

Memo to: SCFC Employees
Registered Foresters in South Carolina

Through: D. Jones

From: Laurie Reid

Date: 30 May 2014

Subject: Results of 2014 SPB Pheromone Trapping

We have completed the 2014 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 2014 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 little to no losses in all trapped counties. Although we had sporadic beetle activity in many counties, it was at low levels. In 2013, we aerially detected several SPB spots in northern Berkeley County; by March 2014, these spots were inactive.

Based on these trapping results, we predict no counties will experience significant Southern Pine Beetle activity. Overall, the statewide and regional average predictions are declining – low. The majority of 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 31% from last year's total and the number of clerids decreased slightly by 8%. Although the clerid population has been relatively low for many years, we expect they will continue to control SPB resulting 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 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 2014 is for a loss of less than half a 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
Entomologist/Forest Health Specialist

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

2014 SOUTHERN PINE BEETLE PHEROMONE TRAPPING RESULTS
South Carolina Forestry Commission
30 May 2014

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 2014.					

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 2014.					

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 2014.					

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	51	1599	3%	0.63
Anderson	93	4	88	4%	0.04
Beaufort	84	0	14	0%	0.00
Berkeley	88	362	3304	10%	4.11
Charleston	87	166	763	18%	1.91
Cherokee	84	1	78	1%	0.01
Chester	81	5	348	1%	0.06
Colleton	99	1	83	1%	0.01
Dorchester	81	1	132	1%	0.01
Edgefield	84	35	651	5%	0.42
Fairfield	84	1	940	0%	0.01
Florence	93	2	51	4%	0.02
Georgetown	91	12	86	12%	0.13
Greenville	84	0	59	0%	0.00
Greenwood	86	5	381	1%	0.06
Hampton	87	1	147	1%	0.01
Horry	85	1	25	4%	0.01
Jasper	99	6	159	4%	0.06
Kershaw	84	12	116	9%	0.14

2014 SOUTHERN PINE BEETLE PHEROMONE TRAPPING RESULTS

South Carolina Forestry Commission

30 May 2014

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	90	1	114	1%	0.01
Laurens	85	0	71	0%	0.00
Lexington	87	3	88	3%	0.03
McCormick	84	56	416	12%	0.67
Newberry	84	0	319	0%	0.00
Pickens	93	60	101	37%	0.65
Oconee	93	209	437	32%	2.25
Richland	84	0	81	0%	0.00
Saluda	84	36	1250	3%	0.43
Spartanburg	90	0	86	0%	0.00
Union	81	5	0	100%	0.06
York	93	4	149	3%	0.04
State Totals	2,796	1,041	11,980	8%	0.37
Coastal Totals	987	553	4,817	10%	0.56
Piedmont Totals	1,809	488	7,163	6.38%	0.27

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

PAST SURVEYS

2013 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>
32	2,618	1,518	13,070	10	0.58	\$181,083

2012 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>
32	2,736	254	16,673	2	0.09	\$54,723

2011 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>
32	2,821	526	7,802	6	0.19	\$40,949

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

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 2014

