



# North Carolina, 2007

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## FOREST INVENTORY & ANALYSIS FACTSHEET



North Carolina Division of Forest Resources cruiser taking measurements. (photo by Marcus Wood, U.S. Department of Agriculture Forest Service)

### Forest Distribution

Sixty-three of North Carolina's 100 counties were >50 percent forested. Fifteen of these were >75 percent forested (fig. 1). The majority of these most heavily forested counties were located in the more mountainous regions of the State, usually near or including national forest lands. The remaining two most heavily forested counties were in the lower Coastal Plain region of the State. Only six counties were ≤25 percent forested, and they were located along the coast. Urban and agricultural land uses dictated forest distribution, which would otherwise blanket the State.

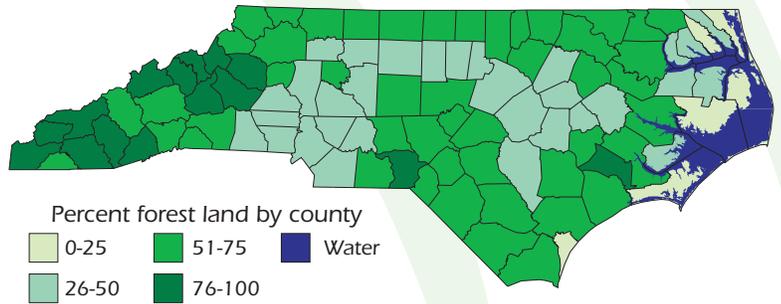


Figure 1—Percentage of land in forest by county, North Carolina, 2007.

### Forest Land Area

Since findings published for 2002\*, total forest area in North Carolina has decreased from 18.8 to 18.6 million acres (table 1). The decrease in forested area reported for 2007 continues a decline restarted during the 1990s. The Coastal Plain and Piedmont regions continued slight forest loss, whereas the Mountain region gained forest. Forests cover nearly 60 percent of the State based on total land area estimates of 31.1 million acres. Ninety-seven percent of the forested area (18.1 million acres) is considered available for timber production and classified as timberland. The one-half million acres remaining is largely reserved or unproductive. The Great Smoky Mountains National Park and national forest wilderness areas constitute most of the reserved area.

### Forest Ownership

Nominal changes have occurred between the broad ownership categories of North Carolina's timberland. Nonindustrial private owners (NIPF) combined for 77 percent (fig. 2), or 14.1 million acres, only slightly < 14.2 million acres in 2002. Within the NIPF group, area under individual ownership has declined, going from 11.7 to 11.1 million acres, while land under nonindustrial corporate ownership has risen from 2.4 to 2.6 million acres. Public ownerships cumulatively own 14 percent, or nearly 2.5 million acres, down slightly from nearly 2.6 million acres in 2002. Forest industry ownership accounted for 8 percent of the State's timberland, but decreased 13 percent from 1.6 million acres in 2002 to 1.4 million acres in 2007.

Table 1—Area by land class, North Carolina

| Land class           | 1964 | 1974 | 1984 | 1990 | 2002 | 2007 |
|----------------------|------|------|------|------|------|------|
| <i>million acres</i> |      |      |      |      |      |      |
| Forest land          |      |      |      |      |      |      |
| Timberland           | 20.0 | 19.5 | 18.5 | 18.7 | 18.4 | 18.1 |
| Other/reserved       | 0.4  | 0.5  | 0.5  | 0.6  | 0.4  | 0.5  |
| Total forest land    | 20.4 | 20.0 | 19.0 | 19.3 | 18.8 | 18.6 |
| Nonforest land       |      |      |      |      |      |      |
| Total land area      | 31.4 | 31.3 | 31.2 | 31.2 | 31.2 | 31.1 |
| Percent forested     | 65%  | 64%  | 61%  | 62%  | 60%  | 60%  |

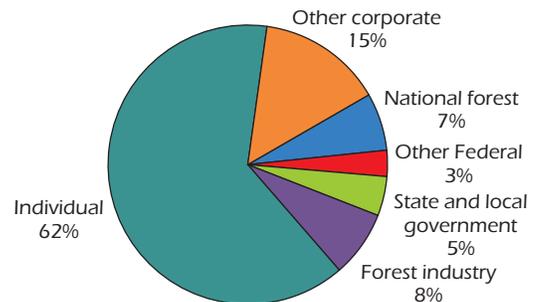


Figure 2—Ownership of timberland, North Carolina, 2007.

## Forest Type Composition

Softwood forest types occupy nearly 32 percent of North Carolina's 18.1 million acres of timberland, hardwoods comprise 67 percent, and nonstocked areas make up 1 percent. The oak-hickory forest-type group predominates with nearly 7.3 million acres or 40 percent of the timberland (fig. 3). The loblolly-shortleaf pine type group is second in abundance with nearly 5.3 million acres or 29 percent of the timberland. Oak-pine type group is a distant third with 2.3 million acres or 13 percent of the timberland. Next in frequency of occurrence is oak-gum-cypress with 10 percent of the timberland. Longleaf-slash pine accounts for 2 percent, elm-ash-cottonwood 3 percent, and white-red-jack pine 1 percent. Nonstocked stands combine for 1 percent and other hardwoods, maple-beech-birch, spruce-fir, other hardwoods, and cedars make up the remaining 1 percent.

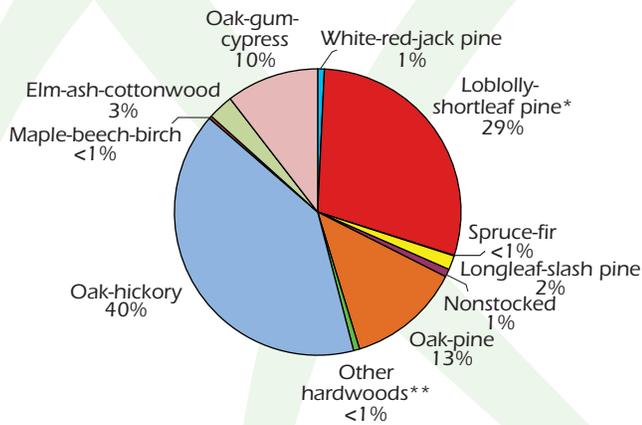


Figure 3—Area of timberland by forest-type group, North Carolina, 2007.

\* Includes other softwoods.  
\*\* Includes exotic hardwoods.

## Stand Origin

All forest types combined, nearly 3.3 million acres of the State's timberland for 2007 exhibited clear evidence of artificial regeneration (fig. 5). A majority of these acres, 2.7 million, were classified as a pine type. These pine plantations accounted for 15 percent of the State's timberland and 47 percent of the softwood resource acreage. The remaining acres with evidence of planting were classified as one of the hardwood types (typically oak-pine) based on species composition, stocking and level of successful artificial regeneration in those stands. The increase in planted pine acres since 2002 largely involved changes in stocking related forest type designations. Area of natural stands in the State declined from 15.5 to 14.8 million acres. Area of natural pine stands dropped by 7 percent to 3.0 million acres or 16 percent of all timberland.

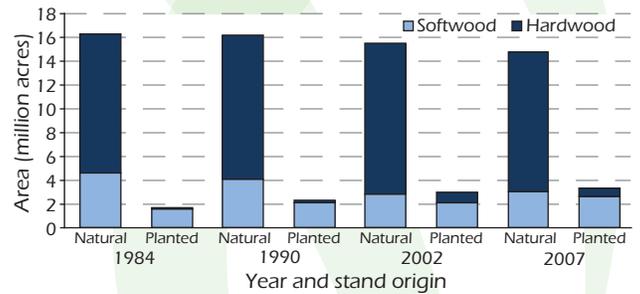


Figure 5—Timberland area by forest-type group, stand origin, and year, North Carolina.

## Stand-Size Distribution

In 2007, North Carolina timberlands were dominated by sawtimber size stands which totaled 9.5 million acres, up from 9.2 million acres in 2002. The area of poletimber size stands went down to 4.2 million acres from 4.5 million in the previous inventory period (fig. 4). The area of sapling-seedling size stands, which in 2002 was 4.5 million acres, decreased to 4.1 million acres in 2007. The area of sapling-seedling size stands has remained at or near the least represented stand-size class for decades. Nonstocked stands continued to remain <200,000 acres in 2007.

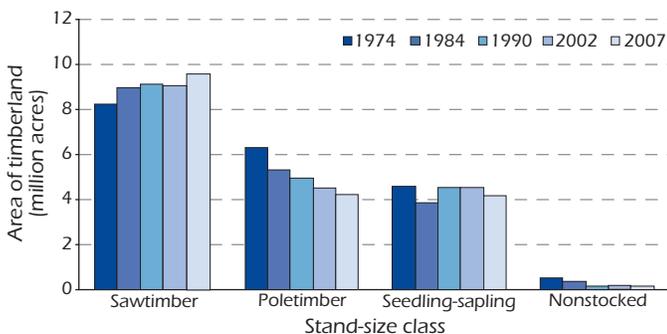


Figure 4—Area of timberland by stand-size class and year, North Carolina, 2007.



Pocosin condition in the Coastal Plain of North Carolina. (photo by Jason Cooper U.S. Department of Agriculture Forest Service)

## Tree Volume

For all species combined, all-live tree volume on timberland in North Carolina rose from 34.4 billion cubic feet in 2002 to 35.8 billion cubic feet in 2007. Softwoods comprised 34 percent of the State total. Softwood volume increased by >3 percent. Softwood volume increased slightly in all but the 12 and 14 inch classes and peaked in the 10 and 12 inch classes (fig. 6). Forty-eight percent of all softwood volume occurred in the 8 through 12 inch classes. Hardwood volume increased by 4 percent and rose in all diameter classes except the 8 and 10 inch. Hardwood volume was more evenly distributed across the range of diameter classes than were the softwoods, and almost plateaued between the 10 through 16 inch diameters (fig. 7).

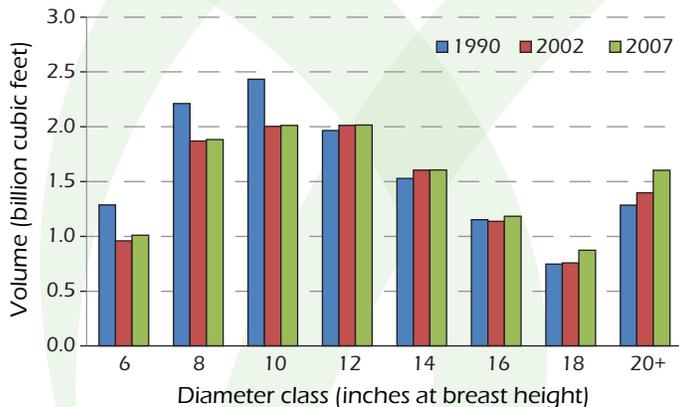


Figure 6—Softwood all-live volume by diameter class and year, North Carolina.

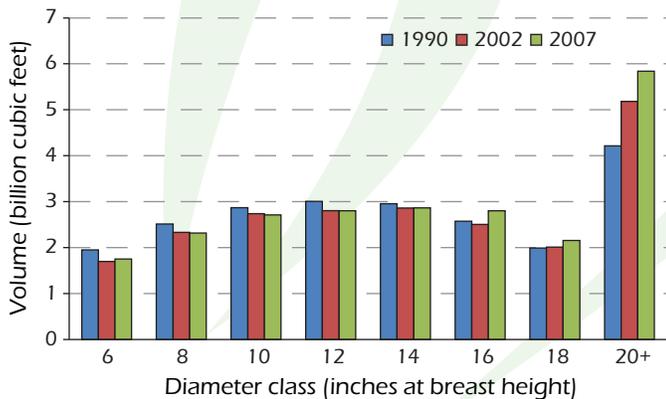


Figure 7—Hardwood all-live volume by diameter class and year, North Carolina.

## Growth, Removals, and Mortality

The average annual components of change are gross growth, mortality, and removals. They are expressed as an average annual rate for the time period between the previous survey and the current survey. Their relationship is such that recorded gross growth is diminished by mortality and removals resulting in net change.

Gross growth of all-live softwoods on North Carolina timberland has increased the last three survey periods and reached 885 million cubic feet in 2007 (fig. 8). Mortality of all-live softwood trees in North Carolina averaged 175 million cubic feet annually between 2002 and 2007. For the same period, softwood removals averaged 613 million cubic feet annually, down from an increase in the previous survey.

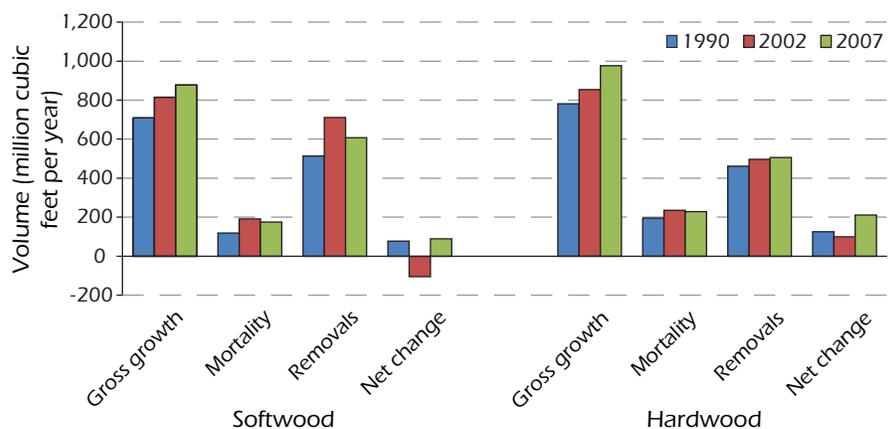


Figure 8—Growth, mortality, removals, and net change by species group and year, North Carolina.

## NORTH CAROLINA, 2007



Late fall in the mountains of North Carolina. (photo by SRS FIA)

Together, the mortality and removals subtracted from the gross growth resulted in a positive average net change of almost 98 million cubic feet annually in the softwood resource statewide. The net change for softwoods has reversed a negative net change recorded for the previous survey period in North Carolina.

Similarly, gross growth of all-live hardwoods on North Carolina's timberland increased the last three survey periods and reached 981 million cubic feet in 2007. Hardwood mortality averaged 229 million cubic feet annually between 2002 and 2007. Simultaneously, hardwood removals averaged 535 million cubic feet annually, up since each of the previous two surveys. The difference between the gross growth and the mortality/removals resulted in a positive average net change of 217 million cubic feet annually in the hardwood resource. The net change for hardwoods continues a positive change between each of the last two survey periods.

## Economic Impact

The entire forestry, lumber, furniture, wood products, and paper industry in North Carolina annually contributes approximately \$28 billion to the State's economy. With > 2,500 businesses employing nearly 80,000 workers, the forestry and related industry usually ranks in the top two among North Carolina's manufacturing industries. However, the number of establishments and value of payrolls in the forest industry sector have been declining during this decade.

## Timber Product Output

Though numbers in business declined, the 163 sawmills, pulpwood mills, and other primary wood-processing plants operating in North Carolina in 2007 produced 728 million cubic feet of timber products (fig. 9). During the same year, output for pulpwood and saw logs was 280 and 348 million cubic feet, respectively. Pulpwood accounted for 38 percent of the total roundwood production, and saw logs accounted for 48 percent of the roundwood. Together, the two products accounted for 86 percent of the total roundwood production in North Carolina. Other products produced in the State included veneer logs, composite board, and other industrial products. Production of primary timber products has risen from 400 million cubic feet in 1955 to >700 million cubic feet since 1990 and remained there despite recent declines in output.

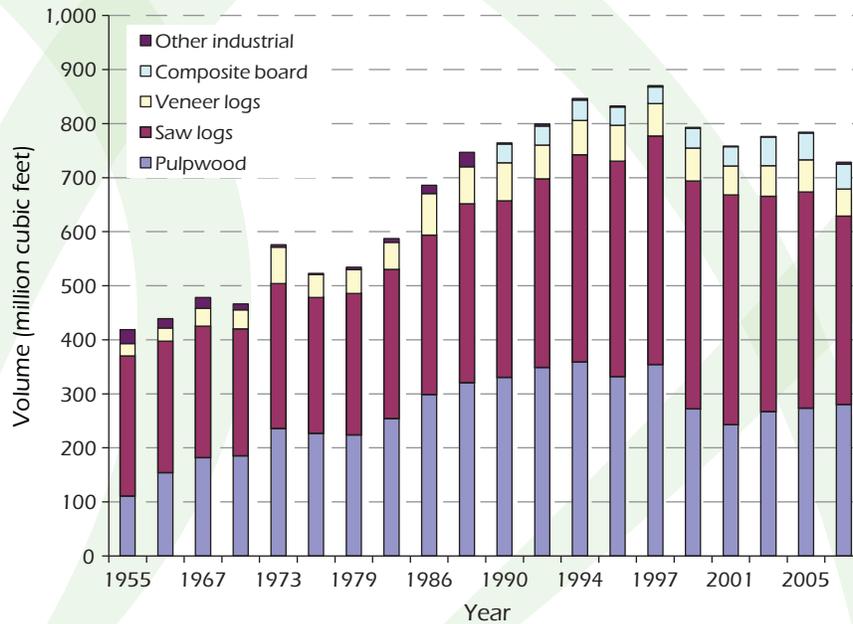


Figure 9—Production of primary timber products by year, North Carolina.

\* Caution, processing systems and algorithms used were re-engineered for 2007 and the 2002 data herein have been reprocessed on this basis.

Winter scene in the mountains of North Carolina. (photo by Tim Howell North Carolina Division of Forest Resources)

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