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Memo to: SCFC Employees
Registered Foresters in South Carolina

Through: D. Jones
From: Laurie Reid
Date: 27 May 2011
Subject: Results of 2011 SPB Pheromone Trapping

We have completed the 2011 Southern Pine Beetle (SPB) pheromone trapping. The results of this survey are attached.

A total of 32 S.C. counties were trapped for SPB in 2011 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 SPB for each trap is determined as well as the percentage of SPB to clerid beetles. Since clerid beetles are major predators of SPB, the percentage of clerid beetles trapped is factored into insect population projections. Based on this trapping, a population prediction trend is determined for each county. 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 that losses could occur in one (1) county, Oconee. Although we had beetle activity in many counties, it was at low levels.

We predict none of the counties trapped this year to experience a severe Southern Pine Beetle outbreak. This is the same prediction as last year. Additionally, we did not trap sufficient beetles receive a prediction of static – moderate pine mortality in any county this spring. All 32 counties we sampled had few beetles trapped and are not expected to have widespread problems. These counties include Abbeville, Anderson, Beaufort, Berkeley, Charleston, Cherokee, Chester, Colleton, Dorchester, Edgefield, Fairfield, Florence, Georgetown, Greenville, Greenwood, Hampton, Horry, Jasper, Kershaw, Lancaster, Laurens, Lexington, McCormick, Newberry, Oconee, Pickens, Richland, Saluda, Spartanburg, Union, Williamsburg, and York. This trapping information is presented in tabular form later in this report.

Statewide, the number of Southern Pine Beetles trapped decreased by 90% from last year's total and the number of clerids decreased by 58%. Although the clerid population has been decreasing for the past few years, the low numbers of SPB trapped should result in little SPB development in most areas, including those areas where we historically have beetle activity.

In some of the trapped counties, we have experienced very low level of SPB activity for the last several years while in many counties we have seen no SPB activity. We expect the clerids will continue to hold the SPB level down and beetle spots that occur should spread slowly and be fairly easy to control.

In the coastal plain counties, we trapped very few beetles again this year. The low trap levels this year indicate unfavorable conditions for SPB development. Historically, outbreaks in the coastal plain occur shortly after climatological changes. The change is usually from drought to excess soil moisture. This pattern of precipitation has occurred during the last few years, and some pines have

Our mission is to protect and develop the forest resources of South Carolina.

been dying. However, in most locations, the culprits have been either Black Turpentine beetles, Ips engraver beetles, or a combination of both of these beetles. There were several small Southern Pine Beetle spots last year several coastal counties.

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.

We will be conducting aerial surveys in all South Carolina counties this summer. In the unlikely event of significant beetle activity, we will fly 100% surveys and notify affected landowners that beetle spots are present on their properties.

As mentioned above, Ips and Black Turpentine Beetles continue to cause mortality in overstocked stands and in areas where excessive rainfall coupled with impermeable hardpan caused some drowning of roots. A summer drought was also responsible for some stress that led to attack by these less aggressive beetles. Since these insects require different control tactics than SPB, it is important to determine which insect is causing each infestation. Ips beetles are identifiable by their galleries that are usually H or I shaped rather than the winding galleries of Southern Pine Beetles. Adult Ips beetles also eject the frass from their galleries while the SPB packs its galleries with frass. Black Turpentine Beetles attack the basal portions of the trunk and are a much slower killer than SPB or Ips. We can assist with this identification or provide training where needed. Last summer we evaluated multiple stands that were harvested due to Ips and Black Turpentine Beetle activity.

In summary, most of South Carolina can expect a year of low to minimal loss to southern pine beetle and related bark beetles. However, we may see some degree of loss statewide, especially if we have additional stress factors. Control by commercial salvage is effective in stopping any of the bark beetles infesting pines. Another possibility for control of Southern Pine Beetle only is the cut and leave technique. In this control strategy, infested trees and a buffer of apparently uninfested pines are cut but not necessarily salvaged. This method works best from May – October due to high daytime temperatures and SPB biological factors. This is not effective for Ips or BTB spots since those insects breed and mature easily in cut pines or stumps.

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 2011 is for a loss of less than one million dollars. As usual, a hot summer with extended temperatures over 100 degrees Fahrenheit should constrain SPB development.

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

Laurie Reid

Attachments (Pheromone results – tabular, Pheromone results – graphical)

Cc: SCFC Commissioners
W. Nettleton - USFS
B. Carothers – USFS
J. Nowak - USFS
R. Billings - Texas
R. Trickel – N.C.
J. Johnson - GA
E. Barnard – FL
P. Layton – Clemson Dept. of Forestry and Natural Resources
C. Harden – Clemson Dept. of Plant Industry
T. Ivey – DNR
S. Hutto – S.C. PRT
Beckham
Cannarella
SCFC Webmaster

2011 SOUTHERN PINE BEETLE PHEROMONE TRAPPING RESULTS
South Carolina Forestry Commission
27 May 2011

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 2011.					

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 trend in 2011.					

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 trend in 2011.					

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	81	8	428	2%	0.10
Anderson	81	7	152	4%	0.09
Beaufort	84	0	8	0%	0.00
Charleston	81	0	49	0%	0.00
Cherokee	96	4	75	5%	0.04
Chester	87	17	342	5%	0.20
Colleton	84	4	102	4%	0.05
Dorchester	90	0	130	0%	0.00
Edgefield	91	164	337	33%	1.80
Fairfield	87	11	1056	1%	0.13
Florence	122	0	115	0%	0.00
Georgetown	98	1	255	0%	0.01
Greenville	93	4	264	1%	0.04
Greenwood	78	57	865	6%	0.73
Hampton	87	1	123	1%	0.01
Horry	81	12	119	9%	0.15
Jasper	93	0	84	0%	0.00
Kershaw	84	38	355	10%	0.45

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<u>County</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>% SPB</u>	<u>SPB/Day</u>
Lancaster	84	0	230	0%	0.00
Laurens	80	5	184	3%	0.06
Lexington	87	42	128	25%	0.48
McCormick	84	41	144	22%	0.49
Newberry	84	17	873	2%	0.20
Pickens	81	5	63	7%	0.06
Oconee	7	0	4	0%	0.00
Richland	87	9	150	6%	0.10
Saluda	84	3	93	3%	0.04
Spartanburg	88	6	227	3%	0.07
Union	90	0	232	0%	0.00
York	96	2	155	1%	0.02
State Totals	2,821	526	7,802	6%	0.19
Coastal Totals	1,017	21	1,101	2%	0.02
Piedmont Totals	1,804	505	6,701	7.01%	0.28

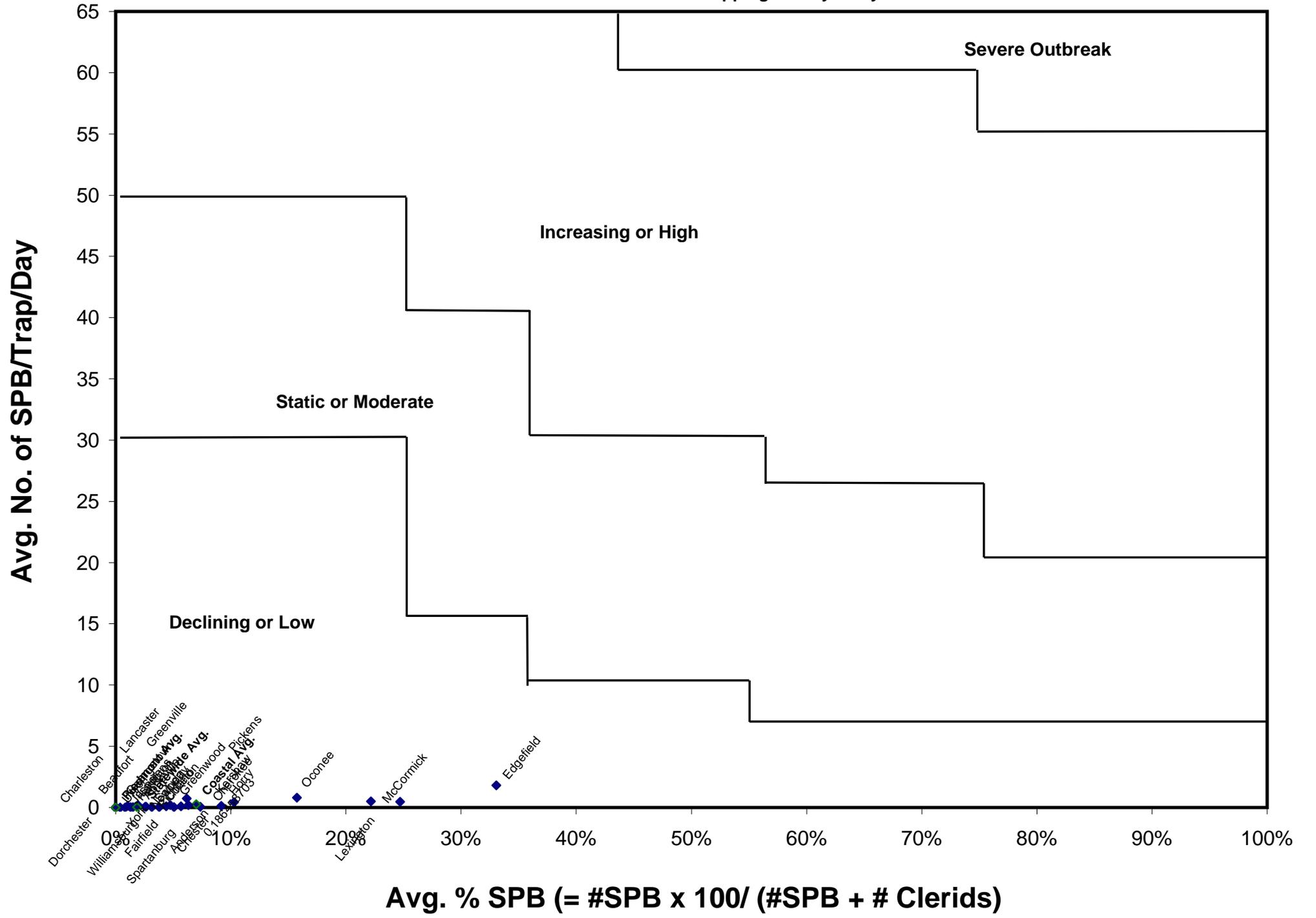
Severe Outbreak: High probability for major losses

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
Southern Pine Beetle Pheromone Trapping Survey - May 2011**



PAST SURVEYS

2010 Statewide Average Prediction Trend: Declining - Low

<u>Counties Trapped</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>%SPB</u>	<u>SPB/Day</u>	<u>Loss</u>
31	2,318	5,726	18,707	23	2.47	\$64,827

2009 Statewide Average Prediction Trend: Declining - Low

<u>Counties Trapped</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>%SPB</u>	<u>SPB/Day</u>	<u>Loss</u>
31	1,824	3,314	16,671	17	1.82	\$159,917

2008 Statewide Average Prediction Trend: Declining - Low

<u>Counties Trapped</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>%SPB</u>	<u>SPB/Day</u>	<u>Loss</u>
31	2,589	7,257	7,637	49	2.8	\$529,559

2007 Statewide Average Prediction Trend: Declining - Low

<u>Counties Trapped</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>%SPB</u>	<u>SPB/Day</u>	<u>Loss</u>
31	2,579	6,849	12,403	36%	2.66	\$582,367

2006 Statewide Average Prediction Trend: Declining - Low

<u>Counties Trapped</u>	<u>Trapping Days</u>	<u>#SPB</u>	<u>#Clerids</u>	<u>%SPB</u>	<u>SPB/Day</u>	<u>Loss</u>
31	2,632	10,524	21,221	33	4	\$1,070,590

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

2011 Southern Pine Beetle Pheromone Trapping Predictions

