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Richard A. Harper and Byron E. Rominger

FOREST INVENTORY & ANALYSIS FACTSHEET

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Timberland Area and Live-Tree Volume by Survey

South Carolina contains about 19.3 million acres of land area, less census water. The forest land area makes up 68 percent of the land area with 13.1 million acres. Commercial timberland area (land available for production of forest products) comprised >99 percent of the forest land area, or 13.0 million acres. The remaining 88,000 acres are reserved forest land where harvesting is prohibited by law (68,000 acres) and unproductive forest land not capable of producing at least 20 cubic feet per acre per year (20,000 acres).

While timberland area has remained relatively stable, timber inventory volume has increased 139 percent over the last 50 years—a testament that forest landowners, with assistance from the forestry community, have engaged long term in improving timberland production and enhancing associated resources (fig.1).

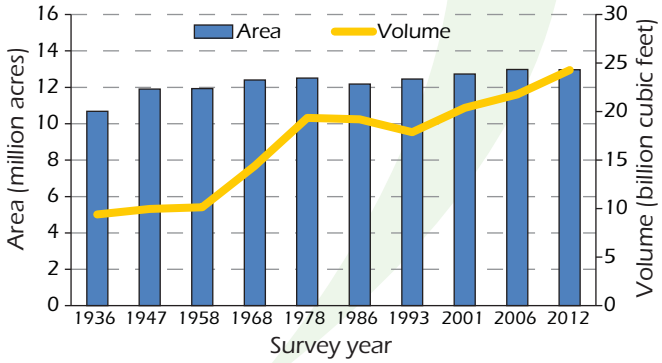
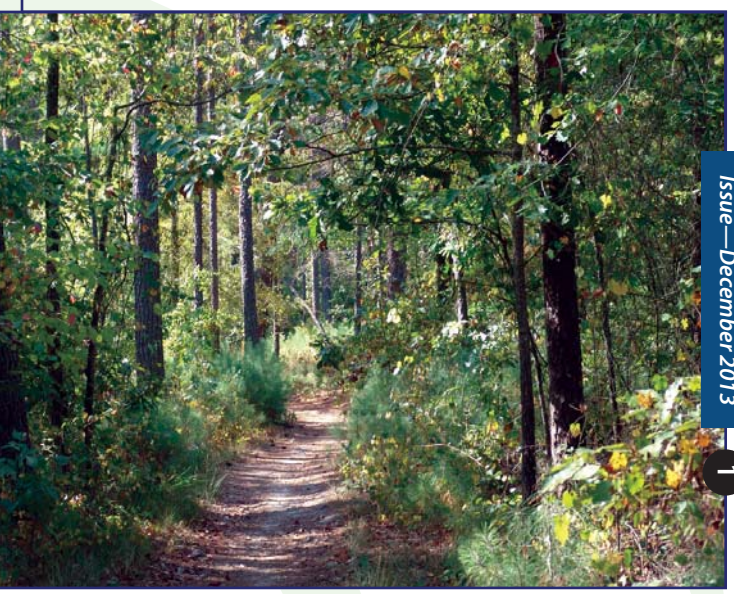


Figure 1—Timberland area and live-tree volume by survey year, South Carolina.

Percentage of Land in Forest by County

Of the total 46 counties, 35 are ≥60 percent forested. These counties account for 83 percent of the forest land area and 82 percent of the live-tree inventory volume (fig. 2). Those counties with <60 percent forested area include Anderson, Beaufort, Charleston, Clarendon, Darlington, Dillon, Greenville, Lee, Lexington, Spartanburg, and York.



Well managed forests contribute to the quality of life with many ecological and socioeconomic benefits. (photo courtesy of Michelle Johnson, South Carolina Forestry Commission)

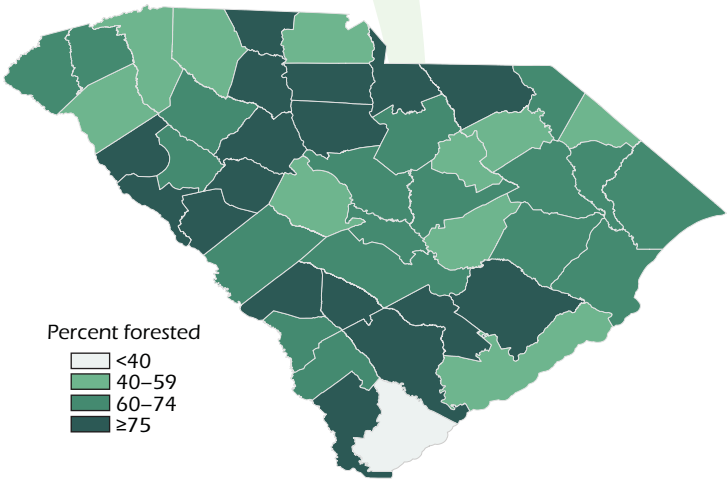


Figure 2—Percentage of forest land by county, South Carolina, 2012.

Ownership, Land-Use, and Tract-Size Change by Survey

Forest industry has been divesting their timberland acreage since the peak around 1986. In figure 3, it appears that there was a direct purchase of industry lands by corporate organizations. However, a closer look at the data indicates that from 2001 to 2011, industry sold about 80 percent of their timberland to corporate owners and about 15 percent to individual owners. Of the corporate gain, about 73 percent came from industry and about 24 percent came from individuals. A small percentage of industry and corporate timberlands were traded (sold) with public owners or changed to a nonforest land use.

Residential and commercial development chip away timberland area by reducing tract size and changing land use. (photo courtesy of Michelle Johnson, South Carolina Forestry Commission)

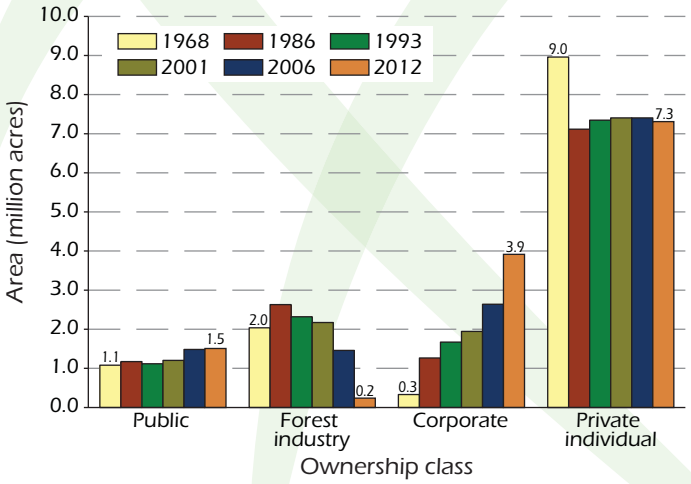


Figure 3—Area by ownership group and survey year, South Carolina.

The change in land use can be a major threat to forest resources over time. While conversion of forest land to development is a "permanent" loss, it has been somewhat consistent and averages around 36,000 acres per year (black trend line, fig 4). While part of the stability of timberland area can be attributed to the afforestation from agricultural lands, there is an indication that there has been a steady increase of timberland converted to agricultural land over the last 20 years. The bars labeled "Loss to development" and "Loss to agriculture" are components of the "Total timberland loss."

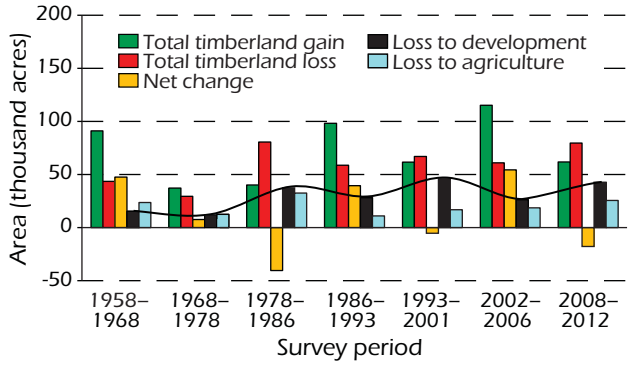


Figure 4—Average annual land-use change of timberland by survey period, South Carolina. The black trend line relates to timberland loss to development over the time period. (Note: loss to development and agriculture are components of total timberland loss.)

Other dynamics of timberland change relate to tract size. For individual or family ownership, tracts >50 acres declined 9 percent since 2001, while tracts ≤50 acres increased 16 percent (fig. 5A). Some indications for parcel division may include financial opportunities or need, or estate transfers within family ownerships. However, through tract consolidation, corporate ownership has increased tract size in every category with the greatest in the 500+ category which increased >1 million acres (fig. 5B).

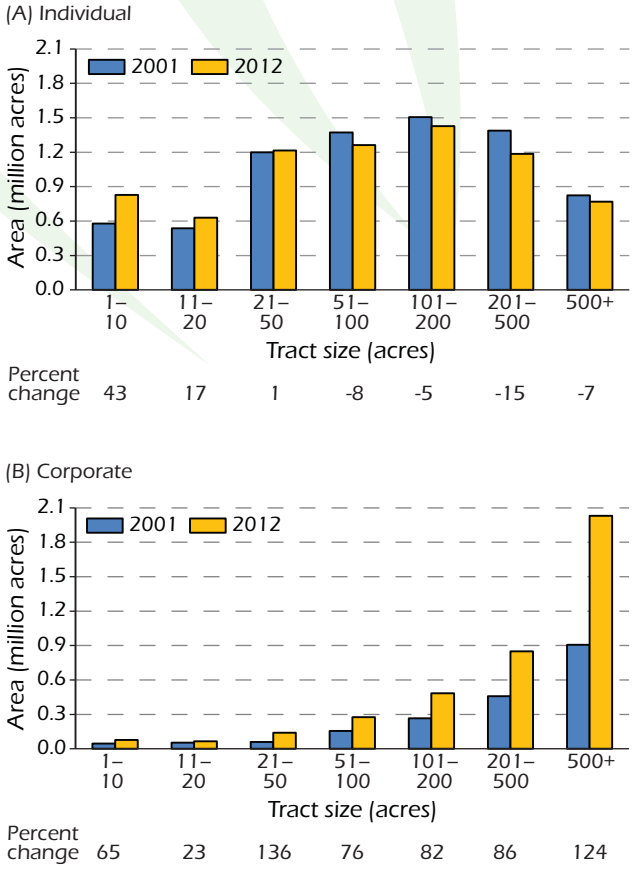


Figure 5—Change in tract size for (A) individual and (B) corporate ownership on timberland, South Carolina.

Area of Timberland by Forest-Type and Consolidated Forest Management-Type Groups

Hardwood forest management-type groups occupy 52 percent of the timberland area, covering almost 6.8 million acres; softwood forest management-type groups covers 6.1 million acres. The planted pine area is almost 3.1 million acres or 24 percent (fig. 6).

Loblolly-shortleaf pine is the predominant forest-type group covering 5.5 million acres (43 percent) followed by oak-hickory with 2.9 million acres (22 percent). Since 1993, the longleaf forest type has increased 124,000 acres (34 percent) while shortleaf has experienced a large decline of 207,000 acres (78 percent).

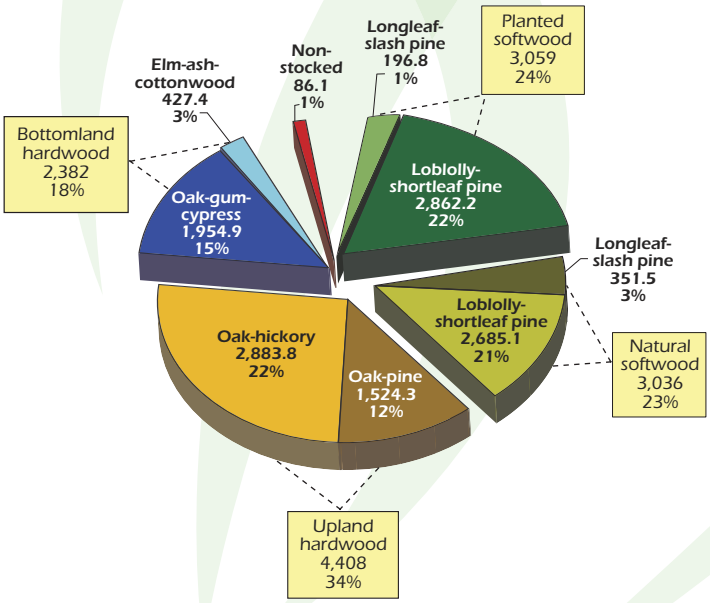


Figure 6—Area of timberland by forest-type group and consolidated forest management-type groups (thousand acres), South Carolina, 2012.

Hardwood Live-Tree Volume by Diameter Class

Hardwood volume by diameter class has been relatively stable and shown an increase in all diameter classes since 1993. The majority of the volume increase is in the ≥16-inch diameter classes. Like softwood, hardwood volume is at an all-time high (fig. 8).

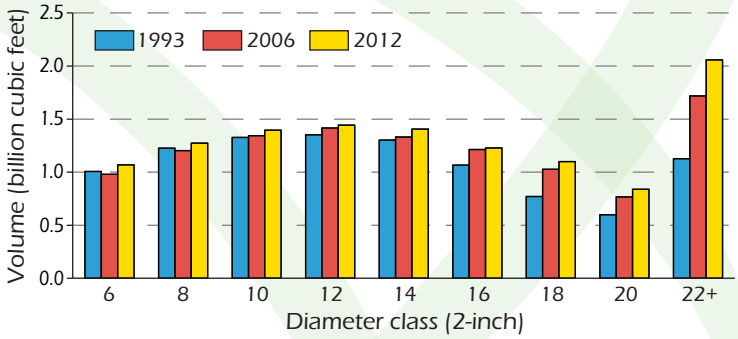


Figure 8—Hardwood live-tree volume by diameter class and survey year, South Carolina.

Planted pine provides opportunities to meet demand for wood products while reducing disturbance on more sensitive forested areas. (photo courtesy of Michelle Johnson, South Carolina Forestry Commission)

Softwood Live-Tree Volume by Diameter Class and Stand Origin

Planted pine has shown dramatic increase in volume for the 6-, 8-, and 10-inch diameter classes. Since 1993, the planted pine volume in these classes has increased 82 percent while the natural softwood has increased 25 percent. However, more harvesting pressure on planted pine indicates that the volume in the 6-inch diameter class has declined 19 percent, while the 8-inch planted pine declined 12 percent from 2006 to 2012. All other diameter classes are increasing for planted and natural softwood, and the softwood volume is at a record high (fig. 7).

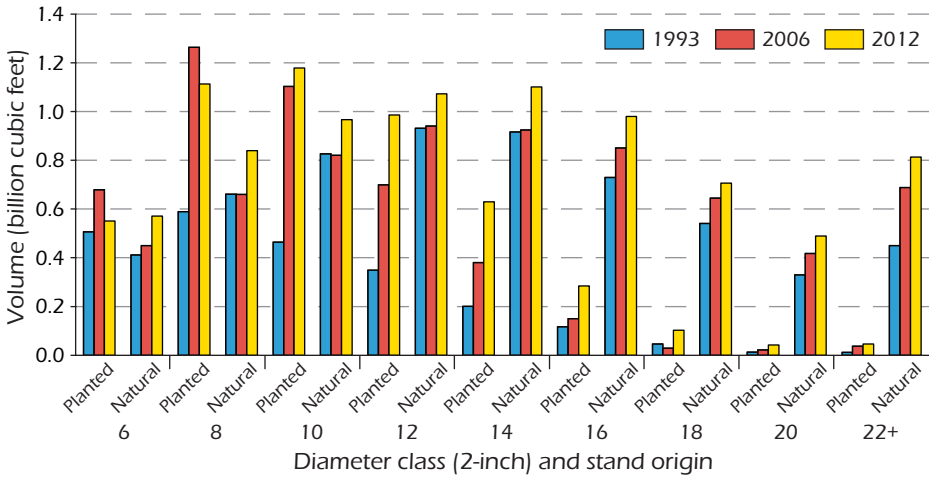


Figure 7—Softwood live-tree volume by diameter class, stand origin, and year, South Carolina.

Distribution of Softwood Live-Tree Volume by 5-Year Age Class and Survey Period

Mostly due to Hurricane Hugo in 1989, the volume of softwood in the 26–55 year age classes decreased 30 percent from 1986 to 1993. Strong tree planting programs greatly influenced a volume shift from older, natural stands to the young, productive planted stands present in the 2012 data. Currently, planted softwood trees account for 61 percent of the inventory volume in age classes <36 years, and 40 percent of the total softwood inventory in South Carolina (fig. 9).

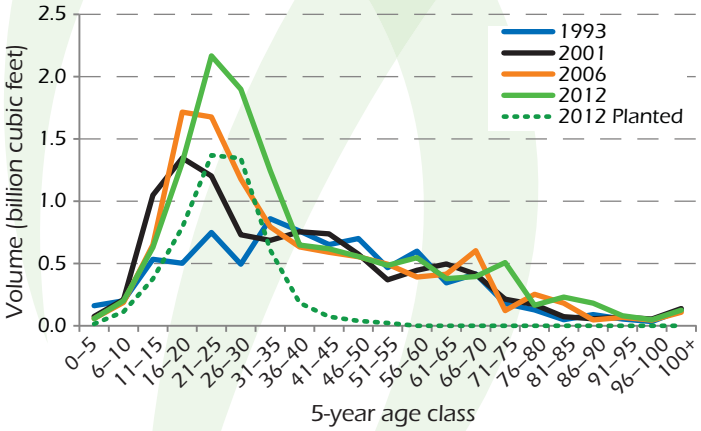


Figure 9—Distribution of softwood live-tree volume by 5-year age class and survey year, South Carolina.

Average Annual Acres Harvested

Various silvicultural harvest treatments are used to manage timberland and generate income. The total average annual acres harvested slightly increased 2 percent since 1993. However, final harvest acres declined 49 percent, and acres receiving a commercial thinning increased 461 percent! About 81 percent of all harvest types occurred on softwood forest types (fig. 10).

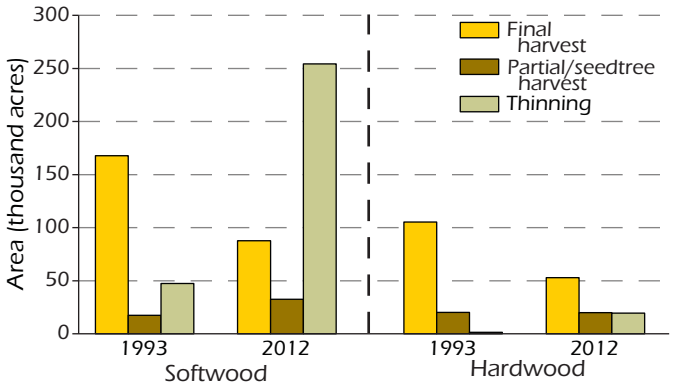


Figure 10—Average annual acres harvested by harvest type, major forest-type group, and survey period, South Carolina.

All-Live Average Annual Net Growth, Removals, and Net Change

Total average annual net growth on timberland reached an all-time high with 1.28 billion cubic feet as well as removals at 0.83 billion cubic feet. Softwood net growth continues to outpace removals with the planted portion contributing 55 percent to both the total net growth and total removals. Hardwood net growth also outpaced removals (fig 11).

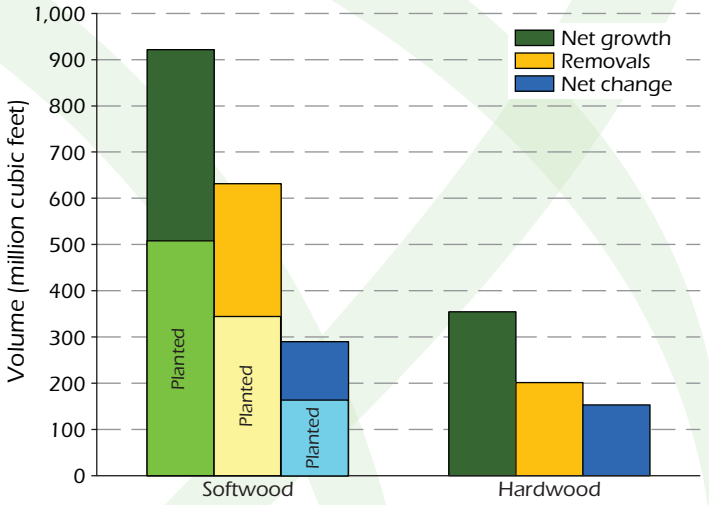


Figure 11—All-live average annual net growth, removals, and net change with the portion of planted softwood, South Carolina, 2012.

Removals exceeded net growth in South Carolina for both softwood and hardwood during the late 1980s and early 1990s, mostly due to mortality from Hurricane Hugo. For the last 20 years, net growth has exceeded removals for both softwood and hardwood species (fig. 12). Currently, net growth for softwood is 46 percent greater than removals, and hardwood is 76 percent greater than removals.

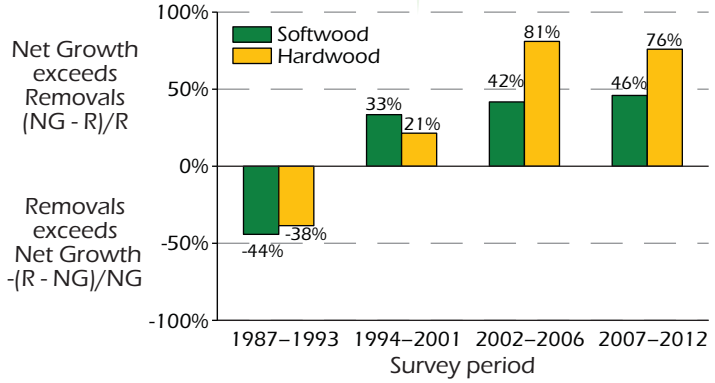


Figure 12—Percent increase or decrease relationship of net growth and removals by survey period, South Carolina.

Impact of Planted Pine

In 1993, 83 percent of the harvesting was on natural stands. Since 1993, average annual acres of planted stands receiving a harvest treatment have increased 230 percent. Currently, planted pine occupies 24 percent of the timberland area and just 20 percent of the total volume; however, it supplies 47 percent of all harvest removal volume and 55 percent of the acres disturbed from harvesting (fig. 13). Planted pine lessens the harvesting pressure on other forest areas and offers the opportunity to minimize disturbance on more sensitive areas.

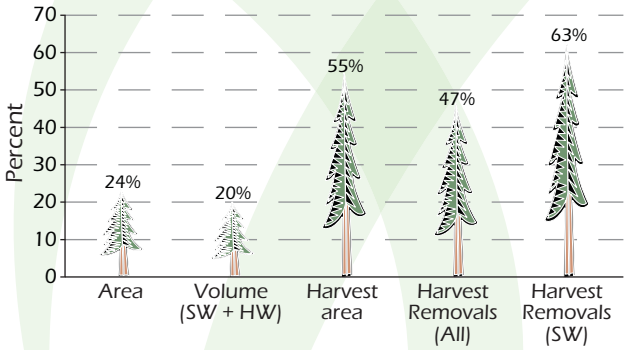


Figure 13—Percent of planted pine of total area, volume, harvest area, harvest removal volume, and harvest removal volume of total softwood, South Carolina, 2012.

Precautions and Information

All annual datasets 2001–11 for South Carolina were reprocessed using the National Information Management System (NIMS) 5.1 compilation system and posted April 2012 for more consistent public query. Online queries prior to April 2012 may be slightly different from current queries.

FIA labels datasets with the last year a plot was collected for the five panels in South Carolina. Some users request the median date the plots represent of the 5-panel dataset. The label "SC2012" has a median date of 1 June 2010 for plots used to calculate area, volume, and number of trees. The median date for the components of change (net growth, removals, and mortality) is 28 January 2008.

How to Cite This Publication

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Longleaf pine restoration has increased 34 percent since 1993 through improved efforts to plant longleaf pine seedlings. (photo courtesy of Michelle Johnson, South Carolina Forestry Commission)

Contact Information

Richard A. Harper, CF, RF, Forester
127 Lehotsky Hall, Clemson University
Clemson, SC 29634
Phone: 864-656-5153
Email: raharper@fs.fed.us
Southern FIA: http://srsfia2.fs.fed.us
National FIA: http://fia.fs.fed.us

Byron E. Rominger, FIA Coordinator
South Carolina Forestry Commission
5500 Broad River Road
Columbia, SC 29212
Phone: 803-896-8804 / Fax: 803-798-8097
Email: brominger@scfc.gov
http://www.state.sc.us/forest/index.htm