NEW JERSEY ADULT MOSQUITO SURVEILLANCE
Report for 2 October to 8 October 2011, CDC Week 40
Prepared by Lisa M. Reed, Scott Crans and Mark Robson
Center for Vector Biology

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of the 21 county mosquito control agencies of New Jersey.

Summary Table – Week 40

<table>
<thead>
<tr>
<th>Region</th>
<th>Aedes vexans This Week</th>
<th>Average*</th>
<th>Increase</th>
<th>Aedes vexans This Week</th>
<th>Average*</th>
<th>Increase</th>
<th>Culex Mix This Week</th>
<th>Average*</th>
<th>Increase</th>
<th>Coquillettidia perturbans This Week</th>
<th>Average*</th>
<th>Increase</th>
<th>Aedes sollicitans This Week</th>
<th>Average*</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td>0.74</td>
<td>1.29</td>
<td>0</td>
<td>0.40</td>
<td>1.15</td>
<td>0</td>
<td>0.00</td>
<td>&lt;0.01</td>
<td>0</td>
<td>0.00</td>
<td>0.14</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal</td>
<td>3.94</td>
<td>4.88</td>
<td>0</td>
<td>11.48</td>
<td>4.20</td>
<td>4</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>0.67</td>
<td>4.57</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delaware Bayshore</td>
<td>4.09</td>
<td>3.40</td>
<td>1</td>
<td>10.34</td>
<td>4.47</td>
<td>3</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>0.11</td>
<td>2.48</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delaware River Basin</td>
<td>0.00</td>
<td>1.14</td>
<td>0</td>
<td>0.00</td>
<td>1.41</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0.04</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York Metro</td>
<td>0.43</td>
<td>1.15</td>
<td>0</td>
<td>2.16</td>
<td>2.43</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>0.07</td>
<td>0.24</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Central Rural</td>
<td>0.00</td>
<td>0.25</td>
<td>0</td>
<td>0.04</td>
<td>0.03</td>
<td>1</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northwest Rural</td>
<td>3.14</td>
<td>4.34</td>
<td>0</td>
<td>2.29</td>
<td>0.56</td>
<td>4</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philadelphia Metro</td>
<td>0.96</td>
<td>4.64</td>
<td>0</td>
<td>2.57</td>
<td>1.09</td>
<td>3</td>
<td>0.00</td>
<td>&lt;0.01</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pinelands</td>
<td>1.90</td>
<td>1.06</td>
<td>2</td>
<td>3.95</td>
<td>0.87</td>
<td>4</td>
<td>0.00</td>
<td>&lt;0.01</td>
<td>0</td>
<td>0.00</td>
<td>0.07</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburban Corridor</td>
<td>0.40</td>
<td>3.01</td>
<td>2</td>
<td>0.39</td>
<td>1.71</td>
<td>0</td>
<td>0.00</td>
<td>&lt;0.01</td>
<td>0</td>
<td>0.00</td>
<td>0.02</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference by 3 (orange) and greater than 150% increase by 4 (red). White cells in the increase column denote increases from an historic zero and thus no value can be appropriately given.

State Summary: Based on the light trap submissions to date populations have dropped in most regions for floodwater species (*Aedes vexans* and *Aedes sollicitans*) while *Culex* numbers continue to remain elevated. *Coquillettidia perturbans* appears to be finished for this season.
The three figures show the interpolation of average maximum and minimum temperature and total precipitation through 1 October to 14 October, 2011 in New Jersey. Data points are from about 32 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10. Several stations were eliminated from the maps due to going offline (recognizably incomplete data) from Hurricane Irene.

Both average high and low temperatures rose this past week in October to about 15° above normal. Precipitation has been minor in comparison to the previous two months, but also continues in the northern part of the state.
**The Species Graphs:** The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example of one graph from one species within one region. The bar plot show the average number of mosquitoes per trap within the region (weekly means) and line plots show the historical trend as the average number of mosquitoes from the previous 5 years (5-year average). In general, historical data are running means from the previous 5 years, but on occasion, will include data from fewer years. Adjustments are made to account for year discrepancies. Data for last week are from Atlantic, Burlington, Cape May, Essex, Monmouth, Somerset, Sussex and Union counties. Previous week included Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Somerset, Sussex and Union counties. Note: County data is sent in at a variety of times during the week. A number of counties have brought in their light traps for the season, particularly in the north.
**Aedes vexans** - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

<table>
<thead>
<tr>
<th>Region</th>
<th>Mean # Mosquitoes ± SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td><img src="image1.png" alt="Graph" /></td>
</tr>
<tr>
<td>Coastal</td>
<td><img src="image2.png" alt="Graph" /></td>
</tr>
<tr>
<td>Delaware Bayshore</td>
<td><img src="image3.png" alt="Graph" /></td>
</tr>
<tr>
<td>Delaware River Basin</td>
<td><img src="image4.png" alt="Graph" /></td>
</tr>
<tr>
<td>New York Metro</td>
<td><img src="image5.png" alt="Graph" /></td>
</tr>
<tr>
<td>North Central Rural</td>
<td><img src="image6.png" alt="Graph" /></td>
</tr>
<tr>
<td>Northwestern Rural</td>
<td><img src="image7.png" alt="Graph" /></td>
</tr>
<tr>
<td>Philadelphia Metro</td>
<td><img src="image8.png" alt="Graph" /></td>
</tr>
<tr>
<td>Pinelands</td>
<td><img src="image9.png" alt="Graph" /></td>
</tr>
<tr>
<td>Suburban Corridor</td>
<td><img src="image10.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

**Comments**

Despite cooler temperatures, *Aedes vexans* continues to show significant activity in several regions, primarily Agricultural, Delaware Bayshore, New York Metropolitan, Northwestern Rural and the Philadelphia Metropolitan regions. Populations from the past several weeks have decreased significantly, except for moderate numbers in the Delaware Bayshore and the Pinelands. Recent weather has been warm, but rainfall has been modest, making significant emerges less likely. More significantly, hours of light are decreasing with each new day and with cooler weather imminent, initiation of egg diapause becomes more and more likely.
Culex Mix – Permanent Water Species
Multivoltine Culex/Anopheles (Cx. pipiens Type)

<table>
<thead>
<tr>
<th>Agricultural</th>
<th>Coastal</th>
<th>Delaware Bayshore</th>
<th>Delaware River Basin</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Graph" /></td>
<td><img src="image2.png" alt="Graph" /></td>
<td><img src="image3.png" alt="Graph" /></td>
<td><img src="image4.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New York Metro</th>
<th>North Central Rural</th>
<th>Northwestern Rural</th>
<th>Philadelphia Metro</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.png" alt="Graph" /></td>
<td><img src="image6.png" alt="Graph" /></td>
<td><img src="image7.png" alt="Graph" /></td>
<td><img src="image8.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pinelands</th>
<th>Suburban Corridor</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image9.png" alt="Graph" /></td>
<td><img src="image10.png" alt="Graph" /></td>
<td><em>Culex Mix is composed of Culex pipiens, Cx. restuans and Cx. salinarius. These three species (especially pipiens and restuans) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. Six of the 10 regions show that Culex populations remain well above historical levels (Coastal, Delaware Bayshore, North Central Rural, Northwestern Rural, Philadelphia Metro and Pinelands).</em></td>
</tr>
</tbody>
</table>
**Culiseta melanura – Miscellaneous Group**

**Unique (Cs. melanura Type)**

<table>
<thead>
<tr>
<th>Agricultural</th>
<th>Coastal</th>
<th>Delaware Bayshore</th>
<th>Delaware River Basin</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Graph" /></td>
<td><img src="image2.png" alt="Graph" /></td>
<td><img src="image3.png" alt="Graph" /></td>
<td><img src="image4.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>New York Metro</th>
<th>North Central Rural</th>
<th>Northwestern Rural</th>
<th>Philadelphia Metro</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5.png" alt="Graph" /></td>
<td><img src="image6.png" alt="Graph" /></td>
<td><img src="image7.png" alt="Graph" /></td>
<td><img src="image8.png" alt="Graph" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pinelands</th>
<th>Suburban Corridor</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image9.png" alt="Graph" /></td>
<td><img src="image10.png" alt="Graph" /></td>
<td><em>Culiseta melanura</em> is the enzootic ornithophilic vector of eastern equine encephalitis. <em>Cs. melanura</em> abundances continue to be above historical values in the Pinelands. Other populations, including the Delaware Bayshore, also show some population values above historical trends. Resting box numbers are disparate from light trap values, showing much lower numbers. These increased late season populations may potentially mean that the overwintering larval populations can be high and favorable conditions may set in place for substantial populations next year.</td>
</tr>
</tbody>
</table>
**Aedes sollicitans** - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

<table>
<thead>
<tr>
<th>Region</th>
<th>Agricultural</th>
<th>Coastal</th>
<th>Delaware Bayshore</th>
<th>Delaware River Basin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="graph1.png" alt="Graph" /></td>
<td><img src="graph2.png" alt="Graph" /></td>
<td><img src="graph3.png" alt="Graph" /></td>
<td><img src="graph4.png" alt="Graph" /></td>
</tr>
<tr>
<td>New York Metro</td>
<td><img src="graph5.png" alt="Graph" /></td>
<td><img src="graph6.png" alt="Graph" /></td>
<td><img src="graph7.png" alt="Graph" /></td>
<td><img src="graph8.png" alt="Graph" /></td>
</tr>
<tr>
<td>North Central Rural</td>
<td><img src="graph9.png" alt="Graph" /></td>
<td><img src="graph10.png" alt="Graph" /></td>
<td><img src="graph11.png" alt="Graph" /></td>
<td><img src="graph12.png" alt="Graph" /></td>
</tr>
<tr>
<td>Northwestern Rural</td>
<td><img src="graph13.png" alt="Graph" /></td>
<td><img src="graph14.png" alt="Graph" /></td>
<td><img src="graph15.png" alt="Graph" /></td>
<td><img src="graph16.png" alt="Graph" /></td>
</tr>
<tr>
<td>Philadelphia Metro</td>
<td><img src="graph17.png" alt="Graph" /></td>
<td><img src="graph18.png" alt="Graph" /></td>
<td><img src="graph19.png" alt="Graph" /></td>
<td><img src="graph20.png" alt="Graph" /></td>
</tr>
<tr>
<td>Pinelands</td>
<td><img src="graph21.png" alt="Graph" /></td>
<td><img src="graph22.png" alt="Graph" /></td>
<td><img src="graph23.png" alt="Graph" /></td>
<td><img src="graph24.png" alt="Graph" /></td>
</tr>
<tr>
<td>Suburban Corridor</td>
<td><img src="graph25.png" alt="Graph" /></td>
<td><img src="graph26.png" alt="Graph" /></td>
<td><img src="graph27.png" alt="Graph" /></td>
<td><img src="graph28.png" alt="Graph" /></td>
</tr>
<tr>
<td>Comments</td>
<td><em>Aedes sollicitans</em> continue their seasonal decline. No regions had populations higher than historical values at this point.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
*Uranotaenia sapphirina* in Suburbia: This mosquito is found throughout New Jersey with highest population in the northern west portion of the state. This population illustrated below is from suburban areas. The preferred habitat is permanent water with emergent vegetation and duckweed. The former indicates that *Coquillettidia perturbans* can be an associated species. *Uranotaenia sapphirina* is characterized by brilliant blue scales that denote its name. This late season species does not appear to be a vector for human disease.
**Top Ten Mosquito Species/Region**

- **Ae. albopictus**, **Ae. japonicus** (invasives);  
  - **Cs. melanura** or **Cx. erraticus**;  
  - **Coq. perturbans**

Note: In early season when fewer species are caught, graphs may show less than ten species listed.
New York Metropolitan

North Central Rural

Total # mosquitoes

Culex Mix
Ae. vexans
Ae. sollicitans
Ae. cantator
An. punctipennis
Coq. perturbans
An. quadrimaculatus
Ae. albopictus
Ae. sticticus
Ur. sapphirina

Culex Mix
Ae. vexans
An. punctipennis
Ps. columbae
An. quadrimaculatus
Ur. sapphirina
Ae. trivittatus
Ae. japonicus
Coq. perturbans
Cx. erraticus
Northwest Rural

- *Ae. vexans*
- *Ae. trivittatus*
- *Culex Mix*
- *An. punctipennis*
- *Ur. sapphirina*
- *Ae. stimulans*
- *Ae. cinereus*
- *An. quadrimaculatus*
- *Coq. perturbans*
- *Ae. cantator*

Philadelphia Metropolitan

- *Ae. vexans*
- *Culex Mix*
- *An. punctipennis*
- *An. crucians*
- *An. quadrimaculatus*
- *Ps. columbae*
- *Ur. sapphirina*
- *Cx. erraticus*
- *Cx. territans*
- *Ae. sticticus*