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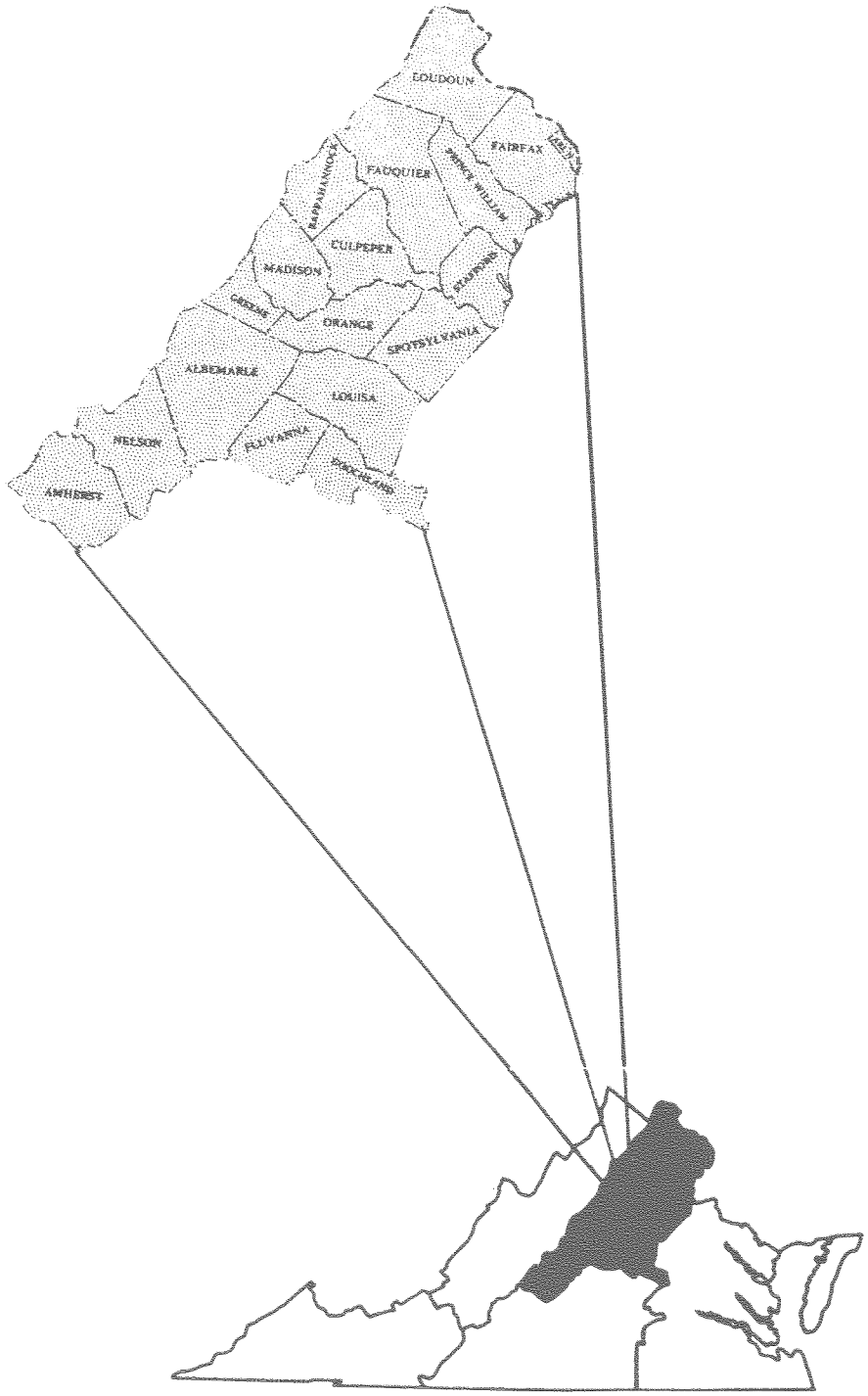
Forest Statistics for the Northern Piedmont of Virginia, 1986

Mark J. Brown



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Forest Statistics for the Northern Piedmont of Virginia, 1986

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Foreword

This report highlights the principal findings of the fifth forest survey in the Northern Piedmont of Virginia. Fieldwork began in July 1985 and was completed in September 1985. Four previous surveys, completed in 1940, 1957, 1965, and 1976, provide statistics for measuring changes and trends over the past 46 years. The primary emphasis in this report is on the changes and trends since 1976. 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 Rangeland Renewable Resources Research Act of 1978. These surveys are a continuing, nationwide undertaking by the Regional Experiment Stations of the USDA Forest Service. In Florida, Georgia, North Carolina, South Carolina, and Virginia, these surveys are administered by the Forest Inventory and Analysis (Forest Survey) Research Unit at the Southeastern Forest Experiment Station, with headquarters in Asheville, NC. The primary objective of the survey is to periodically inventory and evaluate all forest and related resources. These multiresource data help provide a basis for formulating forest policies and programs and for the orderly development and use of the resources. This report deals only with the extent and condition of forest lands, associated timber volumes, and rates of timber growth and removals.

The 18-county area covered by this report is one of five survey units in Virginia. Similar reports, USDA Forest Service Resource Bulletins SE-80 and SE-81, have been issued for the Coastal Plain and the Southern Piedmont of Virginia. Comparable reports for the other two 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.

Joe P. McClure

JOE P. MCCLURE
Project Leader

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Since 1976 in the Northern Piedmont of Virginia

• area of timberland has decreased by 167,000 acres, or more than 6 percent. Altogether, 229,000 acres of timberland were diverted to other land uses but 62,000 acres of new timberland were added. Of the acreage diverted, 66 percent went to urban and other uses, 26 percent went to agriculture, and the remaining 8 percent was reclassified to reserved timberland. Timberland now totals 2.4 million acres and accounts for 55 percent of the total land area in the 18 counties that make up the Northern Piedmont of Virginia.

• area of nonindustrial private forest (NIPF) land has declined about 8 percent, from 2.2 to 2.0 million acres. Within the NIPF grouping, a 12-percent increase in the acreage owned by miscellaneous private individuals partially offset a 31-percent decrease in farmer-owned timberland and a small decline in miscellaneous private corporate holdings. Acreage controlled by forest industry increased almost 7 percent to 212,000 acres. Public timberland declined 3 percent to 157,000 acres.

• the decrease in timberland occurred across all three major forest type groups: hardwoods, softwoods, and oak-pine. The hardwood type group declined 2 percent, the softwood forest type group almost 11 percent, and the oak-pine type 27 percent. Within the hardwood group, the predominant forest type is oak-hickory, covering 1.6 million acres. In the softwood group, the major forest type is Virginia pine, occupying 265,000 acres. The area of loblolly pine forest type nearly doubled to 160,000 acres.

• area of timberland supporting sawtimber stands increased 15 percent to 1.2 million acres. Sawtimber stands now occupy one-half of the total timberland in the Northern Piedmont of Virginia. Poletimber stands have decreased 19 percent to 746,000 acres. The area covered by sapling-seeding stands has dropped 28 percent to 422,000 acres. Nonstocked timberland has increased 17 percent to 24,000 acres.

• more than 24,000 acres were harvested annually and retained in timberland. Upland hardwood forest types accounted for 56 percent of the average annual harvest; pine and oak-pine types, 42 percent; and lowland hardwood types, the remaining 2 percent. About 79 percent of the annual harvest took place on NIPF land. In addition to the final harvests, selective cutting and other intermediate cutting occurred on more than 10,000 acres each year. Almost 18,000 acres were damaged annually by natural agents such as insects, diseases, and weather. Nearly two-thirds of the annual damage happened in hardwood stands.

• about 22,000 acres of timberland were regenerated annually. Almost 56 percent of the regeneration was to a pine or oak-pine type. The area artificially regenerated each year averaged less than 8,600 acres, or 39 percent of the total regeneration. Hardwoods dominated the stocking on nearly 31 percent of the artificially regenerated area, causing these stands to be classed as either oak-pine or a hardwood forest type. About 69 percent of the artificial regeneration took place on forest industry land and 31 percent was on NIPF land. Natural regeneration occurred on more than 13,000 acres, 98 percent of which was on NIPF land.

• average basal area of live trees 5.0 inches d.b.h. and larger increased from more than 69 to almost 79 square feet per acre, or by 14 percent. At the same time, the number of saplings per acre declined from 579 to 560. The total number of softwood saplings in the Northern Piedmont of Virginia decreased more than 24 percent. The total number of hardwood saplings declined less than 6 percent. For softwoods, tree numbers increased in the 6- through 12-inch diameter classes. For hardwoods, tree numbers increased in all diameter classes 12-inches and larger. Average net volume per acre of all trees increased 16 percent to 1,689 cubic feet.

• volume of softwood growing stock has increased from 722 to 771 million cubic feet, or by almost 7 percent. Virginia pine remains the predominant softwood species in the region at 499 million

cubic feet, but has gained only 1 percent in volume since 1976. Loblolly pine, nearly tripling in volume to 123 million cubic feet, has replaced shortleaf pine as the second most abundant softwood species. Shortleaf pine volume decreased by 44 percent to 69 million cubic feet. Volume of softwood sawtimber increased nearly 11 percent to more than 1.7 billion board feet. Within this increase, loblolly pine sawtimber more than doubled to 214 million board feet.

- volume of hardwood growing stock has increased from less than 2.7 to more than 2.9 billion cubic feet, or by almost 11 percent. Collectively the oaks account for 52 percent of the hardwood growing-stock volume. Yellow-poplar is the next most abundant species and accounts for 21 percent of the total hardwood volume. Hickory and maples follow next in the region, with 8 and 6 percent of the total volume respectively. Hardwood sawtimber increased more than 19 percent to 9.3 billion board feet, with increases in all diameter classes.

In 1985

- net annual growth of growing stock totaled almost 126 million cubic feet, down 11 percent from the 1976 survey. Net growth of growing stock averaged 52 cubic feet per acre, down from the previous average of 55 cubic feet. Hardwoods made up 78 percent of the total net annual growth. Across all ownerships, net annual growth of hardwood growing stock decreased 5 percent, and the growth of softwood was down 28 percent. On NIPF land, softwood growth was down 33 percent. On forest industry land, softwood growth showed little change. The total net annual growth of growing stock for all species includes 504 million board feet of sawtimber, up 7 percent since 1976. Softwood sawtimber growth decreased 15 percent, whereas that for hardwood increased more than 12 percent.
- annual removals of growing stock totaled more than 63 million cubic feet, down 23 percent since 1976. Hardwoods accounted for more than 40 million cubic feet, or 64 percent of the total annual removals. Hardwood removals have decreased more than 29 percent from the previous survey. By ownership, 84 percent of the hardwood volume removed came from NIPF lands. Softwoods represented less than 23 million cubic feet, or 36 percent of the total annual removals. Softwood removals were down more than 8 percent from the previous survey period. NIPF lands supplied 83 percent of the softwood removals. Softwood removals on NIPF lands increased 7 percent from 1976, whereas on forest industry land, softwood removals decreased 31 percent over the same period. The total annual removals of growing stock included 215 million board feet of sawtimber.
- annual mortality of growing stock totaled almost 26 million cubic feet, up 25 percent from the previous survey. Hardwoods made up 56 percent of the annual mortality. Disease was the leading cause of death accounting for more than half of the hardwood mortality. Insects and suppression were the leading causes of death to softwoods. Insects claimed 38 percent and suppression caused 31 percent of the softwood mortality. For hardwoods and softwoods combined, annual mortality of growing stock included 63 million board feet of sawtimber, an increase of 22 percent since 1976. Altogether, mortality reduced gross growth of growing stock by 17 percent.

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 13,249 sample clusters systematically spaced on the latest aerial photographs available. A subsample of 1,214 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 misclassifications.
2. Estimates of timber volume and forest classifications were based on measurements recorded at 662 ground sample locations systematically distributed within the commercial forest land. 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 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 on these standing trees required to construct volume equations.
4. Felled trees were measured at 15 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 using 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 680 permanent sample plots established in the fourth 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 on these lands.
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):

	Percent
Per million acres of timberland	0.95
Per billion cubic feet of growing stock	5.03
Per billion cubic feet of net annual growth	0.95
Per billion cubic feet of annual removals	2.76

Sampling errors for county and unit totals,[a] in terms of one standard error, Northern Piedmont of Virginia, 1986

County	Timberland area	Cubic-foot volume of growing stock		
		Inventory	Growth	Removals
	- - - - - - - Sampling error[b] - - - - - -			
Albemarle	2.00	7.87	8.44	30.97
Amherst	1.60	7.59	7.84	34.64
Arlington	0.00	0.00	0.00	0.00
Culpeper	2.92	9.74	9.97	100.04
Fairfax	4.60	12.95	11.83	42.54
Fauquier	2.28	9.48	9.14	63.66
Fluvanna	2.28	13.73	12.76	39.97
Goochland	2.40	9.25	11.28	62.91
Greene	5.61	13.14	10.72	73.20
Loudoun	3.82	11.58	10.99	51.92
Louisa	1.48	10.41	10.27	28.26
Madison	2.94	11.23	11.94	55.34
Nelson	1.47	9.03	9.05	32.39
Orange	2.38	14.58	12.21	46.55
Prince William	3.27	10.63	9.93	44.93
Rappahannock	3.18	14.73	17.92	61.35
Spotsylvania	1.45	11.03	10.55	38.62
Stafford	1.91	9.93	10.82	59.53
Total	.57	2.60	2.66	10.98

[a]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.

[b]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., inclusive.

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 himself 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 non-forest 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 tropical. 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 flood plains (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.

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 sawtimber 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 not developed for another land use. Rangeland includes natural grassland and savannah.

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

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

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

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

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

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

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

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

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

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

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

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

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

Seedlings. 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 growing-stock trees in the stand.

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

Poletimber stands. Stands at least 16.7 percent stocked with growing-stock 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 growing-stock 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.

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.

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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 factors

Cubic feet of wood per average cord (excluding bark)

D.b.h. class	All species	Pine	Other softwood	Hardwood
6	60.6	61.0	68.2	60.0
8	68.4	68.1	76.0	68.4
10	73.4	73.1	81.4	73.4
12	76.5	76.7	85.2	76.4
14	78.6	79.4	88.2	78.4
16	80.0	81.6	90.4	79.8
18	81.1	83.3	92.3	80.8
20	81.8	84.8	93.8	81.5
22	82.5	86.0	95.1	82.1
24+	83.2	87.0	97.9	83.0
Average	74.6	70.1	82.0	75.5

Metric equivalents of units used in this report

1 acre = 4,046.86 square meters or 0.404686 hectare

1 cubic foot = 0.028317 cubic meter

1 inch = 2.54 centimeters or 0.0254 meter

Breast height = 1.4 meters above ground level

1 square foot = 929.03 square centimeters or 0.0929 square meter

1 square foot per acre basal area = 0.229568 square meter per hectare

1 pound = 0.454 kilogram

1 ton = 0.907 metric ton

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 4.

Table 1.--Area, by county and land class, Northern Piedmont of Virginia, 1986

County	All land[a]	Forest land				Nonforest land[b]
		Total	Timberland	Woodland	Reserved timberland	
	Acres					
Albemarle	470,829	290,860	275,629	--	15,231	179,969
Amherst	306,246	221,538	219,671	--	1,867	84,708
Arlington	16,614	--	--	--	--	16,614
Culpeper	244,480	106,997	106,997	--	--	137,483
Fairfax	266,592	99,337	78,855	--	20,482	167,255
Fauquier	416,570	180,056	180,056	--	--	236,514
Fluvanna	185,510	132,590	132,590	--	--	52,920
Goochland	180,032	123,054	123,054	--	--	56,978
Greene	100,371	64,253	49,387	--	14,866	36,118
Loudoun	333,498	101,055	100,175	--	880	232,443
Louisa	317,805	232,229	232,229	--	--	85,576
Madison	205,913	118,289	86,037	--	32,252	87,624
Nelson	303,590	223,672	222,224	--	1,448	79,918
Orange	218,822	120,565	120,165	--	400	98,257
Prince William	223,591	121,061	100,742	--	20,319	102,530
Rappahannock	170,970	105,446	73,707	--	31,739	65,524
Spotsylvania	262,471	184,537	177,890	--	6,647	77,934
Stafford	173,510	120,200	120,200	--	--	53,310
Total	4,397,414	2,545,739	2,399,608	--	146,131	1,851,675

[a]From U.S. Bureau of the Census, 1980.

[b]Includes 1,869 acres of water according to Forest Survey standards of area classification, but defined by the Bureau of Census as land.

Table 2.--Area of timberland, by county and ownership class, Northern Piedmont of Virginia, 1986

County	All ownerships	Ownership class							
		National Forest	Miscellaneous Federal	State	County and municipal	Forest industry[a]	Other private		
							Farmer	Corporate	Individual
	Acres								
Albemarle	275,629	--	--	853	2,888	22,363	74,857	42,776	131,892
Amherst	219,671	55,226	--	55	1,157	22,990	44,759	14,919	80,565
Arlington	--	--	--	--	--	--	--	--	--
Culpeper	106,997	--	--	343	280	7,947	50,801	6,350	41,276
Fairfax	78,855	--	7,836	2,812	1,970	--	3,154	12,617	50,466
Fauquier	180,056	--	3,475	4,423	607	3,683	76,939	24,481	66,448
Fluvanna	132,590	--	--	928	90	18,276	34,860	21,788	56,648
Goochland	123,054	--	--	10	185	14,813	15,889	3,178	88,979
Greene	49,387	--	--	1,169	115	493	17,004	--	30,606
Loudoun	100,175	--	5,962	83	1,136	--	41,330	10,333	41,331
Louisa	232,229	--	--	241	493	22,973	41,705	23,169	143,648
Madison	86,037	--	--	8,204	10	4,029	40,587	--	33,207
Nelson	222,224	15,248	--	848	95	44,758	48,039	13,726	99,510
Orange	120,165	--	--	20	190	10,749	44,365	3,413	61,428
Prince William	100,742	--	11,751	300	1,205	--	24,996	20,830	41,660
Rappahannock	73,707	--	--	--	--	20	30,145	3,349	40,193
Spotsylvania	177,890	--	--	60	2,358	37,089	30,752	11,532	96,099
Stafford	120,200	--	21,876	120	2,011	2,029	22,729	16,235	55,200
Total	2,399,608	70,474	50,900	20,469	14,790	212,212	642,911	228,696	1,159,156

[a]Includes 0 acres of other private land under long-term lease.

Table 3.--Area of timberland, by county and forest-type group, Northern Piedmont of Virginia, 1986

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									
Albemarle	275,629	3,565	--	--	54,118	32,083	182,298	--	3,565	--
Amherst	219,671	6,436	--	--	29,708	27,322	156,205	--	--	--
Arlington	--	--	--	--	--	--	--	--	--	--
Culpeper	106,997	--	--	--	19,393	3,175	81,254	--	3,175	--
Fairfax	78,855	--	--	--	9,462	--	63,085	--	6,308	--
Fauquier	180,056	--	--	--	30,167	24,667	121,725	--	3,497	--
Fluvanna	132,590	--	--	--	42,687	16,209	68,408	--	5,286	--
Goochland	123,054	--	--	--	28,602	12,710	78,564	--	3,178	--
Greene	49,387	--	--	--	14,211	--	35,176	--	--	--
Loudoun	100,175	--	--	--	17,222	1,219	78,290	--	3,444	--
Louisa	232,229	--	--	--	45,426	25,294	156,875	--	4,634	--
Madison	86,037	--	--	--	15,098	11,069	59,870	--	--	--
Nelson	222,224	--	--	--	36,953	3,431	174,978	--	6,862	--
Orange	120,165	--	--	--	27,834	13,651	75,268	--	3,412	--
Prince William	100,742	--	--	--	23,767	--	72,809	--	4,166	--
Rappahannock	73,707	3,350	--	--	3,369	3,349	63,639	--	--	--
Spotsylvania	177,890	--	--	--	67,287	19,497	87,262	--	3,844	--
Stafford	120,200	--	--	--	20,679	6,494	93,027	--	--	--
Total	2,399,608	13,351	--	--	485,983	200,170	1,648,733	--	51,371	--

Table 4.--Area of timberland, by county and stand-size class, Northern Piedmont of Virginia, 1986

County	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling-seedling	
	Acres				
Albemarle	275,629	149,888	89,769	32,407	3,565
Amherst	219,671	116,015	72,826	27,791	3,039
Arlington	--	--	--	--	--
Culpeper	106,997	50,800	46,672	6,350	3,175
Fairfax	78,855	48,941	23,606	6,308	--
Fauquier	180,056	90,251	61,643	21,168	6,994
Fluvanna	132,590	40,952	48,951	42,687	--
Goochland	123,054	55,085	41,496	26,473	--
Greene	49,387	38,577	6,916	3,894	--
Loudoun	100,175	57,623	25,331	17,221	--
Louisa	232,229	69,290	101,525	61,414	--
Madison	86,037	67,238	11,080	7,719	--
Nelson	222,224	137,703	28,871	52,219	3,431
Orange	120,165	44,384	38,072	37,709	--
Prince William	100,742	69,571	24,067	7,104	--
Rappahannock	73,707	50,241	13,397	6,720	3,349
Spotsylvania	177,890	53,875	77,056	46,959	--
Stafford	120,200	67,261	34,693	18,246	--
Total	2,399,608	1,207,695	745,971	422,389	23,553

Table 5.--Area of timberland, by county and site class, Northern Piedmont of Virginia, 1986

County	All classes	Site class (cubic feet per acre per year)				
		> 164	120-164	85-119	50-84	20-49
	Acres					
Albemarle	275,629	--	7,128	74,857	171,405	22,239
Amherst	219,671	--	2,984	49,144	112,092	55,451
Arlington	--	--	--	--	--	--
Culpeper	106,997	--	6,350	31,750	62,547	6,350
Fairfax	78,855	3,154	--	11,433	56,432	7,836
Fauquier	180,056	10,491	3,498	28,902	123,175	13,990
Fluvanna	132,590	--	7,403	8,716	90,237	26,234
Goochland	123,054	--	--	20,304	99,573	3,177
Greene	49,387	--	3,401	14,773	24,413	6,800
Loudoun	100,175	--	3,444	13,776	74,847	8,108
Louisa	232,229	--	--	20,625	190,486	21,118
Madison	86,037	--	11,069	24,189	37,659	13,120
Nelson	222,224	3,431	7,907	83,677	112,438	14,771
Orange	120,165	--	--	23,889	92,864	3,412
Prince William	100,742	--	4,166	11,270	72,808	12,498
Rappahannock	73,707	--	3,350	6,698	46,912	16,747
Spotsylvania	177,890	--	4,121	30,751	123,798	19,220
Stafford	120,200	3,247	9,741	44,605	52,866	9,741
Total	2,399,608	20,323	74,562	499,359	1,544,552	260,812

Table 6.--Area of timberland, by county and stocking class of growing-stock trees, Northern Piedmont of Virginia, 1986

County	All classes	Stocking class (percent)[a]				
		> 130	100-130	60-99	16.7-59	< 16.7
	Acres					
Albemarle	275,629	7,129	81,958	121,527	61,450	3,565
Amherst	219,671	10,647	36,742	132,031	37,212	3,039
Arlington	--	--	--	--	--	--
Culpeper	106,997	9,525	35,269	49,503	9,525	3,175
Fairfax	78,855	--	17,399	44,158	17,298	--
Fauquier	180,056	3,475	52,647	81,969	34,971	6,994
Fluvanna	132,590	--	64,475	45,399	22,716	--
Goochland	123,054	9,534	45,539	64,803	3,178	--
Greene	49,387	3,516	17,003	25,467	3,401	--
Loudoun	100,175	--	28,772	61,071	10,332	--
Louisa	232,229	6,723	84,124	120,758	20,624	--
Madison	86,037	3,690	27,880	39,709	14,758	--
Nelson	222,224	8,952	66,411	116,266	27,164	3,431
Orange	120,165	3,413	27,831	71,858	17,063	--
Prince William	100,742	4,166	22,816	73,760	--	--
Rappahannock	73,707	--	16,748	26,815	26,795	3,349
Spotsylvania	177,890	23,895	85,398	57,065	11,532	--
Stafford	120,200	11,963	52,124	44,360	11,753	--
Total	2,399,608	106,628	763,136	1,176,519	329,772	23,553

[a]See stocking standards on page 12.

Table 7.--Volume of growing stock and sawtimber on timberland, by county and species group, Northern Piedmont of Virginia, 1986

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[a]					Thousand board feet				
Albemarle	416,337	69,893	12,654	101,956	231,834	1,351,338	185,436	53,273	397,721	714,908
Amherst	307,321	47,718	17,604	86,764	155,235	896,013	77,712	73,526	303,732	441,043
Arlington	--	--	--	--	--	--	--	--	--	--
Culpeper	199,086	55,479	1,274	49,004	93,329	533,315	144,013	1,946	122,493	264,863
Fairfax	152,466	9,181	2,545	35,600	105,140	582,236	29,050	1,256	141,521	410,409
Fauquier	260,032	42,142	2,190	66,630	149,070	770,480	120,562	3,328	206,220	440,370
Fluvanna	147,042	49,280	735	29,606	67,421	341,305	126,862	--	68,304	146,139
Goochland	195,185	55,042	772	52,070	87,301	485,921	81,182	--	158,890	245,849
Greene	94,809	24,069	559	28,279	41,902	317,829	41,844	--	119,859	156,126
Loudoun	152,492	6,488	1,675	27,801	116,528	511,439	9,832	1,203	120,098	380,306
Louisa	288,312	66,959	2,989	56,776	161,588	604,279	137,671	5,248	132,300	329,060
Madison	167,017	20,728	6,477	38,395	101,417	614,999	60,029	32,785	156,507	365,678
Nelson	370,094	20,745	13,441	124,628	211,280	1,298,889	37,666	49,074	470,789	741,360
Orange	147,159	17,195	6,350	39,885	83,729	427,099	14,559	18,847	145,301	248,392
Prince William	185,766	39,664	1,260	35,152	109,690	589,329	77,531	--	125,849	385,949
Rappahannock	113,548	8,240	1,785	40,676	62,847	422,444	22,687	8,621	164,632	226,504
Spotsylvania	270,012	110,506	1,895	75,494	82,117	575,443	194,394	5,802	174,992	200,255
Stafford	239,814	52,909	315	81,644	104,946	727,170	117,896	--	223,383	385,891
Total	3,706,492	696,238	74,520	970,360	1,965,374	11,049,528	1,478,926	254,909	3,232,591	6,083,102

[a]Factors for converting to cords are shown on page 12.

Table 8.--Net annual growth of growing stock and sawtimber on timberland, by county and species group, Northern Piedmont of Virginia, 1985

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				
Albemarle	13,845	2,211	476	3,839	7,319	59,792	5,103	1,657	22,593	30,439
Amherst	10,837	1,904	526	3,546	4,861	39,936	5,077	2,912	16,347	15,600
Arlington	--	--	--	--	--	--	--	--	--	--
Culpeper	6,858	1,716	26	2,246	2,870	29,342	5,336	87	11,564	12,355
Fairfax	3,843	143	58	1,162	2,480	16,857	2,011	23	4,533	10,290
Fauquier	8,465	962	143	2,831	4,529	38,525	3,885	115	10,839	23,686
Fluvanna	5,451	1,466	13	1,528	2,444	19,857	5,788	--	3,124	10,945
Goochland	7,212	2,014	102	2,183	2,913	28,784	5,755	43	11,618	11,368
Greene	2,911	713	54	1,023	1,121	12,305	1,442	98	5,019	5,746
Loudoun	4,616	334	91	1,053	3,138	17,356	648	109	4,819	11,780
Louisa	11,224	2,666	74	2,257	6,227	40,111	6,764	91	8,548	24,708
Madison	4,837	394	135	1,402	2,906	23,350	2,423	817	6,481	13,629
Nelson	10,973	794	339	4,845	4,995	50,629	1,438	1,755	26,982	20,454
Orange	5,734	1,451	176	1,301	2,806	17,393	754	618	4,508	11,513
Prince William	4,793	885	43	1,004	2,861	20,026	2,960	64	4,928	12,074
Rappahannock	3,474	198	28	1,600	1,648	18,394	1,596	120	9,685	6,993
Spotsylvania	12,376	5,943	35	3,304	3,094	38,958	13,400	206	14,124	11,228
Stafford	8,086	1,203	6	3,981	2,896	32,292	6,377	--	13,112	12,803
Total	125,535	24,997	2,325	39,105	59,108	503,907	70,757	8,715	178,824	245,611

Table 9.--Annual removals of growing stock and sawtimber on timberland, by county and species group, Northern Piedmont of Virginia, 1985

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				
Albemarle	10,148	1,710	--	1,404	7,034	34,525	2,783	--	6,968	24,774
Amherst	3,721	1,456	343	221	1,701	9,709	2,289	1,510	655	5,255
Arlington	--	--	--	--	--	--	--	--	--	--
Culpeper	117	117	--	--	--	578	578	--	--	--
Fairfax	3,404	1,541	--	1,279	584	12,311	4,845	--	5,493	1,973
Fauquier	2,970	1,926	168	--	876	12,614	8,111	--	--	4,503
Fluvanna	3,851	2,415	63	1,274	99	11,429	5,370	--	6,059	--
Goochland	534	300	--	--	234	571	571	--	--	--
Greene	921	--	--	353	568	3,516	--	--	1,338	2,178
Loudoun	3,390	--	--	657	2,733	16,237	--	--	2,627	13,610
Louisa	10,116	4,139	165	2,076	3,736	30,810	12,363	--	8,768	9,679
Madison	1,753	642	--	727	384	7,536	2,977	--	4,109	450
Nelson	7,204	3,425	156	1,264	2,359	24,895	10,645	1,026	5,628	7,596
Orange	2,710	337	72	304	1,997	8,834	855	--	1,893	6,086
Prince William	2,902	--	--	104	2,798	8,028	--	--	438	7,590
Rappahannock	1,550	--	93	474	983	7,545	--	--	3,101	4,444
Spotsylvania	5,844	2,831	--	984	2,029	17,552	7,717	--	2,528	7,307
Stafford	2,153	884	--	738	531	8,565	2,223	--	3,416	2,926
Total	63,288	21,723	1,060	11,859	28,646	215,255	61,327	2,536	53,021	98,371

Table 10.--Area of timberland, by forest type and ownership class, Northern Piedmont of Virginia, 1986

Forest type	All ownerships	Ownership class				
		National Forest	Other public	Forest industry	Forest industry-leased	Other private
	Acres					
Softwood types:						
White pine-hemlock	13,351	3,452	--	--	--	9,899
Spruce-fir	--	--	--	--	--	--
Longleaf pine	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--
Loblolly pine	160,063	--	190	90,818	--	69,055
Shortleaf pine	15,345	--	--	--	--	15,345
Virginia pine	264,979	--	22,025	15,226	--	227,728
Sand pine	--	--	--	--	--	--
Eastern redcedar	45,596	--	--	--	--	45,596
Pond pine	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--
Pitch pine	--	--	--	--	--	--
Table Mountain pine	--	--	--	--	--	--
Total	499,334	3,452	22,215	106,044	--	367,623
Hardwood types:						
Oak-pine	200,170	3,451	1,802	17,115	--	177,802
Oak-hickory	1,553,279	46,313	57,549	82,489	--	1,366,928
Chestnut oak	95,454	17,258	3,665	6,564	--	67,967
Southern scrub oak	--	--	--	--	--	--
Oak-gum-cypress	--	--	--	--	--	--
Elm-ash-cottonwood	51,371	--	928	--	--	50,443
Maple-beech-birch	--	--	--	--	--	--
Total	1,900,274	67,022	63,944	106,168	--	1,663,140
All types	2,399,608	70,474	86,159	212,212	--	2,030,763

Table 11.--Area of timberland, by ownership and stocking classes of growing-stock trees, Northern Piedmont of Virginia, 1986

Ownership class	All classes	Stocking class (percent)[a]				
		> 130	100-130	60-99	16.7-59	< 16.7
	Acres					
National Forest	70,474	--	9,952	47,117	13,405	--
Other public	86,159	9,059	39,046	26,276	11,723	55
Forest industry	212,212	31,067	90,232	88,824	2,089	--
Forest industry-leased	--	--	--	--	--	--
Other private	2,030,763	66,502	623,906	1,014,302	302,555	23,498
All ownerships	2,399,608	106,628	763,136	1,176,519	329,772	23,553

[a]See stocking standards on page 12.

Table 12.--Area of timberland, by forest type and stand-size class, Northern Piedmont of Virginia, 1986

Forest type	All stands	Stand-size class			Nonstocked areas
		Sawtimber	Poletimber	Sapling-seedling	
	Acres				
Softwood types:					
White pine-hemlock	13,351	7,017	2,984	3,350	--
Spruce-fir	--	--	--	--	--
Longleaf pine	--	--	--	--	--
Slash pine	--	--	--	--	--
Loblolly pine	160,063	18,915	74,078	67,070	--
Shortleaf pine	15,345	12,167	3,178	--	--
Virginia pine	264,979	81,521	137,600	45,858	--
Sand pine	--	--	--	--	--
Eastern redcedar	45,596	3,413	3,565	38,618	--
Pond pine	--	--	--	--	--
Spruce pine	--	--	--	--	--
Pitch pine	--	--	--	--	--
Table Mountain pine	--	--	--	--	--
Total	499,334	123,033	221,405	154,896	--
Hardwood types:					
Oak-pine	200,170	100,138	59,961	40,071	--
Oak-hickory	1,553,279	869,576	436,293	223,857	23,553
Chestnut oak	95,454	77,835	17,619	--	--
Southern scrub oak	--	--	--	--	--
Oak-gum-cypress	--	--	--	--	--
Elm-ash-cottonwood	51,371	37,113	10,693	3,565	--
Maple-beech-birch	--	--	--	--	--
Total	1,900,274	1,084,662	524,566	267,493	23,553
All types	2,399,608	1,207,695	745,971	422,389	23,553

Table 13.--Area of timberland, by stand-age and broad management classes, all ownerships, Northern Piedmont of Virginia, 1986

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
	Acres					
00-10	209,986	54,250	36,159	24,795	91,217	3,565
11-20	208,483	76,347	61,062	14,208	56,866	--
21-30	188,662	25,913	48,443	4,358	109,948	--
31-40	197,364	3,844	55,027	22,303	113,015	3,175
41-50	277,158	--	90,440	35,081	141,597	10,040
51-60	329,359	--	19,834	36,032	273,493	--
61-70	281,779	--	10,656	9,932	253,528	7,663
71-80	225,412	--	7,017	17,187	196,850	4,358
81+	198,131	--	--	10,409	181,124	6,598
No manageable stand	283,274	--	10,342	25,865	231,095	15,972
All classes	2,399,608	160,354	338,980	200,170	1,648,733	51,371

Table 14.--Area of timberland, by stand-age and broad management classes, public ownerships, Northern Piedmont of Virginia, 1986

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
	Acres					
00-10	2,938	--	--	--	2,938	--
11-20	11,462	190	--	--	11,272	--
21-30	3,280	--	3,280	--	--	--
31-40	19,541	--	8,953	--	10,588	--
41-50	13,464	--	--	--	13,464	--
51-60	20,124	--	9,792	1,219	9,113	--
61-70	29,388	--	--	3,451	25,937	--
71-80	31,525	--	3,452	--	28,073	--
81+	16,142	--	--	--	16,142	--
No manageable stand	8,769	--	--	583	7,258	928
All classes	156,633	190	25,477	5,253	124,785	928

Table 15.--Area of timberland, by stand-age and broad management classes, forest industry,[a] Northern Piedmont of Virginia, 1986

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
	Acres					
00-10	59,619	37,725	3,583	10,905	7,406	--
11-20	51,359	51,359	--	--	--	--
21-30	20,722	6,210	--	--	14,512	--
31-40	8,298	--	4,121	2,089	2,088	--
41-50	8,181	--	3,046	--	5,135	--
51-60	15,513	--	--	--	15,513	--
61-70	8,597	--	--	--	8,597	--
71-80	6,563	--	--	--	6,563	--
81+	13,912	--	--	--	13,912	--
No manageable stand	19,448	--	--	4,121	15,327	--
All classes	212,212	95,294	10,750	17,115	89,053	--

[a]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,[a] Northern Piedmont of Virginia, 1986

Stand-age class (years)	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
	Acres					
00-10	147,429	16,525	32,576	13,890	80,873	3,565
11-20	145,662	24,798	61,062	14,208	45,594	--
21-30	164,660	19,703	45,163	4,358	95,436	--
31-40	169,525	3,844	41,953	20,214	100,339	3,175
41-50	255,513	--	87,394	35,081	122,998	10,040
51-60	293,722	--	10,042	34,813	248,867	--
61-70	243,794	--	10,656	6,481	218,994	7,663
71-80	187,324	--	3,565	17,187	162,214	4,358
81+	168,077	--	--	10,409	151,070	6,598
No manageable stand	255,057	--	10,342	21,161	208,510	15,044
All classes	2,030,763	64,870	302,753	177,802	1,434,895	50,443

[a]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, Northern Piedmont of Virginia, 1986

Broad management class	All classes	Stand-volume class (cubic feet of growing stock per acre)				
		0-499	500-999	1000-1499	1500-1999	2000+
	Acres					
Pine plantation	160,354	80,549	27,050	29,006	11,463	12,286
Natural pine	338,980	86,803	26,875	39,531	61,096	124,675
Oak-pine	200,170	38,191	37,359	50,792	28,291	45,537
Upland hardwood	1,648,733	231,204	236,653	270,800	328,313	581,763
Lowland hardwood	51,371	12,539	3,154	7,019	18,830	9,829
All classes	2,399,608	449,286	331,091	397,148	447,993	774,090

Table 18.--Volume of growing stock on timberland, by broad management class, species group, and stand-age class, Northern Piedmont of Virginia, 1986

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	108,981	--	--	44,925	48,892	15,164	--	--	--	--	--
Hardwood	9,336	--	--	3,132	6,204	--	--	--	--	--	--
Total	118,317	--	--	48,057	55,096	15,164	--	--	--	--	--
Natural pine:											
Softwood	451,311	1,593	161	22,719	65,984	105,474	187,722	39,247	21,764	6,647	--
Hardwood	87,509	1,551	577	5,967	5,799	16,459	41,331	6,104	6,349	3,372	--
Total	538,820	3,144	738	28,686	71,783	121,933	229,053	45,351	28,113	10,019	--
Oak-pine:											
Softwood	116,464	7,326	4,554	3,150	1,571	11,577	24,484	29,689	7,726	14,309	12,078
Hardwood	164,736	6,389	3,966	7,741	494	12,184	33,597	43,631	14,569	27,387	14,778
Total	281,200	13,715	8,520	10,891	2,065	23,761	58,081	73,320	22,295	41,696	26,856
Upland hardwood:											
Softwood	93,159	5,204	934	1,082	6,348	7,535	14,415	16,407	22,868	8,475	9,891
Hardwood	2,600,768	119,455	18,775	32,364	91,663	151,323	270,644	555,065	537,556	416,847	407,076
Total	2,693,927	124,659	19,709	33,446	98,011	158,858	285,059	571,472	560,424	425,322	416,967
Lowland hardwood:											
Softwood	843	--	--	--	--	497	--	--	346	--	--
Hardwood	73,385	10,749	--	--	--	3,181	19,268	--	13,207	6,234	20,746
Total	74,228	10,749	--	--	--	3,678	19,268	--	13,553	6,234	20,746
All types:											
Softwood	770,758	14,123	5,649	71,876	122,795	140,247	226,621	85,343	52,704	29,431	21,969
Hardwood	2,935,734	138,144	23,318	49,204	104,160	183,147	364,840	604,800	571,681	453,840	442,600
Total	3,706,492	152,267	28,967	121,080	226,955	323,394	591,461	690,143	624,385	483,271	464,569

Table 19.--Net annual growth of growing stock on timberland, by broad management class, species group, and stand-age class, Northern Piedmont of Virginia, 1985

Broad management class[a] and species group	All classes	No manageable stand	Stand-age class[a] (years)								
			0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81+
	Thousand cubic feet										
Pine plantation:											
Softwood	8,368	--	22	5,441	2,307	598	--	--	--	--	--
Hardwood	1,110	--	--	278	832	--	--	--	--	--	--
Total	9,478	--	22	5,719	3,139	598	--	--	--	--	--
Natural pine:											
Softwood	13,853	59	194	1,622	2,937	3,646	4,076	771	395	153	--
Hardwood	4,327	71	14	264	451	915	1,927	361	222	102	--
Total	18,180	130	208	1,886	3,388	4,561	6,003	1,132	617	255	--
Oak-pine:											
Softwood	2,781	101	115	210	71	316	592	601	109	322	344
Hardwood	6,339	149	214	260	42	741	1,689	1,637	534	696	377
Total	9,120	250	329	470	113	1,057	2,281	2,238	643	1,018	721
Upland hardwood:											
Softwood	2,301	114	39	99	224	304	271	362	467	166	255
Hardwood	84,442	4,172	808	1,709	4,628	6,413	9,932	18,046	17,515	11,651	9,568
Total	86,743	4,286	847	1,808	4,852	6,717	10,203	18,408	17,982	11,817	9,823
Lowland hardwood:											
Softwood	19	--	--	--	--	15	--	--	4	--	--
Hardwood	1,995	219	--	--	--	190	696	--	348	141	401
Total	2,014	219	--	--	--	205	696	--	352	141	401
All types:											
Softwood	27,322	274	370	7,372	5,539	4,879	4,939	1,734	975	641	599
Hardwood	98,213	4,611	1,036	2,511	5,953	8,259	14,244	20,044	18,619	12,590	10,346
Total	125,535	4,885	1,406	9,883	11,492	13,138	19,183	21,778	19,594	13,231	10,945

[a]Classifications at the end of the remeasurement period.

Table 20.--Annual removals of growing stock on timberland, by broad management class, species group, and stand-age class, Northern Piedmont of Virginia, 1985

Broad management class[a] and species group	All classes	No manageable stand	Stand-age class[a] (years)								
			0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81+
	Thousand cubic feet										
Pine plantation:											
Softwood	556	--	--	556	--	--	--	--	--	--	--
Hardwood	124	124	--	--	--	--	--	--	--	--	--
Total	680	124	--	556	--	--	--	--	--	--	--
Natural pine:											
Softwood	17,877	--	130	1,045	2,278	5,374	4,456	618	3,206	--	770
Hardwood	3,000	--	162	--	--	527	--	1,189	223	--	899
Total	20,877	--	292	1,045	2,278	5,901	4,456	1,807	3,429	--	1,669
Oak-pine:											
Softwood	2,114	127	--	83	--	911	263	730	--	--	--
Hardwood	1,431	98	104	--	618	400	--	92	--	--	119
Total	3,545	225	104	83	618	1,311	263	822	--	--	119
Upland hardwood:											
Softwood	2,236	--	--	154	141	--	839	600	--	253	249
Hardwood	35,242	654	1,364	289	376	711	6,152	4,995	3,339	10,215	7,147
Total	37,478	654	1,364	443	517	711	6,991	5,595	3,339	10,468	7,396
Lowland hardwood:											
Softwood	--	--	--	--	--	--	--	--	--	--	--
Hardwood	708	--	--	--	--	--	--	708	--	--	--
Total	708	--	--	--	--	--	--	708	--	--	--
All types:											
Softwood	22,783	127	130	1,838	2,419	6,285	5,558	1,948	3,206	253	1,019
Hardwood	40,505	876	1,630	289	994	1,638	6,152	6,984	3,562	10,215	8,165
Total	63,288	1,003	1,760	2,127	3,413	7,923	11,710	8,932	6,768	10,468	9,184

[a]Classification before timber removals occurred.

Table 21.--Merchantable volume of live trees and growing stock on timberland, by forest-type group and species group, Northern Piedmont of Virginia, 1986

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
	Thousand cubic feet									
White pine-hemlock	17,955	3,371	7,397	1,145	6,042	15,583	3,078	7,397	731	4,377
Spruce-fir	--	--	--	--	--	--	--	--	--	--
Longleaf-slash pine	--	--	--	--	--	--	--	--	--	--
Loblolly-shortleaf pine	667,130	552,283	10,423	49,770	54,654	641,554	539,394	10,423	46,665	45,072
Oak-pine	302,379	90,793	28,633	58,440	124,513	281,200	87,831	28,633	46,255	118,481
Oak-hickory	2,981,441	68,724	30,139	928,583	1,953,995	2,693,927	65,438	27,721	840,996	1,759,772
Oak-gum-cypress	--	--	--	--	--	--	--	--	--	--
Elm-ash-cottonwood	85,092	497	346	41,271	42,978	74,228	497	346	35,713	37,672
Maple-beech-birch	--	--	--	--	--	--	--	--	--	--
All types	4,053,997	715,668	76,938	1,079,209	2,182,182	3,706,492	696,238	74,520	970,360	1,965,374

Table 22.--Area of timberland treated or disturbed annually and retained in timberland, by treatment or disturbance and ownership class, Northern Piedmont of Virginia, 1976 to 1986

Treatment or disturbance	All ownerships	Ownership class			
		Public	Forest industry	Forest industry-leased	Other private
	Acres[a]				
Final harvest	24,458	64	5,122	--	19,272
Selective cutting and high grading	8,210	252	503	--	7,455
Commercial thinning	1,355	--	227	--	1,128
Other stand improvement	742	--	--	--	742
Site preparation	7,452	--	5,190	--	2,262
Artificial regeneration[b]	8,581	--	5,918	--	2,663
Natural regeneration[b]	13,364	--	227	--	13,137
Other treatment	4,661	1,093	--	--	3,568
Natural disturbance	17,722	944	1,669	--	15,109

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

[b]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, Northern Piedmont of Virginia, 1976 to 1986

Treatment or disturbance	All classes	Broad management class[a]				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
	Acres[b]					
Final harvest	24,458	--	8,157	2,196	13,601	504
Selective cutting and high grading	8,210	--	1,081	889	6,240	--
Commercial thinning	1,355	227	--	386	742	--
Other stand improvement	742	--	--	324	418	--
Site preparation	7,452	796	2,850	1,007	2,799	--
Other treatment	4,661	--	401	1,132	3,128	--
Natural disturbance	17,722	345	5,141	1,049	10,128	1,059

[a]Classification before treatment or disturbance.

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

Table 24.--Area of timberland regenerated annually, by type of regeneration and broad management class, Northern Piedmont of Virginia, 1976 to 1986

Type of regeneration	All classes	Broad management class[a]				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
	Acres					
Artificial regeneration following harvest	7,281	5,456	--	955	870	--
Natural regeneration following harvest	8,008	--	704	1,105	6,199	--
Other artificial regeneration on forest land	1,300	504	--	--	796	--
Other natural regeneration on forest land	750	--	383	--	367	--
Artificial regeneration on nonforest land	--	--	--	--	--	--
Natural reversion of nonforest land	4,606	--	2,852	227	1,126	401
Total	21,945	5,960	3,939	2,287	9,358	401

[a]Classification after regeneration.

Table 25.--Area of timberland, by treatment opportunity and broad management classes, Northern Piedmont of Virginia, 1986

Treatment opportunity class	All classes	Broad management class				
		Pine plantation	Natural pine	Oak-pine	Upland hardwood	Lowland hardwood
	Acres					
Salvage	16,101	--	5,469	--	10,632	--
Harvest	296,841	--	26,677	20,784	238,424	10,956
Commercial thinning	78,337	29,873	42,723	--	5,741	--
Other stand improvement	160,286	14,250	30,806	12,945	102,285	--
Stand conversion	17,752	--	3,175	--	14,577	--
Regeneration	236,134	--	10,342	25,865	187,367	12,560
Stands in relatively good condition	1,368,926	116,231	219,788	129,632	878,832	24,443
Adverse sites[a]	225,231	--	--	10,944	210,875	3,412
All classes	2,399,608	160,354	338,980	200,170	1,648,733	51,371

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

Table 26.--Area of timberland, by treatment opportunity and ownership classes, Northern Piedmont of Virginia, 1986

Treatment opportunity class	All ownerships	Ownership class			
		Public	Forest industry	Forest industry-leased	Other private
	Acres				
Salvage	16,101	5,469	--	--	10,632
Harvest	296,841	8,768	14,570	--	273,503
Commercial thinning	78,337	5,878	27,835	--	44,624
Other stand improvement	160,286	9,842	14,269	--	136,175
Stand conversion	17,752	--	2,089	--	15,663
Regeneration	236,134	5,317	19,448	--	211,369
Stands in relatively good condition	1,368,926	89,593	112,516	--	1,166,817
Adverse sites[a]	225,231	31,766	21,485	--	171,980
All classes	2,399,608	156,633	212,212	--	2,030,763

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

Table 27.--Merchantable volume of live trees and growing stock on timberland, by ownership class and species group, Northern Piedmont of Virginia, 1986

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	136,344	2,789	5,837	32,864	94,854	116,271	2,496	5,569	32,172	76,034
Other public	198,665	48,818	--	56,056	93,791	175,398	46,635	--	49,623	79,140
Forest industry	189,367	75,323	4,325	36,132	73,587	180,273	75,323	4,325	33,376	67,249
Forest industry-leased	--	--	--	--	--	--	--	--	--	--
Other private	3,529,621	588,738	66,776	954,157	1,919,950	3,234,550	571,784	64,626	855,189	1,742,951
All ownerships	4,053,997	715,668	76,938	1,079,209	2,182,182	3,706,492	696,238	74,520	970,360	1,965,374

Table 28.--Volume of sawtimber on timberland, by ownership class and species group, Northern Piedmont of Virginia, 1986

Ownership class	Small sawtimber[a]					Large sawtimber[b]				
	All species	Pine	Other softwood	Soft hardwood	Hard hardwood	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Thousand board feet									
National Forest	141,983	4,519	6,820	57,594	73,050	234,823	3,109	16,490	63,316	151,908
Other public	203,567	83,621	--	57,132	62,814	369,307	11,533	--	125,305	232,469
Forest industry	182,679	71,348	3,065	48,685	59,581	209,944	4,043	8,322	42,757	154,822
Forest industry-leased	--	--	--	--	--	--	--	--	--	--
Other private	4,089,831	1,189,205	77,621	981,099	1,841,906	5,617,394	111,548	142,591	1,856,703	3,506,552
All ownerships	4,618,060	1,348,693	87,506	1,144,510	2,037,351	6,431,468	130,233	167,403	2,088,081	4,045,751

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

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

Table 29.--Net annual growth and removals of growing stock on timberland, by ownership class and species group, Northern Piedmont of Virginia, 1985

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
	Thousand cubic feet									
National Forest	3,837	50	194	1,295	2,298	273	--	--	--	273
Other public	4,799	1,112	--	1,728	1,959	2,284	--	--	896	1,388
Forest industry	9,891	5,851	109	1,665	2,266	7,775	3,596	321	2,284	1,574
Forest industy-leased	--	--	--	--	--	--	--	--	--	--
Other private	107,008	17,984	2,022	34,417	52,585	52,956	18,127	739	8,679	25,411
All ownerships	125,535	24,997	2,325	39,105	59,108	63,288	21,723	1,060	11,859	28,646

Table 30.--Net annual growth and removals of sawtimber on timberland, by ownership class and species group, Northern Piedmont of Virginia, 1985

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
	Thousand board feet									
National Forest	15,067	211	731	6,382	7,743	--	--	--	--	--
Other public	20,899	3,428	--	9,104	8,367	11,483	--	--	4,880	6,603
Forest industry	18,977	5,966	315	4,384	8,312	24,322	9,708	1,026	11,136	2,452
Forest industry-leased	--	--	--	--	--	--	--	--	--	--
Other private	448,964	61,152	7,669	158,954	221,189	179,450	51,619	1,510	37,005	89,316
All ownerships	503,907	70,757	8,715	178,824	245,611	215,255	61,327	2,536	53,021	98,371

Table 31.--Volume of timber on timberland, by class of timber and species group, Northern Piedmont of Virginia, 1986

Class of timber	All species	Pine	Other softwood	Soft hardwood	Hard hardwood
	Thousand cubic feet				
Sawtimber trees:					
Saw-log portion	1,865,694	285,825	45,326	539,375	995,168
Upper-stem portion[a]	632,824	74,964	4,601	148,889	404,370
Total	2,498,518	360,789	49,927	688,264	1,399,538
Poletimber trees	1,207,974	335,449	24,593	282,096	565,836
All growing-stock trees	3,706,492	696,238	74,520	970,360	1,965,374
Rough trees:					
Sawtimber size	136,611	7,169	1,038	39,019	89,385
Poletimber size	181,881	11,686	1,380	57,441	111,374
Total	318,492	18,855	2,418	96,460	200,759
Rotten trees:					
Sawtimber size	24,730	575	--	9,697	14,458
Poletimber size	4,283	--	--	2,692	1,591
Total	29,013	575	--	12,389	16,049
Salvable dead trees:					
Sawtimber size	10,758	4,696	107	982	4,973
Poletimber size	9,829	4,477	363	1,044	3,945
Total	20,587	9,173	470	2,026	8,918
Total, all timber	4,074,584	724,841	77,408	1,081,235	2,191,100

[a]Includes cull sections in the saw-log portion.

Table 32.--Number of live trees on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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	11,576	2,345	1,295	2,560	2,956	1,147	977	223	38	35	--	--	--
Loblolly pine	59,613	18,553	14,187	15,934	7,295	2,520	843	185	86	--	--	10	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	174,267	65,010	40,126	30,423	21,593	10,714	4,603	1,374	364	50	--	10	--
Pitch pine	2,199	1,443	--	377	155	148	28	25	--	13	10	--	--
Table Mountain pine	105	--	--	--	62	43	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	12,620	7,854	1,880	1,352	333	377	210	131	186	145	60	82	10
Eastern hemlock	3,096	1,048	606	872	267	101	37	24	61	14	38	28	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	72,148	50,508	13,528	5,861	1,342	675	161	53	20	--	--	--	--
Total softwoods	335,624	146,761	71,622	57,379	34,003	15,725	6,859	2,015	755	257	108	130	10
Hardwood:													
Select white oaks	114,998	55,335	22,044	11,223	7,968	6,552	3,743	3,159	2,345	1,049	793	756	31
Select red oaks	33,620	14,685	8,330	2,393	1,965	1,052	1,370	1,309	974	649	285	528	80
Chestnut oak	50,075	17,355	7,157	6,389	5,900	4,396	3,090	2,123	1,436	935	609	585	100
Other white oaks	14,741	9,089	2,522	1,449	421	699	173	133	200	--	39	10	6
Other red oaks	102,201	51,218	20,615	8,742	7,541	5,828	2,841	2,177	1,521	652	476	573	17
Hickory	88,619	54,414	12,187	8,155	5,002	3,568	2,433	1,372	695	483	156	148	6
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	772	197	424	--	70	--	29	24	17	--	--	11	--
Soft maple	220,580	163,166	29,791	11,930	7,635	3,458	2,462	1,067	520	248	121	164	18
Beech	28,143	20,301	3,016	1,641	1,420	741	338	250	198	63	92	83	--
Sweetgum	63,765	44,664	9,689	4,872	1,911	1,410	679	236	226	34	28	16	--
Tupelo and blackgum	98,131	78,650	11,941	3,582	1,402	1,090	677	415	216	63	12	78	5
Ash	34,649	20,183	6,773	3,242	1,956	901	539	629	170	156	62	38	--
Cottonwood	89	--	--	--	--	52	37	--	--	--	--	--	--
Basswood	3,238	1,275	836	312	324	52	203	145	37	45	--	9	--
Yellow-poplar	114,143	57,622	21,237	9,609	7,203	4,543	3,956	3,956	2,592	1,880	723	742	80
Bay and magnolia	3,042	2,793	249	--	--	--	--	--	--	--	--	--	--
Black cherry	23,206	17,080	3,925	972	534	438	182	--	35	--	12	28	--
Black walnut	6,768	2,486	1,663	108	976	527	502	274	100	43	58	31	--
Sycamore	2,699	424	636	422	241	103	237	306	172	61	37	54	6
Black locust	16,428	6,058	2,257	2,769	2,075	1,554	967	476	216	48	--	8	--
Elm	14,703	8,942	2,649	1,788	208	577	282	110	123	15	--	9	--
Other eastern hardwoods	356,012	287,870	42,977	15,869	5,097	2,150	1,200	307	263	128	55	96	--
Total hardwoods	1,390,622	913,807	210,918	95,467	59,849	39,691	25,940	18,468	12,056	6,552	3,558	3,967	349
All species	1,726,246	1,060,568	282,540	152,846	93,852	55,416	32,799	20,483	12,811	6,809	3,666	4,097	359

Table 33.--Number of growing-stock trees on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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	10,491	1,577	1,058	2,560	2,876	1,147	977	223	38	35	--	--	--
Loblolly pine	58,206	18,098	13,528	15,799	7,137	2,520	843	185	86	--	--	10	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	158,138	55,706	37,010	28,028	20,883	10,322	4,481	1,294	364	50	--	--	--
Pitch pine	1,303	807	--	117	155	148	28	25	--	13	10	--	--
Table Mountain pine	105	--	--	--	62	43	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	10,413	6,000	1,683	1,213	333	377	210	131	186	145	49	76	10
Eastern hemlock	3,096	1,048	606	872	267	101	37	24	61	14	38	28	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	57,225	38,663	10,933	5,485	1,235	675	161	53	20	--	--	--	--
Total softwoods	298,977	121,899	64,818	54,074	32,948	15,333	6,737	1,935	755	257	97	114	10
Hardwood:													
Select white oaks	94,089	37,487	20,531	10,769	7,445	6,257	3,706	3,074	2,325	1,034	782	664	15
Select red oaks	26,435	10,226	6,597	1,977	1,707	1,005	1,339	1,235	954	616	273	463	43
Chestnut oak	35,848	8,653	4,968	5,823	4,758	3,805	2,616	1,852	1,380	833	547	556	57
Other white oaks	10,180	5,408	1,859	1,319	421	699	173	83	163	--	39	10	6
Other red oaks	80,088	33,565	17,175	8,600	7,037	5,677	2,746	2,155	1,483	652	463	522	13
Hickory	62,732	31,258	11,133	7,123	4,756	3,459	2,292	1,317	656	452	132	148	6
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	151	--	--	--	70	--	29	24	17	--	--	11	--
Soft maple	100,011	65,776	15,404	7,458	5,377	2,484	1,967	749	382	214	84	107	9
Beech	18,481	12,636	1,776	1,506	1,080	582	261	250	178	63	66	83	--
Sweetgum	48,285	31,390	8,107	4,543	1,638	1,410	679	236	204	34	28	16	--
Tupelo and blackgum	33,884	20,715	7,148	3,040	994	772	556	389	175	63	12	20	--
Ash	14,582	6,535	2,974	1,773	1,265	688	446	548	132	143	51	27	--
Cottonwood	89	--	--	--	--	52	37	--	--	--	--	--	--
Basswood	1,748	--	621	312	324	52	203	145	37	45	--	9	--
Yellow-poplar	96,605	46,056	17,427	8,875	6,451	4,210	3,819	3,956	2,534	1,833	679	715	50
Bay and magnolia	1,696	1,696	--	--	--	--	--	--	--	--	--	--	--
Black cherry	10,922	7,878	2,113	487	144	210	70	--	--	--	12	8	--
Black walnut	3,554	614	1,243	--	608	319	357	247	61	43	46	16	--
Sycamore	2,192	212	424	422	241	103	209	281	154	61	25	54	6
Black locust	7,005	2,087	1,019	911	880	918	729	327	78	48	--	8	--
Elm	6,004	3,008	1,534	736	62	175	253	110	102	15	--	9	--
Other eastern hardwoods	11,982	4,025	2,603	2,064	1,350	851	464	250	136	110	43	86	--
Total hardwoods	666,563	329,225	124,656	67,738	46,608	33,728	22,951	17,228	11,151	6,259	3,282	3,532	205
All species	965,540	451,124	189,474	121,812	79,556	49,061	29,688	19,163	11,906	6,516	3,379	3,646	215

Table 34.--Merchantable volume of live trees on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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	69,437	7,118	20,855	14,307	18,134	5,748	1,471	1,804	--	--	--
Loblolly pine	123,691	35,211	36,218	29,626	15,124	4,045	2,800	--	--	667	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	516,335	95,470	150,314	129,984	86,300	37,408	14,105	2,199	--	555	--
Pitch pine	5,417	820	718	1,387	617	546	--	616	713	--	--
Table Mountain pine	788	--	411	377	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	37,880	3,195	1,935	4,185	2,857	3,454	6,031	6,788	3,225	5,036	1,174
Eastern hemlock	12,889	1,324	2,213	918	388	581	2,159	614	2,203	2,489	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--
Cedars	26,169	11,389	5,917	5,705	1,723	904	531	--	--	--	--
Total softwoods	792,606	154,527	218,581	186,489	125,143	52,686	27,097	12,021	6,141	8,747	1,174
Hardwood:											
Select white oaks	563,055	31,732	49,304	73,668	67,889	84,684	87,863	50,541	49,207	62,698	5,469
Select red oaks	232,284	7,605	13,291	12,238	24,660	33,523	34,117	31,027	17,319	47,606	10,898
Chestnut oak	380,446	14,230	36,459	45,504	52,601	48,953	49,182	40,715	32,988	44,308	15,506
Other white oaks	27,479	3,322	2,402	7,348	2,558	2,718	5,861	--	1,999	545	726
Other red oaks	396,635	22,745	44,830	65,588	47,480	55,389	52,563	29,732	27,378	48,390	2,540
Hickory	240,408	19,478	26,100	37,776	44,092	37,526	26,321	23,502	10,612	13,912	1,089
Yellow birch	--	--	--	--	--	--	--	--	--	--	--
Hard maple	2,833	--	324	--	491	451	771	--	--	796	--
Soft maple	220,670	34,620	43,645	35,266	39,828	23,465	15,391	8,903	5,810	11,599	2,143
Beech	52,956	4,335	7,892	7,521	5,523	5,702	7,192	2,546	4,907	7,338	--
Sweetgum	70,640	11,493	10,853	16,448	12,757	5,899	8,051	1,774	1,858	1,507	--
Tupelo and blackgum	61,540	8,402	7,237	9,606	11,020	10,470	7,319	2,533	496	4,066	391
Ash	71,415	7,864	11,589	9,460	9,258	14,642	5,256	7,033	3,565	2,748	--
Cottonwood	1,226	--	--	647	579	--	--	--	--	--	--
Basswood	15,945	663	2,340	620	4,054	4,119	1,533	2,350	--	266	--
Yellow-poplar	630,903	30,919	47,580	54,169	75,038	109,460	98,350	92,158	44,651	64,792	13,786
Bay and magnolia	--	--	--	--	--	--	--	--	--	--	--
Black cherry	14,676	2,573	2,300	4,161	2,836	--	676	--	610	1,520	--
Black walnut	35,363	217	5,746	4,653	7,789	6,236	2,903	2,023	3,292	2,504	--
Sycamore	32,246	1,434	1,491	1,276	3,826	7,449	6,001	2,751	1,720	4,796	1,502
Black locust	60,326	5,594	11,509	12,094	14,904	9,497	4,468	1,681	--	579	--
Elm	23,089	3,597	1,329	5,752	4,500	2,219	3,921	750	--	1,021	--
Other eastern hardwoods	127,256	34,682	24,744	20,765	18,336	6,688	7,209	5,403	2,570	6,859	--
Total hardwoods	3,261,391	245,505	350,965	424,560	450,019	469,090	424,948	305,422	208,982	327,850	54,050
All species	4,053,997	400,032	569,546	611,049	575,162	521,776	452,045	317,443	215,123	336,597	55,224

Table 35.--Volume of growing stock on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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	69,015	7,118	20,433	14,307	18,134	5,748	1,471	1,804	--	--	--
Loblolly pine	122,747	34,920	35,565	29,626	15,124	4,045	2,800	--	--	667	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	498,785	89,907	146,071	126,436	84,601	35,466	14,105	2,199	--	--	--
Pitch pine	4,903	306	718	1,387	617	546	--	616	713	--	--
Table Mountain pine	788	--	411	377	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	36,574	2,927	1,935	4,185	2,857	3,454	6,031	6,788	2,656	4,567	1,174
Eastern hemlock	12,889	1,324	2,213	918	388	581	2,159	614	2,203	2,489	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--
Cedars	25,057	10,580	5,614	5,705	1,723	904	531	--	--	--	--
Total softwoods	770,758	147,082	212,960	182,941	123,444	50,744	27,097	12,021	5,572	7,723	1,174
Hardwood:											
Select white oaks	546,023	30,660	47,605	70,749	67,249	83,337	87,819	50,097	48,664	56,165	3,678
Select red oaks	216,233	6,012	12,064	11,492	24,037	31,774	33,660	29,588	16,599	43,594	7,413
Chestnut oak	341,622	12,991	29,937	40,799	46,302	43,446	47,205	36,241	30,843	42,235	11,623
Other white oaks	25,577	3,036	2,402	7,348	2,558	1,749	5,214	--	1,999	545	726
Other red oaks	384,423	22,443	42,611	64,099	45,500	54,960	51,108	29,732	26,903	44,906	2,161
Hickory	229,585	16,894	25,291	37,238	42,161	36,329	25,739	21,896	9,036	13,912	1,089
Yellow birch	--	--	--	--	--	--	--	--	--	--	--
Hard maple	2,833	--	324	--	491	451	771	--	--	796	--
Soft maple	164,968	22,397	32,680	26,219	31,896	17,729	12,322	8,111	4,109	8,035	1,470
Beech	46,503	3,880	6,284	6,294	4,500	5,702	6,493	2,546	3,466	7,338	--
Sweetgum	68,357	10,841	9,541	16,448	12,757	5,899	7,732	1,774	1,858	1,507	--
Tupelo and blackgum	49,269	7,360	5,287	7,209	9,177	9,808	6,106	2,533	496	1,293	--
Ash	58,017	5,083	8,642	7,517	7,490	13,021	4,390	6,667	3,012	2,195	--
Cottonwood	1,226	--	--	647	579	--	--	--	--	--	--
Basswood	15,945	663	2,340	620	4,054	4,119	1,533	2,350	--	266	--
Yellow-poplar	611,495	28,901	43,404	52,065	72,866	109,460	96,559	90,390	43,711	63,669	10,470
Bay and magnolia	--	--	--	--	--	--	--	--	--	--	--
Black cherry	6,251	1,274	777	1,732	1,197	--	--	--	610	661	--
Black walnut	27,889	--	4,365	3,434	5,883	5,730	2,074	2,023	2,942	1,438	--
Sycamore	30,430	1,434	1,491	1,276	3,293	6,920	5,450	2,751	1,517	4,796	1,502
Black locust	39,247	2,177	5,885	8,156	11,347	7,422	2,000	1,681	--	579	--
Elm	15,802	1,744	504	2,392	4,039	2,219	3,133	750	--	1,021	--
Other eastern hardwoods	54,039	5,896	7,467	9,611	7,741	5,784	4,529	4,759	2,145	6,107	--
Total hardwoods	2,935,734	183,686	288,901	375,345	405,117	445,859	403,837	293,889	197,910	301,058	40,132
All species	3,706,492	330,768	501,861	558,286	528,561	496,603	430,934	305,910	203,482	308,781	41,306

Table 36.--Volume of sawtimber on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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	182,408	52,747	81,471	29,208	8,393	10,589	--	--	--
Loblolly pine	214,133	105,521	67,486	20,782	15,828	--	--	4,516	--
Pond pine	--	--	--	--	--	--	--	--	--
Virginia pine	1,062,728	455,286	358,375	166,302	71,224	11,541	--	--	--
Pitch pine	18,131	4,584	2,809	2,596	--	3,670	4,472	--	--
Table Mountain pine	1,526	1,526	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--
Eastern white pine	167,762	15,405	12,240	16,947	32,087	38,815	15,700	28,496	8,072
Eastern hemlock	48,680	3,063	1,556	2,760	10,838	3,385	12,362	14,716	--
Spruce and fir	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--
Cedars	38,467	23,092	7,799	4,644	2,932	--	--	--	--
Total softwoods	1,733,835	661,224	531,736	243,239	141,302	68,000	32,534	47,728	8,072
Hardwood:									
Select white oaks	1,759,024	--	227,050	333,821	389,221	239,159	245,038	301,942	22,793
Select red oaks	813,248	--	79,430	120,844	140,936	132,846	77,564	220,994	40,634
Chestnut oak	1,118,118	--	154,150	166,152	201,074	165,262	147,668	216,892	66,920
Other white oaks	58,629	--	9,295	7,142	24,175	--	10,510	3,001	4,506
Other red oaks	1,136,973	--	153,877	221,973	228,303	142,189	135,189	242,308	13,134
Hickory	647,056	--	145,568	147,924	116,672	106,522	46,865	76,925	6,580
Yellow birch	--	--	--	--	--	--	--	--	--
Hard maple	10,952	--	1,879	1,810	3,426	--	--	3,837	--
Soft maple	327,936	--	103,203	66,574	51,970	36,739	19,489	41,621	8,340
Beech	117,487	--	16,349	21,568	25,251	10,089	13,934	30,296	--
Sweetgum	137,257	--	46,220	25,186	36,971	9,285	10,311	9,284	--
Tupelo and blackgum	113,839	--	29,798	37,398	25,930	11,573	2,427	6,713	--
Ash	151,764	--	23,283	50,733	19,243	31,710	15,023	11,772	--
Cottonwood	1,888	--	1,888	--	--	--	--	--	--
Basswood	49,263	--	13,907	16,398	6,676	10,874	--	1,408	--
Yellow-poplar	2,412,872	--	260,510	477,018	473,155	483,482	249,386	395,922	73,399
Bay and magnolia	--	--	--	--	--	--	--	--	--
Black cherry	11,293	--	4,139	--	--	--	3,262	3,892	--
Black walnut	75,043	--	20,014	20,827	7,846	8,094	12,045	6,217	--
Sycamore	117,029	--	10,383	26,823	23,536	12,822	7,478	26,625	9,362
Black locust	83,611	--	39,959	27,301	7,539	6,477	--	2,335	--
Elm	44,520	--	13,856	8,557	13,366	3,411	--	5,330	--
Other eastern hardwoods	127,891	--	26,875	22,179	19,271	21,069	10,054	28,443	--
Total hardwoods	9,315,693	--	1,381,633	1,800,228	1,814,561	1,431,603	1,006,243	1,635,757	245,668
All species	11,049,528	661,224	1,913,369	2,043,467	1,955,863	1,499,603	1,038,777	1,683,485	253,740

Table 37.--Volume of sawtimber on timberland, by species, size class, and log grade, Northern Piedmont of Virginia, 1986

Species	All size classes					Trees 15.0 inches d.b.h. and larger				
	All grades	Log grade				All grades	Log grade			
		1	2	3	4		1	2	3	4
	Thousand board feet									
Softwood:										
Yellow pines[a]	1,478,926	228,350	210,957	1,039,619	(b)	130,233	26,046	22,140	82,047	(b)
Eastern white pine[c]	167,762	13,549	9,725	78,699	65,789	123,170	13,549	6,158	49,268	54,195
Spruce and fir[c]	--	--	--	--	--	--	--	--	--	--
Cypress[c]	--	--	--	--	--	--	--	--	--	--
Other eastern softwoods[c]	87,147	4,543	3,791	53,197	25,616	44,233	4,543	3,717	16,004	19,969
Total	1,733,835	246,442	224,473	1,171,515	91,405	297,636	44,138	32,015	147,319	74,164
Hardwood:[d]										
Select white and red oaks	2,572,272	678,192	569,708	923,158	401,214	1,811,127	678,192	409,873	512,134	210,928
Other white and red oaks	2,313,720	321,015	397,940	981,794	612,971	1,601,131	321,015	308,671	575,618	395,827
Hickory	647,056	67,177	110,669	253,416	215,794	353,564	67,177	81,320	109,605	95,462
Yellow birch	--	--	--	--	--	--	--	--	--	--
Hard maple	10,952	1,017	2,478	5,082	2,375	7,263	1,017	1,961	2,832	1,453
Sweetgum	137,257	19,097	28,768	65,233	24,159	65,851	19,097	14,487	22,389	9,878
Ash, walnut, and black cherry	238,100	46,450	42,859	123,784	25,007	119,104	46,450	22,630	30,967	19,057
Yellow-poplar	2,412,872	469,096	435,684	899,501	608,591	1,675,344	469,096	251,302	552,863	402,083
Other eastern hardwoods	983,464	70,063	202,743	489,815	220,843	500,448	70,063	135,121	195,175	100,089
Total	9,315,693	1,672,107	1,790,849	3,741,783	2,110,954	6,133,832	1,672,107	1,225,365	2,001,583	1,234,777
All species	11,049,528	1,918,549	2,015,322	4,913,298	2,202,359	6,431,468	1,716,245	1,257,380	2,148,902	1,308,941

[a]Based on "Southern Pine Log Grades for Yard and Structural Lumber," Research Paper SE-39, published by the Southeastern Forest Experiment Station, Asheville, NC, 1968.

[b]Not applicable.

[c]Based on "Sawlog Grades for Eastern White Pine," Research Paper NE-205, published by the Northeastern Forest Experiment Station, Broomall, PA, 1971.

[d]Based on "A Guide to Hardwood Log Grading (revised)," General Technical Report NE-1, published by the Northeastern Forest Experiment Station, Broomall, PA, 1973.

Table 38.--Cubic volume in the merchantable saw-log portion of sawtimber trees on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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	34,628	11,068	15,366	5,124	1,388	1,682	--	--	--
Loblolly pine	41,769	22,139	12,728	3,646	2,616	--	--	640	--
Pond pine	--	--	--	--	--	--	--	--	--
Virginia pine	205,896	95,523	67,593	29,172	11,776	1,832	--	--	--
Pitch pine	3,212	962	530	455	--	583	682	--	--
Table Mountain pine	320	320	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--
Eastern white pine	29,140	3,341	2,497	3,209	5,702	6,497	2,502	4,298	1,094
Eastern hemlock	8,207	665	317	523	1,933	574	1,968	2,227	--
Spruce and fir	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--
Cedars	7,979	5,010	1,591	868	510	--	--	--	--
Total softwoods	331,151	139,028	100,622	42,997	23,925	11,168	5,152	7,165	1,094
Hardwood:									
Select white oaks	287,616	--	42,456	58,285	63,869	37,670	37,440	44,628	3,268
Select red oaks	130,340	--	14,853	21,097	23,129	20,921	11,853	32,662	5,825
Chestnut oak	181,076	--	28,829	29,010	32,993	26,024	22,567	32,056	9,597
Other white oaks	9,648	--	1,739	1,246	3,967	--	1,606	444	646
Other red oaks	185,742	--	28,774	38,756	37,464	22,396	20,656	35,813	1,883
Hickory	108,447	--	27,225	25,826	19,148	16,776	7,160	11,368	944
Yellow birch	--	--	--	--	--	--	--	--	--
Hard maple	1,796	--	351	316	562	--	--	567	--
Soft maple	56,347	--	19,416	11,781	8,690	5,895	3,053	6,322	1,190
Beech	19,168	--	3,058	3,767	4,145	1,589	2,130	4,479	--
Sweetgum	23,829	--	8,695	4,455	6,182	1,491	1,615	1,391	--
Tupelo and blackgum	19,815	--	5,606	6,617	4,335	1,857	380	1,020	--
Ash	25,400	--	4,353	8,859	3,158	4,994	2,296	1,740	--
Cottonwood	355	--	355	--	--	--	--	--	--
Basswood	8,592	--	2,617	2,900	1,116	1,745	--	214	--
Yellow-poplar	398,823	--	48,999	84,388	79,115	77,597	39,053	59,620	10,051
Bay and magnolia	--	--	--	--	--	--	--	--	--
Black cherry	1,880	--	778	--	--	--	511	591	--
Black walnut	12,701	--	3,743	3,635	1,288	1,275	1,841	919	--
Sycamore	19,243	--	1,954	4,746	3,935	2,058	1,171	4,043	1,336
Black locust	14,842	--	7,473	4,767	1,237	1,020	--	345	--
Elm	7,712	--	2,606	1,514	2,235	547	--	810	--
Other eastern hardwoods	21,171	--	5,030	3,873	3,181	3,333	1,550	4,204	--
Total hardwoods	1,534,543	--	258,910	315,838	299,749	227,188	154,882	243,236	34,740
All species	1,865,694	139,028	359,532	358,835	323,674	238,356	160,034	250,401	35,834

Table 39.--Total volume of live trees on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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	85,047	753	1,898	9,789	25,065	16,614	20,729	6,515	1,656	2,028	--	--	--
Loblolly pine	173,465	3,818	14,908	49,981	44,375	34,568	17,326	4,587	3,157	--	--	745	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	691,265	16,577	53,962	126,558	180,531	151,786	99,664	42,918	16,127	2,509	--	633	--
Pitch pine	6,650	265	--	1,049	859	1,617	711	629	--	705	815	--	--
Table Mountain pine	912	--	--	--	479	433	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	48,020	1,662	1,827	4,278	2,328	4,930	3,341	4,005	6,970	7,820	3,713	5,798	1,348
Eastern hemlock	16,440	214	881	1,946	2,672	1,087	451	669	2,476	701	2,512	2,831	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	62,294	10,930	14,778	18,094	7,645	7,033	2,095	1,085	634	--	--	--	--
Total softwoods	1,084,093	34,219	88,254	211,695	263,954	218,068	144,317	60,408	31,020	13,763	7,040	10,007	1,348
Hardwood:													
Select white oaks	750,688	11,843	27,900	46,713	64,686	93,421	84,869	105,124	108,820	62,443	60,609	77,386	6,874
Select red oaks	304,121	3,317	11,531	10,520	16,941	15,312	30,611	41,415	42,100	38,189	21,293	58,896	13,996
Chestnut oak	483,934	3,148	10,665	20,390	46,431	56,477	64,572	59,770	59,820	49,527	40,056	53,826	19,252
Other white oaks	40,918	1,977	3,183	4,993	3,186	9,443	3,245	3,421	7,390	--	2,499	679	902
Other red oaks	548,114	13,884	32,514	35,290	59,123	82,804	59,073	68,301	64,580	36,445	33,566	59,368	3,166
Hickory	326,765	11,112	12,720	30,150	34,569	47,377	54,196	45,591	31,948	28,379	12,757	16,666	1,300
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	3,944	46	478	--	407	--	594	543	924	--	--	952	--
Soft maple	353,703	35,413	41,943	49,457	55,227	43,079	48,075	28,222	18,426	10,596	6,944	13,749	2,572
Beech	75,715	3,993	3,770	6,780	10,480	9,622	6,910	7,075	8,877	3,160	6,050	8,998	--
Sweetgum	109,621	10,833	12,764	16,627	13,412	19,412	14,757	6,759	9,241	2,013	2,102	1,701	--
Tupelo and blackgum	104,218	14,740	13,982	11,886	9,097	11,638	13,027	12,296	8,557	2,952	597	4,951	495
Ash	99,683	4,867	9,230	11,279	14,278	11,217	10,743	16,828	6,038	8,027	4,054	3,122	--
Cottonwood	1,455	--	--	--	--	774	681	--	--	--	--	--	--
Basswood	20,327	298	1,436	902	2,767	721	4,664	4,719	1,750	2,680	--	390	--
Yellow-poplar	764,590	13,497	29,182	40,606	56,568	62,445	85,493	123,774	110,822	103,603	50,328	72,647	15,625
Bay and magnolia	958	578	380	--	--	--	--	--	--	--	--	--	--
Black cherry	27,492	5,276	4,348	3,394	2,835	4,978	3,360	--	793	--	718	1,790	--
Black walnut	45,269	460	1,967	317	7,178	5,757	9,330	7,440	3,477	2,403	3,935	3,005	--
Sycamore	39,097	177	1,005	1,928	1,818	1,514	4,483	8,680	6,963	3,185	2,063	5,553	1,728
Black locust	80,683	1,434	3,944	7,883	14,499	14,975	18,139	11,560	5,532	2,019	--	698	--
Elm	33,902	1,822	3,468	5,340	1,646	6,960	5,359	2,620	4,621	877	--	1,189	--
Other eastern hardwoods	275,133	56,993	50,141	51,885	32,151	26,031	22,744	8,223	8,877	6,608	3,109	8,371	--
Total hardwoods	4,490,330	195,708	276,551	356,340	447,299	523,957	544,925	562,361	509,556	363,106	250,680	393,937	65,910
All species	5,574,423	229,927	364,805	568,035	711,253	742,025	689,242	622,769	540,576	376,869	257,720	403,944	67,258

Table 40.--Green weight of forest biomass on timberland, by species and diameter class, Northern Piedmont of Virginia, 1986

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
	Hundred thousand pounds												
Softwood:													
Longleaf pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Slash pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Shortleaf pine	58,558	441	1,141	5,836	17,114	11,706	14,932	4,719	1,217	1,452	--	--	--
Loblolly pine	125,404	1,844	8,799	36,662	33,634	25,233	12,797	3,497	2,376	--	--	562	--
Pond pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Virginia pine	522,631	14,463	44,048	97,757	134,573	112,703	73,590	31,459	11,747	1,809	--	482	--
Pitch pine	4,546	177	--	729	606	1,115	469	421	--	473	556	--	--
Table Mountain pine	556	--	--	--	290	266	--	--	--	--	--	--	--
Spruce pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Sand pine	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern white pine	30,500	650	845	2,953	1,653	3,317	2,320	2,579	4,532	4,862	2,334	3,643	812
Eastern hemlock	12,202	119	560	1,671	2,055	910	410	526	1,801	526	1,761	1,863	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--	--	--
Baldcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondcypress	--	--	--	--	--	--	--	--	--	--	--	--	--
Cedars	43,108	6,561	9,425	13,141	5,882	5,242	1,586	805	466	--	--	--	--
Total softwoods	797,505	24,255	64,818	158,749	195,807	160,492	106,104	44,006	22,139	9,122	4,651	6,550	812
Hardwood:													
Select white oaks	608,594	9,223	20,763	33,514	51,308	75,006	68,769	86,172	89,617	51,948	50,747	65,450	6,077
Select red oaks	246,305	2,765	8,736	7,827	13,954	12,584	25,048	33,997	34,561	31,029	17,155	47,320	11,329
Chestnut oak	380,229	2,902	8,261	14,790	35,152	43,637	50,046	47,258	47,296	39,402	32,084	43,672	15,729
Other white oaks	32,642	1,419	2,226	3,653	2,508	7,492	2,692	2,878	6,222	--	2,117	605	830
Other red oaks	455,414	10,771	24,067	24,923	48,164	69,241	50,347	58,378	55,556	31,152	28,796	50,948	3,071
Hickory	264,302	9,667	11,276	21,574	27,143	37,494	43,455	37,083	26,399	23,871	10,799	14,383	1,158
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	3,370	40	410	--	358	--	508	476	767	--	--	811	--
Soft maple	260,823	26,823	30,014	34,280	42,217	32,239	35,557	20,936	13,811	8,004	5,114	9,985	1,843
Beech	59,989	3,190	3,173	3,979	7,962	7,677	5,616	5,965	7,199	2,682	5,140	7,406	--
Sweetgum	78,603	7,343	8,419	11,430	9,876	14,066	10,917	5,135	6,946	1,511	1,606	1,354	--
Tupelo and blackgum	71,363	11,547	10,336	6,642	5,709	7,488	8,669	8,368	6,000	2,112	436	3,664	392
Ash	64,230	2,913	5,800	8,551	10,126	7,351	6,708	10,500	3,662	4,650	2,263	1,706	--
Cottonwood	970	--	--	--	--	503	467	--	--	--	--	--	--
Basswood	13,574	199	979	513	1,810	466	3,101	3,226	1,181	1,831	--	268	--
Yellow-poplar	543,167	9,995	19,471	25,272	38,857	43,645	60,223	88,594	79,907	75,279	36,586	53,743	11,595
Bay and magnolia	589	349	240	--	--	--	--	--	--	--	--	--	--
Black cherry	17,628	2,402	2,889	2,160	1,990	3,361	2,285	--	642	--	523	1,376	--
Black walnut	39,476	361	1,673	294	6,147	4,959	8,269	6,541	3,046	2,085	3,421	2,680	--
Sycamore	28,548	128	694	949	1,153	953	3,180	6,402	5,212	2,414	1,571	4,440	1,452
Black locust	78,504	1,202	3,233	6,888	13,870	15,097	17,756	11,750	5,890	2,096	--	722	--
Elm	22,507	1,336	2,424	3,244	1,075	4,595	3,561	1,807	3,108	576	--	781	--
Other eastern hardwoods	215,981	48,033	41,588	36,434	24,622	18,751	16,866	7,097	6,581	5,717	2,633	7,659	--
Total hardwoods	3,486,808	152,608	206,672	246,917	344,001	406,605	424,040	442,563	403,603	286,359	200,991	318,973	53,476
All species	4,284,313	176,863	271,490	405,666	539,808	567,097	530,144	486,569	425,742	295,481	205,642	325,523	54,288

Table 41.--Net annual growth and removals of live timber and growing stock on timberland, by species, Northern Piedmont of Virginia, 1985

Species	Live timber[a]		Growing stock	
	Net annual growth	Annual timber removals	Net annual growth	Annual timber removals
	- - - - - Thousand cubic feet - - - - -			
Softwood:				
Yellow pines	25,493	22,076	24,997	21,723
Eastern white pine	1,004	519	991	436
Spruce and fir	--	--	--	--
Cypress	--	--	--	--
Other eastern softwoods	1,381	624	1,334	624
Total softwoods	27,878	23,219	27,322	22,783
Hardwood:				
Select white and red oaks	23,232	14,760	22,975	13,898
Other white and red oaks	23,988	12,388	23,447	11,684
Hickory	5,664	1,468	5,599	1,422
Yellow birch	--	--	--	--
Hard maple	69	--	66	--
Sweetgum	3,553	686	3,493	686
Ash, walnut, and black cherry	3,887	1,142	3,459	959
Yellow-poplar	26,531	7,614	26,203	7,543
Tupelo and blackgum	1,209	506	1,138	320
Bay and magnolia	9	--	--	--
Other eastern hardwoods	14,111	5,587	11,833	3,993
Total hardwoods	102,253	44,151	98,213	40,505
All species	130,131	67,370	125,535	63,288

[a]Merchantable portion only.

Table 42.--Net annual growth and removals of sawtimber on timberland, by species, Northern Piedmont of Virginia, 1985

Species	Net annual growth	Annual timber removals
	Thousand board feet	
Softwood:		
Yellow pines	70,757	61,327
Eastern white pine	5,754	1,510
Spruce and fir	--	--
Cypress	--	--
Other eastern softwoods	2,961	1,026
Total softwoods	79,472	63,863
Hardwood:		
Select white and red oaks	102,903	48,795
Other white and red oaks	98,641	39,950
Hickory	24,119	4,439
Yellow birch	--	--
Hard maple	268	--
Sweetgum	10,867	1,068
Ash, walnut, and black cherry	10,152	3,173
Yellow-poplar	141,979	40,250
Tupelo and blackgum	2,417	771
Bay and magnolia	--	--
Other eastern hardwoods	33,089	12,946
Total hardwoods	424,435	151,392
All species	503,907	215,255

Table 43.--Annual removals of growing stock on timberland, by species and diameter class, Northern Piedmont of Virginia, 1985

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:											
Yellow pines	21,723	2,873	5,052	5,464	5,082	1,772	710	--	770	--	--
Eastern white pine	436	93	110	--	--	--	--	--	--	233	--
Spruce and fir	--	--	--	--	--	--	--	--	--	--	--
Cypress	--	--	--	--	--	--	--	--	--	--	--
Other eastern softwoods	624	396	72	--	--	--	--	--	--	--	156
Total softwoods	22,783	3,362	5,234	5,464	5,082	1,772	710	--	770	233	156
Hardwood:											
Select white and red oaks	13,898	1,143	1,008	1,564	1,519	1,943	1,312	894	1,954	2,120	441
Other white and red oaks	11,684	901	895	1,342	895	1,993	1,548	1,466	796	1,848	--
Hickory	1,422	72	393	--	--	468	205	284	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--
Hard maple	--	--	--	--	--	--	--	--	--	--	--
Sweetgum	686	--	206	278	--	--	202	--	--	--	--
Ash, walnut, and black cherry	959	288	--	--	--	338	--	154	--	179	--
Yellow-poplar	7,543	143	194	114	332	872	1,033	1,557	1,616	1,537	145
Tupelo and blackgum	320	71	--	80	--	--	169	--	--	--	--
Bay and magnolia	--	--	--	--	--	--	--	--	--	--	--
Other eastern hardwoods	3,993	243	162	663	439	531	761	247	493	454	--
Total hardwoods	40,505	2,861	2,858	4,041	3,185	6,145	5,230	4,602	4,859	6,138	586
All species	63,288	6,223	8,092	9,505	8,267	7,917	5,940	4,602	5,629	6,371	742

Table 44.--Mortality of live timber, growing stock, and sawtimber on timberland, by species, Northern Piedmont of Virginia, 1985

Species	Live timber[a]	Growing stock	Sawtimber
	Thousand cubic feet		Thousand board feet
Softwood:			
Yellow pines	11,366	10,779	24,692
Eastern white pine	303	216	595
Spruce and fir	--	--	--
Cypress	--	--	--
Other eastern softwoods	416	336	--
Total softwoods	12,085	11,331	25,287
Hardwood:			
Select white and red oaks	4,229	3,482	10,183
Other white and red oaks	6,930	5,494	16,059
Hickory	2,099	1,663	4,208
Yellow birch	--	--	--
Hard maple	--	--	--
Sweetgum	729	408	--
Ash, walnut, and black cherry	1,343	325	832
Yellow-poplar	1,255	858	2,494
Tupelo and blackgum	--	--	--
Bay and magnolia	--	--	--
Other eastern hardwoods	6,458	2,039	3,530
Total hardwoods	23,043	14,269	37,306
All species	35,128	25,600	62,593

[a]Merchantable portion only.

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

Species group and year	All classes	Diameter class (inches at breast height)							
		1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0 and larger
	Thousand trees								
Yellow pine:									
1976	312,234	124,454	85,240	48,927	31,503	14,001	5,799	1,720	590
1986	247,760	87,351	55,608	49,294	32,061	14,572	6,451	1,807	616
Change	-64,474	-37,103	-29,632	+367	+558	+571	+652	+87	+26
Other softwood:									
1976	88,319	61,818	17,459	5,342	2,006	730	278	299	387
1986	87,864	59,410	16,014	8,085	1,942	1,153	408	208	644
Change	-455	-2,408	-1,445	+2,743	-64	+423	+130	-91	+257
Hardwood:									
1976	1,462,759	963,029	229,072	105,984	61,182	40,133	25,539	16,605	21,215
1986	1,390,622	913,807	210,918	95,467	59,849	39,691	25,940	18,468	26,482
Change	-72,137	-49,222	-18,154	-10,517	-1,333	-442	+401	+1,863	+5,267

Table 46.--Land area, by land use class, major forest type, and survey completion date, Northern Piedmont of Virginia

Land use class	Survey completion date			Change 1976-1986
	1965	1976	1986	
	Acres			
Forest land:				
Timberland:				
Pine and oak-pine types	869,615	831,813	699,504	-132,309
Hardwood types	1,589,223	1,734,584	1,700,104	-34,480
Total	2,458,838	2,566,397	2,399,608	-166,789
Reserved timberland	133,927	130,918	146,131	+15,213
Woodland	11,070	--	--	--
Total forest land	2,603,835	2,697,315	2,545,739	-151,576
Nonforest land:				
Cropland	632,516	506,627	597,222	+90,595
Pasture and range	861,362	794,071	703,983	-90,088
Other	331,623	400,455	548,601	+148,146
Total	1,825,501	1,701,153	1,849,806	+148,653
All land[a]	4,429,336	4,398,468	4,395,545	-2,923

[a]Excludes all water areas.

Table 47.--Volume[a] of sawtimber, growing stock, and live timber on timberland, by species group, survey completion date, and diameter class, Northern Piedmont of Virginia

Species group and year	All classes	Diameter class (inches at breast height)								
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0 and larger
					SAWTIMBER (in thousand board feet)					
Softwood										
1965	1,049,200	--	--	438,740	313,084	151,310	73,370	42,863	14,084	15,749
1976	1,565,544	--	--	619,306	471,088	243,681	99,570	67,205	34,544	30,150
1986	1,733,835	--	--	661,224	531,736	243,239	141,302	68,000	32,534	55,800
Hardwood										
1965	5,745,827	--	--	--	1,030,031	1,328,970	989,111	701,862	506,753	1,189,100
1976	7,803,745	--	--	--	1,360,034	1,618,862	1,509,868	1,148,270	770,704	1,396,007
1986	9,315,693	--	--	--	1,381,633	1,800,228	1,814,561	1,431,603	1,006,243	1,881,425
					GROWING STOCK (in thousand cubic feet)					
Softwood										
1965	545,200	127,508	165,479	121,400	72,675	31,569	14,069	7,577	2,412	2,511
1976	722,117	139,109	209,756	171,363	109,352	50,841	19,093	11,880	5,916	4,807
1986	770,758	147,082	212,960	182,941	123,444	50,744	27,097	12,021	5,572	8,897
Hardwood										
1965	2,044,633	180,172	251,007	302,714	302,062	329,116	220,145	144,090	99,676	215,651
1976	2,655,092	203,781	295,424	379,589	398,837	400,907	336,049	235,736	151,594	253,175
1986	2,935,734	183,686	288,901	375,345	405,117	445,859	403,837	293,889	197,910	341,190
					LIVE TIMBER[b] (in thousand cubic feet)					
Softwood										
1965	561,213	133,809	169,977	123,771	73,712	32,792	14,069	7,577	2,672	2,834
1976	742,756	145,984	215,463	174,710	110,905	52,797	19,093	11,880	6,539	5,385
1986	792,606	154,527	218,581	186,489	125,143	52,686	27,097	12,021	6,141	9,921
Hardwood										
1965	2,297,792	240,822	304,626	342,454	335,584	346,253	231,628	149,790	105,262	241,373
1976	2,967,293	272,379	358,527	429,423	443,102	421,767	353,593	245,035	160,066	283,401
1986	3,261,391	245,505	350,965	424,560	450,019	469,090	424,948	305,422	208,982	381,900

[a]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.

[b]Merchantable volume.

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Brown, Mark J.
Forest statistics for the Northern Piedmont of Virginia, 1986. Resour. Bull. SE-84. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1986. 52 pp.

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

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