

## Size Of Forest Holding And Family Forests: Implications For Forest Management In South Carolina

By: Brian L. Williams, Thomas J. Straka, and Richard A. Harper

There are about 11.3 million private forest owners in the United States; of those, 10.4 million are family forest owners who control 62% of the nation's private timberland. South Carolina has about 262,000 family forest owners who control almost two-thirds of the state's private timberland (Butler, 2008). In the recent past, these ownerships were generally called nonindustrial private forests (NIPF). Due to development and growth of various corporate ownerships, the definition of NIPF became muddled. Today this unincorporated individual, family trust estate, and partnership-owned timberland is called family forests.

Family forests have long been recognized as crucial to maintaining sustainable forests in the United States and crucial to national timber supply (Best, 2002). Ownership of small forests has been a fundamental issue in American forest policy since the early twentieth century. Some smaller ownerships were thought to perform little forest management compared to other ownership groups and, since they controlled much of the nation's most productive timberland, timber supply problems or a "timber famine" were likely to result.

The NIPF or family forest problem was widely researched and key variables and incentives identified that seemed to influence reforestation and forest management decisions of small family forest owners. Financial position, asset position, income, educational level achieved, occupation, and other variables impacted decisions. One variable could be observed easily; that is, forested acres. Someone who owns a larger tract would likely be better off financially, own more assets in general, have a high income, high educational level, and would more likely be in certain types of occupations. Size of forest holding can be used as a proxy for some of these other variables and distribution of family forests by tract size can be used to group forest owners by likelihood to practice intensive forestry or invest in reforestation (Straka, 2011).

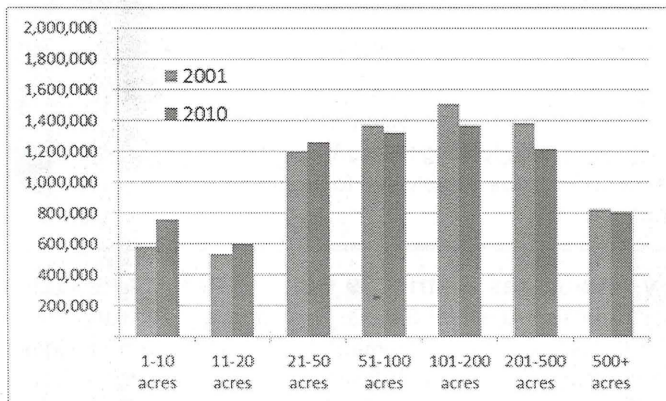
Family forest ownership continues to be important to South Carolina's wood supply and modern issues of the same problems constantly surface. Parcelization is an example. It is the decrease in average family forest tract size as owners gift, inherit, or sell forest holdings. Multiple heirs might be a reason for parcelization. Urbanization and other land use changes are some of the main causes of parcelization and it is most pronounced at the urban-rural interface. The fundamental problem is when average tract size decreases, the economies of scale inherent in a larger tract are potentially lost. Also, as forest owners change, new owners may have different management objectives (Sampson and DeCoster, 2000).

### Implications for South Carolina

As noted, private forest owners control most of the nation's timberland. Most of that timberland is in the eastern United States, and much of it is in the South. Family forests make up the majority in terms of owners and acres. In South Carolina, there are 262,000 family forest owners, owning around 7.3 million acres of the state's roughly 13 million acres of total timberland (Butler, 2008). The breakdown of timberland ownership in South Carolina is similar to that

of the United States as a whole.

Figure 1 shows the change by tract size category for family forest ownerships in 2001 and 2010. Tract size for family forests has decreased in larger categories (greater than 50 acres), while smaller sizes are increasing. Over this ten-year period there was a 7% decline in tracts greater than 50 acres and a 13% increase in



tracts less than 50 acres. (Source USDA Forest Service, FIA plot data.)

The National Woodland Owners Survey (NWOS, 2012) is the official estimate of forest owners in the United States. It was created and is maintained by the USDA Forest Service. The NWOS provides useful information in understanding basic family forest behavior and demographics: who owns timberland, the size forest they own, insight into why they own timberland, how they manage it, and future intentions. Butler (2008) summarized characteristics of landowners and size of forest holdings in a publication based on the most recent NWOS survey. His summary of size of forest holding relationships includes the following key variables from NIPF/family forest literature:

- **Ownership objectives:** vary by size of forest holding
- **Timber management objectives:** as the size of forest holding increases, the probability that the owner has timber management objectives increases.
- **Leasing:** as the size of forest holding increases, leasing by owners increases.
- **Cost-share programs:** as the size of forest holding increases, participation in

cost-share programs increases.

- **Management plan:** as the size of the forest holding increases, the percentage of owners with a management plan increases.
- **Management advice:** as the size of the forest holding increases, the likelihood of an owner seeking management advice increases.
- **Absentee ownership:** as the size of the forest holding increases, the percentage of absentee ownership increases.

The NWOS was used to analyze the size and number of family forest holdings in South Carolina. Figures were developed to illustrate the impact of size of forest holding on important forest resource management activities and behaviors. There is one drawback in that the dataset used to develop the figures sometimes contained rounding problems for the largest holdings. Given the small number of South Carolina owners in the largest size ownership classes, the results can be misleading for these holdings. South Carolina tends to strongly follow the National averages and in order to provide estimates of percentages for the largest holdings, we utilized National averages to approximate state averages.

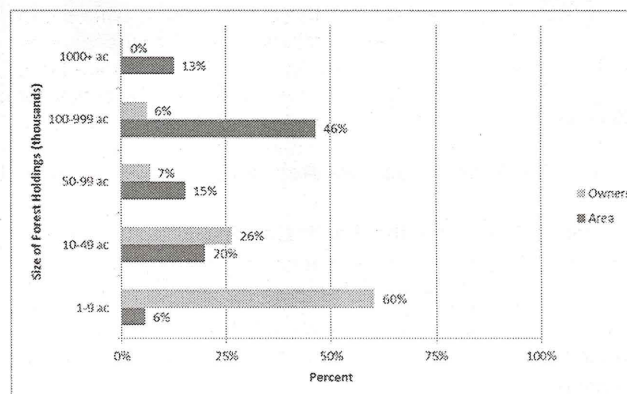


Figure 2 shows timberland area and owners in South Carolina by size of forest holding. South Carolina follows the trends for the eastern United States quite closely. The number of owners decreases dramatically as tract size increases. This follows national trends in ownership, where forest owners of 50 or more acres hold 69% of the total family forest land, but only account for 11% of all owners.

The vast majority of area is

in the 100-999 acres class and the vast majority of owners are in the 1-9 acres class. While 60% of owners control the very smallest timberland acreage class (9 acres and less), about 60% of the acreage is in holdings of 100 acres and up. Nearly 95% of the timberland area is in holdings of ten acres and larger. How important are the 60% who own 5.7% of the timberland area? Should limited resources be used to encourage forest management of these tracts? Or, can the smallest tracts even be adequately managed? (NWOS Table Maker, 2012)

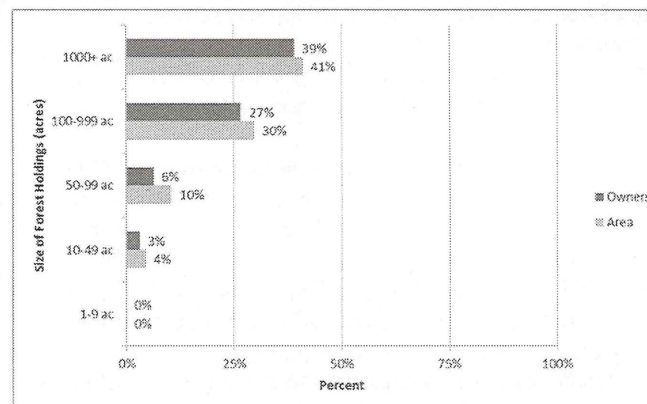


Figure 3 shows that as the size of forest holding increases, the likelihood of an owner having a management plan increases. The percentages of South Carolina family forest owners having management plans are similar to that of national averages. For the largest holdings, the percent of area and owners with management plans is slightly higher than the national average.

The difference between state and national percentages could be due to South Carolina landowners having an interest in timber production. Also, the national average is lower due to states without significant timberland. For example, in Nebraska, only 3% of the 100 to 999 acre class indicated having a management plan. (NWOS Table Maker, 2012)

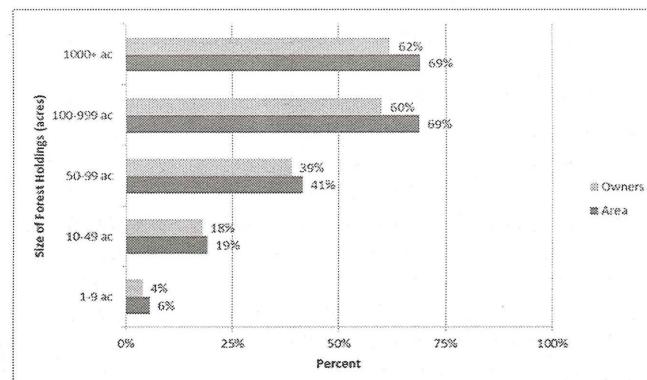


Figure 4 shows the percentage of timberland area and owners in South Carolina who received forest management advice. Considerably greater percentages of both owners and area receive

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advice relative to having a management plan. South Carolina owners have slightly higher percentages than national averages. Nationally, about 14% of family forest owners controlling 37% of family timberland receive forest management advice and 4% of family forest owners controlling 17% of family timberland have a management plan. For South Carolina, the percentage of family forest owners is similar to national averages; however, 54% of timberland has owners receiving advice and this accounts for 14% of family forest owners in the state. Mississippi and Alabama have trends similar to South Carolina's. (NWOS Table Maker, 2012)

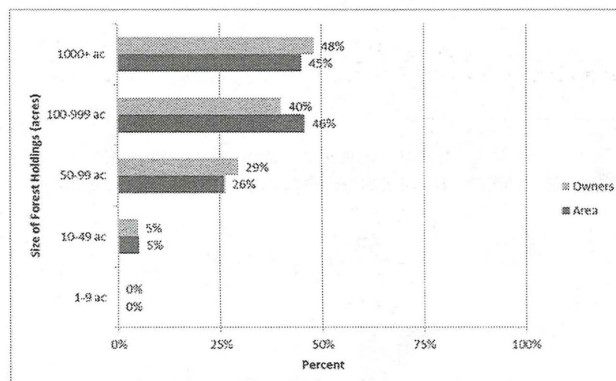


Figure 5 shows that the percentages of South Carolina owners that participate in cost-share programs are similar to those nationally. Nationally, 6% of family forest owners controlling 21% of the family timberland participated in at least one cost-share program. In South Carolina it was 6% of family forest owners controlling 34% of family timberland. This indicates a tendency for cost-share funds to be allocated to larger holdings; however, there is a limit to size of

forest holdings that can receive cost-share funds. Programs offered in South Carolina include the Conservation Reserve Program (CRP), Wildlife Habitat Incentives Program (WHIP), and Forest Renewal Program (FRP) (SC Forestry Commission, 2012). (NWOS Table Maker, 2012)

The reasons people own timberland vary throughout the country. Aesthetic reasons for ownership are more prevalent in the North and West, while investment in the land is often cited in the South. On a national-level, timber production is certainly not the most important ownership objective of family forest owners. About 10% of family forest owners said timber production was an important reason for forest ownership, but these owners controlled 32% of family timberland.

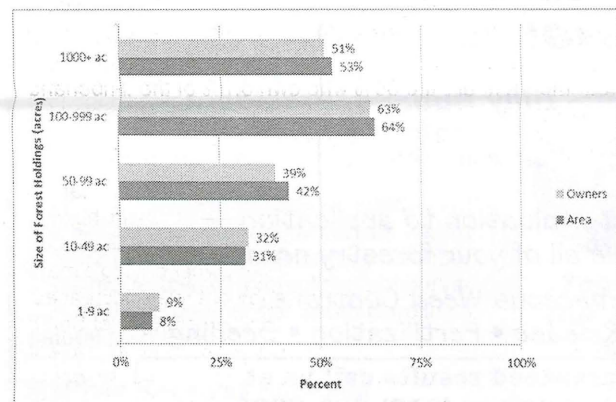


Figure 6 shows that South Carolina family forest owners tend to rank timber production much higher as an ownership objective than national levels. About 21% of South Carolina family forest owners controlling 53% of timberland ranked it as important. This is typical for southern states. Eighty percent of family timberland in South Carolina is owned by people who have harvested timber (Conner et al. 2001). (NWOS Table Maker, 2012)

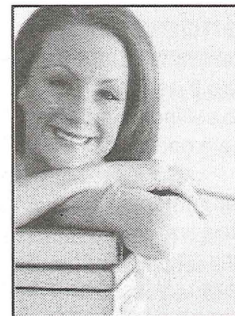
South Carolina's forests

are continuously changing due to natural forces, forest management decisions, and land-use changes. Family forests represent 56% of the state's timberland area and 53% of the timber inventory. Parcelization driven by commercial development, estate transfer, and land use change are causing these forests to move into smaller tract size classes, resulting in significant changes. Smaller tracts are less likely to receive forest management services, cost-share, or have owners concerned with timber production. Family forests are critical to the timber supply that drives a large segment of the state's economy. The state's forest tracts are decreasing in size as the number of owners increases. There are implications to South Carolina that can have long-term impacts on the sustainability of the State's forests and other natural resources.

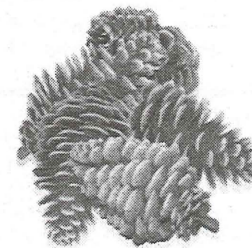
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**2012 SC Teachers' Tour.** The outdoor environmental education course, will be held June 26-28, 2012 in the Midlands region. It will provide participants with an unbiased look at the impact forests have on our state's environment, economy, and quality of life. Key topics will include forest management; emphasizing sustainable forestry, ecosystem management and bio-diversity; wildlife conservation, including endangered species protection; forest product production, including harvesting and processing into products, and contributions of forest industry to SC's economy.



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## RESEARCH: Climate Change & People's Use Of The Outdoors

Is climate change affecting the way people spend their time outdoors?

Warnell researchers want to know. The school has several climate change projects in the works, and a handful are now looking at what global warming is doing to natural lands. One focuses on how forests can help reduce a community's vulnerability to rising heat.

Although climate change continues to be a polarizing political topic, it is widely accepted in the scientific community. Global warming, researchers say, has far-reaching effects that can harm more than just the obvious, like melting glaciers. It could have a widespread impact, said Dr. Neelam Poudyal, assistant professor of Natural Resources Recreation and Tourism. But some scientists are now looking into the less tangible effects climate change could have.

■ Poudyal is teaming up with Dr. Nate Nibbelink, associate professor in GIS and spatial ecology, on a US Forest Service project to



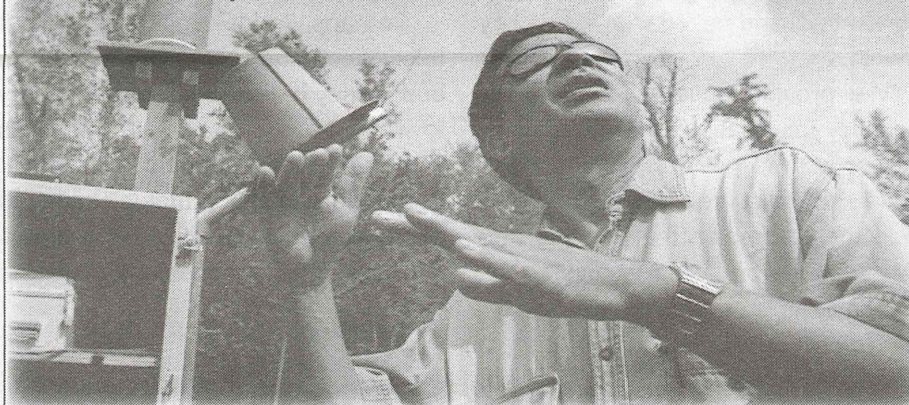
identify "hotspots" of change — where the multiple impacts of human population growth and climate change might intersect to stress our natural lands. They will use spatial statistics and mapping tools in a geographic information system (GIS) to identify areas where projected future impacts to natural resources — such as

intact forests, biodiversity and water availability — will show the greatest change from current conditions. Nibbelink said the study should increase understanding of how natural lands in the nation are likely to be affected by both human pressures and global climate change. Experts are predicting that by the year 2060, urban land use will likely increase by 70 million acres, resulting in a loss of forest, cropland, pasture and rangeland.

■ Dr. Jeff Hepinstall-Cymerman, a landscape ecologist in Warnell, and Poudyal have started a project that will examine how forest resources could be used to offset a community's vulnerability to heat effects, such as heat stroke and heat exhaustion, which are likely to increase as

*See Climate Change, continued on page 6*

## Santee Experimental Forest Reaches Milestone



Forest Service researcher Davendra Amatya explains hydrological research at the Santee Experimental Forest.  
Photo: Wade Spees

**75TH ANNIVERSARY:** Santee Experimental Forest (the Santee), outside Charleston, SC, is marking 75 years of research on restoration and sustainable management of coastal plain forests. The 6,100-acre site is one of 80 experimental forests across the country, and the only one in the Atlantic Coastal Plain of the southeastern United States.

Located on Francis Marion National Forest, the experimental forest includes all major forest types of the southeastern Atlantic Coastal Plain, providing opportunities to conduct research on forest management and soils and water quality and quantity research. Its four watersheds deliver critical information about stream flow, groundwater level, and precipitation in one of the largest undeveloped tracts in the region. The proximity of the Santee to the ocean and to a major expanding urban area makes it a site where scientists can study sea level rise and continued water quality for Berkeley county residents and beyond.

"The Santee and its counterparts in other states address natural resource issues facing the country, including changing weather patterns, the role of forest in carbon cycling, and the development of forest management practices to provide biomass for energy and ensure fresh water resources," Rob Doudrick, SRS Director, said.

Experimental forests like the Santee make it possible to understand the impacts that urbanization, changing and extreme weather patterns, and invasive species have on forests, watersheds, and wildlife habitat over time.

The site is part of the USDA Forest Service's Southern Research Station.

## SCFA AWARD NOMINATIONS SOUGHT

The SC Forestry Association is now accepting nominations for its 2012 awards program. Nominate an individual who has gone above the call of duty to make lasting contributions to forestry. The two categories are: Charles H. Flory Distinguished Service Award and Outstanding Logger of the Year Award.

Deadline is June 29, 2012. Forms are available at [www.scforestry.org](http://www.scforestry.org) (Awards section). For more information: 803/798-4170, Ext. 13, [scfa@scforestry.org](mailto:scfa@scforestry.org).

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Read the full story on page 4 of this Carolina Forestry Journal.



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