EXECUTIVE SUMMARY

Forests provide the most stable and highest quality water supplies among all land uses. Given the myriad of water-related benefits of forest lands, many water supply authorities seek to maintain forest lands in their contributing watersheds to protect water quality and minimize water treatment costs. The Southern United States is heavily forested; it is therefore critical to understand the role of forested lands in providing water across the South, the fastest growing region in the Nation. State and private forest (SPF) lands—those owned by State and local governments, corporations, families, and other private entities (the last two also referred to together as nonindustrial private forest, or NIPF)—account for about 90 percent of the 1.08 million km^2 (266 million acres) of total southern forest land area. The majority of privately owned forest lands in the South are family-owned (55 percent), followed by corporately owned forests (26 percent).

This study highlights the connection between State and private forest lands and the drinking water supply in the South.

This report is a summary of a modeling study that quantified the contribution of SPF lands to drinking water supply in the South. Details regarding the modeling methods and datasets used to link water supply from forested lands to drinking water intakes and the populations and communities they serve are described, results across the 13 Southern States are summarized, and detailed analyses, data, and map products at the State level are provided in appendices. This study provides a systematic assessment of the interactions among water, forests, and people, highlighting the connection between SPF lands and water supply in the South and the need for conservation and sound forest management to ensure clean and stable water supplies for southern communities now and in the future. The goal of this effort is to provide resource managers with the information needed to demonstrate the important role that SPF lands play in provisioning water supply for people living in and downstream of forested watersheds in the South.

West Caney Creek. (photo courtesy of Ron Billings, Texas A&M Forest Service)

Caddo Lake. (photo courtesy of Ron Billings, Texas A&M Forest Service)

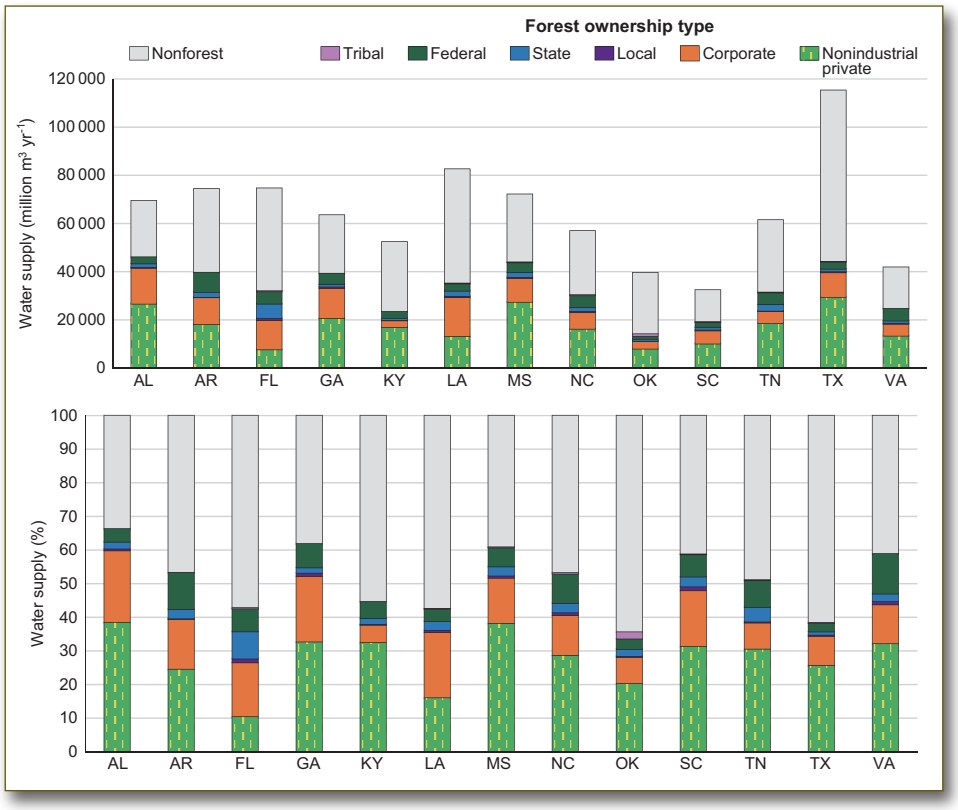
Water Supply from State and Private Forest Land

Mean annual water yield ranged from < 200 mm yr^{-1} (7.9 inches per year) in western Texas to > 1000 mm yr^{-1} (39.4 inches per year) in the high-elevation Southern Appalachian Mountains. Water supply originating on SPF lands in the 13 Southern States made significant contributions to the total water supply across the region in comparison with other land cover and ownership types. State and private forest land area in the South was 44.2 percent of the total land area, and SPF lands contributed 44.3 percent of the 836 billion m^3 yr^{-1} (220.8 trillion gallons per year) total available water supply generated in the region.

Forest land area in the South and the proportion of water supply originated on forest lands were closely linked at the State level. For the 13 Southern States, Alabama had the highest percentage (~66 percent) of SPF lands and the highest percentage (~60 percent) of water supply from SPF lands (see chart). Although Oklahoma had the lowest percentage (~23 percent) of SPF lands, > 30 percent of water supply originated from SPF.

Nonindustrial private forest was the dominant source of water supply from SPF for 11 of the 13 Southern States. Corporate forest was the dominant source of water supply for Florida and Louisiana and the second most dominant source of water supply for all other States. In Kentucky, NIPF contributed > 80 percent of water supply originating on SPF, while > 70 percent of water supply originating on SPF was from State and corporate forest in Florida.

SPF lands contributed 44.3 percent of the total available water supply in the region.



Population Served by Water from State and Private Forest Lands

Approximately 55 million people in the South derived some portion of their drinking water (> 0 percent of the total supply) from SPF lands. This represents 49 percent of the total population in the region. In addition, approximately 1.8 million people outside the 13 Southern States received some portion of their drinking water from SPF in the South. State and private forest lands in the South provide more than half of the available water supply for 14.0 million people in the region and beyond.

Almost half of the total population in the South derived some portion of their drinking water from SPF lands.

State and private forest lands served the largest population in Texas among all 13 Southern States; 16.7 million people in Texas (59.0 percent of the total population) derived some portion of their water from SPF lands. 2.5 million people in Texas received the majority (> 50 percent) of their water from SPF lands, followed by North Carolina (1.54 million) and Alabama (1.48 million) (see chart). In other States that have relatively low forest cover (e.g., Oklahoma) and/or relatively low population served by surface water supply (e.g., Mississippi), < 0.2 million people received the majority of their drinking water supply from SPF. While these populations may be small relative to other States, water originating on SPF lands is critical for meeting the water supply needs of specific downstream communities.