192	149,241	50,382	68,064
Hardwood	253,055	808	11,865	8,571	13,886	32,608	59,549	46,027	42,225	15,004	22,512
Total	1,406,520	8,724	19,218	49,616	148,204	191,866	363,245	278,219	191,466	65,386	90,576
Oak-pine											
Softwood	398,309	9,090	6,707	36,526	39,404	37,336	48,632	70,439	63,648	37,345	49,182
Hardwood	521,758	4,959	26,109	42,331	40,102	47,331	73,081	90,275	93,743	43,590	60,237
Total	920,067	14,049	32,816	78,857	79,506	84,667	121,713	160,714	157,391	80,935	109,419
Upland hardwood											
Softwood	194,558	10,216	2,700	11,871	15,914	23,125	25,941	42,804	24,417	21,420	16,150
Hardwood	2,200,753	95,318	70,765	74,853	75,394	197,395	281,284	380,305	303,263	309,228	412,948
Total	2,395,311	105,534	73,465	86,724	91,308	220,520	307,225	423,109	327,680	330,648	429,098
Lowland hardwood											
Softwood	74,508	4,695	827	1,042	1,274	2,156	785	7,476	12,821	8,974	34,458
Hardwood	671,378	63,975	2,385	21,441	10,976	30,870	37,203	92,678	107,367	120,813	183,670
Total	745,886	68,670	3,212	22,483	12,250	33,026	37,988	100,154	120,188	129,787	218,128
All types											
Softwood	2,480,443	31,917	25,152	296,162	517,263	341,882	379,054	352,911	250,127	118,121	167,854
Hardwood	3,722,191	165,060	117,888	164,549	179,595	320,097	451,117	609,285	546,598	488,635	679,367
Total	6,202,634	196,977	143,040	460,711	696,858	661,979	830,171	962,196	796,725	606,756	847,221

Table 19---Average net annual growth of growing stock on timberland, by broad management class, species group, and stand-age class, Coastal Plain of Virginia, 1985-1990

Broad management class <sup>a</sup> and species group	All classes	No manageable stand	Stand-age class <sup>a</sup> (years)								
			0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81+
			Thousand cubic feet								
Pine plantation											
Softwood	70,282	--	5,703	36,390	22,569	5,620	--	--	--	--	--
Hardwood	6,416	--	577	1,537	3,405	897	--	--	--	--	--
Total	76,698	--	6,280	37,927	25,974	6,517	--	--	--	--	--
Natural pine											
Softwood	42,806	436	698	5,644	9,715	7,316	9,032	5,023	2,917	880	1,145
Hardwood	11,863	56	540	697	1,280	2,233	2,833	1,803	1,285	392	744
Total	54,669	492	1,238	6,341	10,995	9,549	11,865	6,826	4,202	1,272	1,889
Oak-pine											
Softwood	15,138	169	735	3,917	2,274	1,549	1,642	1,860	1,298	809	885
Hardwood	20,375	182	1,109	3,206	2,484	2,285	3,596	2,703	2,538	1,197	1,075
Total	35,513	351	1,844	7,123	4,758	3,834	5,238	4,563	3,836	2,006	1,960
Upland hardwood											
Softwood	6,379	390	284	1,104	767	824	819	938	565	445	243
Hardwood	70,423	4,295	2,977	5,235	4,523	8,770	10,594	11,064	8,155	7,221	7,589
Total	76,802	4,685	3,261	6,339	5,290	9,594	11,413	12,002	8,720	7,666	7,832
Lowland hardwood											
Softwood	1,806	80	29	66	46	104	52	243	273	203	710
Hardwood	18,815	2,744	102	1,731	599	1,160	1,524	2,398	2,653	2,512	3,392
Total	<del>20,621</del>	<del>2,824</del>	<del>131</del>	<del>1,797</del>	<del>645</del>	<del>1,264</del>	<del>1,576</del>	<del>2,641</del>	<del>2,926</del>	<del>2,715</del>	<del>4,102</del>
All types											
Softwood	136,411	1,075	7,449	47,121	35,371	15,413	11,545	8,064	5,053	2,337	2,983
Hardwood	127,892	7,277	5,305	12,406	12,291	15,345	18,547	17,968	14,631	11,322	12,800
Total	264,303	8,352	12,754	59,527	47,662	30,758	30,092	26,032	19,684	13,659	15,783

<sup>a</sup>Classifications at the end of the remeasurement period.

**Table P0--Average annual removals of growing stock on timberland, by broad management class, species group, and stand-age class, Coastal Plain of Virginia, 1985-1990**

Broad management class <sup>a</sup> and species group	All classes	No manageable stand	Stand-age class <sup>a</sup> (years)								
			0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81+
Thousand cubic feet											
Pine plantation											
Softwood	22,893	--	--	8,660	12,543	1,690	--	--	--	--	--
Hardwood	2,980	--	--	--	2,139	841	--	--	--	--	--
Total	25,873	--	--	8,660	14,682	2,531	--	--	--	--	--
Natural pine											
Softwood	65,657	--	--	1,837	5,466	20,668	16,167	12,491	9,028	--	--
Hardwood	13,160	--	--	113	1,249	2,694	3,614	3,465	2,025	--	--
Total	78,817	--	--	1,950	6,715	23,362	19,781	15,956	11,053	--	--
Oak-pine											
Softwood	17,279	--	219	767	1,133	4,443	5,093	2,654	1,756	1,214	--
Hardwood	17,359	562	--	145	487	2,793	5,542	3,566	3,151	1,113	--
Total	34,638	562	219	912	1,620	7,236	10,635	6,220	4,907	2,327	--
Upland hardwood											
Softwood	8,351	217	--	252	370	505	1,292	1,519	1,466	1,727	1,003
Hardwood	70,217	2,272	610	307	2,892	5,797	7,713	12,523	11,827	16,689	9,587
Total	78,568	2,489	610	559	3,262	6,302	9,005	14,042	13,293	18,416	10,590
Lowland hardwood											
Softwood	1,165	--	--	--	194	525	85	168	83	110	--
Hardwood	21,533	131	--	--	662	3,344	2,847	7,169	2,686	3,420	1,274
Total	22,698	131	--	--	856	3,869	2,932	7,337	2,769	3,530	1,274
All types											
Softwood	115,345	217	219	11,516	19,706	27,831	22,637	16,832	12,333	3,051	1,003
Hardwood	125,249	2,965	610	565	7,429	15,469	19,716	26,723	19,689	21,222	10,861
Total	240,594	3,182	829	12,081	27,135	43,300	42,353	43,555	32,022	24,273	11,864

<sup>a</sup>Classifications before timber removals.

Table 21--Merchantable volume of live **trees** and growing stock on timberland, by forest-type and species groupe,  
Coaetal Plain of Virginia, 1991

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
	<u>Thousand cubic feet</u>									
White pine-hemlock	--	—	--	--	--	—	—	--	--	--
Spruce-fir	--	—	—	—	--	—	—	--	--	--
Longleaf-slash pine	--	--	—	—	--	--	--	—	—	--
Loblolly-shortleaf pine	<b>2,181,869</b>	<b>1,817,742</b>	2,152	201,229	160,746	<b>2,141,370</b>	<b>1,811,108</b>	1,960	184,845	143,457
Oak-pine	964,351	396,957	2,766	249,226	315,402	920,067	395,543	2,766	232,139	289,619
Oak-hickory	<b>2,565,701</b>	192,495	4,315	<b>1,017,773</b>	<b>1,351,118</b>	<b>2,395,311</b>	190,358	4,200	951,619	<b>1,249,134</b>
Oak-gum-cypress	711,230	20,890	48,490	444,010	197,840	635,559	20,890	47,512	388,664	178,493
Elm-ash-cottonwood	128,248	3,911	2,195	75,189	46,953	110,327	3,911	2,195	70,295	33,926
Maple-beech-birch	--	--	--	--	—	—	—	—	--	--
All types	<b>6,551,399</b>	<b>2,431,995</b>	59,918	<b>1,987,427</b>	<b>2,072,059</b>	<b>6,202,634</b>	<b>2,421,810</b>	58,633	<b>1,827,562</b>	<b>1,894,629</b>

Table 22--Area of timberland treated or disturbed annually and retained in timberland, by treatment or disturbance and ownership class, Coastal Plain of Virginia, 1985 to 1991

Treatment or disturbance	All ownerships	Ownership class			
		Public	Forest industry	Fores& industry- leased	Other private
<u>Acres<sup>a</sup></u>					
Final harvest	70,097	1,195	21,329	--	47,573
Partial harvest <sup>b</sup>	7,344	—	1,226	--	6,118
Commercial thinning	11,730	--	5,834	--	5,896
Other stand improvement	1,126	—	247	—	879
Site preparation	33,907	1,283	18,785	--	13,839
Artificial regeneration <sup>c</sup>	37,356	--	17,715	—	19,641
Natural regeneration <sup>c</sup>	46,218	1,659	6,504	--	38,055
Other treatment	10,453	549	513	--	9,391
Natural disturbance	31,670	1,028	4,502	--	26,140

<sup>a</sup>Since some acres experience more than one treatment or disturbance, there are no column totals.

<sup>b</sup>Includes high grading and some selective cutting.

<sup>c</sup>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, Coastal Plain of Virginia, 1985 to 1991

Treatment or disturbance	All classes	Broad management <b>class</b> <sup>a</sup>				
		Pine plantation	Natural pine	<b>Oak-</b> pine	Upland hardwood	Lowland hardwood
<b>Acres</b> <sup>b</sup>						
Final harvest	70,097	3,339	23,491	11,709	27,171	4,387
Partial <b>harvest</b> <sup>c</sup>	7,344	--	1,659	1,333	4,352	--
Commercial thinning	11,730	10,918	812	--	--	--
Other stand improvement	1,126	--	--	--	1,126	--
Site preparation	33,907	2,914	9,861	6,026	13,774	1,332
Other treatment	10,453	--	2,244	1,503	6,321	385
Natural disturbance	31,670	2,175	6,417	2,534	9,972	10,572

<sup>a</sup>Classification before treatment or disturbance.

<sup>b</sup>Since some acres experience more than one treatment or disturbance, there are no column totals.

<sup>c</sup>Includes high grading and some selective cutting.

Table 24--Area of timberland regenerated annually, by type of regeneration and broad management class, Coastal Plain of Virginia, 1985 to 1991

Type of regeneration	All classes	Broad management class <sup>a</sup>				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
<u>Acres</u>						
Artificial regeneration following harvest	21,657	13,557	—	6,208	1,892	—
Natural regeneration following harvest	32,943	—	3,234	8,150	20,151	1,408
Other artificial regeneration on forest land	12,663	7,919	—	4,232	512	—
Other natural regeneration on forest land	9,022	—	2,679	3,022	2,949	372
Artificial regeneration on nonforest land	3,036	3,036	—	—	—	—
Natural reversion of nonforest land	4,253	—	1,456	1,418	933	446
Total	83,574	24,512	7,369	23,030	26,437	2,226

<sup>a</sup>Classification after regeneration.

Table 25--Area of timberland, by treatment opportunity and broad management classes, Coastal Plain of Virginia, 1985 to 1991

Treatment opportunity class	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
Acres						
Salvage	20,065	2,884	11,449	5,732	—	—
Harvest	351,212	—	70,823	67,297	150,742	62,350
Commercial thinning	296,627	183,337	88,106	20,059	5,125	—
Other stand improvement	436,053	84,037	50,193	79,866	189,893	32,064
Stand conversion	12,183	—	—	—	12,183	—
Regeneration	246,940	2,619	21,286	15,709	149,802	57,524
Stands in relatively good condition	2,162,985	462,333	349,030	427,899	818,139	105,584
Adverse sites <sup>a</sup>	176,201	—	6,195	7,076	54,488	108,442
All classes	3,702,266	735,210	597,082	623,638	1,380,372	365,964

<sup>a</sup>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,  
Coastal Plain of Virginia, 1991

Treatment opportunity class	All ownerships	Ownership class			
		Public	Forest industry	Forest <b>industry-</b> leased	Other private
		<u>Acres</u>			
Salvage	20,065	3,713	2,297	--	14,055
Harvest	351,212	38,784	51,098	--	261,330
Commercial thinning	296,627	3,543	111,614	--	181,470
Other stand improvement	436,053	6,358	60,455	--	369,240
Stand conversion	12,183	--	4,021	--	8,162
Regeneration	246,940	10,743	45,795	--	190,402
Stands in relatively good condition	<b>2,162,985</b>	81,366	454,107	--	<b>1,627,512</b>
Adverse <b>sites</b> <sup>a</sup>	176,201	2,246	20,967	--	152,988
All classes	<b>3,702,266</b>	146,753	750,354	--	2,805,159

<sup>a</sup>**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, Coastal Plain of Virginia, 1991

Ownership class	Live trees					Growing stock				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Thousand cubic feet									
National forest	--	--	--	--	--	--	--	--	--	--
Other public	425,385	149,253	3,149	146,596	126,387	405,871	148,919	3,149	138,749	115,054
Forest industry	1,015,078	590,834	14,514	194,195	215,535	983,006	588,537	14,514	181,410	198,545
Forest industry-leased	--	--	--	--	--	--	--	--	--	--
Other private	5,110,936	1,691,908	42,255	1,646,636	1,730,137	4,813,757	1,684,354	40,970	1,507,403	1,581,030
All ownerships	6,551,399	2,431,995	59,918	1,987,427	2,072,059	6,202,634	2,421,810	58,633	1,827,562	1,894,629

Table 28--Volume of sawtimber on timberland, by ownership class and species group, Coastal Plain of Virginia, 1991

Ownership class	Small sawtimber <sup>a</sup>					Large sawtimber <sup>b</sup>				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Thousand board feet									
National forest	--	--	--	--	--	--	--	--	--	--
Other public	524,576	300,887	--	131,317	92,372	1,080,016	380,405	17,362	328,031	354,218
Forest industry	1,433,152	995,390	7,212	217,655	212,895	1,252,366	545,571	70,206	265,267	371,322
Forest industry-leased	--	--	--	--	--	--	--	--	--	--
Other private	6,706,448	3,341,074	35,298	551,500	1,778,576	8,600,027	2,442,741	151,110	2,853,149	3,153,027
All ownerships	8,664,176	4,637,351	42,510	1,900,472	2,083,843	10,932,409	3,368,717	238,678	3,446,447	3,878,567

<sup>a</sup>Volume of sawtimber trees less than 15.0 inches at d.b.h.

<sup>b</sup>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, Coastal Plain of Virginia, 1985-1990

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
	<u>Thousand cubic feet</u>									
National forest	--	--	--	--	--	--	--	--	--	--
Other public	11,761	4,701	54	4,222	2,784	6,612	5,435	--	244	933
Forest industry	56,670	41,338	363	7,209	7,760	67,314	44,286	76	11,109	11,843
Forest industry-leased	--	--	--	--	--	--	--	--	--	--
Other private	195,872	88,659	1,296	55,464	50,453	166,668	65,463	85	49,903	51,217
All ownerships	264,303	134,698	1,713	66,895	60,997	240,594	115,184	161	61,256	63,993

Table 30--Average net annual growth and **removals** of **sawtimber** on timberland, by ownership **class** and species group, Coastal Plain of Virginia, 1985-1990

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
	<u>Thousand board feet</u>									
National forest	--	--	--	--	--	--	--	--	--	--
Other public	53,363	21,982	325	18,204	12,852	20,392	18,775	--	309	1,308
Forest industry	166,761	120,350	1,744	19,153	25,514	198,913	136,325	--	29,913	32,675
Forest industry-leased	--	--	--	--	--	--	--	--	--	--
Other private	724,602	314,860	4,452	198,858	206,432	613,519	265,694	--	171,735	176,090
All ownerships	944.126	457.192	6.521	236.215	244.798	832.824	420.794	--	201.957	210.073

Table 31--Volume of timber on timberland, by class of timber and species group, Coastal Plain of Virginia, 1991

Class of timber	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
<u>Thousand cubic feet</u>					
Sawtimber trees					
Saw-log portion	<b>3,658,171</b>	<b>1,482,957</b>	48,983	977,441	<b>1,148,790</b>
Upper-stem portion <sup>a</sup>	542,089	160,597	3,358	175,187	202,947
Total	<b>4,200,260</b>	<b>1,643,554</b>	52,341	<b>1,152,628</b>	<b>1,351,737</b>
Poletimber trees	<b>2,002,374</b>	778,256	6,292	674,934	542,892
All growing-stock trees	<b>6,202,634</b>	<b>2,421,810</b>	58,633	<b>1,827,562</b>	<b>1,894,629</b>
Rough trees					
Sawtimber size	126,797	5,901	318	55,892	64,686
Poletimber size	165,559	3,993	192	68,219	93,155
Total	<b>292,356</b>	<b>9,894</b>	<b>510</b>	<b>124,111</b>	<b>157,841</b>
Rotten trees					
Sawtimber size	51,182	291	775	32,186	17,930
Poletimber size	5,227	--	--	3,568	1,659
Total	<b>56,409</b>	<b>291</b>	<b>775</b>	<b>35,754</b>	<b>19,589</b>
Salvable dead trees					
Sawtimber size	8,446	5,390	48	1,484	1,524
Poletimber size	6,106	4,044	--	903	1,159
Total	<b>14,552</b>	<b>9,434</b>	<b>48</b>	<b>2,387</b>	<b>2,683</b>
Total, all timber	<b>6,565,951</b>	<b>2,441,429</b>	59,966	<b>1,989,814</b>	<b>2,074,742</b>

<sup>a</sup>Includes cull sections in the saw-log portion.

Table 32--Number of live trees on timberland, by species and diameter class, Coastal Plain of Virginia, 1991

Species	All classes	Diameter class (inches at breast height)											
		1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
Thousand trees													
Softwood													
Longleaf pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	7,190	1,907	1,506	1,150	1,047	850	430	177	93	13	17	--	--
Loblolly pine	655,803	246,996	167,639	110,875	65,896	31,031	15,783	8,208	4,809	2,530	1,154	875	7
Pond pine	518	--	--	--	76	167	108	36	33	60	29	6	3
Virginia pine	80,828	32,487	20,893	12,772	7,292	4,016	2,158	715	376	103	16	--	--
Pitch pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	937	--	--	143	--	100	70	169	112	91	90	109	53
Pondcypress	176	--	--	--	32	--	26	--	31	12	19	32	24
Cedars	31,161	22,907	6,112	1,513	402	152	37	20	18	--	--	--	--
Total softwoods	776,613	304,297	196,150	126,453	74,745	36,316	18,612	9,325	5,472	2,809	1,325	1,022	87
Hardwood													
Select white oaks	163,744	86,426	29,285	17,233	10,453	7,269	5,163	3,735	1,832	996	643	643	66
Select red oaks	28,206	17,024	5,121	1,483	1,281	717	782	587	379	363	141	291	37
Chestnut oak	7,691	3,318	973	1,079	765	466	381	317	139	92	62	99	--
Other white oaks	15,649	10,429	1,561	443	1,336	665	378	226	92	44	24	36	15
Other red oaks	248,424	161,779	39,815	16,689	10,833	6,740	4,584	3,364	2,201	1,239	568	558	54
Hickory	83,293	60,061	11,660	4,251	2,503	1,490	1,507	924	463	254	45	129	6
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	1,192	1,000	--	111	--	48	26	--	--	--	--	7	--
Soft maple	453,576	342,435	63,713	23,110	9,537	5,898	3,453	2,233	1,287	670	446	364	30
Beech	59,921	39,379	9,351	2,637	2,362	1,536	1,573	1,124	662	535	353	358	51
Sweetgum	499,709	343,035	93,525	29,462	15,131	8,453	4,436	2,884	1,451	582	292	421	37
Tupelo and blackgum	138,924	97,921	15,992	10,086	4,713	4,422	2,688	1,301	684	416	302	300	99
Ash	45,577	30,351	7,187	4,493	1,471	778	542	251	330	60	72	36	6
Cottonwood	230	--	160	--	--	70	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	170,388	107,834	28,836	11,464	7,414	4,145	3,459	2,514	1,996	1,146	674	846	60
Bay and magnolia	30,699	25,397	4,226	677	220	122	32	25	--	--	--	--	--
Black cherry	35,036	23,891	8,130	2,299	499	140	--	54	16	--	--	7	--
Black walnut	2,011	163	467	793	184	110	124	72	29	34	--	25	10
Sycamore	8,545	5,439	1,073	723	335	315	258	122	41	117	80	34	8
Black locust	2,286	1,413	676	93	--	36	--	32	16	12	--	8	--
Elm	23,045	15,433	4,803	590	1,206	461	239	129	69	35	36	38	6
Other eastern hardwoods	674,258	564,986	80,787	18,234	5,939	2,110	1,210	407	189	189	76	120	11
Total hardwoods	2,692,404	1,938,114	407,341	146,350	76,182	45,991	30,835	20,301	11,876	6,784	3,814	4,320	496
All species	3,469,017	2,242,411	603,491	272,803	150,927	82,307	49,447	29,626	17,348	9,593	5,139	5,342	583

Table 33--Number of growing-stock trees on timberland, by species and diameter class, Coastal Plain of Virginia, 1991

Species	All classes	Diameter class (inches at breast height)											
		1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
Thousand trees													
Softwood													
Longleaf pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	6,978	1,743	1,506	1,150	999	850	430	177	93	13	17	--	--
Loblolly pine	643,399	237,520	166,011	110,019	65,672	30,950	15,733	8,148	4,795	2,530	1,145	869	7
Pond pine	503	--	--	--	76	167	93	36	33	60	29	6	3
Virginia pine	77,153	29,945	20,141	12,520	7,292	3,936	2,109	715	376	103	16	--	--
Pitch pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	931	--	--	143	--	100	70	169	112	91	90	109	47
Pondcypress	176	--	--	--	32	--	26	--	31	12	19	32	24
Cedars	25,989	18,711	5,289	1,380	402	152	37	--	18	--	--	--	--
Total softwoods	755,129	287,919	192,947	125,212	74,473	36,155	18,498	9,245	5,458	2,809	1,316	1,016	81
Hardwood													
Select white oaks	140,150	67,638	26,343	16,126	10,034	7,144	5,115	3,634	1,804	996	643	619	54
Select red oaks	23,028	12,677	4,827	1,239	1,088	686	760	555	379	363	132	286	36
Chestnut oak	6,538	2,583	650	1,079	765	432	357	317	124	92	47	92	--
Other white oaks	12,404	8,151	1,207	591	1,210	576	320	166	92	33	24	30	4
Other red oaks	210,547	129,365	36,293	15,662	10,445	6,650	4,375	3,212	2,201	1,217	568	517	42
Hickory	66,232	45,179	10,102	3,812	2,503	1,410	1,479	889	463	230	45	117	3
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	685	500	--	111	--	48	26	--	--	--	--	--	--
Soft maple	287,032	199,375	48,492	19,586	8,009	4,848	2,827	1,843	903	577	307	242	23
Beech	39,046	23,188	6,657	2,068	1,957	1,138	1,378	1,048	579	448	281	263	41
Sweetgum	405,055	264,782	82,414	26,890	14,069	7,513	4,048	2,785	1,380	531	267	350	26
Tupelo and blackgum	76,801	44,492	11,300	8,134	3,965	3,869	2,473	1,106	653	357	239	177	36
Ash	24,045	13,467	4,778	3,029	1,004	671	441	188	300	60	72	29	6
Cottonwood	230	--	160	--	--	70	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	149,848	91,852	25,508	11,057	7,176	3,859	3,301	2,495	1,951	1,135	664	801	49
Bay and magnolia	17,544	14,449	2,489	353	220	33	--	--	--	--	--	--	--
Black cherry	13,787	9,704	3,009	918	71	32	--	37	16	--	--	--	--
Black walnut	1,442	--	147	793	184	72	124	72	29	11	--	10	--
Sycamore	6,808	3,927	928	723	335	278	235	122	41	105	72	34	8
Black locust	636	475	--	93	--	36	--	32	--	--	--	--	--
Elm	14,102	7,987	3,630	422	1,099	423	239	129	69	24	36	38	6
Other eastern hardwoods	25,397	17,922	2,607	2,227	1,005	704	344	255	102	123	27	77	4
Total hardwoods	1,521,357	957,713	271,541	114,913	65,139	40,492	27,842	18,885	11,086	6,302	3,424	3,682	338
All species	2,276,486	1,245,632	464,488	240,125	139,612	76,647	46,340	28,130	16,544	9,111	4,740	4,698	419

Table 34--Merchantable volume of live trees on timberland, by species and diameter class, Coastal Plain of Virginia, 1991

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
Thousand cubic feet											
Softwood											
Longfeaf pine		--	--							--	--
Slash pine		--	--							--	--
Shortleaf pine	43,398	2,984	7,617	12,102	9,206	5,252	4,207	769	1,261	--	--
Loblolly pine	2,131,207	267,511	402,065	367,235	316,898	250,868	207,563	145,519	83,480	88,819	1,249
Pond pine	12,522	--	436	1,868	1,959	1,128	1,065	2,974	1,758	625	709
Virginia pine	244,868	43,215	58,421	53,939	46,054	20,953	15,129	6,135	1,022	--	--
Pitch pine	--	--	--	--	--	--	--	--	--	--	--
Table Mountain pine		--		--				--	--		--
Spruce pine	--	--	--	--	--	--	--		--		--
Sand pine	--	--	--	--				--		--	--
Eastern white pine	--	--	--	--				--			
Eastern hemlock	--		--	--	--	--		--	--	--	--
Spruce and fir	--	--		--	--	--		--	--	--	--
Baldcypress	40,800	573	--	1,216	1,616	4,529	3,763	4,367	5,149	10,424	9,163
Pondcypress	10,342	--	184	--	585	--	1,399	679	1,363	3,245	2,887
Cedars	8,776	3,387	2,340	1,815	642	115	477	--	--	--	--
Total softwoods	2,491,913	317,670	471,063	438,175	376,960	282,845	233,603	160,443	94,033	103,113	14,008
Hardwood											
Select white oaks	659,623	48,020	67,290	86,978	101,803	102,495	73,655	52,835	43,514	64,299	18,734
Select red oaks	139,031	4,351	8,093	9,293	15,266	15,991	14,463	19,799	9,217	32,858	9,700
Chestnut oak	49,450	2,579	4,973	5,571	6,917	8,588	4,963	4,262	3,342	8,255	--
Other white oaks	39,143	1,797	8,130	7,093	5,834	4,225	3,261	1,877	1,882	3,506	1,538
Other red oaks	600,102	44,284	65,549	76,541	80,958	87,330	84,204	61,889	37,575	52,700	9,072
Hickory	148,194	9,980	14,988	16,687	29,149	26,154	18,173	14,458	3,365	13,777	1,463
Yellow birch	--	--	--	--	--	--	--	--	--	--	--
Hard maple	1,659	269	--	531	320	--	--	--	--	539	--
Soft maple	434,686	68,729	58,075	64,451	60,862	55,010	43,238	30,184	21,292	27,347	5,498
Beech	210,620	7,507	14,347	16,681	27,009	30,145	25,870	26,945	21,922	31,804	8,390
Sweetgum	607,962	70,563	97,637	101,670	89,053	88,865	61,872	31,112	19,970	41,240	5,980
Tupelo and blackgum	271,526	27,382	27,947	48,640	48,934	31,094	23,759	17,002	15,363	18,407	12,998
Ash	68,352	9,606	7,314	10,449	9,844	6,161	12,387	3,051	4,488	3,568	1,484
Cottonwood	1,350	--	--	1,350	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--	--
Yellow poplar	576,237	35,270	51,292	51,703	68,057	73,785	82,469	63,964	48,513	86,402	14,782
Bay and magnolia	4,463	1,484	969	1,336	342	332	--	--	--	--	--
Black cherry	10,313	5,285	2,169	1,019	--	1,191	597	--	--	52	--
Black walnut	12,567	1,619	1,148	1,139	2,634	1,899	1,016	1,157	--	1,329	626
Sycamore	37,825	3,007	2,873	4,261	5,514	3,489	1,868	5,567	5,265	3,761	2,220
Black locust	2,782	345	--	366	--	843	439	389	--	400	--
Elm	35,859	1,187	8,073	5,356	4,423	3,790	3,168	1,745	2,272	4,230	1,615
Other eastern hardwoods	147,742	41,142	29,295	18,744	17,862	9,543	6,253	8,557	3,916	11,075	1,355
Total hardwoods	4,059,486	384,406	470,162	529,859	574,781	550,930	461,655	344,793	241,896	405,549	95,455
All species	6,551,399	702,076	941,225	968,034	951,741	833,775	695,258	505,236	335,929	508,662	109,463

Table 35--Volume of growing stock on timberland, by species and diameter class, Coastal Plain of Virginia, 1991

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
Thousand cubic feet											
Softwood											
Longleaf pine	--	--	--	--	--	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	42,935	2,984	7,154	12,102	9,206	5,252	4,207	769	1,261	--	--
Loblolly pine	2,124,025	266,026	400,521	366,752	315,881	249,424	207,272	145,519	83,146	88,235	1,249
Pond pine	12,288	--	436	1,868	1,725	1,128	1,065	2,974	1,758	625	709
Virginia pine	242,562	42,714	58,421	53,018	45,170	20,953	15,129	6,135	1,022	--	--
Pitch pine	--	--	--	--	--	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	--	--	--	--	--	--	--	--	--	--	--
Eastern hemlock	--	--	--	--	--	--	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	39,822	573	--	1,216	1,616	4,529	3,763	4,367	5,149	10,424	8,185
Pondcypress	10,342	--	184	--	585	--	1,399	679	1,363	3,245	2,887
Cedars	8,469	3,195	2,340	1,815	642	--	477	--	--	--	--
Total softwoods	2,480,443	315,492	469,056	436,771	374,825	281,286	233,312	160,443	93,699	102,529	13,030
Hardwood											
Select white oaks	643,555	45,776	65,505	85,582	100,738	101,033	72,382	52,835	43,514	62,103	14,087
Select red oaks	135,267	4,017	7,238	8,947	14,925	15,214	14,463	19,799	8,848	32,604	9,212
Chestnut oak	47,332	2,579	4,973	5,213	6,483	8,588	4,503	4,262	2,810	7,921	--
Other white oaks	34,261	1,309	7,457	6,522	5,161	3,408	3,261	1,557	1,882	3,152	552
Other red oaks	585,575	42,078	63,986	75,893	78,060	84,231	84,204	60,976	37,575	50,408	8,164
Hickory	143,446	9,274	14,988	16,055	28,756	25,320	18,173	13,462	3,365	13,176	877
Yellow birch	--	--	--	--	--	--	--	--	--	--	--
Hard maple	1,120	269	--	531	320	--	--	--	--	--	--
Soft maple	370,813	59,518	50,354	55,918	51,933	47,392	33,912	28,238	17,475	21,446	4,627
Beech	184,900	6,147	12,757	13,569	24,462	28,353	23,546	23,358	19,234	25,739	7,735
Sweetgum	572,751	65,611	92,275	94,219	83,675	86,843	59,867	29,123	18,929	37,434	4,775
Tupelo and blackgum	237,421	22,409	24,150	43,964	45,954	28,333	23,318	14,988	13,290	13,328	7,687
Ash	60,615	7,223	6,078	9,149	8,870	5,454	11,652	3,051	4,488	3,166	1,464
Cottonwood	1,350	--	--	1,350	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	562,507	34,218	50,136	49,043	66,103	73,496	81,485	63,696	48,065	83,777	12,488
Bay and magnolia	2,306	902	969	435	--	--	--	--	--	--	--
Black cherry	4,551	2,447	377	280	--	850	597	--	--	--	--
Black walnut	10,549	1,619	1,148	1,040	2,634	1,899	1,016	449	--	744	--
Sycamore	35,996	3,007	2,873	3,698	5,012	3,489	1,868	5,368	4,700	3,761	2,220
Black locust	1,554	345	--	366	--	843	--	--	--	--	--
Elm	34,119	898	7,395	4,953	4,423	3,790	3,168	1,375	2,272	4,230	1,615
Other eastern hardwoods	52,203	6,299	5,811	6,684	6,339	6,156	3,792	6,018	7,725	8,037	742
Total hardwoods	3,722,191	315,945	418,470	483,411	533,848	525,292	441,207	328,555	228,172	371,026	76,265
All species	6,202,634	631,437	887,526	920,182	908,673	806,578	674,519	488,998	321,871	473,555	89,295



Table 36--Volume of sawtimber on timberland, by species and diameter class, Coastal Plain of Virginia, 1991

Species	All. classes	Diameter class (inches at breast height)							
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
Thousand board feet									
Softwood									
Longleaf pine	--	--	--	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--	--	--	--
Shortleaf pine	150,384	45,655	41,818	26,677	23,811	4,488	7,935	--	--
Loblolly pine	7,196,196	1,310,047	1,424,537	1,287,623	1,172,411	876,561	525,988	589,894	9,135
Pond pine	64,405	7,106	7,782	5,876	5,876	17,540	10,923	4,135	5,167
Virginia pine	595,083	190,373	191,851	98,006	76,456	32,669	5,728	--	--
Pitch pine	--	--	--	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--
Eastern white pine	--	--	--	--	--	--	--	--	--
Eastern hemlock	--	--	--	--	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--
Baldcypress	211,147	3,850	6,368	19,756	18,007	22,305	27,606	60,760	52,495
Pondcypress	57,240	--	2,357	--	6,782	3,516	7,422	19,225	17,938
Cedars	12,801	7,330	2,849	--	2,622	--	--	--	--
Total softwoods	8,287,256	1,564,361	1,677,562	1,437,938	1,305,965	957,079	585,602	674,014	84,735
Hardwood									
Select white oaks	1,971,168	--	344,357	404,077	322,037	254,183	220,537	339,172	86,805
Select red oaks	559,633	--	50,340	61,113	64,992	94,579	45,952	182,564	60,093
Chestnut oak	146,906	--	20,897	33,106	18,810	19,520	13,557	41,016	--
Other white oaks	86,551	--	18,921	14,188	14,853	7,861	9,833	17,511	3,384
Other red oaks	1,829,896	--	273,783	347,197	382,865	298,601	194,737	281,938	50,775
Hickory	446,555	--	99,396	102,546	81,601	65,574	17,311	74,534	5,593
Yellow birch	--	--	--	--	--	--	--	--	--
Hard maple	1,109	--	1,109	--	--	--	--	--	--
Soft maple	842,231	--	169,930	179,592	143,097	128,766	83,873	110,191	26,782
Beech	598,001	--	89,030	107,458	91,771	92,981	77,710	106,181	32,870
Sweetgum	1,480,298	--	299,944	374,426	290,107	152,489	105,927	225,850	31,555
Tupelo and blackgum	615,460	--	147,160	107,694	99,973	69,041	66,463	73,014	52,115
Ash	164,423	--	29,364	21,715	50,255	14,360	22,227	17,364	9,138
Cottonwood	--	--	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--
Yellow-poplar	2,180,467	--	237,457	319,933	399,971	341,032	273,861	520,364	87,849
Bay and magnolia	--	--	--	--	--	--	--	--	--
Black cherry	6,283	--	--	3,567	2,716	--	--	--	--
Black walnut	24,773	--	9,089	6,849	3,855	1,805	--	3,175	--
Sycamore	120,021	--	16,077	12,891	8,132	25,124	23,474	20,339	13,984
Black locust	3,075	--	--	3,075	--	--	--	--	--
Elm	91,502	--	14,981	15,004	13,766	6,244	10,775	21,649	9,083
Other eastern hardwoods	140,977	--	21,936	26,113	15,835	26,549	7,740	39,145	3,659
Total hardwoods	11,309,329	--	1,843,771	2,140,544	2,004,636	1,598,709	1,173,977	2,074,007	473,685
All species	19,596,585	1,564,361	3,521,333	3,578,482	3,310,601	2,555,788	1,759,579	2,748,021	558,420

Table 37--Volume of aawtimber on timberland, by **species**, aise class, and tree grade, Coaatal Plain of Virginia, 1991

Species	All size classes					Trees 15.0 inches d.b.h. and larger				
	All grades	Tree grade				All grades	Tree grade			
		1	2	3	4		1	2	3	4
Thousand board feet										
Softwood										
Yellow pines <sup>a</sup>	8,006,068	2,430,414	2,462,857	3,112,797	--	3,368,717	1,578,403	925,207	865,107	--
Eastern white pineb	--	--	--	--	--	--	--	--	--	--
Spruce and firb	--	--	--	--	--	--	--	--	--	--
Cypress <sup>c</sup>	268,387	98,099	88,080	64,452	17,756	236,056	98,099	73,995	48,146	15,816
Other eastern softwoodsb	12,801	--	--	12,801	--	2,622	--	--	2,622	--
Total	8,287,256	2,528,513	2,550,937	3,190,050	17,756	3,607,395	1,676,502	999,202	915,875	15,816
Hardwood <sup>c</sup>										
Select white and red oaks	2,530,801	411,900	890,781	1,035,337	192,783	1,670,914	411,900	748,100	441,056	69,858
Other white and red oaks	2,063,353	327,796	695,719	870,371	169,467	1,355,261	327,796	582,064	375,280	70,121
Hickory	446,555	22,158	155,177	234,510	34,710	244,613	22,158	111,329	91,426	19,700
Yellow birch	--	--	--	--	--	--	--	--	--	--
Hard maple	1,109	--	--	1,109	--	--	--	--	--	--
Sweetgum	1,480,298	223,628	578,043	601,752	76,875	805,928	223,628	393,477	155,487	33,336
Ash, walnut, and black cherry	195,479	19,041	73,081	94,364	8,993	124,895	19,041	69,356	31,484	5,014
Yellow-poplar	2,180,467	546,626	838,066	644,708	151,067	1,623,077	546,626	672,659	338,493	65,299
Other eastern hardwoods	2,411,267	170,538	551,788	1,209,080	479,861	1,500,326	170,538	465,446	621,901	242,441
Total	11,309,329	1,721,687	3,782,655	4,691,231	1,113,756	7,325,014	1,721,687	3,042,431	2,055,127	505,769
All species	19,596,585	4,250,200	6,333,592	7,881,281	1,131,512	10,932,409	3,398,189	4,041,633	2,971,002	521,585

<sup>a</sup>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.

<sup>b</sup>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.

<sup>c</sup>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, Coastal Plain of Virginia, 1991**

Species	All classes	Diameter class (inches at breast height)							
		9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
Thousand cubic feet									
Softwood									
Longleaf pine	--	--	--	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--	--	--	--
Shortleaf pine	29,279	9,817	8,363	4,985	4,110	756	1,248	--	--
Loblolly pine	1,319,057	284,143	283,801	236,002	201,107	143,115	82,300	87,354	1,235
Pond pine	11,200	1,521	1,569	1,081	1,037	2,932	1,740	618	702
Virginia pine	123,421	42,226	40,404	19,501	14,397	5,901	992	--	--
Pitch pine	--	--	--	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--
Eastern white pine	--	--	--	--	--	--	--	--	--
Eastern hemlock	--	--	--	--	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--
Baldcypress	36,743	912	1,388	4,058	3,471	4,097	4,877	10,003	7,937
Pondcypress	9,753	--	520	--	1,314	647	1,308	3,150	2,814
Cedars	2,487	1,460	571	--	456	--	--	--	--
Total softwoods	1,531,940	340,079	336,616	265,627	225,892	157,448	92,465	101,125	12,688
Hardwood									
Select white oaks	380,081	--	72,207	83,178	63,556	48,089	40,402	58,945	13,704
Select red oaks	99,857	--	10,495	12,196	12,421	17,505	8,068	30,334	8,838
Chestnut oak	29,366	--	4,575	7,075	3,892	3,839	2,578	7,407	--
Other white oaks	16,123	--	3,809	2,805	2,846	1,422	1,743	2,967	531
Other red oaks	343,634	--	54,938	69,047	73,752	55,325	34,814	47,849	7,909
Hickory	85,971	--	20,820	20,811	15,826	12,147	3,095	12,427	845
Yellow birch	--	--	--	--	--	--	--	--	--
Hard maple	230	--	230	--	--	--	--	--	--
Soft maple	166,519	--	35,572	37,447	28,783	24,903	15,728	19,719	4,367
Beech	128,540	--	17,409	22,901	20,077	20,500	17,155	23,356	7,142
Sweetgum	270,288	--	58,896	72,085	53,376	26,930	17,959	36,317	4,725
Tupelo and blackgum	121,332	--	32,634	23,041	20,204	13,394	12,160	12,489	7,410
Ash	32,359	--	6,299	4,525	10,145	2,769	4,153	3,020	1,448
Cottonwood	--	--	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--
Yellow-poplar	376,702	--	45,990	60,532	72,222	58,813	45,462	81,322	12,361
Bay and magnolia	--	--	--	--	--	--	--	--	--
Black cherry	1,227	--	--	709	518	--	--	--	--
Black walnut	5,392	--	1,958	1,509	855	395	--	675	--
Sycamore	22,108	--	3,264	2,623	1,585	4,732	4,262	3,502	2,140
Black locust	659	--	--	659	--	--	--	--	--
Elm	17,441	--	3,067	3,064	2,715	1,204	2,025	3,861	1,505
Other eastern hardwoods	28,402	--	4,378	5,432	3,237	5,463	1,597	7,579	716
Total hardwoods	2,126,231	--	376,541	429,639	386,010	297,430	211,201	351,769	73,641
All species	3,658,171	340,079	713,157	695,266	611,902	454,878	303,666	452,894	86,329

Table 39--Total volume of live trees on timberland, by species and diameter **class**, Coastal Plain of Virginia, 1991

Species	All classes	Diameter class (inches at breast height)											
		1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 and larger
Thousand cubic feet													
Softwood													
Longleaf pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	52,773	485	1,451	4,128	9,180	14,030	10,518	5,953	4,740	865	1,423	--	--
Loblolly pine	2,773,473	57,059	176,719	381,840	490,814	428,410	362,580	284,311	233,980	163,471	93,576	99,321	1,392
Pond pine	14,310	--	--	--	517	2,175	2,252	1,285	1,212	3,375	1,989	706	799
Virginia pine	330,823	9,127	29,016	57,087	69,964	62,956	53,142	24,045	17,319	7,003	1,164	--	--
Pitch pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	49,463	--	--	965	--	1,501	1,965	5,474	4,528	5,239	6,163	12,466	11,162
Pondcypress	12,941	--	--	--	250	--	748	--	1,761	852	1,704	4,040	3,586
Cedars	24,549	5,044	7,458	5,352	2,977	2,238	755	173	552	--	--	--	--
Total softwoods	3,258,332	71,715	214,644	449,372	573,102	511,310	431,960	321,241	264,092	180,805	106,019	116,533	16,939
Hardwood													
Select white oaks	897,869	21,266	40,400	70,763	88,153	110,248	127,231	127,343	91,093	65,234	53,649	79,317	23,172
Select red oaks	184,967	4,019	7,928	6,123	10,363	11,627	18,965	19,824	17,827	24,379	11,387	40,526	11,999
Chestnut oak	64,126	966	1,896	3,712	6,333	6,908	8,508	10,482	6,040	5,170	4,052	10,059	--
Other white oaks	54,983	2,035	2,090	2,782	10,806	9,182	7,423	5,415	4,074	2,357	2,323	4,378	2,118
Other red oaks	856,632	37,864	54,952	69,633	87,176	97,191	101,122	108,030	103,413	75,804	45,919	64,325	11,203
Hickory	211,503	11,370	14,045	15,716	19,849	21,007	35,824	31,845	21,997	17,437	4,038	16,612	1,763
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	2,272	172	--	402	--	665	390	--	--	--	--	643	--
Soft maple	723,725	80,681	98,597	98,474	73,300	79,045	73,529	66,188	52,071	36,179	25,915	33,167	6,579
Beech	286,238	9,373	11,024	11,538	18,902	21,245	33,849	37,413	31,986	33,335	27,299	39,686	10,588
Sweetgum	920,212	71,910	114,609	104,692	120,916	120,267	103,270	101,948	10,562	35,451	22,801	46,932	6,854
Tupelo and blackgum	387,825	20,940	21,821	39,971	35,904	60,329	60,089	38,236	28,956	20,955	18,860	23,628	18,136
Ash	100,289	7,391	10,388	14,064	9,020	12,297	11,452	7,132	14,208	3,478	5,106	4,075	1,678
Cottonwood	1,826	--	226	--	--	1,600	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow-poplar	724,124	23,202	39,017	47,086	60,979	59,619	77,577	83,422	93,025	71,929	54,506	97,054	16,708
Bay and magnolia	17,276	5,764	5,652	2,145	1,251	1,629	414	421	--	--	--	--	--
Black cherry	33,186	8,185	11,448	7,398	2,722	1,236	--	1,401	700	--	--	96	--
Black walnut	16,718	49	869	2,433	1,449	1,421	3,147	2,259	1,205	1,388	--	1,652	846
Sycamore	47,545	1,360	1,550	3,905	3,481	5,055	6,467	4,065	2,167	6,470	6,087	4,346	2,592
Black locust	4,643	317	870	464	--	450	--	1,019	534	510	--	479	--
Elm	52,924	3,543	6,205	1,674	10,054	6,482	5,262	4,463	3,716	2,054	2,654	4,933	1,884
Other eastern hardwoods	388,240	109,398	84,589	60,429	37,996	23,470	22,207	11,753	7,704	10,485	4,864	13,604	1,741
Total hardwoods	5,977,123	419,805	528,176	563,404	598,654	650,973	696,726	662,659	551,278	412,615	289,460	485,512	117,861
All species	9,235,455	491,520	742,820	1,012,776	1,172,356	1,162,283	1,128,686	983,900	815,370	593,420	395,479	602,045	134,800

Table 40--Green weight of forest biomass on timberland, by species and diameter class, Coastal Plain of Virginia, 1991

Species	All classes	Diameter class (inches at breast height)											
		1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- a.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
Hundred thousand pounds													
Softwood													
Longleaf pine	--		--			--	--	--	--	--			
Slash pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	36,566	273	891	2,478	6,246	9,864	7,500	4,268	3,409	612	1,025	--	--
Loblolly pine	1,981,991	28,618	104,137	273,078	361,801	314,459	265,162	207,464	169,011	118,048	67,692	71,457	1,004
Pond pine	10,195	—	--	--	388	1,560	1,599	906	882	2,383	1,420	498	559
Virginia pine	247,528	7,996	23,626	43,945	51,286	46,061	38,664	17,519	12,593	4,976	862	—	--
Pitch pine	--	--	--	--	--	—	--	--	—	--	--		
Table Mountain pine	--	--	—			—	—	—	--	--	--		
Spruce pine	--		—	--	--	--	—	—				--	--
Sand pine	--	--	--			—	—	—		--	--		
Eastern white pine	--		--		--	--	—	--	--			--	--
Eastern hemlock	--	--	--			--	--		--	--	--		
Spruce and fir	--		--	--	--	--	--	--	--	--	--	--	--
Baldcypress	40,184	--	--	370	--	1,049	1,432	4,164	3,586	4,173	5,011	10,357	10,042
Pondcypress	9,904	--	—	--	145	--	503	—	1,271	630	1,283	3,173	2,899
Cedars	16,526	3,034	4,735	3,787	2,190	1,531	616	137	496	--	—	--	—
Total softwoods	2,342,894	39,981	133,389	323,658	422,056	374,524	315,476	234,458	191,248	130,822	77,293	85,485	14,504
Hardwood													
Select white oaks	725,979	16,757	29,796	50,777	69,598	88,722	103,126	105,508	75,378	54,569	44,838	66,708	20,202
Select red oaks	153,991	3,388	5,934	4,441	8,444	9,421	15,625	16,709	15,173	20,391	9,740	34,189	10,536
Chestnut oak	49,978	861	1,429	2,573	4,781	5,206	6,516	8,170	4,728	4,186	3,331	8,197	—
Other white oaks	44,626	1,424	1,492	1,954	8,382	7,260	6,208	4,705	3,419	2,062	1,981	3,849	1,890
Other red oaks	709,625	30,164	41,388	47,922	69,681	80,499	84,807	92,215	88,523	66,039	40,060	57,853	10,474
Hickory	171,659	9,767	12,329	11,124	15,014	16,453	28,709	25,959	18,241	14,477	3,383	14,576	1,627
Yellow birch	--	—	--	—	—	—	—	—	—	—	--	—	--
Hard maple	-1,967	131	--	307	--	538	385	--	—	—	--	606	--
Soft maple	526,366	61,166	69,958	67,551	55,979	58,636	53,988	48,724	37,696	26,019	18,850	23,333	4,466
Beech	232,425	7,793	9,358	6,904	14,841	17,191	27,564	30,835	26,109	27,608	22,490	32,905	8,827
Sweetgum	656,356	47,802	76,116	68,634	86,150	87,083	75,626	75,489	52,966	27,017	17,531	36,483	5,459
Tupelo and blackgum	267,277	14,951	15,386	20,890	22,077	39,069	40,290	26,951	21,052	15,851	14,191	19,408	17,161
Ash	64,167	4,446	6,525	11,057	6,859	7,731	7,166	4,374	8,269	1,975	2,847	2,136	782
Cottonwood	1,170	—	158	--	--	1,012	--	--	--	—	—	--	—
Basswood	—	—	—	—	—	--	--	--	--	--	—	—	--
Yellow-poplar	511,423	17,176	26,064	28,648	41,736	41,700	54,950	59,890	66,831	51,838	39,331	70,912	12,347
Bay and magnolia	10,666	3,437	3,572	1,294	778	1,021	277	287	—	--	—	—	--
Black cherry	20,262	3,983	7,675	4,306	1,833	883	—	1,007	492	—	--	a3	—
Black walnut	14,350	43	702	1,833	1,168	1,139	2,684	1,948	1,050	1,310	--	1,591	882
Sycamore	33,332	913	1,070	2,085	2,094	3,209	4,411	2,856	1,576	4,923	4,701	3,292	2,202
Black locust	4,369	256	732	382	--	433	--	968	555	510	--	533	--
Elm	34,846	2,590	4,354	1,200	6,363	4,035	3,345	2,907	2,386	1,364	1,769	3,283	1,250
Other eastern hardwoods	301,779	86,419	70,224	39,143	28,022	17,844	17,038	9,797	6,179	9,017	4,329	12,131	1,636
Total hardwoods	4,536,613	313,467	384,262	373,025	443,800	489,085	532,715	519,299	430,623	329,156	229,372	392,068	99,741
All species	6,879,507	353,448	517,651	696,683	865,856	863,609	848,191	753,757	621,871	459,978	306,665	477,553	114,245

Table 41--Average net annual growth and removals of live timber and growing stock on timberland, by species, Coastal Plain of Virginia, 1985-1990

Species	Live <b>timber</b> <sup>a</sup>		Growing stock	
	Net annual growth	Annual timber removals	Net annual growth	Annual timber removals
<u>Thousand cubic feet</u>				
Softwood				
Yellow pines	134,952	115,482	134,698	115,184
Eastern white pine	--	--	--	--
Spruce and fir	--	--	--	--
Cypress	1,070	85	1,065	85
Other eastern softwoods	675	76	648	76
Total softwoods	136,697	115,643	136,411	115,345
Hardwood				
Select white and red oaks	24,547	29,813	24,240	29,484
Other white and red oaks	25,448	24,563	25,243	24,089
Hickory	3,561	4,431	3,507	4,386
Yellow birch	--	--	--	--
Hard maple	40	148	38	148
<b>Sweetgum</b>	21,361	24,766	20,948	23,863
Ash, walnut, and black cherry	2,780	1,798	2,526	1,228
Yellow-poplar	25,619	22,377	25,395	22,123
Tupelo and <b>blackgum</b>	4,392	5,370	4,203	4,945
Bay and magnolia	206	--	192	--
Other eastern hardwoods	23,867	18,404	21,600	14,983
Total hardwoods	131,821	131,670	127,892	125,249
All species	268,518	247,313	264,303	240,594

<sup>a</sup>Merchantable portion only.

Table 42--Average net annual growth and removals of sawtimber on timberland, by species, Coastal Plain of Virginia, 1985-1990

Species	Net annual growth	Annual timber removals
<u>Thousand board feet</u>		
Softwood		
Yellow pines	457,192	420,794
Eastern white pine	--	--
Spruce and fir	--	--
Cypress	6,198	--
Other eastern softwoods	323	--
Total softwoods	463,713	420,794
Hardwood		
Select white and red oaks	105,559	96,057
Other white and red oaks	96,100	80,964
Hickory	12,817	12,739
Yellow birch	--	--
Hard maple	102	592
<b>Sweetgum</b>	66,870	66,257
Ash, walnut, and black cherry	7,431	3,826
Yellow-poplar	107,164	91,049
Tupelo and <b>blackgum</b>	17,126	15,426
Bay and magnolia	13	--
Other eastern hardwoods	67,831	45,120
Total hardwoods	481,013	412,030
All species	944,726	832,824

Table 43--Average annual removals of growing stock on timberland, by species and diameter class, Coastal Plain of Virginia, 1985-1990

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
<u>Thousand cubic feet</u>											
Softwood											
Yellow pines	115,184	10,863	20,599	17,406	19,299	17,658	12,979	8,712	4,088	3,451	129
Eastern white pine	—	—	--	—	—	—	--	--	--	--	--
Spruce and fir	--	--	--	--	--	—	--	—	—	--	--
Cypress	85	--	85	—	—	—	--	—	--	--	--
Other eastern softwoods	76	76	--	—	—	—	—	—	—	--	—
Total softwoods	115,345	10,939	20,684	17,406	19,299	17,658	12,979	8,712	4,088	3,451	129
Hardwood											
Select white and red oaks	29,484	1,916	2,885	3,582	3,430	3,853	3,562	<b>3,698</b>	2,716	<b>3,090</b>	752
Other white and red oaks	<b>24,089</b>	2,114	2,747	1,971	2,938	2,483	3,208	2,917	2,247	2,870	594
Hickory	4,386	198	545	786	695	645	108	512	246	651	--
Yellow birch	--	—	--	--	--	—	—	—	—	--	--
Hard maple	148	--	—	--	--	148	--	--	—	--	—
<b>Sweetgum</b>	23,863	2,202	3,074	4,412	3,841	2,727	2,559	1,885	1,530	1,500	133
Ash, walnut, and black cherry	1,228	--	166	166	196	--	83	<b>293</b>	204	120	--
Yellow-poplar	22,123	<b>994</b>	1,232	2,041	2,410	3,448	4,188	2,028	1,668	3,606	508
Tupelo and <b>blackgum</b>	4,945	165	168	769	1,103	1,256	788	539	157	—	--
Bay and magnolia	--	--	--	--	--	—	--	—	—	--	—
Other eastern hardwoods	14,983	1,819	769	1,573	1,906	1,580	1,863	1,489	1,588	1,771	625
Total hardwoods	125,249	9,408	11,586	15,300	16,519	16,140	16,359	13,361	10,356	13,608	2,612
All species	240,594	20,347	32,270	32,706	35,818	33,798	29,338	22,073	14,444	17,059	2,741



Table 44--Average annual mortality of live timber, growing stock, and sawtimber on timberland, by species, Coastal Plain of Virginia, 1985-1990

Species	Live <b>timber</b> <sup>a</sup>	Growing stock	Sawtimber
	<u>Thousand cubic feet</u>		<u>Thousand board feet</u>
Softwood			
Yellow pines	18,796	18,427	51,797
Eastern white pine	--	--	--
Spruce and fir	--	--	--
Cypress	93	93	597
Other eastern softwoods	90	--	--
Total softwoods	18,979	18,520	52,394
Hardwood			
Select white and red oaks	3,011	2,279	6,774
Other white and red oaks	5,128	4,340	11,888
Hickory	1,473	1,341	4,339
Yellow birch	--	--	--
Hard maple	--	--	--
<b>Sweetgum</b>	2,928	2,470	4,216
Ash, walnut, and black cherry	1,009	523	1,112
Yellow-poplar	2,598	2,319	9,050
Tupelo and <b>blackgum</b>	1,473	1,026	2,534
Bay and magnolia	52	52	--
Other eastern hardwoods	7,961	4,425	12,125
Total hardwoods	25,633	18,775	52,038
All species	44,612	37,295	104,432

<sup>a</sup>Merchantable portion only.

**Table 45--Change in number of live trees on timberland, by species group, size and diameter class, Coastal Plain of Virginia**

Species group and year	All classes	Diameter class (inches at breast)					
		1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11 12
<u>Thousand trees</u>							
Yellow pine							
1985	648,384	222,860	175,582	114,626	66,092	30,998	17,511
1991	744,339	281,390	190,038	124,797	74,311	36,064	18,461
Change	+95,955	+58,530	+14,456	+10,171	+8,219	+5,066	+1,137
Other softwood							
1985	32,008	22,599	6,753	1,061	416	226	
1991	32,274	22,907	6,112	1,656	434	252	
Change	+266	+308	-641	+595	+18	+26	-1
Hardwood							
1985	2,708,312	1,922,944	420,186	155,245	80,693	51,284	31,060
1991	2,692,404	1,938,114	407,341	146,350	76,182	45,991	30,411
Change	-15,908	+15,170	-12,845	-8,895	-4,511	-5,293	-649

Table 46--Land area, by land use class, major forest type, and survey completion date, Coastal Plain of Virginia

Land use class	Survey completion date			Change 1985-1991
	1976	1985	1991	
	<u>Acres</u>			
Forest land				
Timberland:				
Pine and oak-pine types	2,024,058	1,916,601	1,955,930	+39,329
Hardwood types	1,979,481	1,857,328	1,746,336	-110,992
<b>Total</b>	<b>4,003,539</b>	<b>3,773,929</b>	<b>3,702,266</b>	-71,663
Reserved timberland	69,056	96,269	97,670	+1,401
Woodland	2,739	2,739	2,739	--
<b>Total forest land</b>	<b>4,075,334</b>	<b>3,872,937</b>	<b>3,802,675</b>	-70,262
Nonforest land				
<b>Cropland</b>	<b>1,190,864</b>	<b>1,270,814</b>	<b>1,212,816</b>	-57,998
Pasture and range	147,676	148,508	135,270	-13,238
Other	831,048	965,520	1,107,388	+41,868
<b>Total</b>	<b>2,169,588</b>	<b>2,384,842</b>	<b>2,455,474</b>	<b>+70,632</b>
<b>All land<sup>a</sup></b>	<b>6,244,922</b>	<b>6,257,779</b>	<b>6,258,149</b>	<b>+370</b>

<sup>a</sup>Excludes all water areas.

**Table 47--Volume<sup>a</sup> of sawtimber, growing stock, and live timber on timberland, by species group, survey completion date, and diameter class, Coastal Plain of Virginia**

Species	Diameter class (inches at breast height)									
group and year	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										
1976	8,759,911	--	--	1,535,368	2,055,308	1,802,821	1,439,713	903,105	497,778	525,818
1985	8,026,922	--	--	1,403,817	1,605,818	1,672,257	1,321,559	906,115	546,823	570,533
1991	8,287,256	--	--	1,564,361	1,677,562	1,437,938	1,305,965	957,079	585,602	758,749
Hardwood										
1976	10,107,655	--	--	--	1,961,044	2,120,915	1,718,463	1,375,955	975,141	1,956,137
1985	10,891,460	--	--	--	1,880,395	2,122,269	1,963,856	1,573,501	1,134,295	2,217,144
1991	11,309,329	--	--	--	1,843,771	2,140,544	2,004,636	1,598,709	1,173,977	2,547,692
GROWING STOCK (in thousand cubic feet)										
Softwood										
1976	2,430,825	261,996	370,801	425,067	456,998	351,263	255,901	150,326	78,843	79,630
1985	2,352,893	290,629	432,006	388,678	357,060	325,803	234,891	150,818	86,612	86,396
1991	2,480,443	315,492	469,056	436,771	374,825	281,286	233,312	160,443	93,699	115,559
Hardwood										
1976	3,612,772	327,164	469,789	534,943	566,201	518,684	378,217	283,389	189,384	345,001
1985	3,705,980	317,386	427,669	531,326	542,960	518,990	432,219	324,093	220,282	391,055
1991	3,722,191	315,945	418,470	483,411	533,848	525,292	441,207	328,555	228,172	447,291
LIVE TIMBER <sup>b</sup> (in thousand cubic feet)										
Softwood										
1976	2,442,447	264,095	372,630	427,721	458,698	352,307	257,125	150,326	79,181	80,364
1985	2,364,313	292,869	434,140	391,138	358,460	326,729	236,023	150,818	86,984	87,152
1991	2,491,913	317,670	471,063	438,175	376,960	282,845	233,603	160,443	94,033	117,121
Hardwood										
1976	3,964,891	405,475	537,366	586,218	604,009	546,647	396,364	301,142	199,999	387,671
1985	4,061,328	393,490	489,917	582,333	579,196	547,079	452,951	344,320	232,593	439,449
1991	4,059,486	384,406	470,162	529,859	574,781	550,930	461,655	344,793	241,896	501,004

<sup>a</sup>To provide a basis for valid comparisons, adjustments have been made to allow for differences in volume tables and sawtimber specifications used in previous surveys.

<sup>b</sup>Merchantable volume.

THOMPSON, MICHAEL T. 1991. Forest statistics for the Coastal Plain of Virginia, 1991. Resour. Bull. SE-122. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 52 pp.

Since 1985, area of timberland in the Coastal Plain in Virginia has declined by 2 percent to 3.7 million acres. Nonindustrial private owners control three-fourths of the region's timberland. Volume of softwood growing stock increased by 5 percent to 2.5 billion cubic feet, whereas volume of hardwood **growing** stock remained stable since 1985. Net annual growth of softwoods was up 35 percent to over 136 million cubic feet. Hardwood growth was down 3 percent to 128 million cubic feet. Softwood removals remained stable at 115 million cubic feet. Hardwood removals increased 19 percent to 125 million cubic feet. Mortality of softwood growing stock was down 37 percent to 19 million cubic feet, whereas mortality of hardwood growing stock increased 15 percent to 16 million cubic feet.

KEYWORDS: Timberland, forest ownership, timber volume, timber growth, timber removals.

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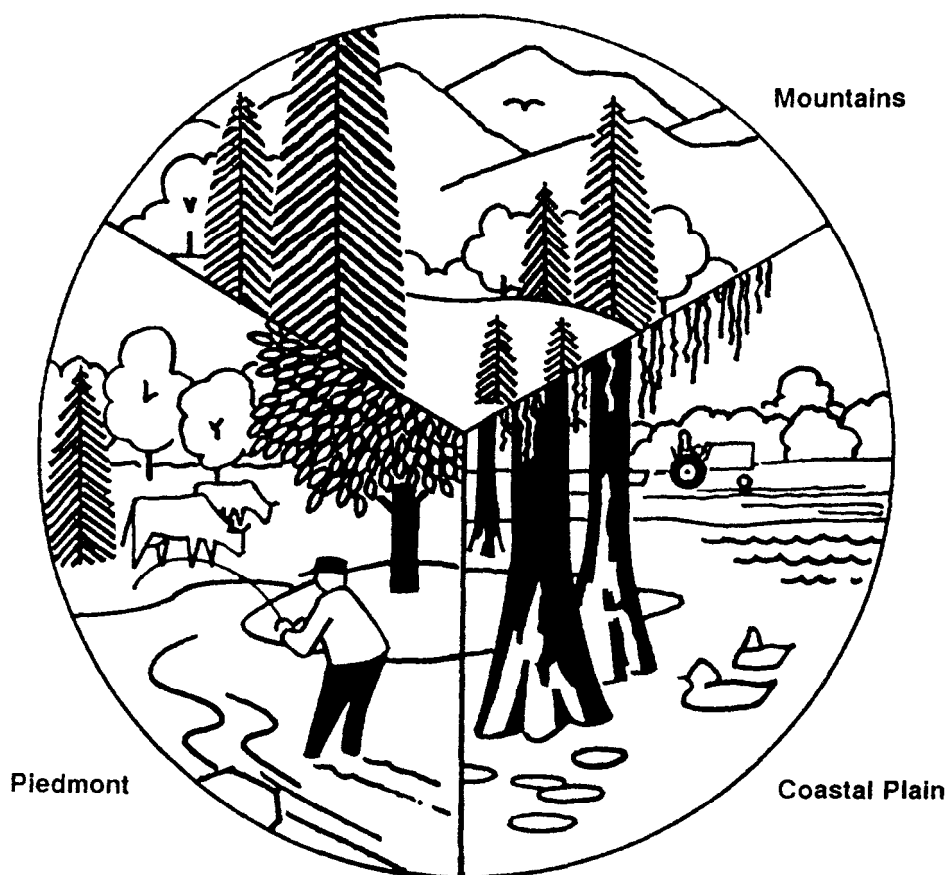
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## **Southeastern Forest Experiment Station**

Established 1921

The Southeastern Forest Experiment Station, headquartered in Asheville, North Carolina, is one of the eight regional Experiment Stations, and the Forest Products Laboratory, that make up the Forest Service research organization.

### **RESEARCH MISSION:**

To acquire the knowledge, develop the technology, and disseminate the research findings required to manage the Southeast's forest resources in ways that satisfy demands of goods and services while maintaining a quality environment.

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