Virginia, 2001

Forest Inventory & Analysis Factsheet

Forest Land Area

In 2001, about 15,844,000 acres, or 62 percent, of Virginia was forested. Of the 15,844,000 acres of forest land, 15,467,000 acres were classified as timberland, an increase of <1 percent since 1992 (table 1).

Table 1—Area of forest land as percent of total land area by survey unit, Virginia, 2001

Survey unit	Total land area	Total forest	Forest land
	------- *acres* ------		*percent*
Coastal Plain	6,292,953	3,817,676	61
Southern Piedmont	5,597,442	3,784,066	68
Northern Piedmont	4,391,991	2,405,091	55
Northen Mountains	4,290,180	2,744,267	64
Southern Mountains	4,767,574	3,092,905	65
All units	25,340,139	15,844,005	63

Forest-Type Group

The predominant forest-type group in Virginia was oak-hickory. It occupied 60 percent or 9,537,000 acres of forest land and contained 63 percent (20.1 billion cubic feet) of the merchantable volume across the State (fig. 1). Loblolly-shortleaf pine was the second most dominant forest-type group for both area and volume. The oak-pine forest-type group ranked third, with 1,937,000 million acres. The loblolly-shortleaf pine, oak-hickory, and oak-pine forest-type groups each had a change of <1 percent.

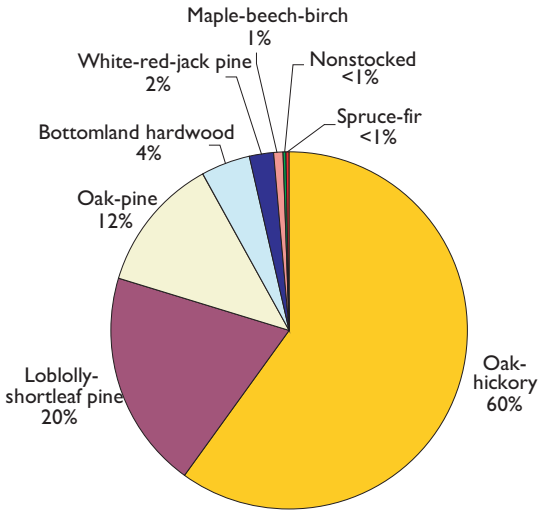

Figure 1—Area of timberland by forest-type group, Virginia, 2001.

Forest Distribution

Just over one-half of all the counties in the State had 61–80 percent of their land area in forest land, and 10 counties had <40 percent of their land area in forest land (fig. 2).

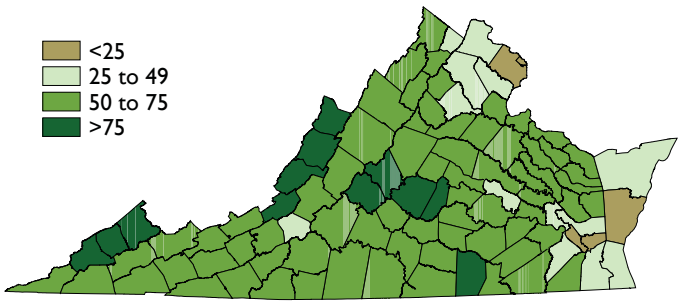

Figure 2—Percentage of land in forest by county, Virginia, 2001.

Ownership of the Forest

The majority (12,102,000 acres) of Virginia's forest land was in nonindustrial private forest (NIPF) ownership. The area of timberland held by NIPF owners increased by 1.4 percent since 1992 (fig. 3). Public ownership ranked second with 2,718,000 acres (17 percent). Area of public land increased 18 percent. Forest industry owned 6 percent, or 1,024,000 acres, of forest land across the State. Forest industry ownership decreased by 33 percent.

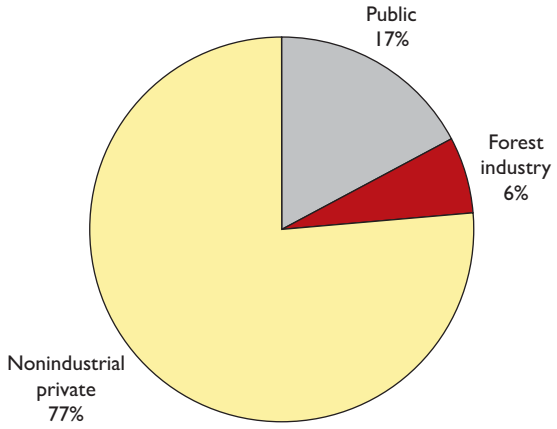

Figure 3—Ownership of timberland, Virginia, 2001.

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Stand Origin

In 2001, there were 2,118,000 acres of timberland classified as planted (14 percent of all timberland) (fig. 4). Eighty-four percent of all plantations were in the Coastal Plain and Southern Piedmont. Between 1986 and 2001, plantations increased from 1,398,000 to 2,118,000 acres, a 52 percent change.

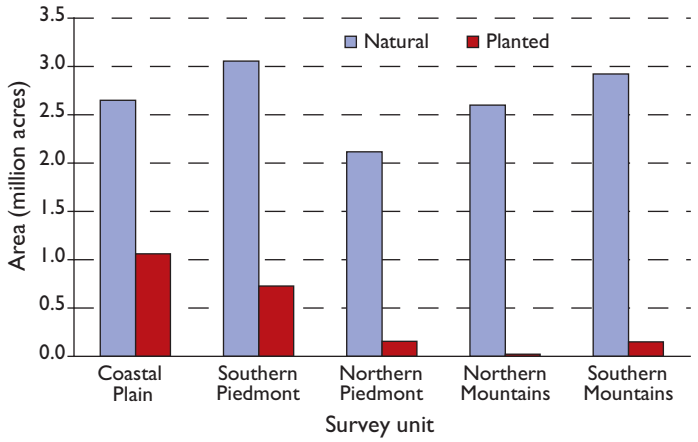

Figure 4—Area of timberland by stand origin, Virginia, 2001.

Coarse Woody Debris

The density of coarse woody debris (CWD) averaged 138 logs per acre. Just over one-half of all CWD was moderately decayed (fig. 6).

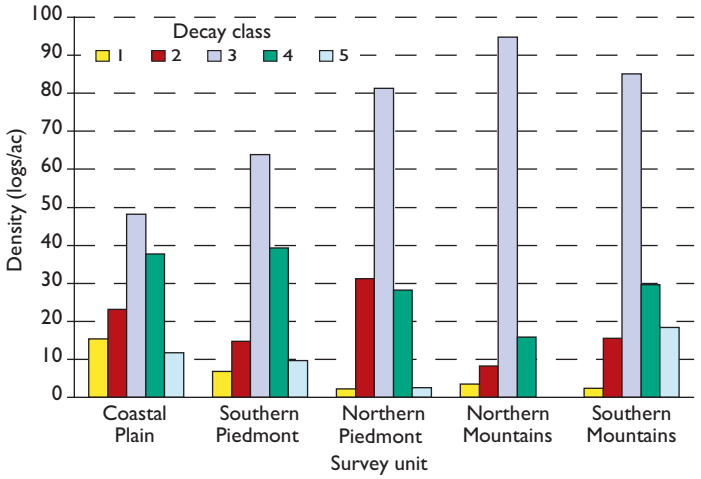

Figure 6—Distribution of coarse woody debris by decay class, P3 plots, Virginia, 2001.

Tree Volume

Softwoods made-up 22 percent of the total live-tree volume and hardwoods 77 percent (fig. 5). The total live-tree volume for softwoods and hardwoods ≥1.0-inch d.b.h. on forest land was 9,218 and 33,355 million cubic feet, respectively. Live softwood volume (≥5.0 inches d.b.h.) on timberland increased by 4 percent between 1992 and 2001, while hardwoods increased by 8 percent.

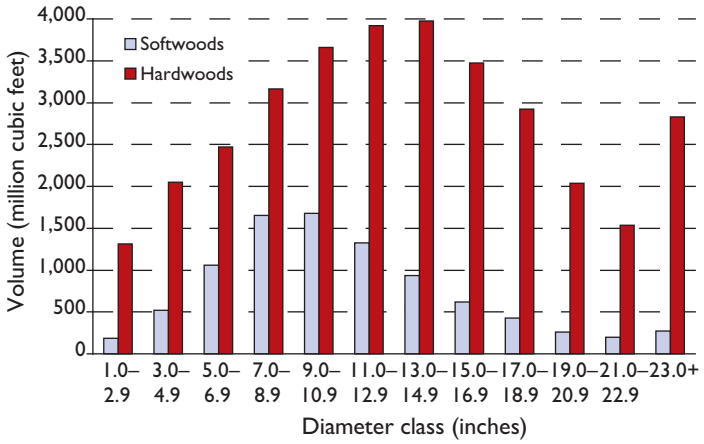

Figure 5—Total live volume of softwoods and hardwoods on forest land by diameter class, Virginia, 2001.

Soils

The majority of the mineral soil samples from both sampling depths (0 to 4 and 4 to 8 inches) had a pH <5.0 (fig. 7).

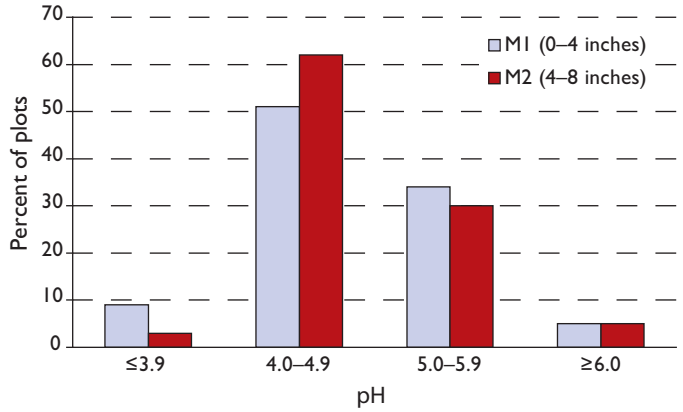

Figure 7—Distribution of pH of mineral soil by layer, P3 plots, Virginia, 2001.

Statistical Reliability

Sampling error is associated with the natural and expected deviation of the sample from the true population mean. This deviation is susceptible to a mathematical evaluation of the probability of error. Sampling errors for State totals are based on one standard deviation. That is, the chances are two out of three that, if the results of a 100-percent census were known, the sample's associated confidence interval would cover the true population mean within the limits indicated by a confidence interval. Sampling errors (in percent) and associated confidence intervals around the sample estimates for timberland area, inventory volumes, and components of change are presented in the following table (table 2).

Table 2—Statistical reliability, Virginia, 2001

Item	Sample estimate and confidence interval	Sampling error
		percent
Forest land	15,844,000.0 ± 49,882.9	0.31
All live (*Mft*^{3})		
Inventory	30,636.1 ± 415.2	1.36
Net annual growth	990.0 ± 22.6	2.28
Annual removals	697.9 ± 34.3	4.91
Annual mortality	333.6 ± 12.2	3.65
Growing stock (*Mft*^{3})		
Inventory	27,192.1 ± 395.1	1.45
Net annual growth	947.8 ± 21.6	2.28
Annual removals	667.1 ± 33.2	4.97
Annual mortality	273.0 ± 11.1	4.06
Sawtimber (*M fbm*)		
Inventory	89,414.3 ± 1,863.9	2.08
Net annual growth	3,848.7 ± 86.6	2.25
Annual removals	2,250.3 ± 126.0	5.60
Annual mortality	716.1 ± 39.2	5.48

For specific post-defined strata the sampling error can be calculated using the following formula. Sampling errors obtained from this method are only approximations of reliability because this process assumes constant variance across all subdivisions of totals.

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

where

SE_s = sampling error for subdivision of survey unit or State total,
SE_t = sampling error for survey unit or State total,
X_s = sum of values for the variable of interest (area or volume) for subdivision of survey unit or State,
X_t = total area or volume for survey unit or State.

For example, the estimate of sampling error for softwood live-tree volume on public timberland is computed as:

$$SE_s = 3.42 \frac{\sqrt{3,427.7}}{\sqrt{2,454.8}} = 4.04.$$

Thus, the sampling error is 8.91 percent, and the resulting confidence interval (two times out of three) for softwood live-tree volume on public timberland is 730.5 ± 65.1 million cubic feet.

Definition of Terms

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

Forest land. Land at least 10 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. The minimum area considered for classification is one acre. Forested strips must be at least 120 feet wide.

Forest industry. Companies or individuals operating primary wood-using plants.

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

Growing-stock trees. Live trees that contain at least one 12-foot or two 8-foot logs in the saw-log portion, either currently or potentially if too small to qualify as a saw log. The log(s) must meet dimension and merchantability standards to qualify. Trees must have one-third of the gross board foot volume in sound wood, either currently or potentially.

Growing-stock volume. The cubic-foot volume of sound wood in growing-stock trees at least 5.0 inches d.b.h. from a 1-foot stump to a minimum 4.0-inch top d.o.b. of the central stem.

Hardwoods. Dicotyledonous trees, usually broadleaf and deciduous.

Nonforest land. Land that either has never supported forests or land formerly forested that has been developed for other uses, including cultural, agricultural, etc.

Other forest land. Forest land that is incapable of producing 20 cubic feet of wood volume per acre annually under natural conditions due to adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other private. Land owned by individuals and corporations, including individual and corporate farms, where the owner does not own a primary wood-using plant. This land is often referred to as nonindustrial private forest land (NIPF).

Poletimber. Softwood species 5.0 to 8.9 inches d.b.h. and hardwoods 5.0 to 10.9 inches d.b.h.

Reserved forestland. Public forestland capable of producing 20 cubic feet of wood volume per acre annually, but is withdrawn from timber utilization through statute or administrative regulation.

Saplings. Trees 1.0 to 4.9 inches d.b.h.

Sawtimber. Softwood species 9.0 inches d.b.h and larger and hardwoods 11.0 inches d.b.h. and larger.

Seedlings. Trees <1.0 inch d.b.h. and >1 foot tall for hardwoods, > 6 inches tall for softwoods.

Softwoods. Coniferous trees, usually evergreen, having leaves that are needles or scalelike.

Stand origin. A classification of forest stands describing their means of origin.

Planted. Planted or artificially seeded.

Natural. No evidence of artificial regeneration.

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

Timberland. Forest land capable of producing 20 cubic feet of wood volume per acre annually and not withdrawn from timber utilization.

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

Tree grade. A classification of the saw-log portion of sawtimber trees based on the grade of the butt log or the ability to produce at least one 12-foot log or two 8-foot logs in the upper section of the saw-log portion. Tree grade is an indicator of quality; grade 1 is the best quality.

Volume. The amount of sound wood in live trees at least 5.0 inches d.b.h. from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem.

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