

Southern Pine Beetle Multi-state Trend Predictions for 2011

SPB Activity Expected to Remain Low in the South and Continue High in New Jersey

by Ronald F. Billings (with data contributed by southern forest pest specialists)

In the South, southern pine beetle (SPB) activity declined to a very low level in 2010. Only 71 SPB infestations were reported in 13 southern states. Based on pheromone traps deployed during the spring of 2011, continued low levels of SPB are expected this year throughout the South, with some increased activity possible in portions of Georgia, Alabama, and Virginia. Interestingly, 389 SPB spots totaling at least 14,000 acres occurred in southern New Jersey in 2010, primarily on the Pinelands National Reserve and intermingled private lands. Results from pheromone traps suggest that the SPB activity in New Jersey will continue at a high level in 2011. This prediction has already been confirmed by recent aerial and ground surveys.

The southern pine beetle, *Dendroctonus frontalis*, has a well-deserved reputation as the most destructive forest pest of pine forests in the South. In 2000, nearly 60,000 multiple-tree infestations were detected on federal, state and private forest lands throughout the South, resulting in the loss of millions of dollars of resources. By 2008, the number of SPB infestations had declined to 1,433 spots detected in 16 states, with most spots occurring in Alabama, North Carolina and South Carolina. SPB activity continued to decline in 2009 and 2010 to levels seldom enjoyed throughout the South. Only New Jersey experienced an outbreak in 2010 while fewer than 30 spots per state were detected in Alabama, Virginia, Mississippi, North Carolina, Georgia, Maryland, and Florida. No SPB activity was reported in Oklahoma, Arkansas, Texas, Louisiana, Tennessee, Kentucky, South Carolina or Delaware.

A reliable system for predicting SPB infestation trends (increasing, static, declining) and levels (low, moderate, high, outbreak) using pheromone traps has been implemented across the South since 1986. This information provides forest managers with valuable insight for better anticipating SPB outbreaks and more lead time for scheduling detection flights and preparing suppression programs.

Each spring, traps baited with the SPB attractant (frontalin) and host compounds (alpha-pinene and beta-pinene) are set out in pine forests when dogwoods begin to bloom. Dogwood blooms mark the primary dispersal season for populations of the destructive SPB as well as certain beneficial insects. Federal and state cooperators monitor the traps weekly for a 4-6 week period. Of particular value for forecasting purposes are catches of clerids (also called checkered beetles), known predators of SPB. Using data on the average number of SPB captured per trap per day and the relative proportion of SPB to checkered beetles, infestation trends for the current year can be forecasted.

The results from the 2011 prediction survey ([Table 1](#)), based on 197 trapping locations within 16 states, indicate continued low SPB activity in all southern states, with the exception of a few counties or Ranger Districts in Georgia, Alabama, and Virginia, where some SPB activity may occur. Of those locations surveyed in the southern U.S., only the Chattooga River Ranger District (Chattahoochee/Oconee National Forest) in Georgia is predicted to have SPB activity that may increase to a moderate level. A severe outbreak is expected only in southern New Jersey (Atlantic, Cumberland, Salem counties, and Wharton State Forest) where most of the SPB infestations were uncontrolled in 2010 and a high proportion of the SPB population survived the winter. Very few or no SPB infestations are expected again this year in Oklahoma, Arkansas, Texas, Louisiana, Mississippi, Kentucky, Tennessee, Florida, South Carolina, North Carolina, Maryland, or Delaware. A state-by-state summary of trap catches for SPB and clerids for 2010 and 2011, together with SPB predictions for 2011, are listed in [Table 2](#).

Annual predictions of infestation trends have proven to be 75-85% accurate. Collectively, trend predictions from numerous specific locations provide insight into SPB population shifts within a given state as well as across the South. Also, comparison of trapping results for the current year with those from the previous year for the same localities provides additional insight into SPB population changes.

In general, average trap catches that exceed 30 SPB per day, especially those in which SPB make up more than 35% of the total catch (of SPB and clerids), are indicative of increasing or continued high SPB infestation levels in the current year in southern states. Conversely, when catches of predators far outnumber those of SPB and fewer than 10 SPB adults are caught per day, infestation trends are likely to decline or remain at low levels. For

reasons that remain unclear, these thresholds appear to be different at the northern extreme of the SPB range. In NJ, MD, and DE, experience has shown that trap catches of greater than ca. 6 SPB/trap/day are indicative of increasing or high SPB populations, while less than 1 SPB/trap/day is typical for declining or low infestation levels. It is uncertain whether the predator population is directly responsible for declines in SPB outbreaks. Most likely, predators are just one of many contributing factors.

Landowners with pine stands throughout the southern states are encouraged to take advantage of these low SPB population levels to thin overly-dense pine stands as a preventive measure before the next SPB outbreak occurs. Federal cost shares for precommercial thinning of natural or planted pine stands and first thinning of pulpwood stands are available in many states as part of the SPB Prevention and Restoration Program. Contact your state forest pest specialist for details. On the other hand, in New Jersey, immediate control of active beetle infestations is warranted in high priority areas to avoid even greater resource losses than were suffered in 2010.

Appreciation is expressed to the many state and federal cooperators who provide the data for this annual survey. If you have questions, contact Dr. Ronald Billings, Texas Forest Service, at (979) 458-6650 or by e-mail at rbillings@tfs.tamu.edu.