Mississippi Southern Pine Beetle Prediction For 2012

By John J. Riggins

The Mississippi Forestry Commission participates annually in a south-wide southern pine beetle (*Dendroctonus frontalis*, Figure 1) survey. The southern pine beetle (SPB) has the potential to destroy millions of acres of pine timber in any given year. The Texas Forest Service has developed a reliable system for predicting SPB infestation trends (increasing, static, declining) and levels (low, moderate, high, outbreak) that 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, Lindgren funnel traps (Figure 2) baited with the SPB attractant pheromones (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 the destructive SPB as well as certain beneficial insects. This year, surveys were conducted by the Mississippi Forestry Commission (MFC) in the following counties: Carroll,
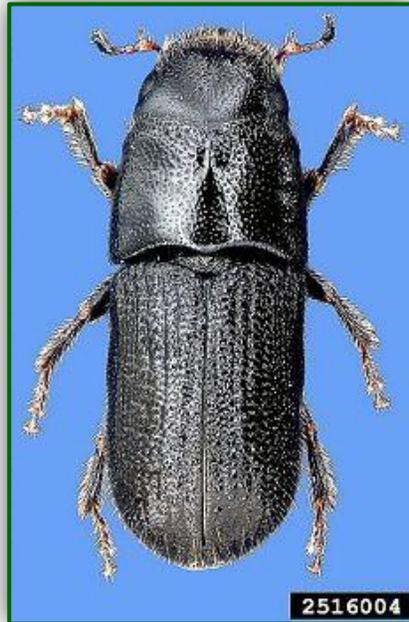

Figure 1: The southern pine beetle (Dendroctonus frontalis) is historically the most destructive forest insect pest of Southeastern forests.

Figure 2: A Lindgren funnel trap, used throughout MS each spring to monitor southern pine beetle population.

Copiah, Forrest, Itawamba, Leake, Lincoln, Marion, Panola, Rankin, Scott, Smith, Stone, Tishomingo, and Winston. Three traps were placed in each of the above counties, and the contents of each trap were collected weekly for four weeks.

The number of SPB and number of the checkered clerid beetles (*Thanasimus dubius*, Figure 3) the major predator of the SPB) were then identified in each sample. The calculations developed by the Texas Forest Service take the checkered clerid beetles into account because they are so important in regulating SPB populations.

Figure 3: The checkered clerid beetle, Thanasimus dubius, the most important predator of the southern pine beetle.

The USDA Forest Service also conducts similar surveys on Federal Lands throughout the South. Their results for National Forests in Mississippi are included along with those collected by the MFC in Table 1 on page 3.

In general, average trap catches that exceed 30 SPB/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.

Very few if any SPB infestations are expected during 2012 in Mississippi. SPB were trapped in only 7 counties of the 14 counties surveyed by the MFC (Table 1). Although SPB was intercepted in two more counties during 2012 than in 2011, the overall numbers were much lower. Only 149 total SPB were captured this year, versus 579 last year. None of the surveyed Counties averaged more than 30 SPB/week this year. All Counties are predicted to have static or declining SPB population growth and none or very few infestations.

Overall, these numbers are extremely low, but indicate that a residual population of SPB still remains in the state. However, trap results suggest that we will continue to experience declining or static low-level populations in Mississippi during 2012.

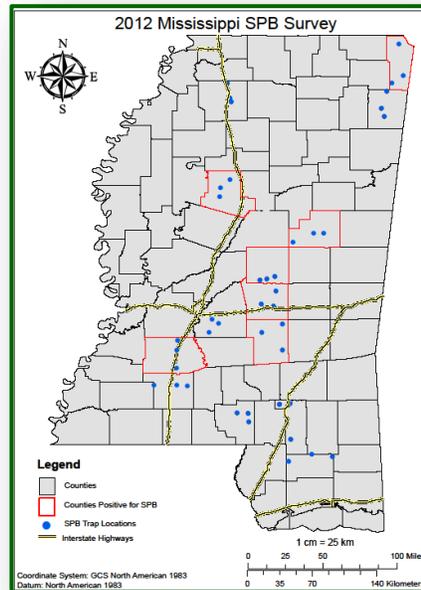Annual predictions of infestation trends have historically proven to be 75-

Figure 4: Mississippi spring southern pine beetle trapping survey locations.

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. All of which suggest very low levels of SPB activity can be expected in Mississippi during 2011. However it is always a good management practice to walk over your property or have it surveyed to detect any signs of early build up of damaging agents.

We appreciate Dr. Ronald Billings, Texas Forest Service, at (979) 458-6650 or rbillings@tfs.tamu.edu for development of the system and for providing south-wide summaries and predictions of

which portions have been included here. The results for the entire south-wide survey are posted on the Texas Forest Service Website. Additional thanks to the MFC foresters who placed and checked the traps throughout Mississippi, and Dr. James Meeker with the USDA Forest Service, Forest Health Protection in Pineville, LA for providing SPB monitoring data for National Forests in Mississippi.

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Table 1: Mississippi Southern Pine Beetle Spring Survey Summary Results for 2012. All Counties in Mississippi exhibit SPB numbers low enough to allow the county to maintain a "Static/Low" (S/L) prediction.

County	Number SPB	Number Clerids	Percent SPB	SPB/day	Clerids/day	Prediction
Bienville N.F.	497	688	42.0%	5.5	7.6	S/L
Chickasawhay R.D.	9	775	1.0%	0.1	9.2	S/L
Desoto N. F.	2	310	1.0%	0.0	3.6	S/L
Holly Springs R.D.	6	1568	0.0%	0.1	18.7	S/L
Homochitto N.F.	218	2012	10.0%	1.3	12.0	S/L
Tombigbee R. D.	95	1360	7.0%	1.1	16.2	S/L
Carroll	1	1683	0.0%	0.0	20.0	S/L
Copiah	3	591	1.0%	0.0	7.0	S/L
Forrest	0	263	0.0%	0.0	3.0	S/L
Itawamba	0	927	0.0%	0.0	11.0	S/L
Leake	24	3577	1.0%	0.3	42.6	S/L
Lincoln	0	23	0.0%	0.0	0.2	S/L
Marion	0	59	0.0%	0.0	0.7	S/L
Panola	0	326	0.0%	0.0	3.3	S/L
Rankin	0	731	0.0%	0.0	8.7	S/L
Scott	1	568	0.0%	0.0	6.8	S/L
Smith	59	448	12.0%	0.7	5.3	S/L
Stone	0	208	0.0%	0.0	2.4	S/L
Tishomingo	48	899	5.0%	0.7	12.8	S/L
Winston	13	1831	1.0%	0.2	21.8	S/L
Average	**48.8**	**942.4**	**4.1%**	**0.5**	**10.6**	**S/L**