



2022 Georgia Southern Pine Beetle Prediction Survey Report

Georgia Forestry Commission
Forest Health Staff

The Georgia Forestry Commission (GFC) participates annually in the southern pine beetle (SPB) prediction trapping program. The southern pine beetle is the most destructive forest pest in the southeastern states. Survey results are documented in an annual report so that activity and damage levels can be anticipated and mitigated.

The GFC follows the SPB Prediction Trapping protocol set up by Texas A&M. A 12-funnel Lindgren trap is baited with a three lure system: Frontalin, Sirex and the endo-brevicommin, flexlure (Figure 1). Traps are placed in the field to coincide with the redbud bloom (around the first of March in the southern part of the state and mid-March in the northern part of the state). In 2022, the GFC placed 50 traps across the state in 50 counties and six weekly samples were collected from each trap (Figure 2). The number of SPB and clerid beetles (a natural predator of SPB) were counted each week. For 2022, the average number of SPB per-trap per-day was **15.2** (Figure 3). This number is considered low. Each county also had a low average number of SPB per-trap per-day, with Carroll County having the highest average of 154.5. Oglethorpe and Oconee Counties had SPB per-trap per-day counts between 50 and 80. Ten counties, Clarke, Dawson, Green, Heard, Jones, Morgan, Putnam, Randolph, Stewart and Webster, had SPB per-trap per-day counts between 20 and 50. The remaining 37 traps had an average of fewer than 20 SPB per-trap per-day (very low).



Figure 1: Lindgren funnel trap used to monitor southern pine beetle populations.

In 2018, the USDA Forest Service (USFS) and all southeastern state cooperators collaborated with Dartmouth College and Bates College, through the Science and Technology Development Program, (STDP) to develop a new prediction model. They found the four greatest factors in predicting the probability of the area having SPB spots are the average number of SPB collected per two-week period, average number of clerid beetles collected per two-week period, and the number of SPB spots in that county the previous two years. This year is the fourth year GFC is using this model. The results from the 2022 survey predict that overall SPB activity will be low across the state, with only one area having a high probability of any spots; Carroll County.

Perhaps a more informative prediction, because it accounts for more variability within the historical data, is the probability of greater than 50 spots in a county (considered outbreak level). Carroll and Heard counties have the highest probability of having greater than 50 spots, with a 10.1-20% chance. Dawson County has an 8.1-10% chance of having greater than 50 spots. The remaining 47 counties that were trapped in 2022 have a 6% or lower chance of having greater than 50 spots (Figures 4&5).

To put this in perspective, over the last 11 years, we have only seen the total number of spots statewide rise above 50 in three years.

These prediction models help guide landowners in management decisions. They do not guarantee that outbreaks will or will not occur on their property. The best advice is for landowners to manage for healthy forests with techniques such as thinning, prescribed burning and invasive species control. In the past decade, SPB outbreaks have been limited to infestations in stands that are either over-stocked or over-mature. Southern pine beetle favors pine stands that are over-crowded and stressed. The GFC will continue to monitor locations of beetle spots throughout the year. All reported beetle activity will be surveyed and monitored to mitigate damage for landowners.

Aerial surveys will be conducted in the summer of 2022 to document and monitor pine beetle activity. Scheduled flights will be conducted across the state following predetermined flight lines. Aerial surveys can also be conducted by the GFC Air Operations Division during normal flights and any new possible infestations found from these flights will be investigated using ground surveys. All infestations will be reported to landowners, and GFC foresters will work with landowners to limit damage and control infestations.

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Southern Pine Beetle Trap Locations 2022

50 Traps

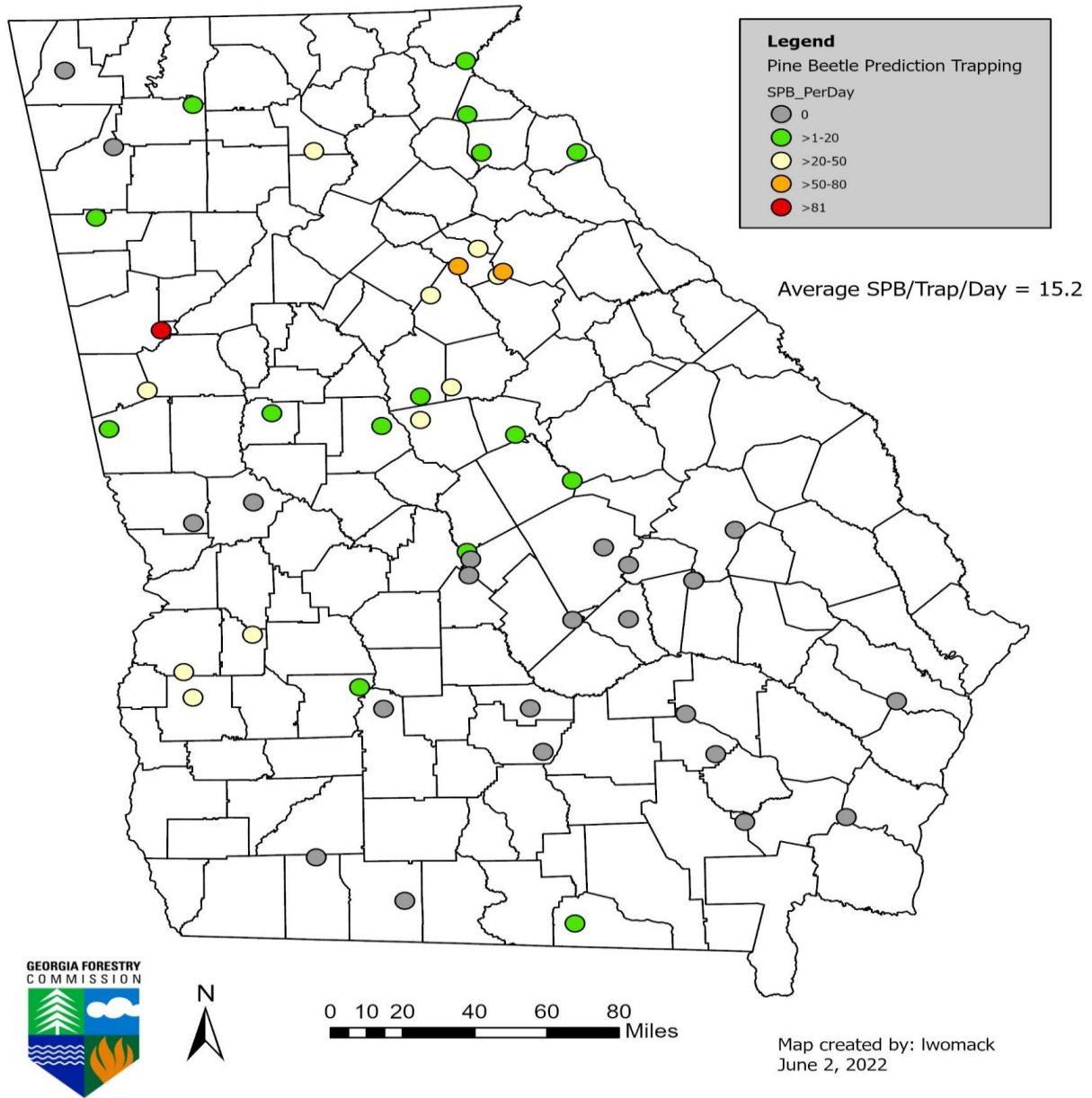


Figure 3: Southern Pine Beetle trap locations and the average number of SPB caught per day over the six-week period.

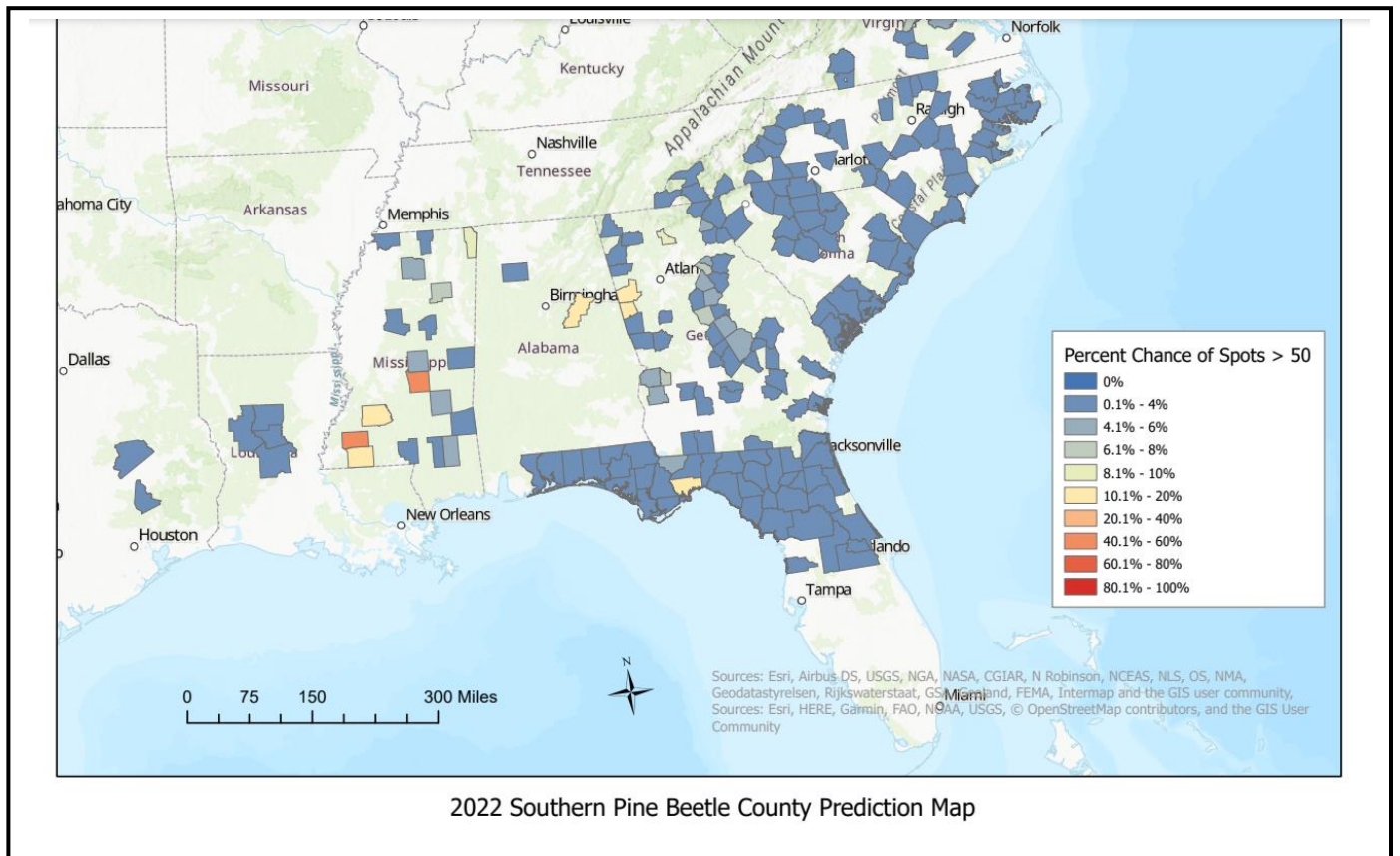


Figure 5: Probability of 50 or more spots on a regional scale.