North Carolina, 2010

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Forest Inventory & Analysis Factsheet

FIA The Nation's Forest Census

Introduction

North Carolina's first annualized forest survey was completed in 2007 and results were published in e-Science Update SRS–029. There were 5,800 ground based samples distributed across the State. At that time, field measurements were collected on 20 percent (a panel) of these plots annually until all plots were completed. This factsheet is an annualized update of panel data collected in 2007 and updated by reprocessing with 2009 and 2010 data. Currently, the 5,800 samples are being collected on a 15-percent panel annually until all plots are completed. The new data represents 5 years of data, 30 percent of which are new since the last factsheet produced for 2007. The new data results in a "moving" average, and keeps the inventory more up to date than if reported every full cycle of panels (currently 7 years). However, the strongest and most reliable trend information comes from comparing data from two full cycles of completed panels. This factsheet is based on data for 2007, 2009, and 2010 extracted from the FIA Evalidator interface on the SRS FIA Web site on September 13, 2011 at http://apps.fs.fed.us/Evalidator/tmattribute.jsp.

Forest Land Area

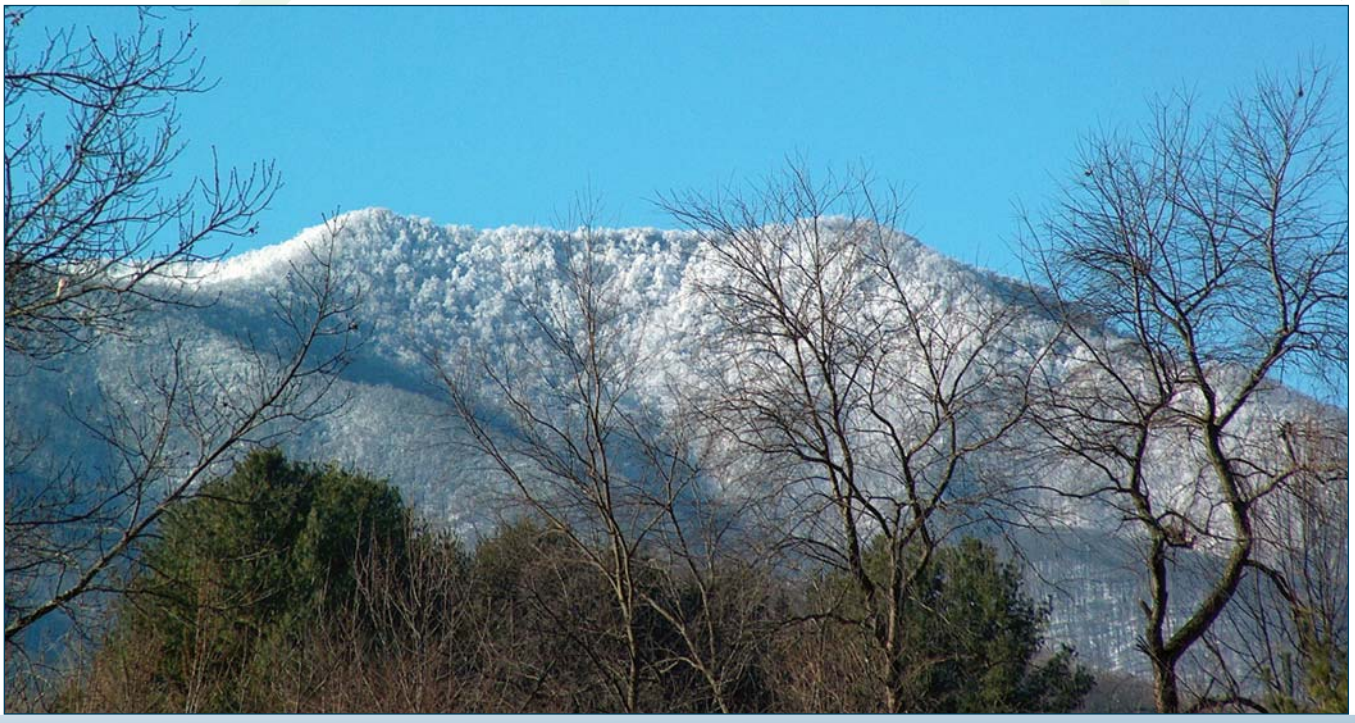
In 2010, forest area in North Carolina was 18,601,251 acres (table 1), relatively unchanged from 18,582,434 in 2007. Based on 30 percent new data, forest area appears stable or trending slightly upward. Forests continue to cover about 60 percent of the State's land area. Ninety-seven percent of the forested area (18,107,519 acres) is considered available for timber production and classified as timberland. The other 493,733 acres of forest is largely reserved or unproductive.

The Great Smoky Mountains National Park and national forest wilderness areas constitute most of the reserved area. However, Forest Inventory and Analysis considers land withdrawn legislatively to constitute reserved. This requirement precludes inclusion of many acres difficult to ascertain this status that are actually not available for commercial timber production. In addition, the area unavailable may actually be greater due to access or economic reasons.

Table 1—Area by land class and year, North Carolina

Land class	2007	2009	2010
		acres	
Timberland	18,050,394	18,094,226	18,107,519
Other/reserved	525,916	513,434	493,733
Total forest land	18,582,434	18,607,661	18,601,251
Nonforest land	12,551,441	12,528,024	12,537,293
Total land area	31,133,875	31,135,700	31,138,600
Census water	3,310,158	3,308,038	3,305,144
Total area	34,444,033	34,443,722	34,443,688
Percent land area forested	59.69	59.77	59.74

Snow/frost on mountain tops. (photo by Barry D. New, North Carolina Forest Service)



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Southern Research Station

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Forest Distribution

Sixty-eight of North Carolina's 100 counties were ≥ 50 percent forested. Twenty-three of these were ≥ 75 percent forested (fig. 1). Fifteen of these most heavily forested counties were located in the Mountain region of the State. There were two counties < 25 percent forested, both in the Northern Coastal Plain region of the State. The portion of the State's forests classified as timberland, 18,107,519 acres, is the basis for the remaining data in this factsheet. Table 2 shows the distribution of this timberland by survey unit. All survey units of the State appear to be stable or slightly gaining timberland.

Table 2 —Area of timberland by survey unit and year, North Carolina

Survey unit	2007	2009	2010	Change since 2007
		acres		*percent*
Southern Coastal Plain	5,083,908	5,086,962	5,104,313	0.401
Northern Coastal Plain	3,689,853	3,711,761	3,715,482	0.695
Piedmont	5,338,173	5,350,835	5,345,914	0.145
Mountain	3,938,460	3,944,669	3,941,810	0.085
All survey units	18,050,394	18,094,227	18,107,519	0.317

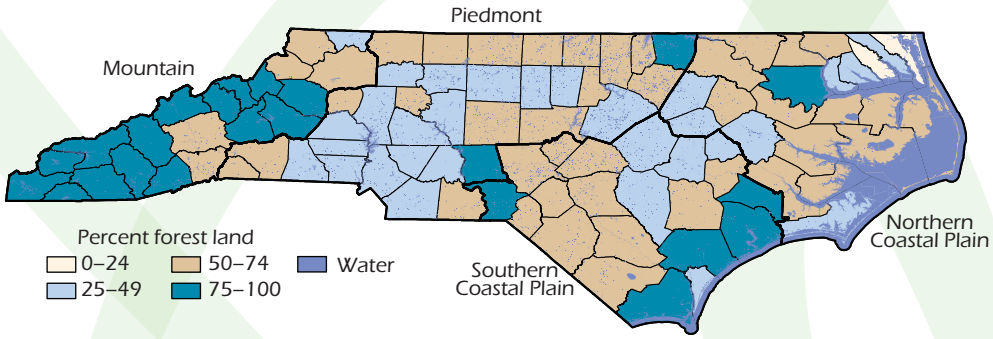


Figure 1—Survey units and percentage of land in forest by county, North Carolina, 2010.

Forest Ownership

Nonindustrial private forest (NIPF) owners hold almost 79 percent of the State's timberland (fig. 2). NIPF area increased slightly to 14,168,900 from 14,115,100 acres in 2007. Within the NIPF group, area under individual ownership was down slightly, from 11,495,600 to 11,318,400 acres in 2010. Timberland under nonindustrial corporate ownership has risen from 2,619,400 to 2,850,500 acres. Public ownerships cumulatively own 14 percent, or 2,608,649 acres, up slightly from 2,526,547 acres in 2007. Forest industry ownership accounted for 7 percent of the State's timberland, down from 1,408,800 acres in 2007 to 1,330,100 acres.

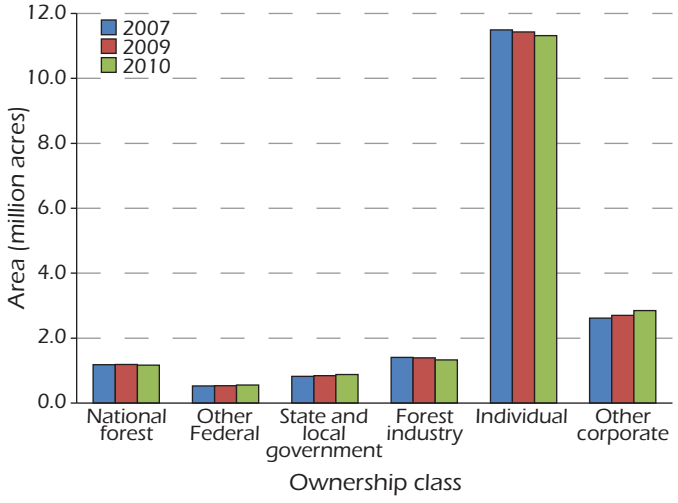
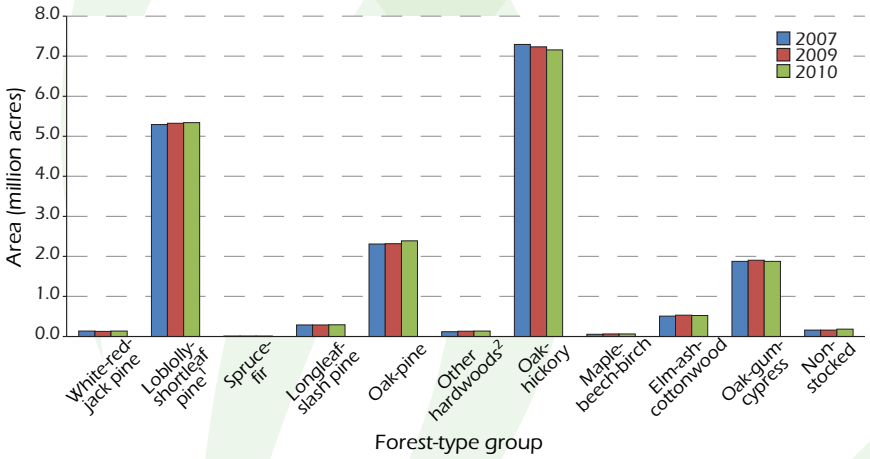


Figure 2—Area of timberland by ownership class and year, North Carolina.

Upland hardwood stand. (photo by Barry D. New, North Carolina Forest Service)

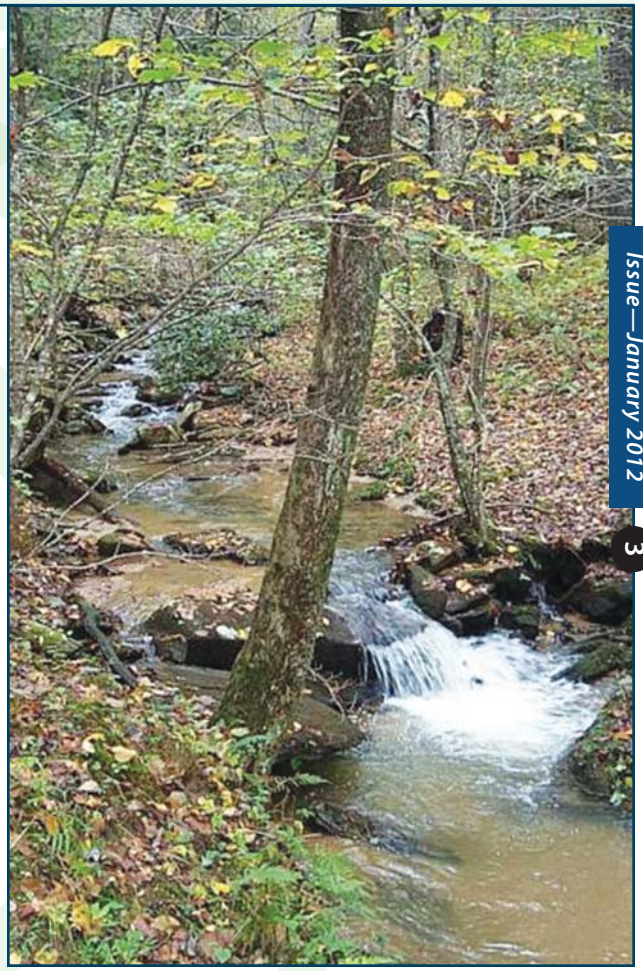
Forest-Type Composition

Altogether, hardwood forest types comprise 68 percent of North Carolina's timberland, or 12,144,075 acres. Softwood forest types occupy 32 percent, or 5,778,888 acres of timberland, and nonstocked areas makeup the remaining 1 percent, or 184,554 acres. The oak-hickory forest-type group predominates with 7,155,542 acres of the timberland (fig. 3). The loblolly-shortleaf pine type group is second with 5,339,676 acres, oak-pine type group is third with 2,389,332 acres, and oak-gum-cypress is next with 1,874,992 acres of the timberland. The order of forest-type prevalence was unchanged and changes in type group estimates were nominal as exemplified by the area of longleaf-slash pine which accounted for 293,269 acres compared to 290,092 acres in 2007.



[1] Includes other softwoods.
[2] Includes exotic hardwoods and aspen-birch.

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



Perennial stream. (photo by Barry D. New, North Carolina Forest Service)

Stand-Size Distribution

Sawtimber size (diameter ≥9.0 inches for softwoods, ≥11.0 inches for hardwoods) stands dominated with 9,770,394 acres. Upland hardwood type groups were the most prevalent in the sawtimber and sapling-seedling (diameter 1.0–4.9 inches) stand-size categories (fig. 4). Only in the poletimber size (diameter 5.0–8.9 inches for softwoods, 5.0–10.9 inches for hardwoods)category did the area of yellow pine types exceed the area of upland hardwoods. Area of upland hardwood sawtimber more than doubled the area of upland hardwood poletimber and sapling-seedling combined. This type group structure was somewhat evident for lowland hardwood types as well, but not true for the yellow pine types. Area of upland hardwood sawtimber increased slightly, yellow pine sawtimber was stable, and lowland hardwood sawtimber about the same as in 2007. Area of oak-pine gained in the sawtimber size category, and remained somewhat stable in the poletimber and sapling-seedling size categories.

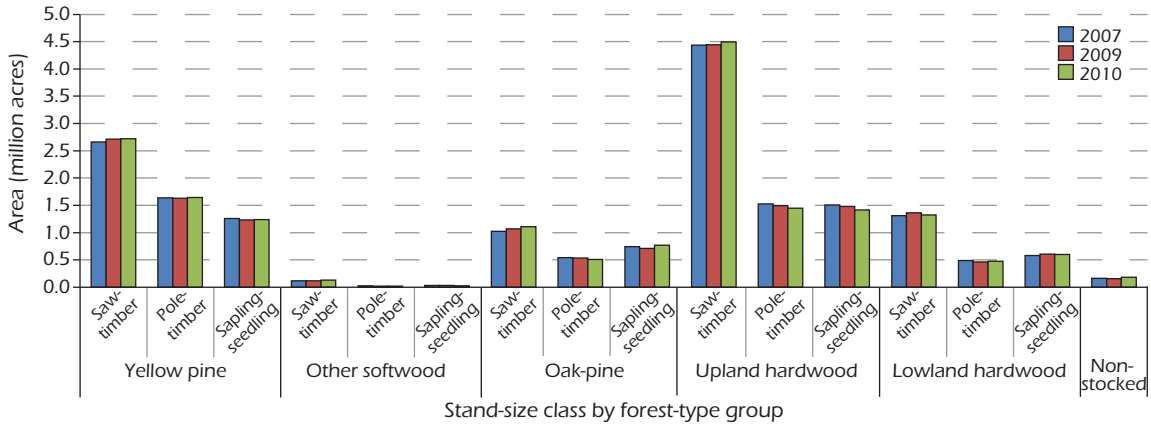


Figure 4—Area of timberland by stand-size class, forest-type group, and year, North Carolina.

Stand Origin

Altogether, 3,228,610 acres of the State's timberland for 2010 showed evidence of artificial regeneration (fig. 5). Most, or 2,703,451 acres, were classified as a softwood type, 99 percent of which were yellow pine types. The planted softwood acreage was down slightly from 2,709,281 in 2007. The hardwood types with evidence of planting totaled 496,049 acres. These stands are typically oak-pine based on species composition stocking and level of successful artificial regeneration. Area of natural stands in the State increased to 14,878,908 from 14,788,012 acres in 2007 largely due to increased area of natural softwood from 3,018,504 in 2007 to 3,075,439 acres.

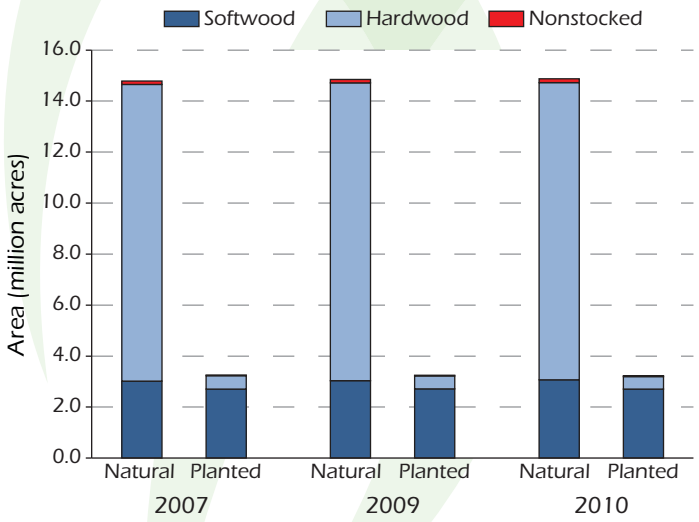


Figure 5—Timberland area by major forest-type group, stand origin, and survey year, North Carolina.

Tree Volume

For all species combined, all-live tree volume on timberland in North Carolina rose from 35.810 billion cubic feet in 2007 to 36.633 billion cubic feet. Softwood volume rose from 12.350 to 12.595 billion cubic feet with the largest volumes by diameter class occurring in the 10- and 12-inch classes (fig. 6). There were slight increases in the 6-, 12-, and 16-inch classes and apparently no downward movement in any of the other softwood diameter classes. The hardwood volume rose as well from 23.460 to 24.038 billion cubic feet. Most hardwood diameter classes were stable with the volume increase coming from the 18- and 20+-inch diameter classes (fig. 7).

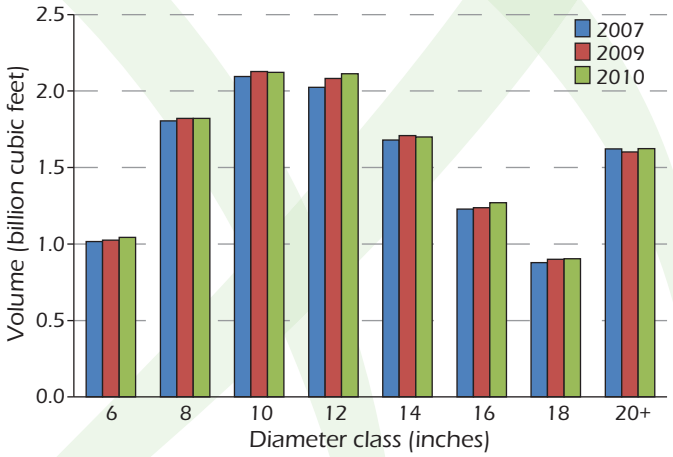


Figure 6—Softwood all-live volume on timberland by diameter class and year, North Carolina.

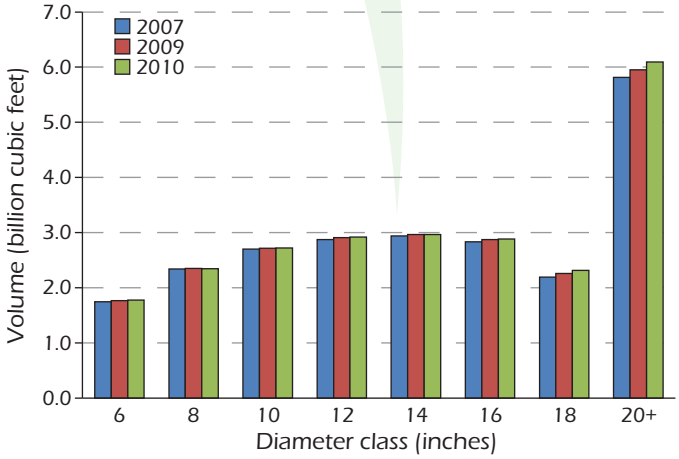
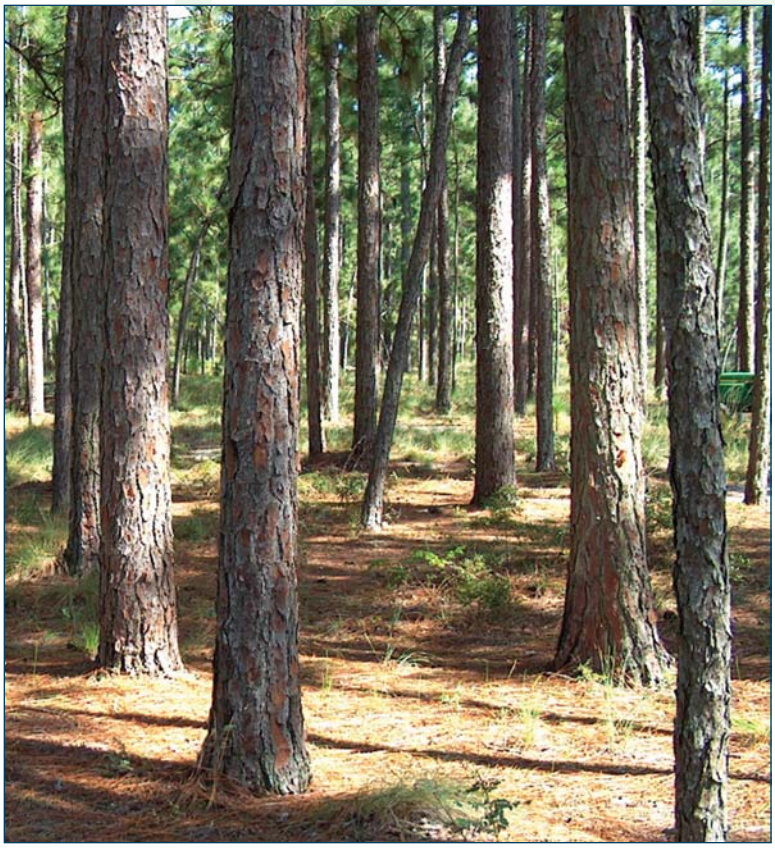


Figure 7—Hardwood all-live volume on timberland by diameter class and year, North Carolina.



Longleaf pine stand. (photo by Barry D. New, North Carolina Forest Service)

Growth, Removals, and Mortality

The average annual components of change are gross growth, mortality, and removals. Their relationship is such that recorded gross growth is diminished by mortality yielding net growth. Then, removals further diminish the net growth, resulting in net change.

The net growth for softwoods has increased slightly to 732.103 from 710.735 million cubic feet in 2007 (fig. 8). Softwood removals increased minimally to 616.895 from 612.878 million cubic feet in 2007. At these rates, the softwood growth to removals relationship yields a somewhat stable positive net change of 115.208 million cubic feet annually in the softwood resource statewide.

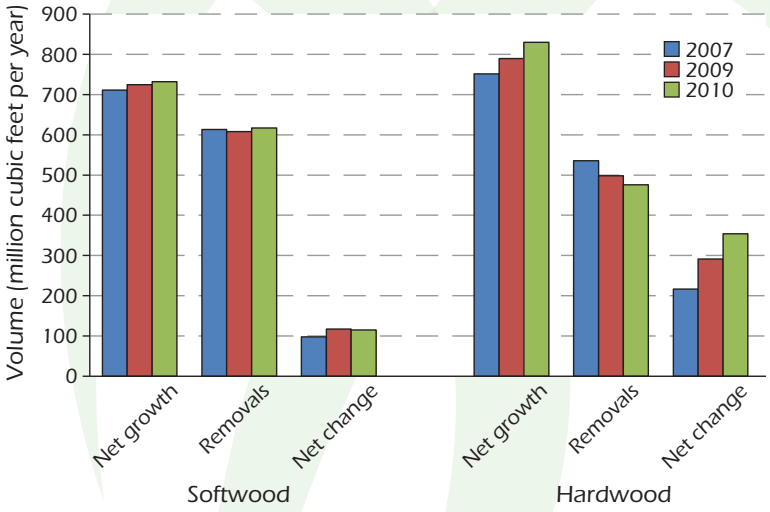


Figure 8—All-live volume of net growth and removals on timberland by major forest-type group and year, North Carolina.

Net growth of all-live hardwoods on North Carolina's timberland increased more noticeably. Hardwood net growth averaged 829.694 million cubic feet annually compared to 751.823 million cubic feet in 2007 (fig. 8). Concurrently, hardwood removals decreased noticeably to 475.462 from 535.144 million cubic feet in 2007. The combination of increasing net growth and decreasing removals for hardwoods has resulted in a larger positive net change for hardwoods than softwoods on the order of 354.232 million cubic feet.

How to Cite this Publication

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Cypress in lowland stand. (photo by Barry D. New, North Carolina Forest Service)

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