



# Silvicultural Research In the News

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## North Carolina Forest Service

To protect, manage, and promote forest resources for the citizens of North Carolina

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### USFS Publication Reports on the State of Bottomland Hardwoods in the mid-Atlantic Region

Increasing demand on bottomland hardwood forests has created growing concern for the resource and a need to assess its condition. A recently published report uses data collected and analyzed by the US Forest Service Forest Inventory and Analysis (FIA) program to provide an overview of bottomland forests condition in the Piedmont and Coastal Plain regions of North Carolina and Virginia. The information was gathered from FIA plots defined as a oak/gum/cypress forest-type or elm/ash/cottonwood forest-type. The authors, Anita Rose and James Meadows of the USFS Southern Research Station, looked at several metrics in the data to report the status and gauge trends in forest area, volume, number of trees, and growth, removal, and mortality by stand-age class and stand-diameter class. The report provides a great summary of the state of bottomland hardwood forests (BLHW) in North Carolina, and an interesting discussion on the sustainability of this forest type.

Some interesting facts from the report are

- BLHW forests occupy 2.9 million acres, or 13.3 percent of the total in the area studied, and are fairly evenly distributed by stand-age.
- BLHW forest declined in area by 121,938 acres, or 4 percent, between 2002 and 2014.
- BLHW stands are maturing. Large diameter stands comprise 59 percent of the area of this type. Large diameter stands increased by 7 percent while medium and small diameter stands decreased by 21 percent and 12 percent respectively.
- Not surprisingly 87 percent of the volume in BLHW stands is found in the large diameter stand class.
- Overall volume was stable, but not in all species. Of particular note is a 9 percent decrease in cypress volume, likely reflecting a decrease in area and number of trees.
- Net growth has declined since 1984, bottoming out around 2007. It has shown an increasing trend since then. This increase in growth coincides with a decrease in removals around the same time.

- The shortage of small and medium stands relative to large diameter, particularly for cypress/tupelo, is a concern. The question is, as the large diameter stands die will they regenerate back to cypress/tupelo stand type?
- A measure of sustainability for forests is the net growth-to-removal ratio. If it goes below 1:1 that means removals are greater than growth. For BLHW forests this ratio had been declining since the mid-80's but has returned to a more sustainable level just recently.

There is a lot more good information in the form of tables and charts found in the report. I encourage you to read the entire publication through the following link:

<https://www.srs.fs.usda.gov/pubs/53238>

The abstract and the publication citation is below.

*Bottomland hardwood forests cover approximately 2.9 million acres of the Coastal Plain and Piedmont region of Virginia and North Carolina. As of 2014, 59 percent of bottomland hardwood forests were in the large-diameter stand-size class. Between 2002 and 2014, area of large-diameter sized stands increased, while that of medium- and small-diameter stands decreased, indicating that the resource is maturing. While total volume of live trees remained steady over the period studied (2002–2014), there were increases in volume for some individual species (for example, white oak) and decreases in volume for others (for example, red oak). Bottomland hardwood forests in the mid-Atlantic support a wide range of tree species. Mortality was at an all-time high in these forests around 2005, but has steadily decreased since then. The Forest Service's Forest Inventory and Analysis program is the only entity that conducts forest assessments across all land in the United States. Increasing demands on the resource and anthropogenic-related impacts on forests have intensified the need to conduct ecosystem-based inventories such as these.*

#### Citation:

Rose, Anita; Meadows, Steve. 2016. Status and trends of bottomland hardwood forests in the mid-Atlantic Region. e-Gen. Tech. Rep. SRS-217. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station.