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Memo to: SCFC Employees
Registered Foresters in South Carolina

Through: D. Jones

From: F. Chisolm Beckham and Vincent Cannarella

Date: June 8, 2015

Subject: Results of 2015 SPB Pheromone Trapping

We have completed the 2015 Southern Pine Beetle (SPB) pheromone trapping. The results and counties of this survey are attached.

A total of 32 SC counties were trapped for SPB in 2015 using protocol devised by Billings, et al. This protocol includes monitoring three (3) pheromone traps in each county for a 28-day period during early spring. Insects captured in each trap are returned to the laboratory for analysis. The total number of trap days and SPB and clerid beetles (SPB's main insect predator) caught are summed for each trap. The average number of SPB caught per trap per day and percent SPB are used for a population prediction trend for each county and for the whole state. In the past, such surveys have had a success rate of over 80% in predicting the degree of SPB infestation during the following summer. Last year we predicted little to no losses in all trapped counties.

Based on these trapping results, we predict no counties will experience significant SPB activity. The statewide and regional average predictions are still considered declining-low. The total number of SPB trapped decreased by 90% from last year's total and the number of clerid beetles decreased by 30%. We feel these numbers are possibly due to SC's 2014 ice storm and above normal summer temperatures. Past studies of the SCFC of ice storm damaged pine stands have shown *Ips* engraver beetles (*Ips*) readily attack broken pine tops and boles and Black Turpentine Beetles (BTB) readily attack lower pine boles. *Ips* are a known competitor of SPB for stressed pines and are also preyed on by clerid beetles. Their population level may have reduced SPB's and supported clerid beetles'. BTB, because of their size, provide limited forage for clerid beetles, but are thought to be less of a competitor of SPB since they only attack the lower bole. Extended temperatures above 100 degrees Fahrenheit constrain SPB development.

These trapping data results are for entire counties, and there is always the possibility of sporadic and localized beetle activity in counties with overall predictions of low population levels. Activity is most likely in susceptible pine stands that are overstocked, overmature or stagnant, have poor drainage or have littleleaf, annosus, or other root diseases present and causing stress. However, the likely culprits for beetle activity in 2015 are Black Turpentine Beetles, *Ips*, or a combination of both. From 2008-11, *Ips* activity was relatively high during some years, but BTB activity has been higher since 2012. These populations are not measured, and both assessments are based on personal observations during site visits. Control tactics employed for SPB, such as "cut and leave" and "salvaging," do not work for *Ips* and BTB since both readily breed in cut pine tops, boles and stumps. For more information on either beetle, please follow this link: <http://www.state.sc.us/forest/idbeetles.pdf>

The long-term SC and southeast regional SPB population decline since the 2000-02 outbreak has puzzled both forest entomologists and forest health specialists. The prevailing theory is that there is a lack of available resources (older pine stands) distributed across the landscape. We feel the population decline is likely to level out and begin to increase as the “wall of wood” (SC pine stands originating from 1985-95) matures. Our long-term SPB pheromone trapping chart reveals that the population decline is beginning to level out, and the time it begins to increase may come sooner because of the 2008 housing crises, as many scheduled final harvests were postponed.

Even though current SPB populations are low, we still encourage foresters and forest landowners to manage for regulated forests by evenly distributing their pine acreage among age classes; thin on a timely basis; and consider harvesting at risk stands sooner. When regenerating pine stands, it is important to plant the correct species and density for the site; control natural pine regeneration or have a plan in place to address it; and consider available wood markets or lack thereof. The SPB Cost Share Program currently has funds available for regenerating pine stands at lower densities and precommercial thinning young, over-dense pine stands. This program is more ideal for areas and acreages outside of healthy pulpwood markets which, consequently, is where we have suffered the most pine loss to SPB. If interested in applying, please contact your county’s SCFC Project Forester.

In summary, most of SC can expect a year of low to minimal loss to SPB and related bark beetles. However, we may see some degree of activity, especially if we have additional stress factors. If you suspect bark beetle activity, please contact the SCFC for identification and the best course of action. Employing the “cut and leave” and “salvaging” techniques could lead to more pine loss if SPB is not the culprit.

It is difficult to predict the degree of loss to SPB since environmental factors affect tree loss due to SPB. However, our best guess for S.C. for 2015 is for a loss between fifty and one hundred thousand dollars.

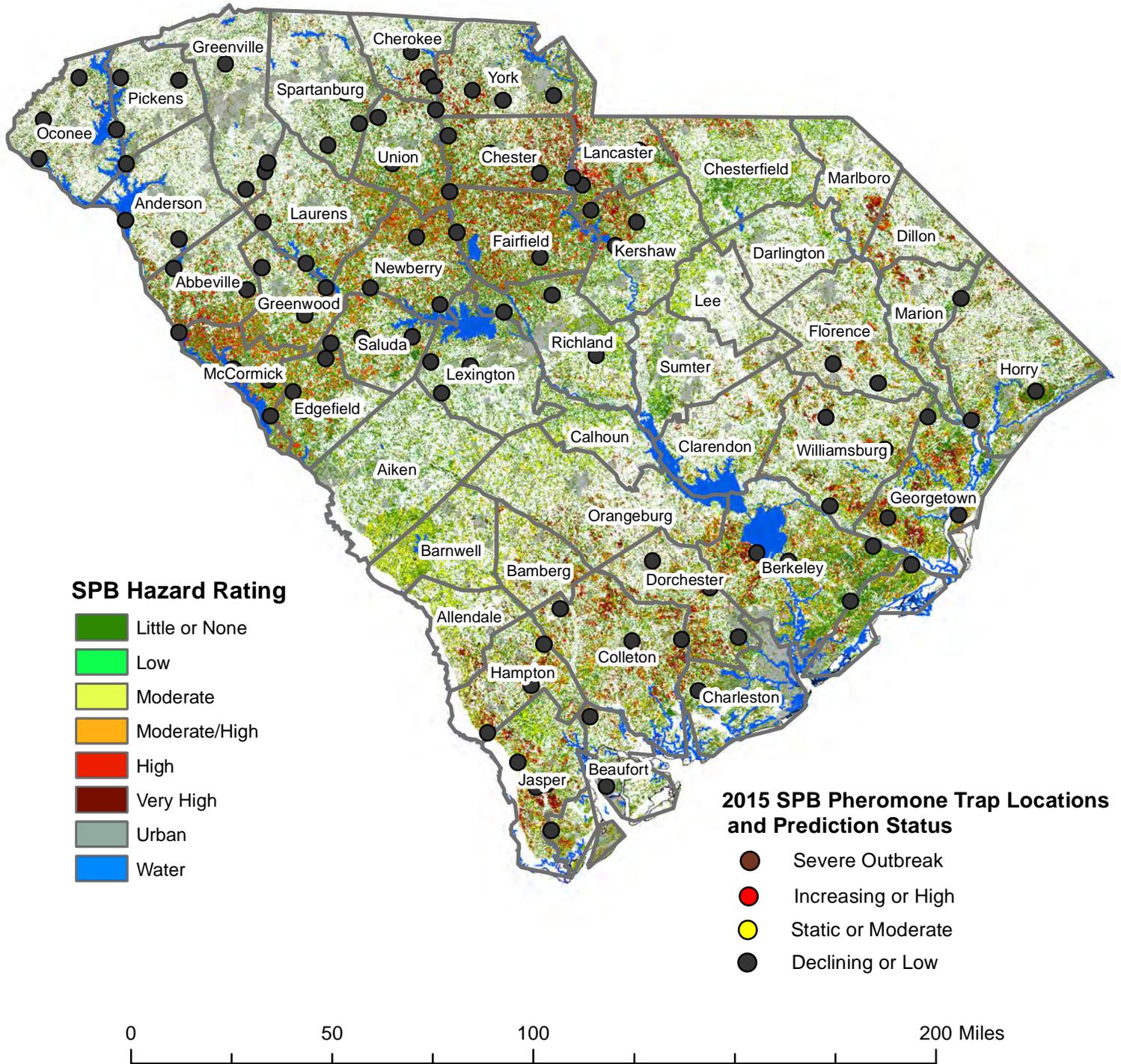
Please contact us if you have any questions or if we can provide additional information.

F. Chisolm Beckham
SPB Program Coordinator

Vincent Cannarella
SPB Forestry Technician

Attachments: Pheromone results: tabular and graphical; long-term pheromone results; and SPB Trap Locations.

SC Forestry Commission's 2015 Southern Pine Beetle (SPB) Pheromone Trap Locations and Prediction Status in Relation to SC's SPB Risk Map



SPB is a major pest of Southern Yellow Pine (SYP). The last outbreak of 2000-02 caused over 350 million dollars worth of SYP loss in SC. In order to predict the annual severity of SYP loss to SPB, each spring 3 SPB pheromone traps are placed within counties having historical loss to SPB. The total number of Trap Days and SPB and Clerids (their main insect predator) caught are summed for each trap and county. Percent SPB caught and average number of SPB caught per Trap Day are used for the prediction status of trap locations and counties.

2015 SOUTHERN PINE BEETLE PHEROMONE TRAPPING RESULTS
South Carolina Forestry Commission
June 5, 2015

Severe Outbreak Prediction Trend (1)

<u>County</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>% SPB</u>	<u>SPB/Day</u>
No counties in South Carolina are predicted to have a severe outbreak in 2015.					

Increasing - High Prediction Trend (2)

<u>County</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>% SPB</u>	<u>SPB/Day</u>
No counties in South Carolina are predicted to have an increasing-high outbreak in 2015.					

Static - Moderate Prediction Trend (3)

<u>County</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>% SPB</u>	<u>SPB/Day</u>
No counties in South Carolina are predicted to have a static-moderate outbreak in 2015.					

Declining - Low Prediction Trend (4)

<u>County</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>% SPB</u>	<u>SPB/Day</u>
Abbeville	87	44	565	7.22%	0.51
Anderson	84	0	48	0.00%	0.00
Beaufort	81	0	12	0.00%	0.00
Berkeley	84	2	148	1.33%	0.02
Charleston	84	2	307	0.65%	0.02
Cherokee	87	0	69	0.00%	0.00
Chester	81	0	97	0.00%	0.00
Colleton	84	0	120	0.00%	0.00
Dorchester	84	0	322	0.00%	0.00
Edgefield	93	4	368	1.08%	0.04
Fairfield	93	4	1244	0.32%	0.04
Florence	80	1	158	0.63%	0.01
Georgetown	84	8	193	3.98%	0.10
Greenville	84	0	78	0.00%	0.00
Greenwood	87	1	187	0.53%	0.01
Hampton	91	0	46	0.00%	0.00
Horry	90	0	31	0.00%	0.00
Jasper	102	0	32	0.00%	0.00
Kershaw	85	0	278	0.00%	0.00

2015 SOUTHERN PINE BEETLE PHEROMONE TRAPPING RESULTS

South Carolina Forestry Commission

June 5, 2015

Declining - Low Prediction Trend (4) (continued)

<u>County</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>% SPB</u>	<u>SPB/Day</u>
Lancaster	84	0	243	0%	0.00
Laurens	85	0	48	0%	0.00
Lexington	84	0	256	0%	0.00
McCormick	84	8	722	1%	0.10
Newberry	84	2	436	0%	0.02
Pickens	77	9	206	4%	0.12
Oconee	84	0	123	0%	0.00
Richland	90	0	134	0%	0.00
Saluda	81	0	535	0%	0.00
Spartanburg	72	2	172	1%	0.03
Union	78	1	222	0%	0.01
Williamsburg	84	2	80	2%	0.02
York	78	0	56	0%	0.00
State Totals	2,710	90	7,536	1%	0.03
Coastal Totals	948	15	1,449	1%	0.02
Piedmont Totals	1,762	75	6,087	1%	0.04

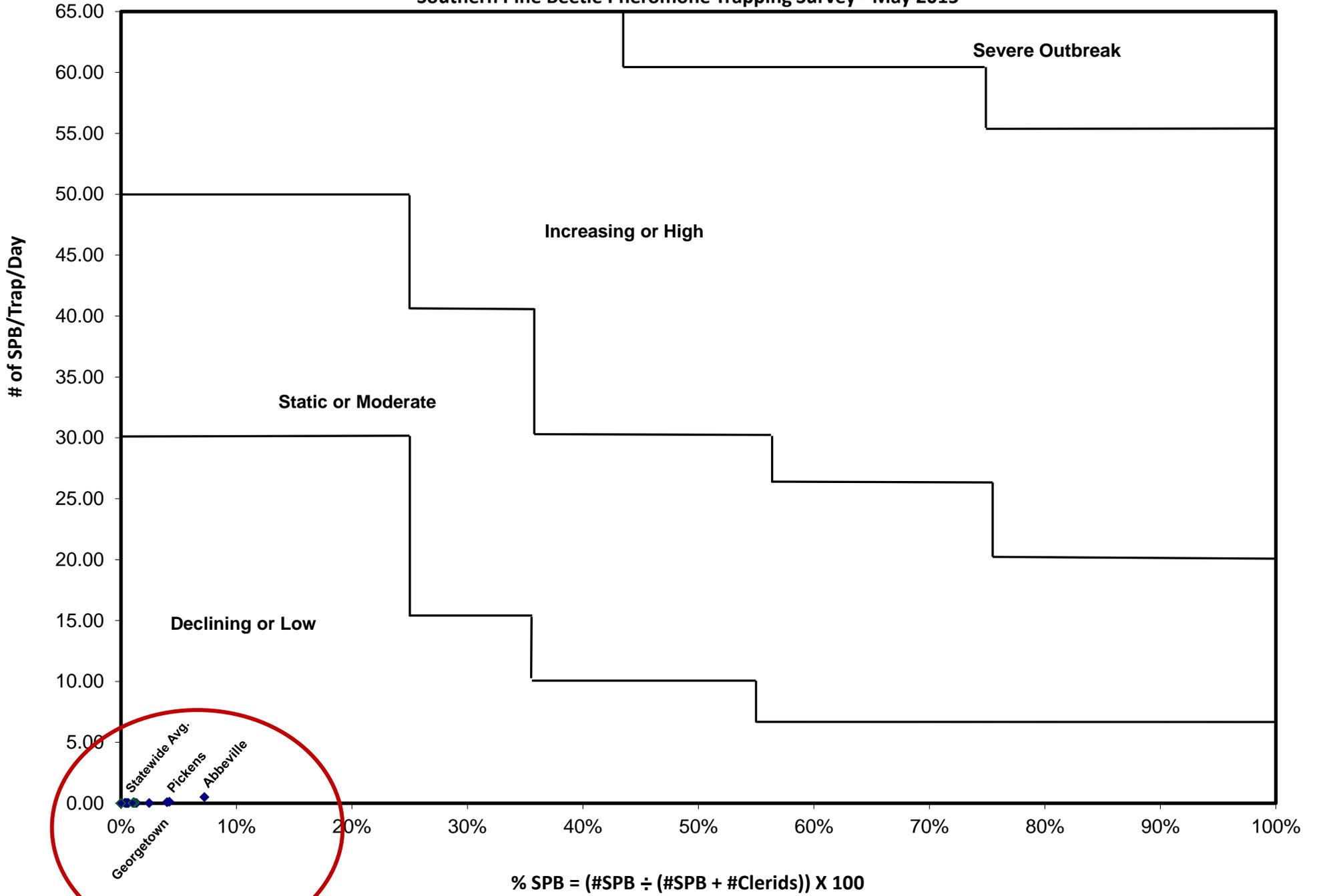
Severe Outbreak: High probability for major losses

Increasing - High: Greater than 100% increase from previous year

Static - Moderate: Less than a 50% decline to less than 100% increase from previous year

Declining - Low: Greater than a 50% decline from previous year

South Carolina Forestry Commission's
Southern Pine Beetle Pheromone Trapping Survey - May 2015



$$\% \text{ SPB} = (\# \text{ SPB} \div (\# \text{ SPB} + \# \text{ Clerids})) \times 100$$

South Carolina Forestry Commission's Southern Pine Beetle (SPB) Pheromone Trapping Results: 1986 through 2015

