NEW JERSEY ADULT SURVEILLANCE

Report for 10 June to 16 June, 2007, Week 24

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Purpose: Samples from New Jersey light traps throughout the state are collected by county mosquito control agencies for use in their IPM programs. A portion of this data (about 82 traps) is sent to Rutgers and re-calculated to show statewide trends in mosquito populations for species of nuisance or health concerns.

Calculations are based on regional distributions, with emphasis on mosquito habitat and land use. Trends will allow a statewide evaluation of changing mosquito populations, in response to control and/or changes in habitat.

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 county mosquito control agencies in New Jersey.

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Figure 1: Ten regions selected for the New Jersey Surveillance Program overlaid with county borders.

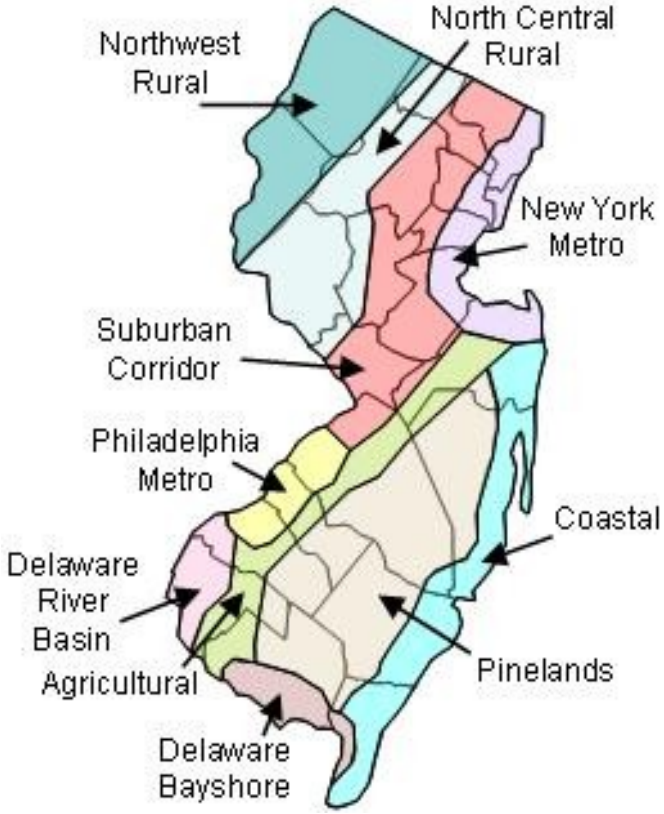


Figure 2. Trap lat-long locations.

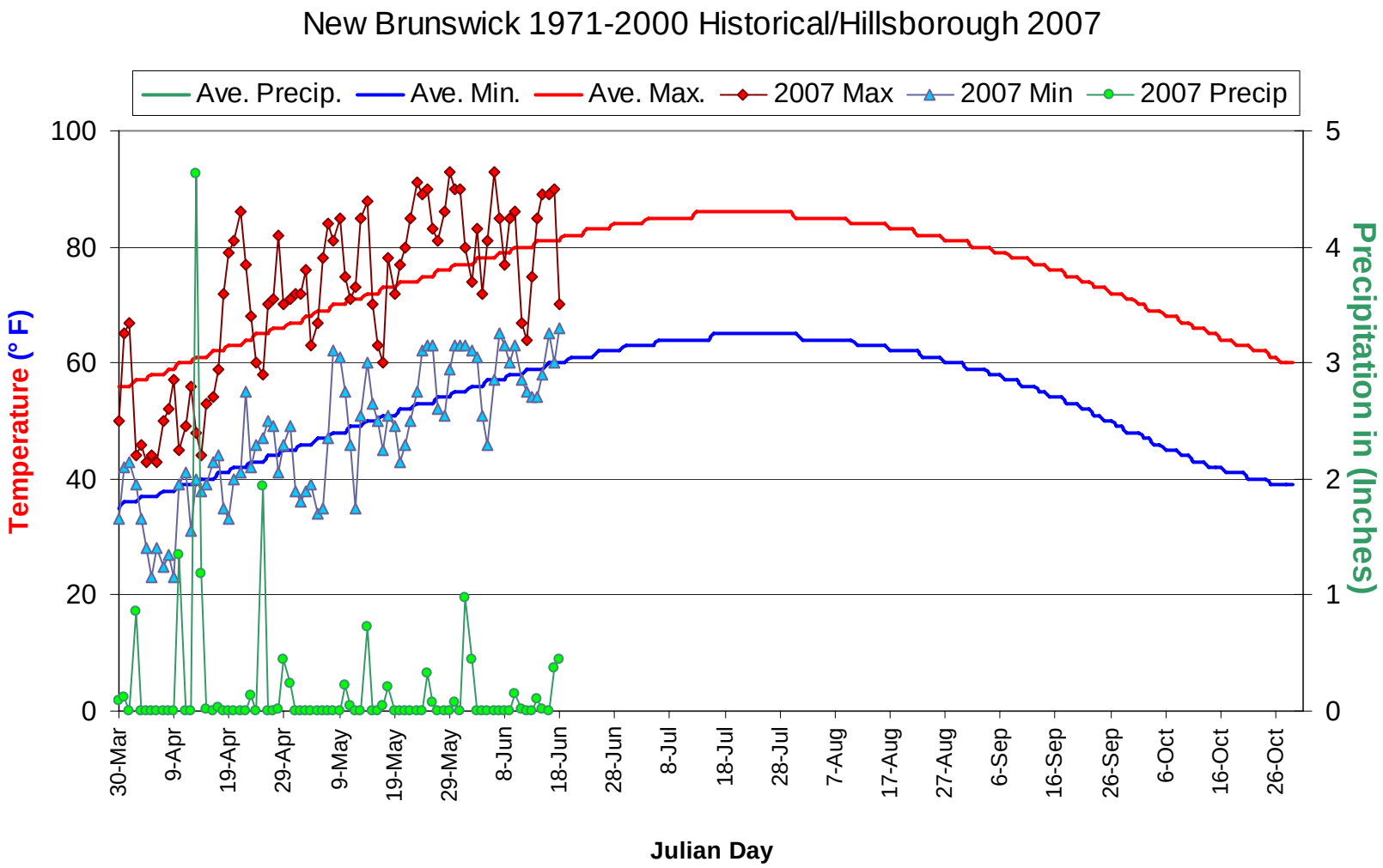
Summary table – Week 24

	Aedes vexans		*Culex* Mix		*Coquillettidia perturbans*		*Aedes sollicitans*	
Region	This Week	Average*	This Week	Average*	This Week	Average*	This Week	Average*
Agricultural	**0.11**	**3.44**	**2.51**	**5.29**	**0.02**	**0.30**	**0.23**	**0.28**
Coastal	**1.29**	**3.40**	**4.90**	**3.98**	**1.63**	**1.86**	**1.19**	**9.14**
Delaware Bayshore	**0.64**	**4.24**	**12.45**	**20.88**	**1.60**	**4.34**	**5.57**	**14.29**
Delaware River Basin	**0.00**	**11.49**	**0.00**	**12.21**	**0.00**	**0.44**	**0.00**	**0.25**
New York Metro	**0.10**	**1.47**	**3.21**	**6.46**	**0.29**	**0.10**	**0.03**	**1.09**
North Central Rural	**0.02**	**0.25**	**0.10**	**0.82**	**0.00**	**0.07**	**0.00**	**0.00**
Northwest Rural	**0.52**	**4.72**	**1.38**	**2.61**	**0.07**	**0.12**	**0.00**	**0.00**
Philadelphia Metro	**1.00**	**7.18**	**0.86**	**6.80**	**1.09**	**0.47**	**0.00**	**0.00**
Pinelands	**0.27**	**1.37**	**3.06**	**2.40**	**0.61**	**0.70**	**0.12**	**0.09**
Suburban Corridor	**0.90**	**4.54**	**1.21**	**4.11**	**0.41**	**0.98**	**0.00**	**0.06**

* Averages represent data from, at most, the previous 5 years.

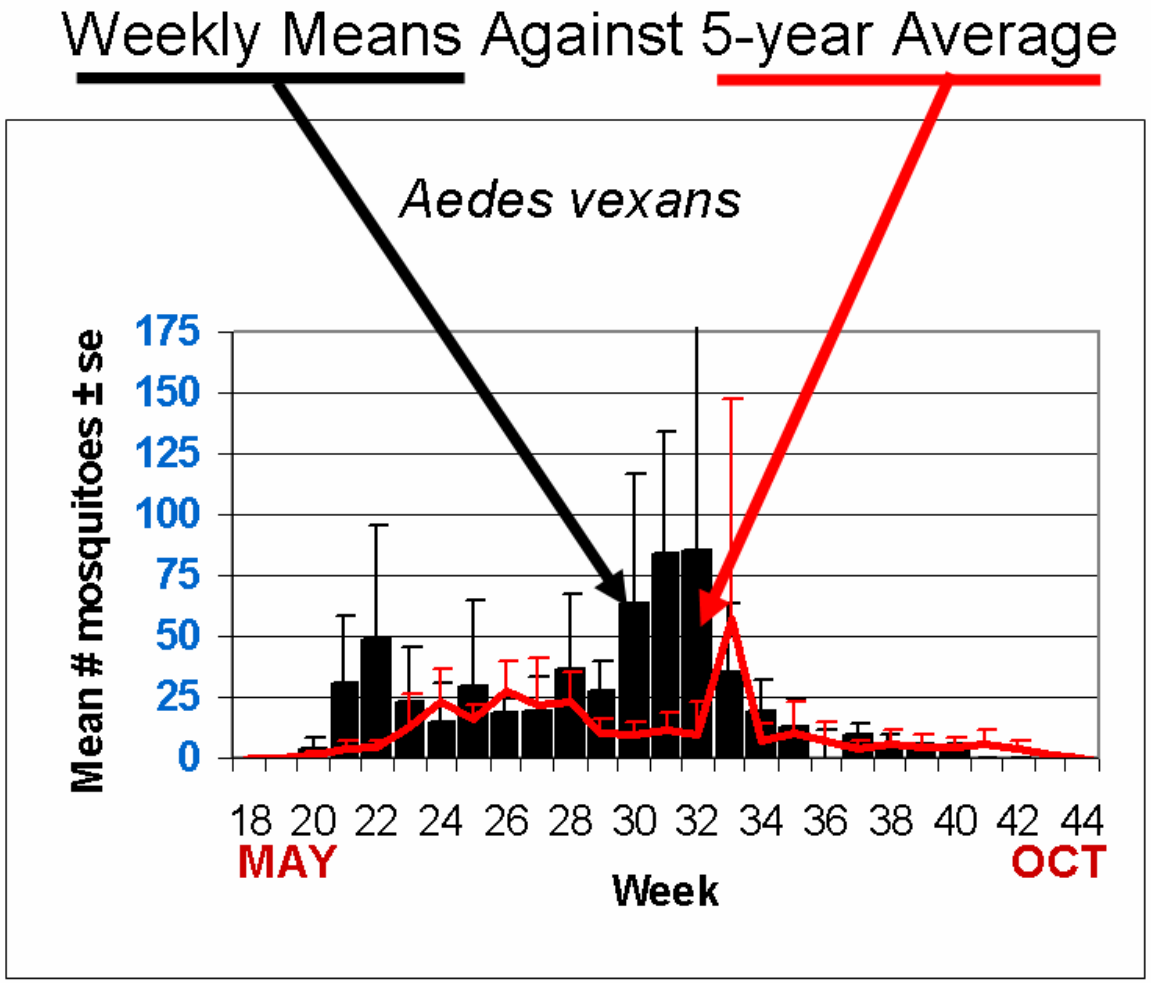
State Summary: Although current week population numbers for *Aedes vexans* appear to be low compared to historical trends, the previous week's data contributions from the counties have caught up, and species graphs below indicate that *Aedes vexans* is not at deficit through most regions. *Coquillettidia perturbans* is showing some early activity.

Climate Data

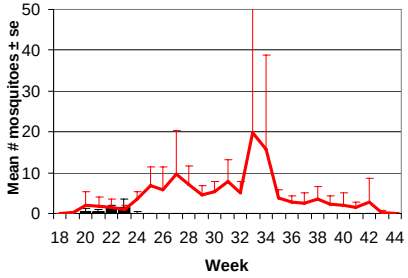
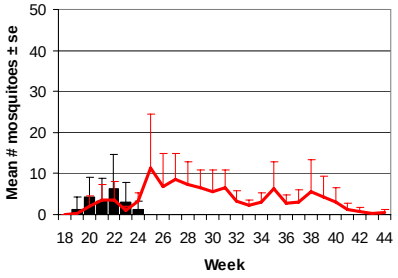
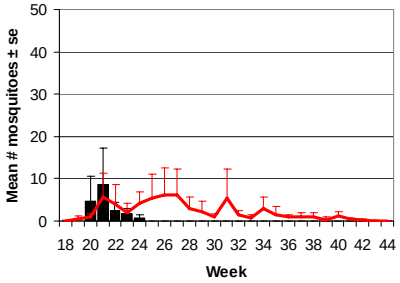
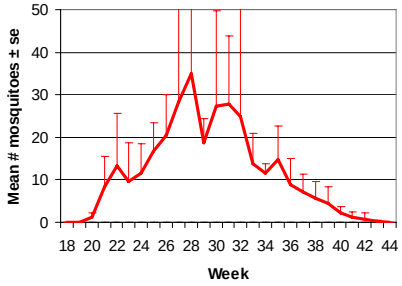
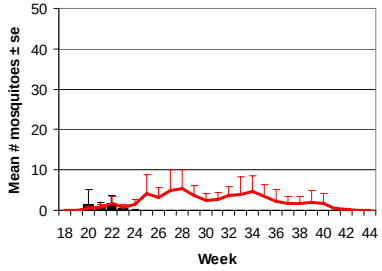
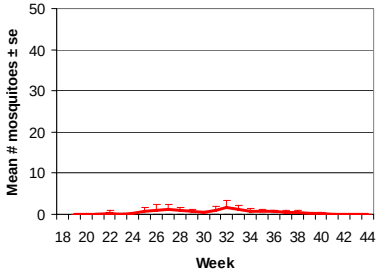
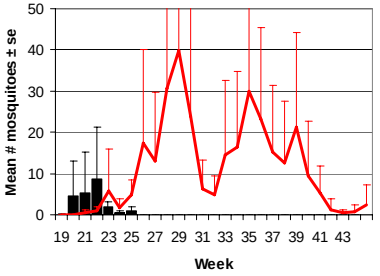
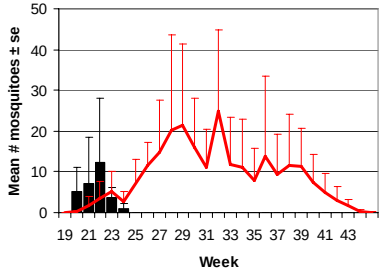
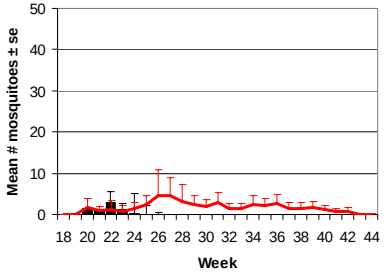
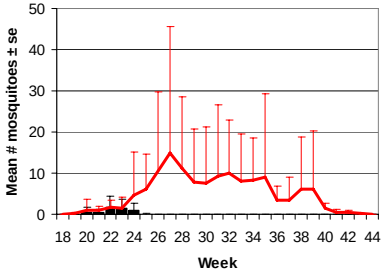


This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist).

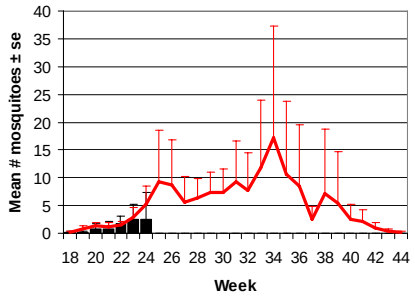
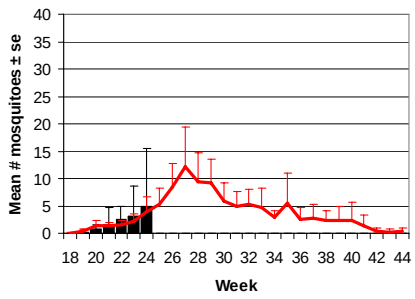
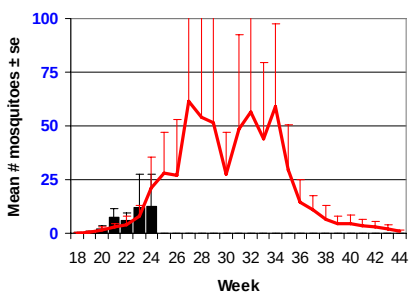
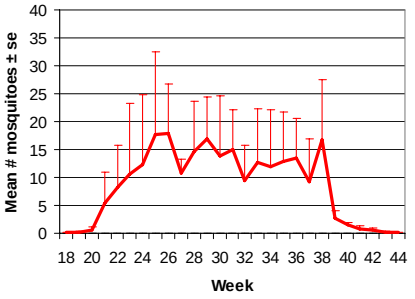
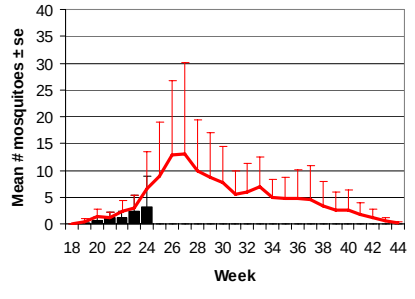
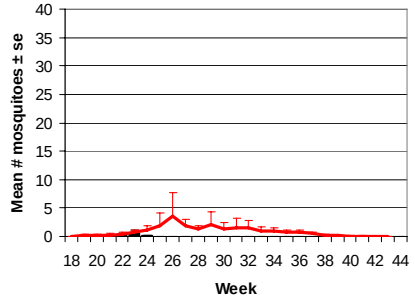
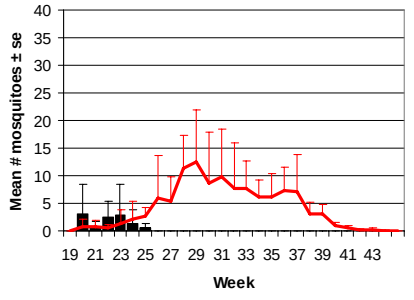
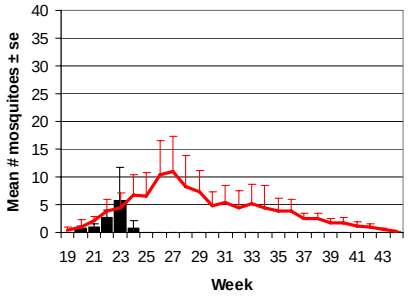
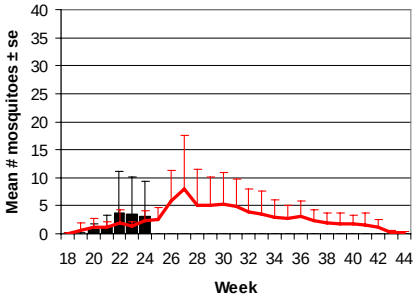
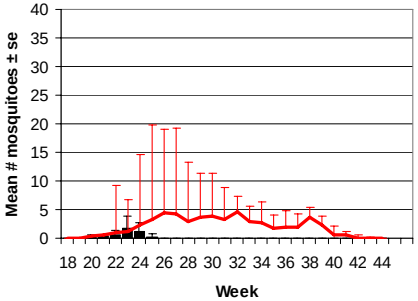
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 Week 24 are from Atlantic, Bergen, Burlington, Cape May, Cumberland, Hudson, Hunterdon, Mercer, Middlesex, Morris, Ocean, Passaic, Somerset, Sussex, and Warren counties.



Aedes vexans - Fresh Floodwater Species

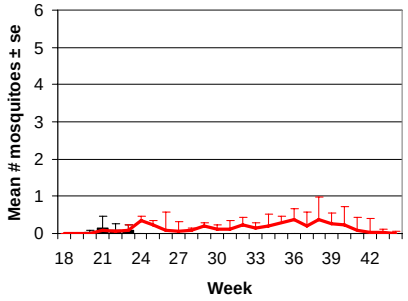
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* emerged earlier and at higher numbers than had been seen in the previous 5 years in the Northwestern and Philadelphia Metro regions. Higher numbers were also seen in the Delaware Bayshore for at least one week. All other regions reporting *Ae. vexans* populations appear to be similar to historical trends. *Ae. vexans* population levels are dependent upon fresh floodwater, and can vary locally even within a region. Large error variance reflects this.	

Culex Mix - *Multivoltine Culex Species*

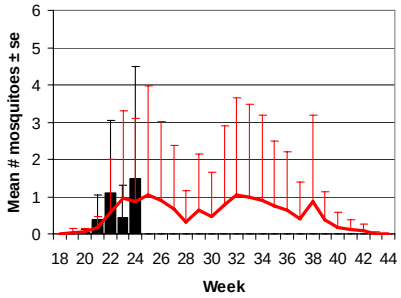
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* species continue to track historical trends closely. Populations will grow as cohorts overlap. When populations begin to increase rapidly, a possibility of future West Nile virus transmission should be considered as both *Culex pipiens* and *Cx. restuans* contribute to the passing of virus to hosts and the subsequent amplification.	

Culiseta melanura – Miscellaneous Group

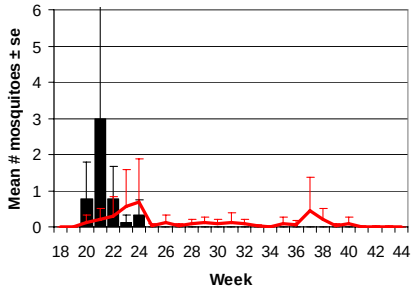
Agricultural



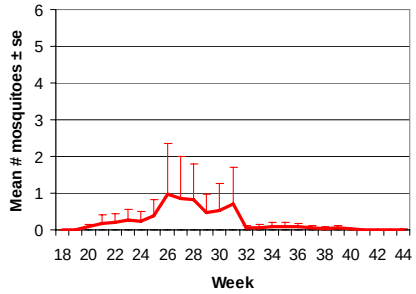
Coastal



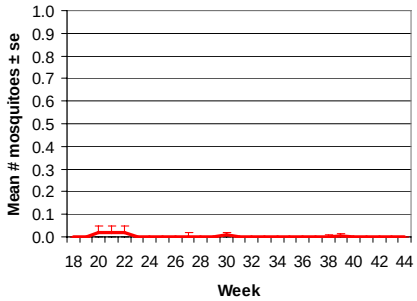
Delaware Bayshore



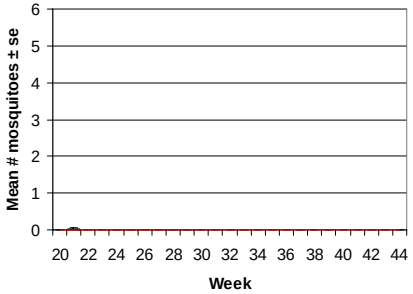
Delaware River Basin



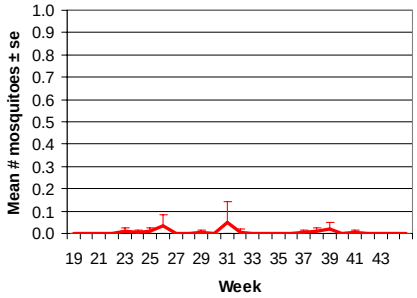
New York Metro



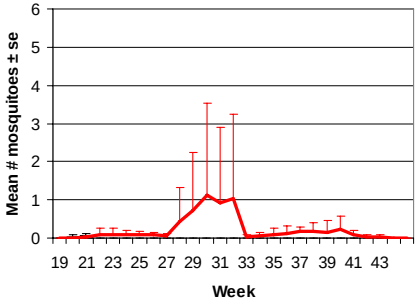
North Central Rural



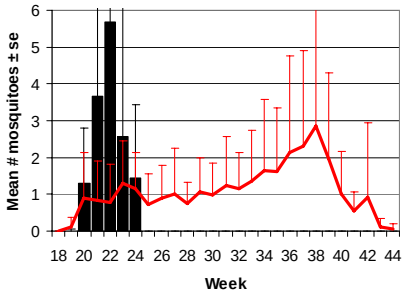
Northwestern Rural



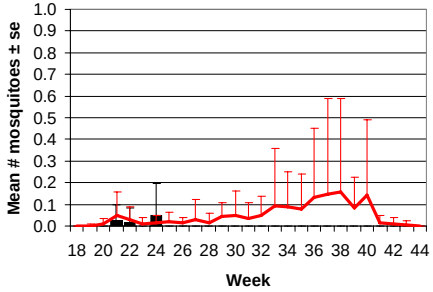
Philadelphia Metro



Pinelands



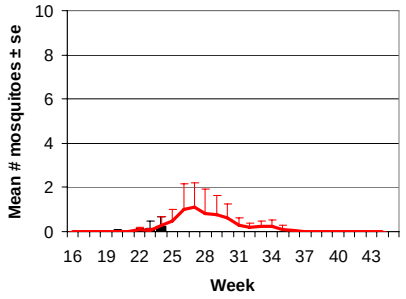
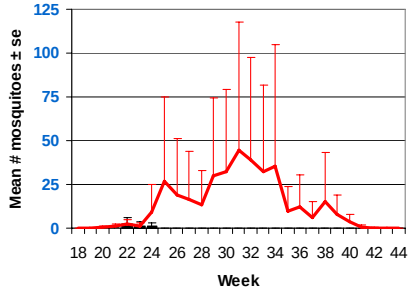
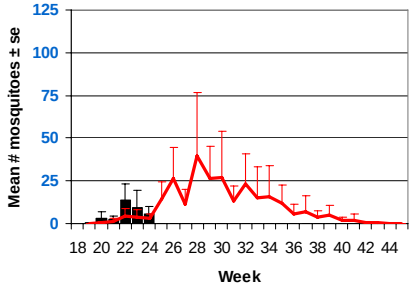
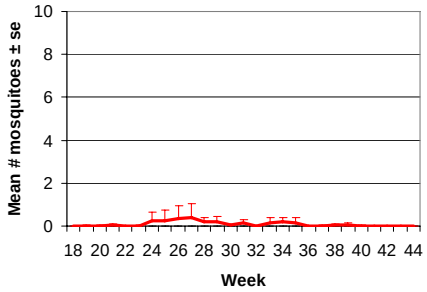
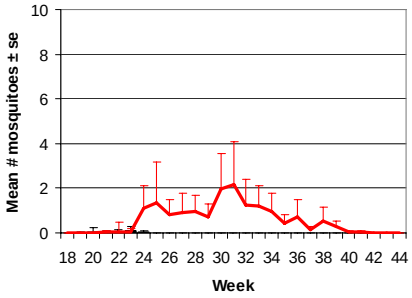
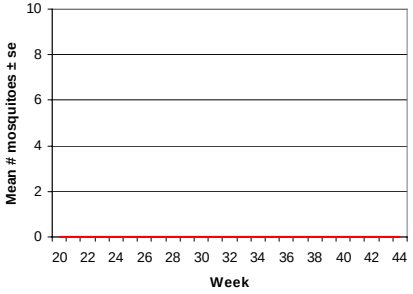
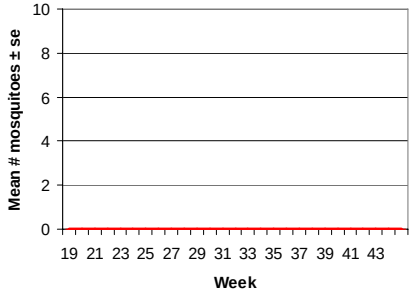
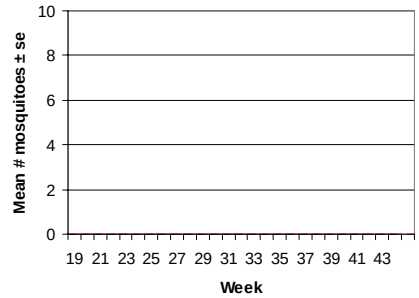
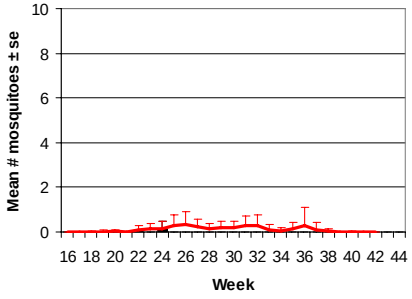
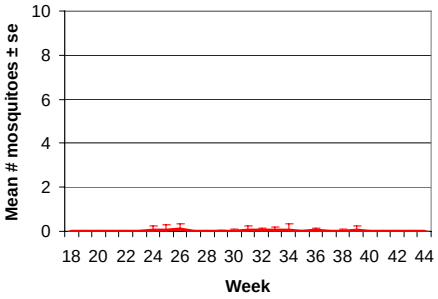
Suburban Corridor



Comments

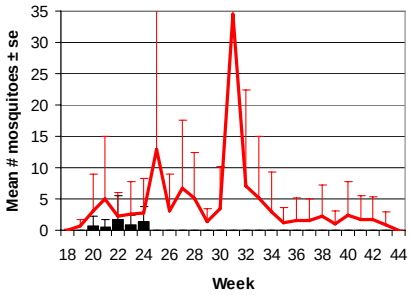
Culiseta melanura populations had reached significantly high numbers in both the Pinelands and the Delaware Bayshore regions at least two weeks ago. Resting box data starting from the last week in May to date reflect similar trends, although the absolute numbers were lower in comparison to historical resting box trends. Normally, *Culiseta melanura* are more attracted to resting boxes than to light traps and this continues to be true in terms of absolute numbers. This mosquito has also appeared in the Agricultural, Coastal, North Central Rural, Philadelphia Metro and the Suburban Corridor.

Aedes sollicitans - Salt Marsh Floodwater Species

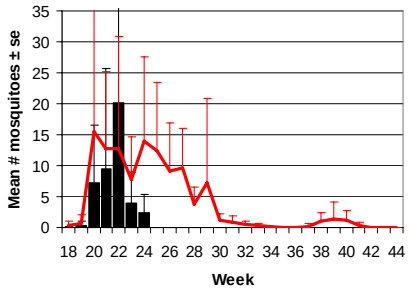
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* continue to build in the Delaware Bayshore region and are within historical trends. Lunar tides peaked in Atlantic City on the 14th of June, and populations are expected to most likely peak in the following emergence during Week 26. The previous emergence occurred at both the Delaware Bayshore and the Coastal regions during Week 22, two weeks after the May high lunar tide. The second emergence in the Coastal region should be significantly larger than the first. When rainfall occurs at the same time as the high lunar tides, brood emergences can be substantial, responding to flooding from any source.	

Aedes cantator – Multivoltine Aedine, *Ae. sollicitans* type

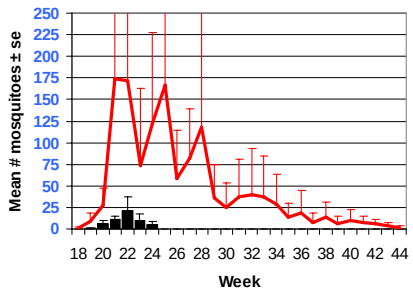
Agricultural



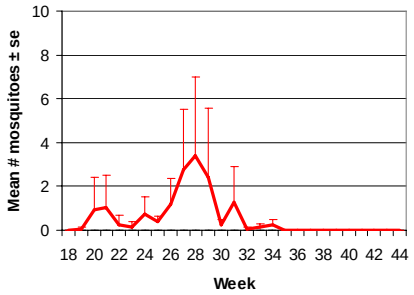
Coastal



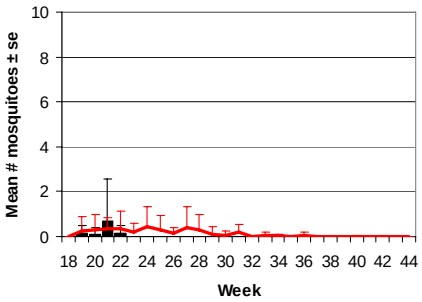
Delaware Bayshore



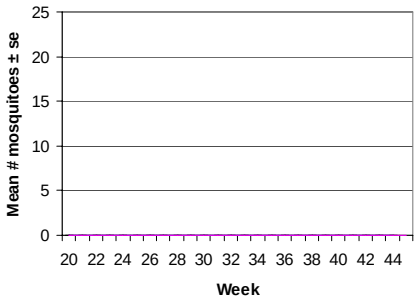
Delaware River Basin



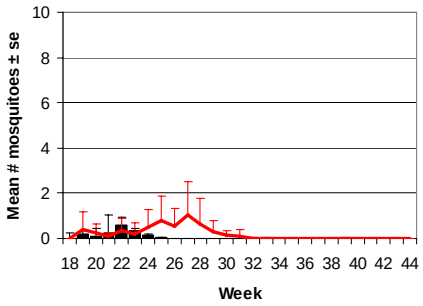
New York Metro



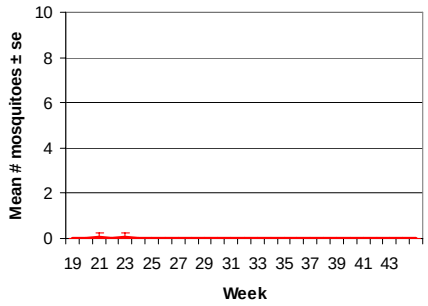
North Central Rural



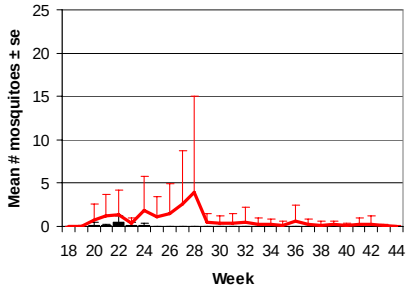
Northwestern Rural



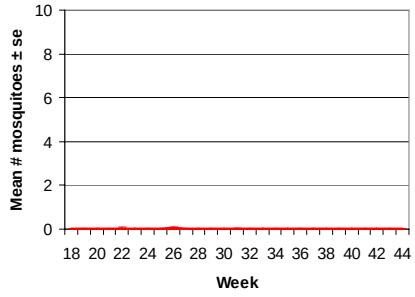
Philadelphia Metro



Pinelands



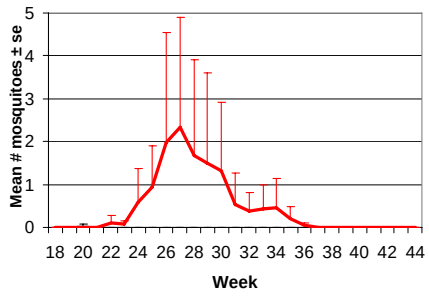
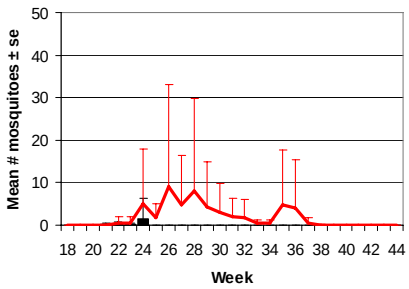
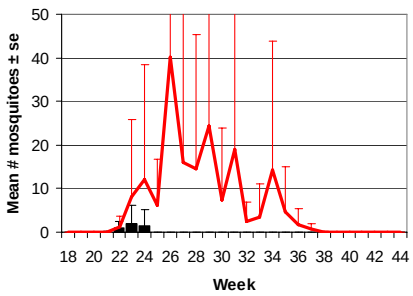
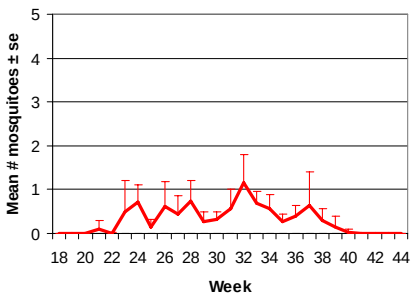
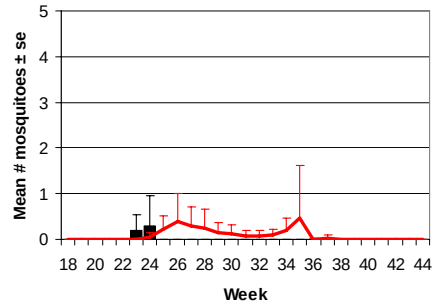
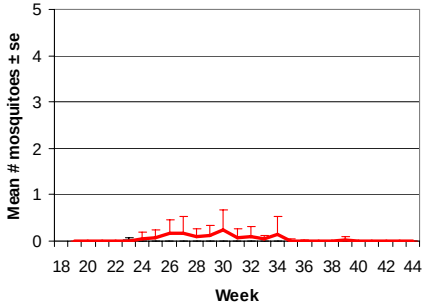
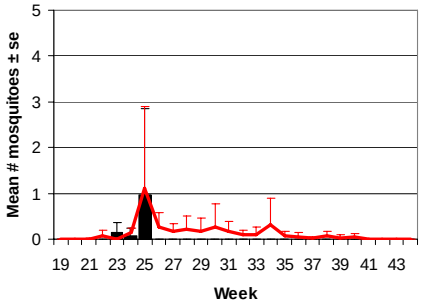
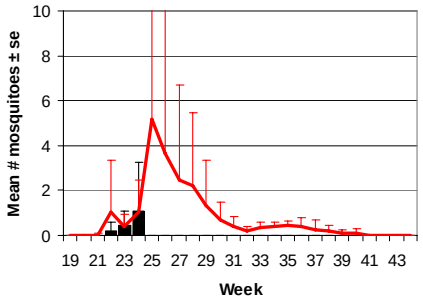
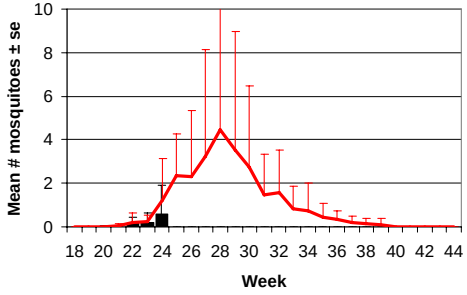
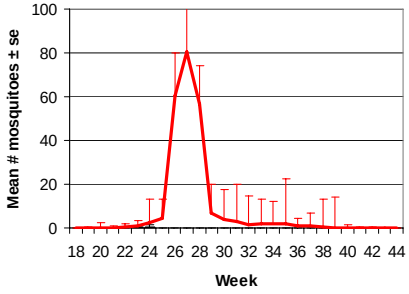
Suburban Corridor



Comments

Aedes cantator populations should decrease in areas where *Ae. sollicitans* numbers are substantial (the Coastal and Delaware Bayshore regions). In other areas where competition is not as severe, historical population peaks appear later in the season.

Coquillettidia perturbans – Unique Life History

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Emergent vegetation provides the means for obtaining oxygen for Coquillettidia perturbans. Population peaks for this species should occur in two to four weeks for most regions. Note that the Agricultural, New York Metro and North Central regions showed earlier than normal activity. This species may be involved as a bridge vector for inland EEE cases.	