RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE
Report for 03 August to 09 August 2008, CDC Week 32

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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.

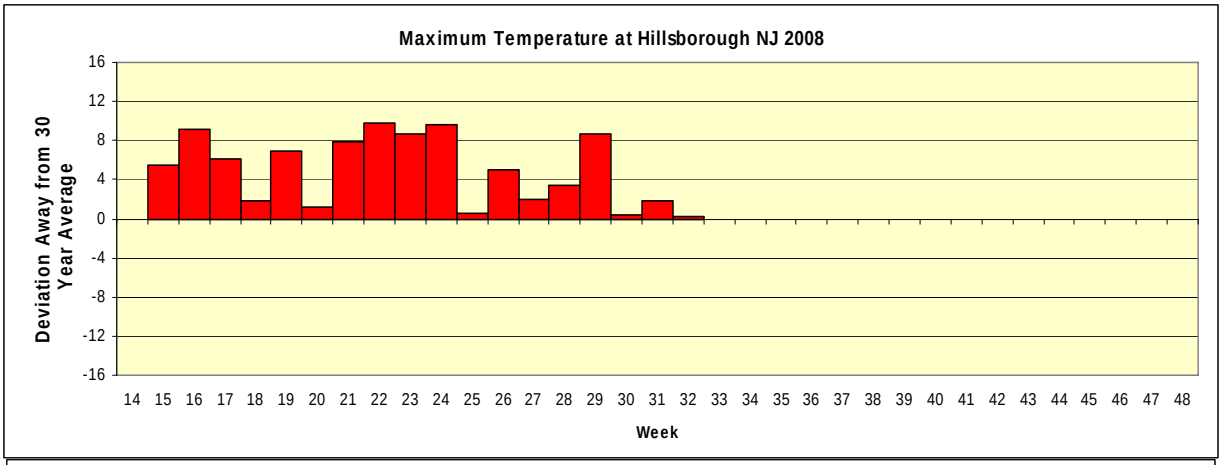
Summary table – Week 32

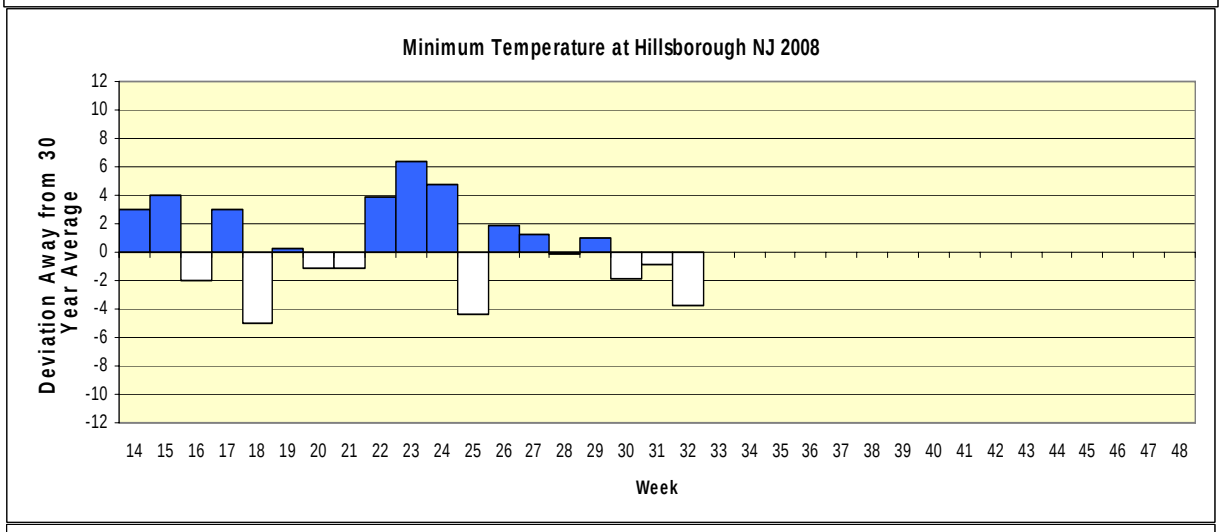
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.07**	**4.11**	**0**	**0.10**	**6.79**	**0**	**0.00**	**0.15**	**0**	**0.12**	**0.15**	**0**
Coastal	**2.29**	**3.20**	**0**	**4.17**	**4.96**	**0**	**0.11**	**0.58**	**0**	**26.41**	**33.33**	**0**
Delaware Bayshore	**1.81**	**1.26**	**1**	**3.05**	**47.69**	**0**	**0.12**	**0.63**	**0**	**7.86**	**14.69**	**0**
Delaware River Basin	**0.00**	**24.00**	**0**	**0.00**	**8.11**	**0**	**0.00**	**0.86**	**0**	**0.00**	**0.01**	**0**
New York Metro	**0.39**	**4.42**	**0**	**2.90**	**7.03**	**0**	**0.00**	**0.08**	**0**	**0.00**	**1.01**	**0**
North Central Rural	**0.29**	**1.50**	**0**	**0.16**	**1.24**	**0**	**0.00**	**0.08**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**1.09**	**22.71**	**0**	**1.00**	**5.68**	**0**	**0.06**	**0.12**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.00**	**10.55**	**0**	**0.00**	**4.63**	**0**	**0.00**	**0.13**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.34**	**1.55**	**0**	**0.47**	**3.94**	**0**	**0.01**	**0.79**	**0**	**0.31**	**0.27**	**1**
Suburban Corridor	**3.08**	**9.40**	**0**	**0.46**	**4.11**	**0**	**0.00**	**0.53**	**0**	**0.03**	**0.02**	**2**

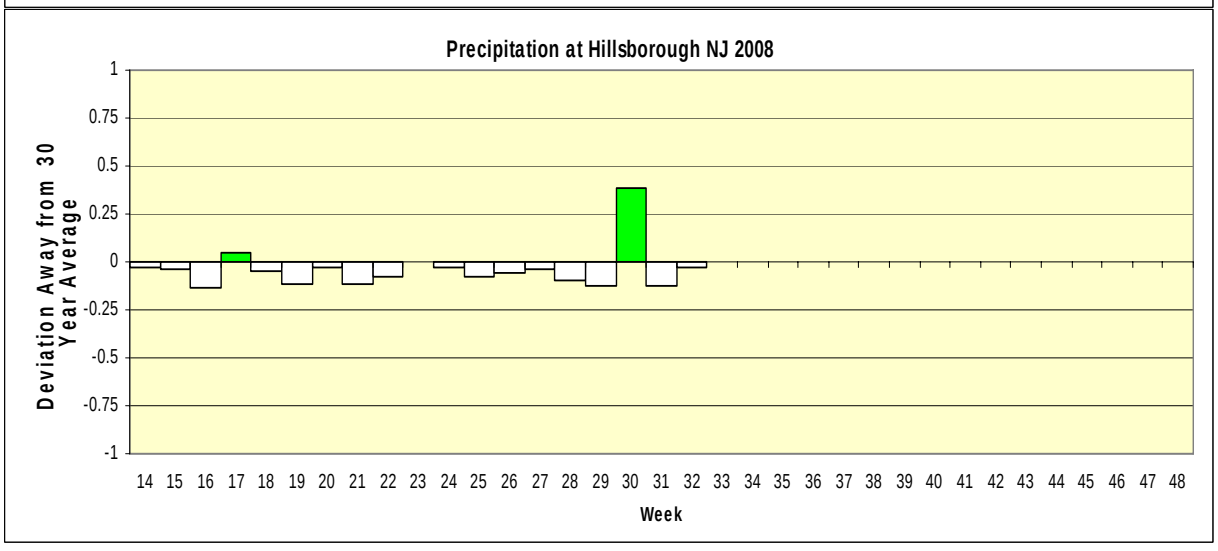
*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference 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: Floodwater species, such as *Aedes vexans* and the salt water version, *Aedes sollicitans* have responded in some areas to flooding situations, such as localized rainfall and tidal movement. Most populations remain low in count.

Climate Deviations

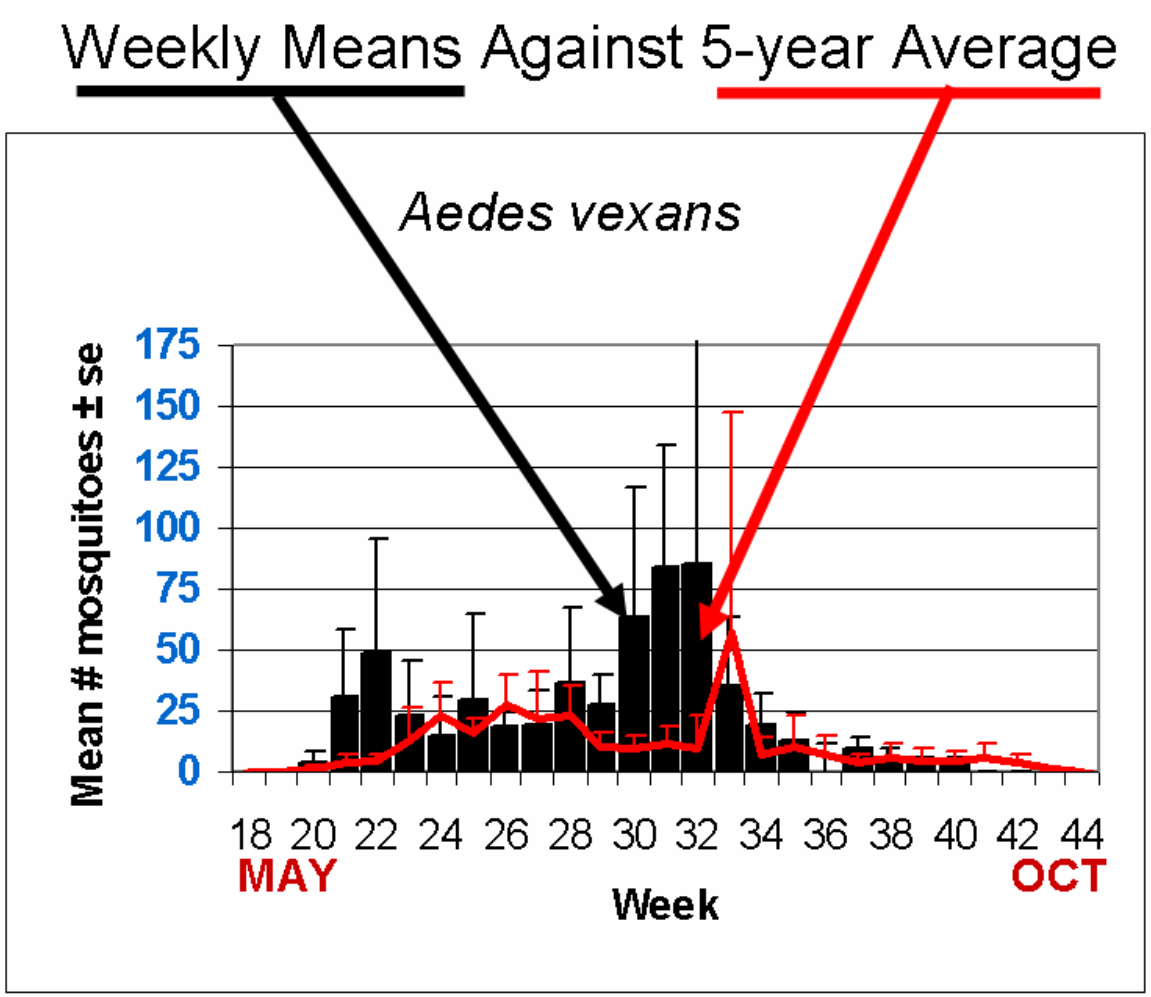






The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data are from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) while historical data was from the New Brunswick weather station. Color bars above the zero line indicate warmer maximum or minimum temperatures and wetter conditions while white bars indicate cooler temperatures and dryer conditions.

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 this week are from Atlantic, Cape May, Hudson, Hunterdon, Middlesex, Morris, Ocean, Somerset, Sussex and Warren counties. Note: County data is sent in at a variety of times during the week.



Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

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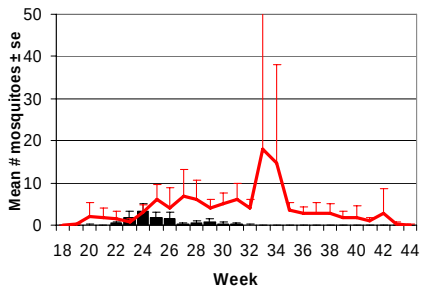
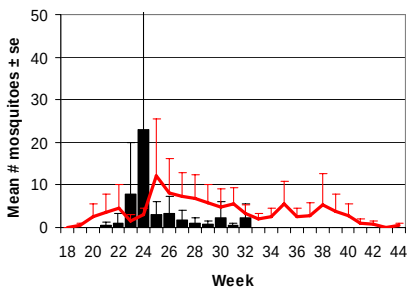
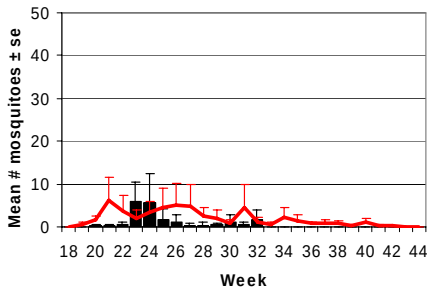
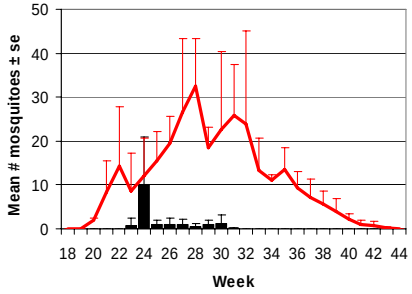
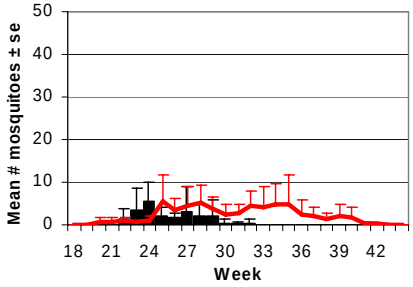
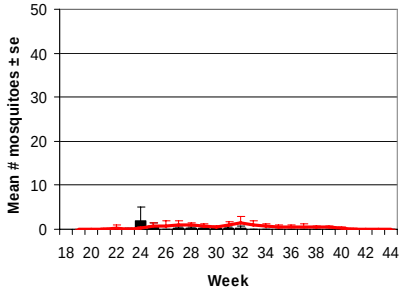
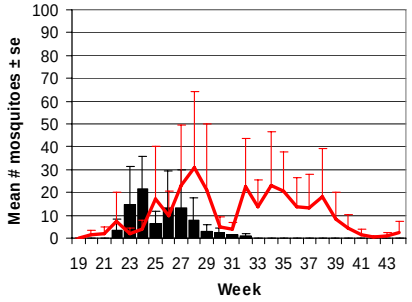
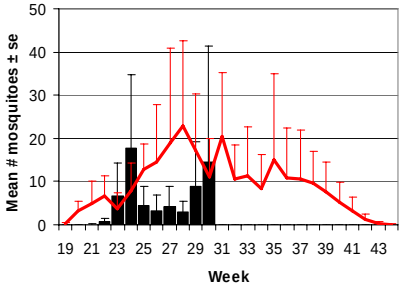
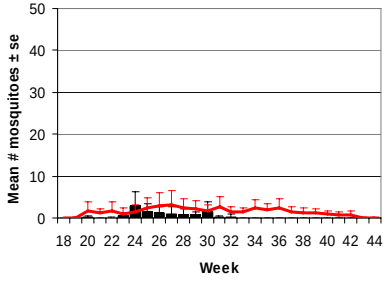
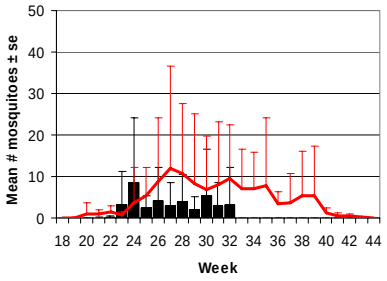
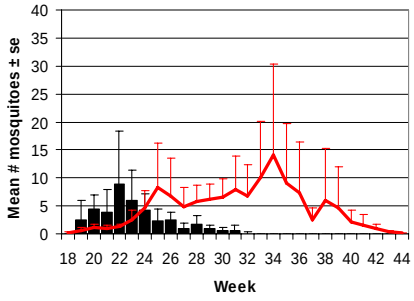
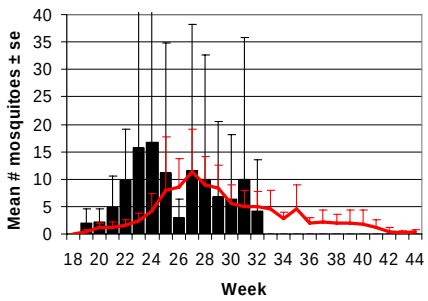
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Recent cooler weather has not provided for the optimal conditions for *Aedes vexans* to emerge quickly from patchy habitat that appeared after several fronts moved through the state, dropping rain. The Delaware Bayshore region is the only region that reported abundances above the historical trends, although these numbers are generally low compared to regions that host large emergences.	

Culex Mix – Permanent Water Species
Multivoltine *Culex*/*Anopheles* (*Cx. pipiens* Type)

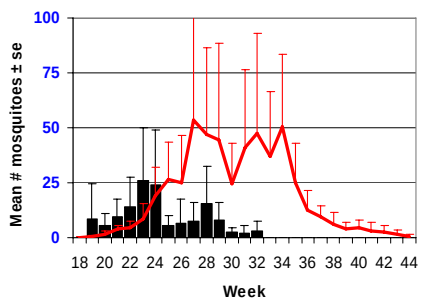
Agricultural



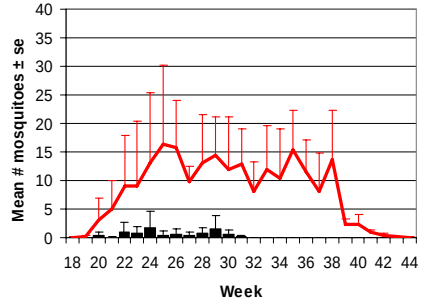
Coastal



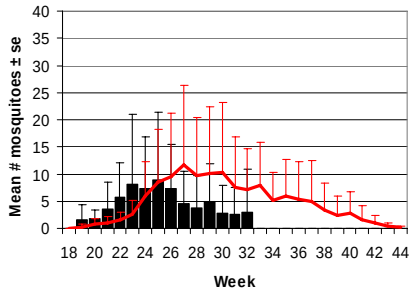
Delaware Bayshore



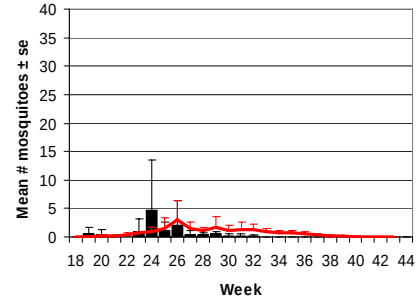
Delaware River Basin



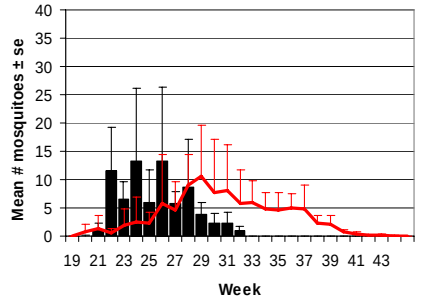
New York Metro



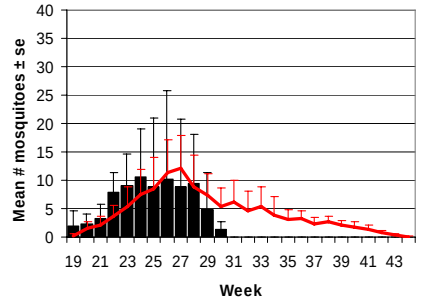
North Central Rural



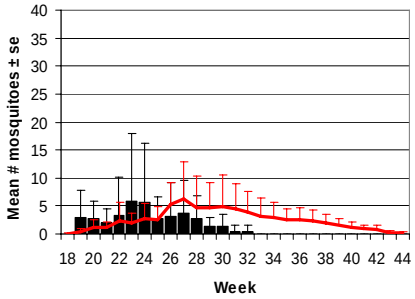
Northwestern Rural



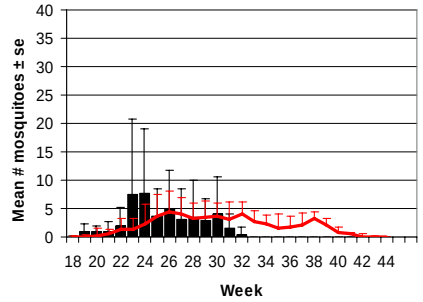
Philadelphia Metro



Pinelands



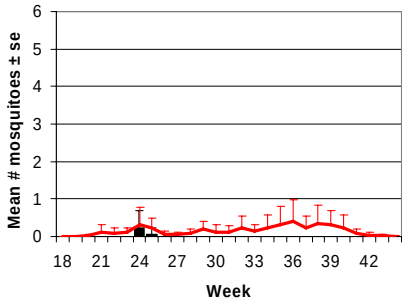
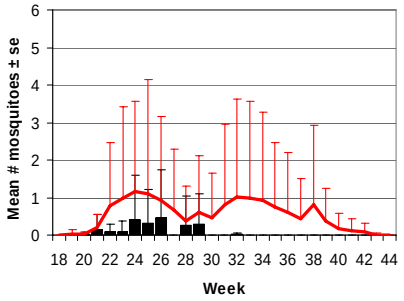
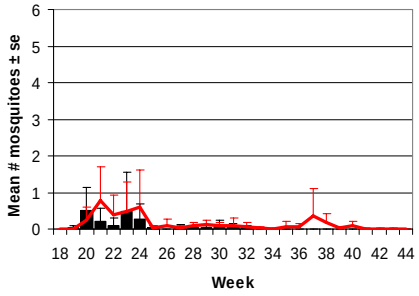
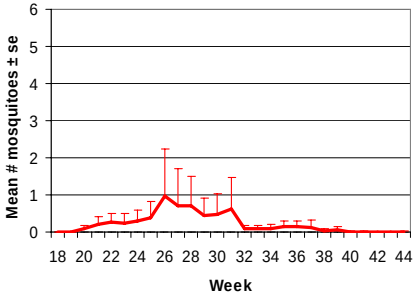
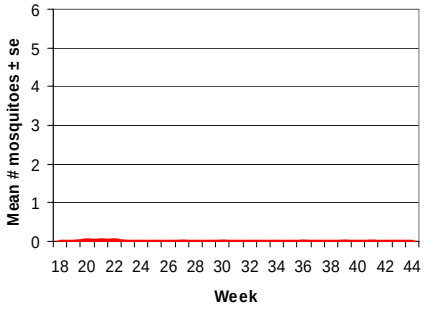
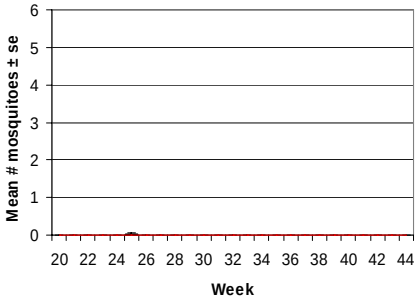
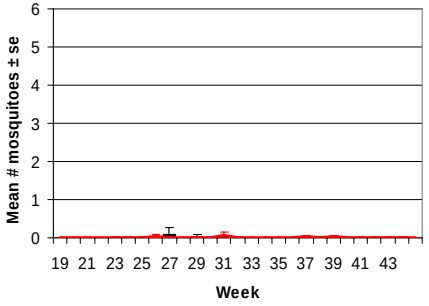
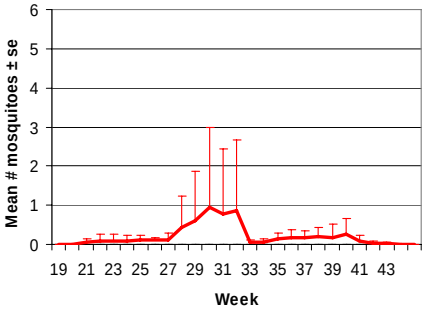
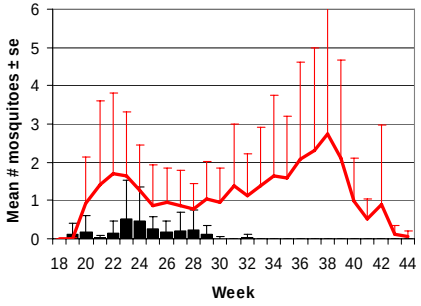
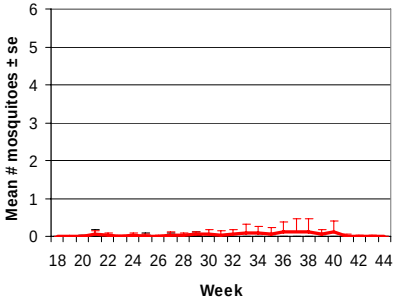
Suburban Corridor



Comments

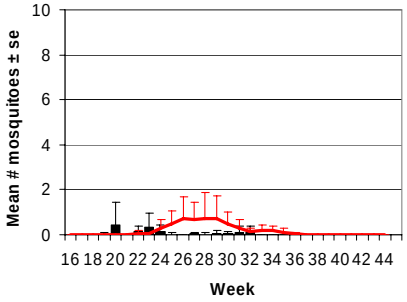
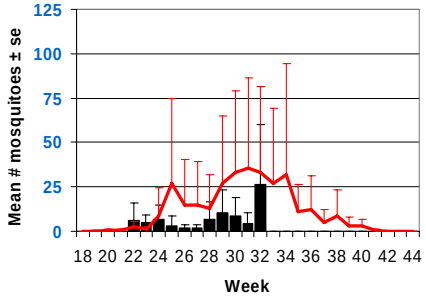
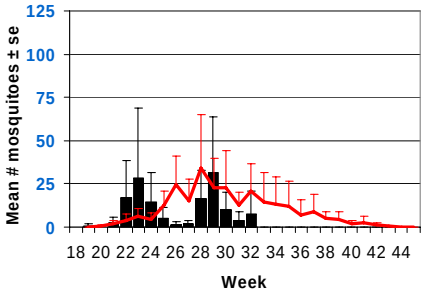
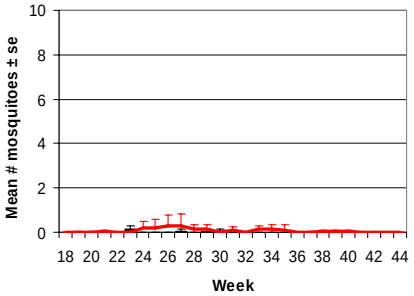
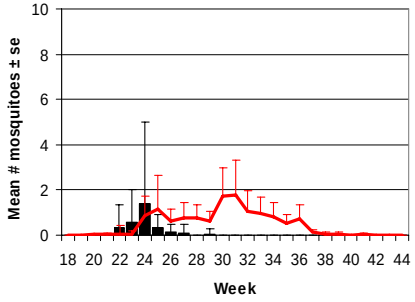
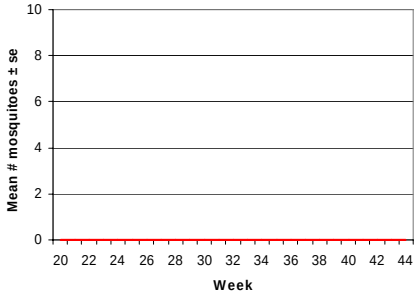
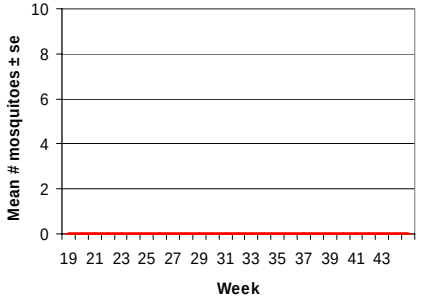
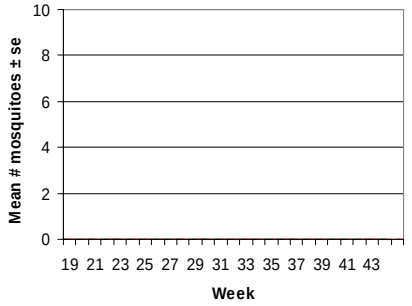
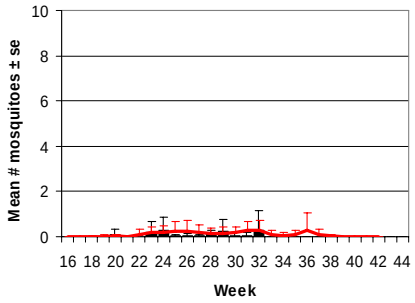
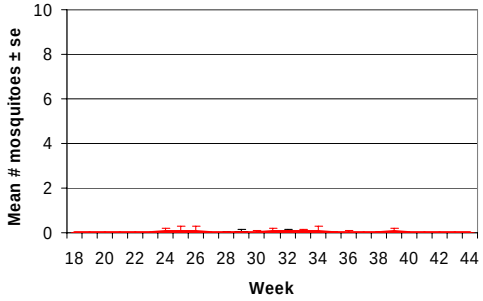
After an apparent early beginning, *Culex* Mixed species (*Cx. pipiens, restuans* and *salinarius*) are beginning to show the historical trends seen in some regions, such as the Coastal, North Central, Philadelphia Metro and Suburban Corridor. Other regions appear to either have lower numbers during this time (Agriculture, the Delaware Bayshore and River Basin, Northwest Rural and Pinelands). Areas that may have held permanent water may be holding less as county and Rutgers personnel have reported that areas holding water are dry a few days later. This suggests that the water table is lower than normal, and may also explain the lower populations observed in the floodwater and other species of mosquitoes. USGS data also indicate that ground water levels were lower than normal for the past two months.
http://nj.usgs.gov/monthly_summary/archive/2008/07/
http://nj.usgs.gov/monthly_summary/archive/2008/06/

Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* continue with very low numbers, in both the New Jersey light traps of this report and within historical resting boxes of the Vector Surveillance program. Caution, however, should remain in place, particularly if positive EEE pools should be detected. Recent historical activity has suggested that abundance may not be tightly associated with viral activity (we get positive pools with low abundance). While there may be some very low minimum number of mosquitoes required for virus activity to continue, there is nothing to suggest that high populations themselves will lead to high viral activity. Indeed, Hatchiya *et al*. found no correlations with abundance of *Cs. melanura* alone and human EEE cases in Massachusetts (as opposed to MFIR values AND abundance).	

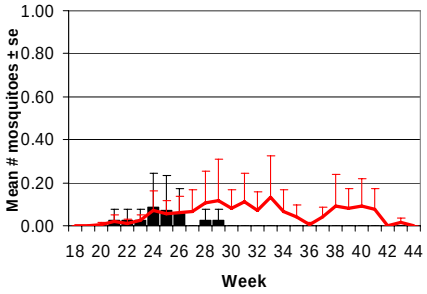
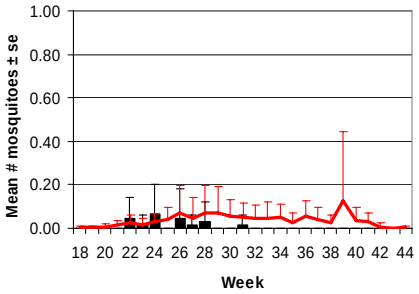
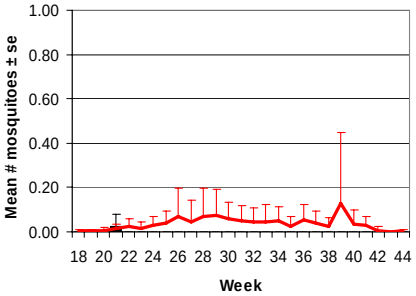
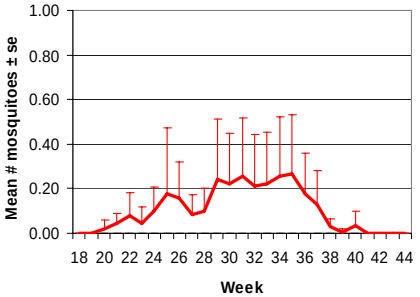
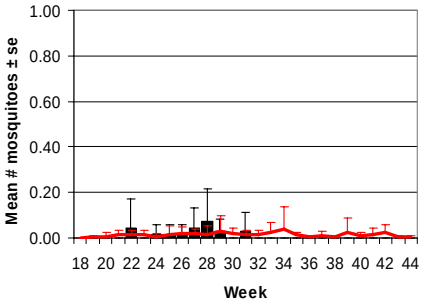
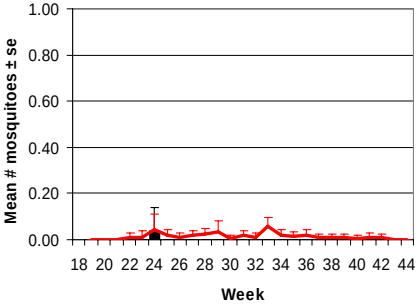
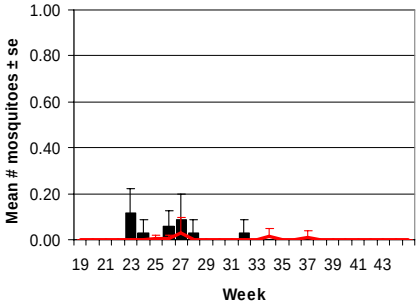
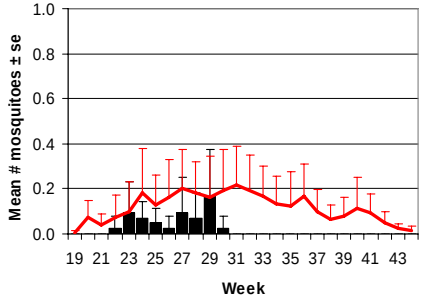
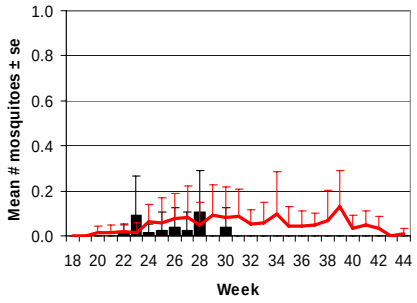
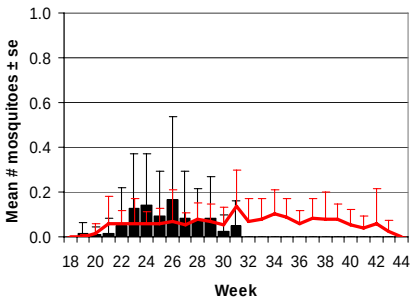
Hatchiya, M., M. Osborne, C. Stinson, and B. Werner. 2007 Human eastern equine encephalitis in Massachusetts: Predictive indicators from mosquitoes collected at 10 long-term trap sites, 1979-2004. J. Trop. Med. & Hyg. 76(2):285-292.

Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

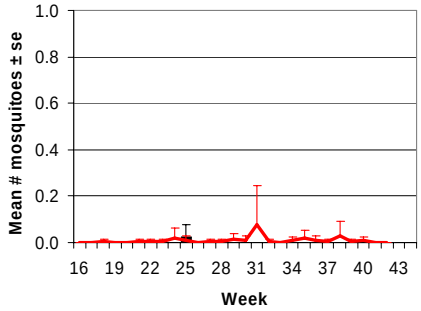
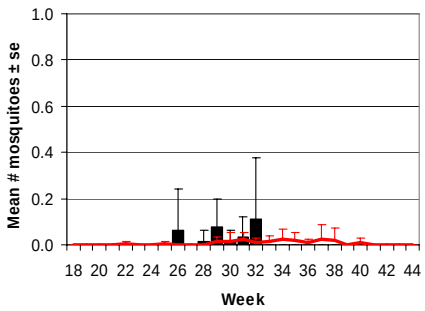
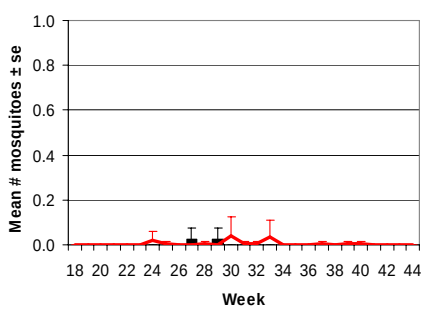
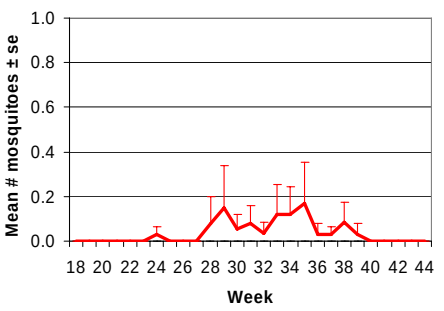
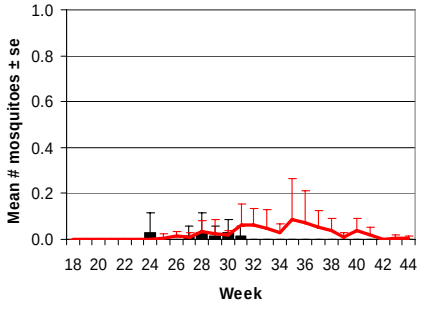
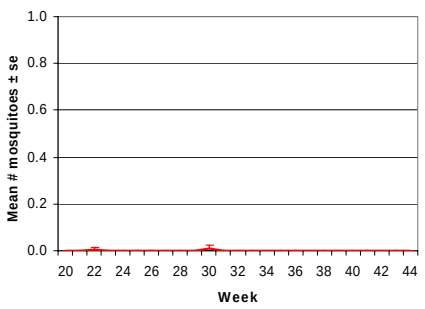
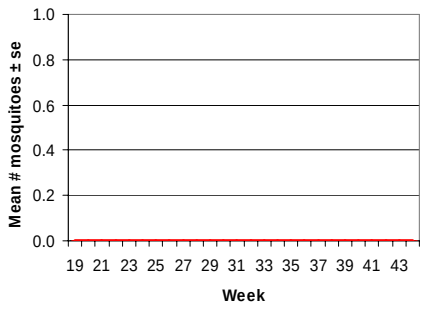
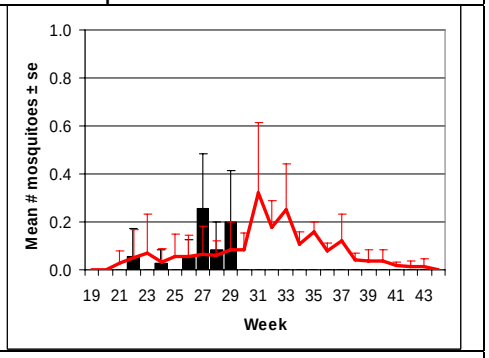
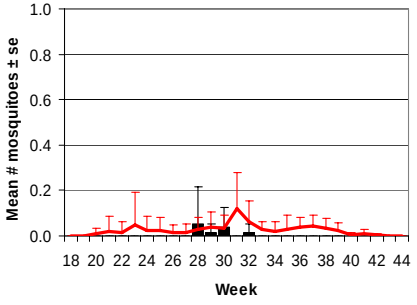
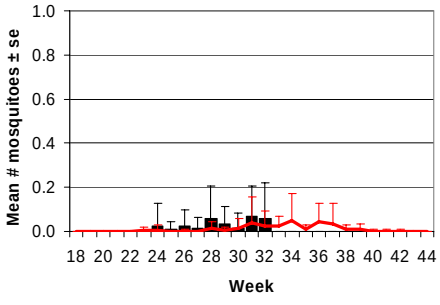
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		The brood emergence of *Aedes sollicitans* in the Coastal region appears to have happened rapidly and may be more visible than normally occurs as generations tend to accumulate, partially masking broods. Migration to inland sites, such as the Agricultural and Pineland regions is clearly visible.	

Aedes japonicus - Container Species

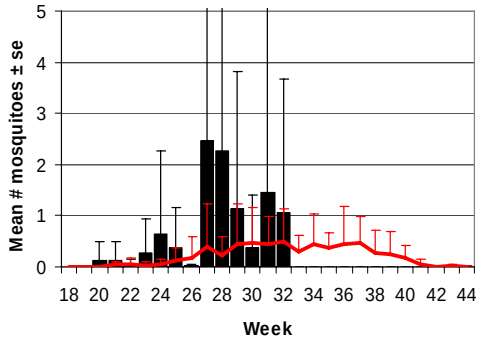
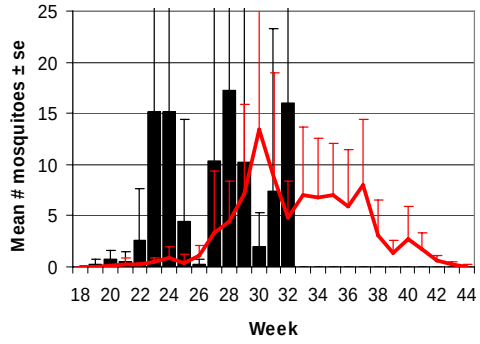
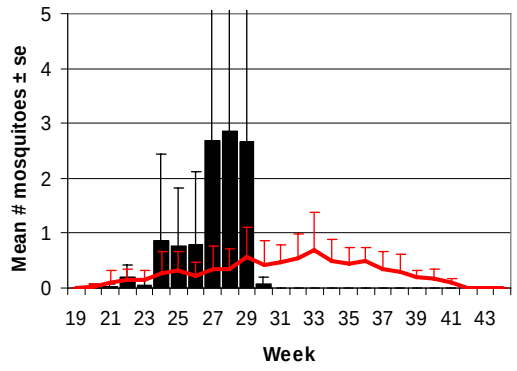
Multivoltine Aedine (*Ae. triseriatus* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes japonicus* populations have been mixed with regard to following historical trends. The Suburban Corridor appears to support an abundant population while *Ae. japonicus* is not being collected at the more southerly, sparsely human-populated areas along the Delaware as they once were. The Northwestern Rural region is showing an increase in this container species.	

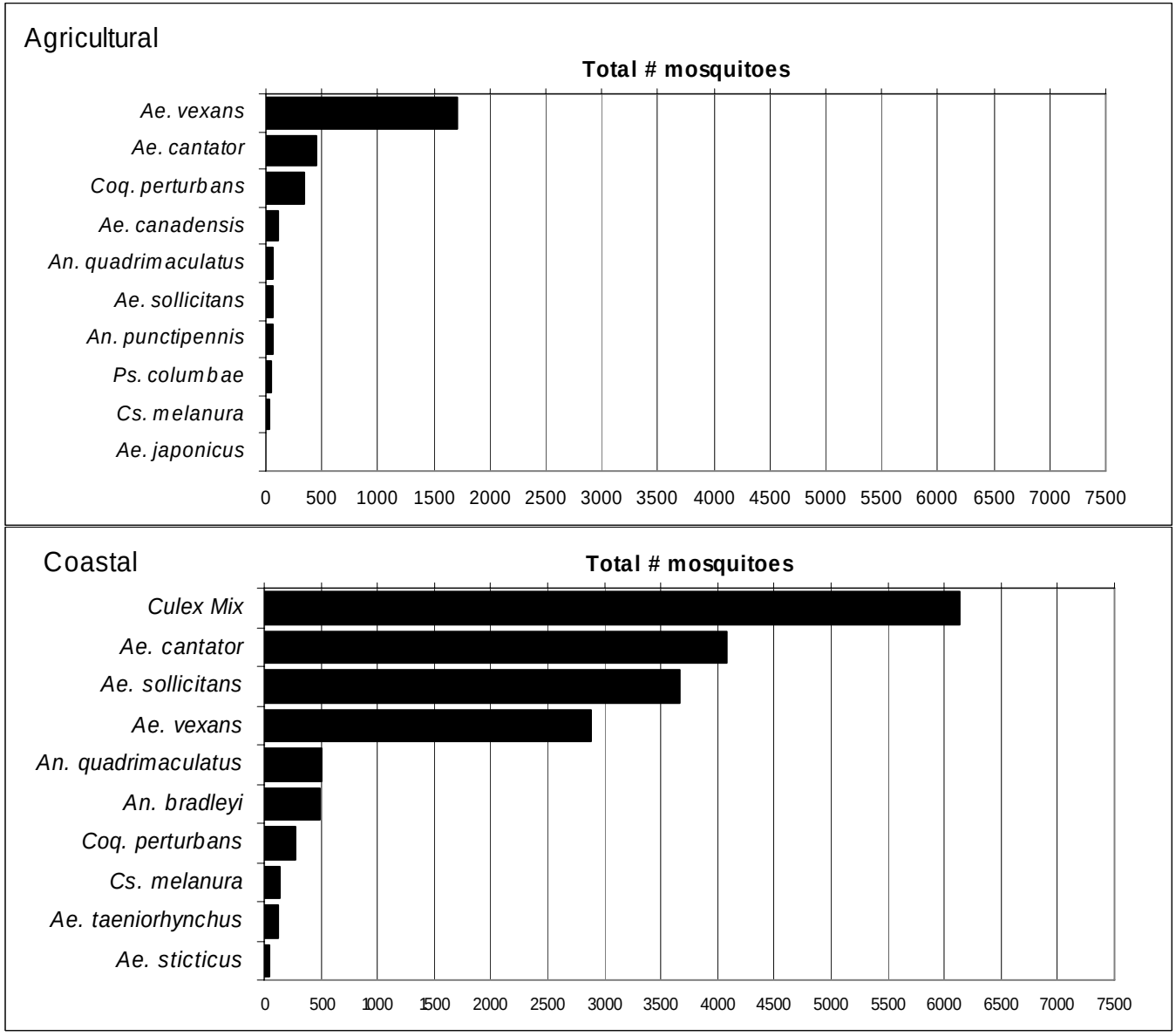
Aedes albopictus – Multivoltine Aedine (*Ae. triseriatus* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		As with *Aedes japonicus, Aedes albopictus* are not generally attracted to light traps. However, detection of *Ae. albopictus* can occur. Higher than historical averages have been seen in the Coastal region. The Philadelphia Metro region appears to support the larger populations in the state currently, and this species has been responsible for numerous complaints, according to the mosquito control agencies within this state this year. *Aedes albopictus*, the Asian Tiger Mosquito, is a highly competent vector of not only West Nile virus, but also of Chikungunya. Unlike West Nile, *Ae. albopictus* can pick up virus particles from a human ill with Chikungunya and pass it along to another human. Vigilance against a disease that occurs on the other side of the world may seem alarmist until one considers the ease of air travel.	

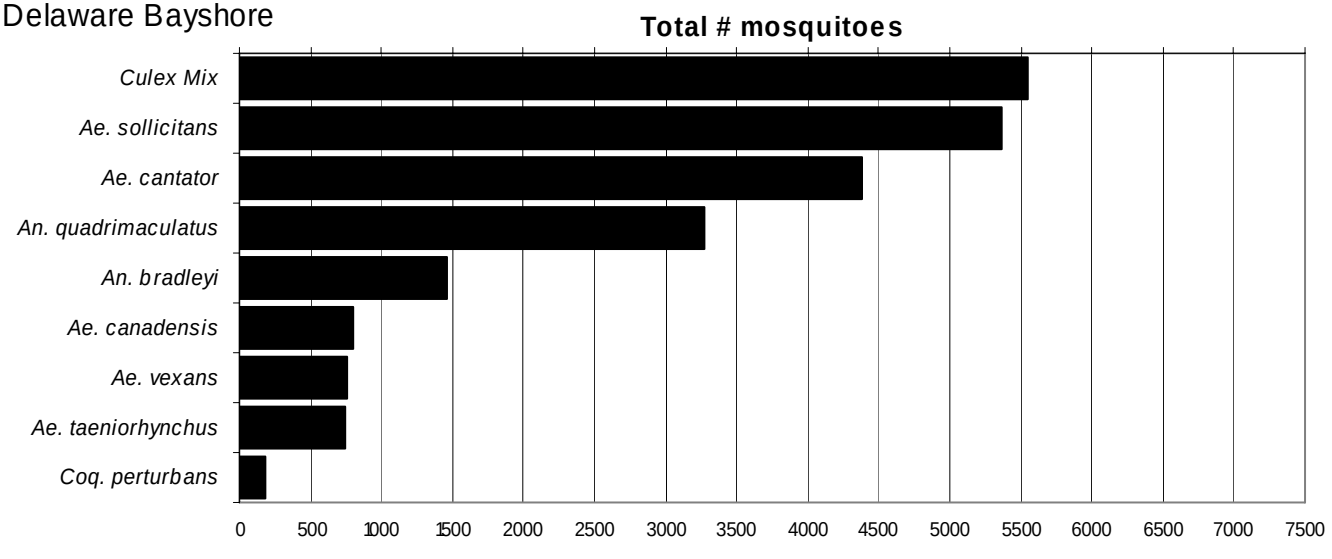
Anopheles quadrimaculatus: While many mosquito species appear to be in lower abundances this year, *Anopheles quadrimaculatus* are showing up in striking numbers for some regions. Larval habitats tend to include emergent vegetation. This mosquito played a significant role in the transmission of malaria in southern states. Dog heartworm is also transmitted by *An. quadrimaculatus*.

Coastal	Delaware Bayshore	Philadelphia Metro
		

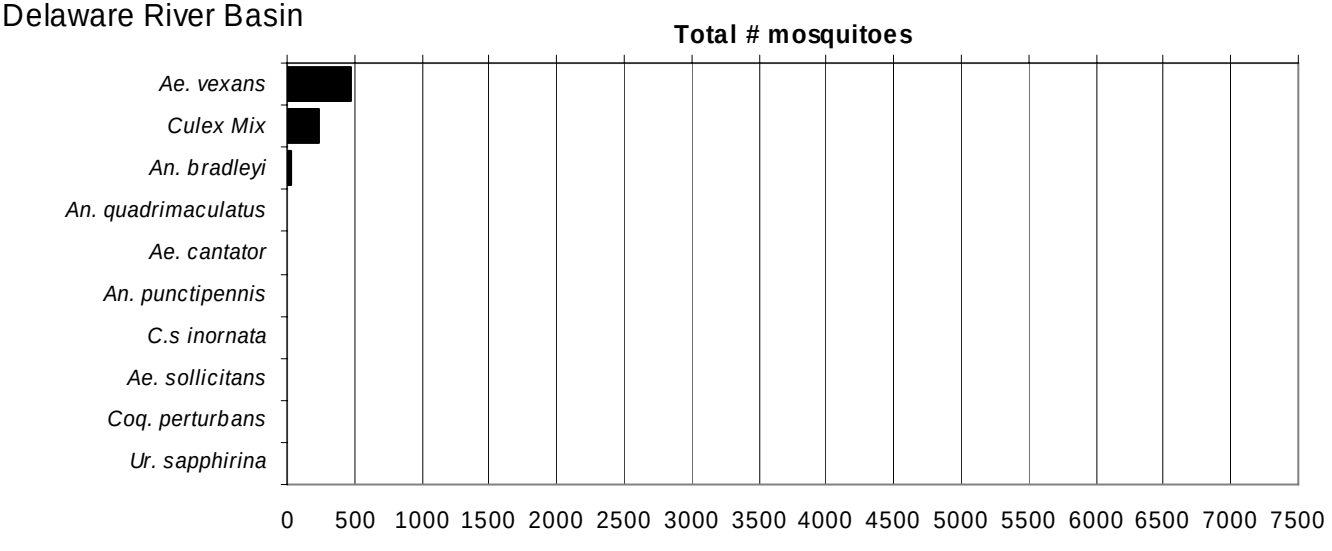
Top Ten Mosquito Species/Region

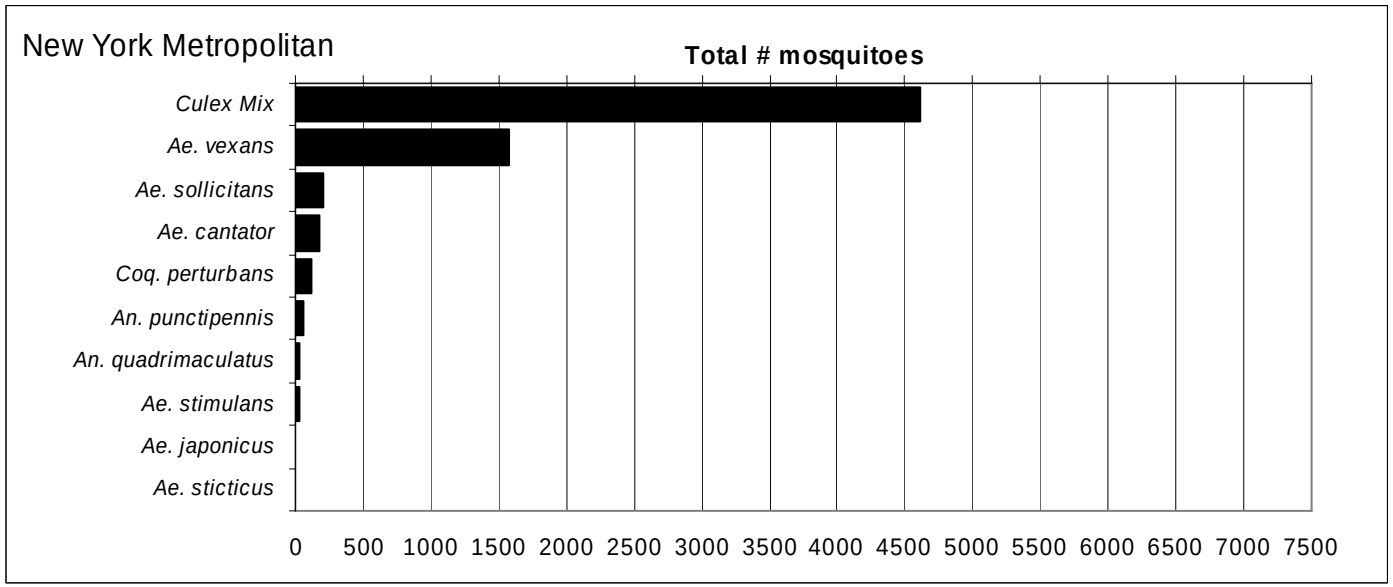


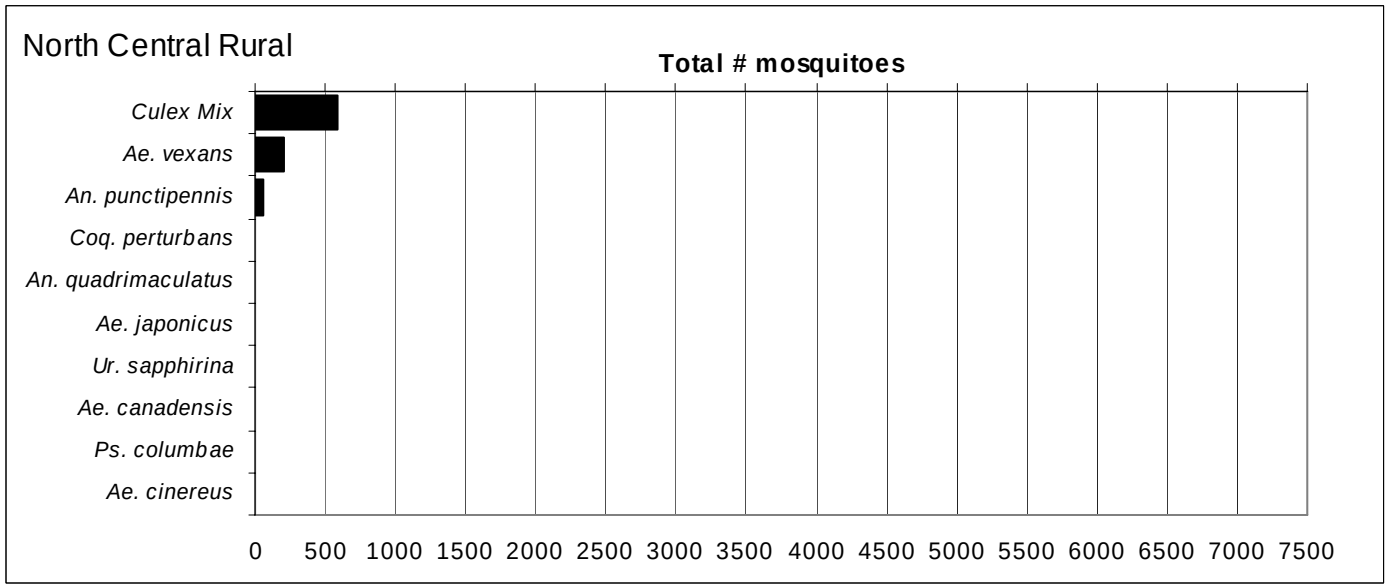
Delaware Bayshore

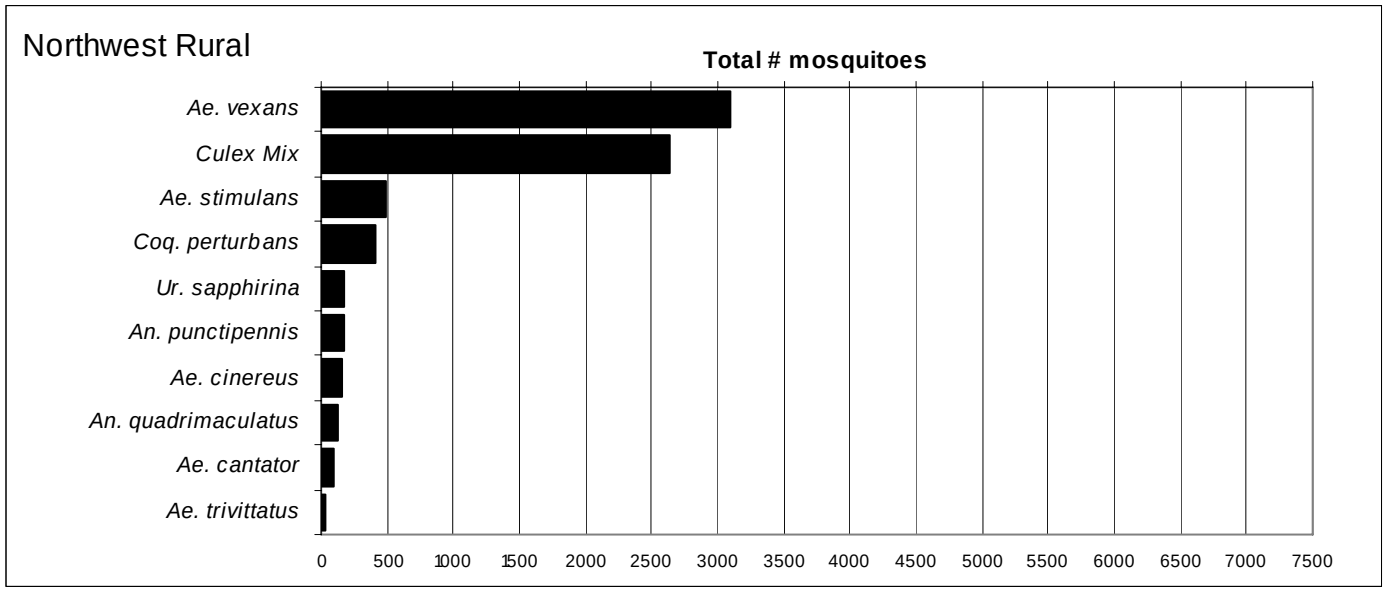


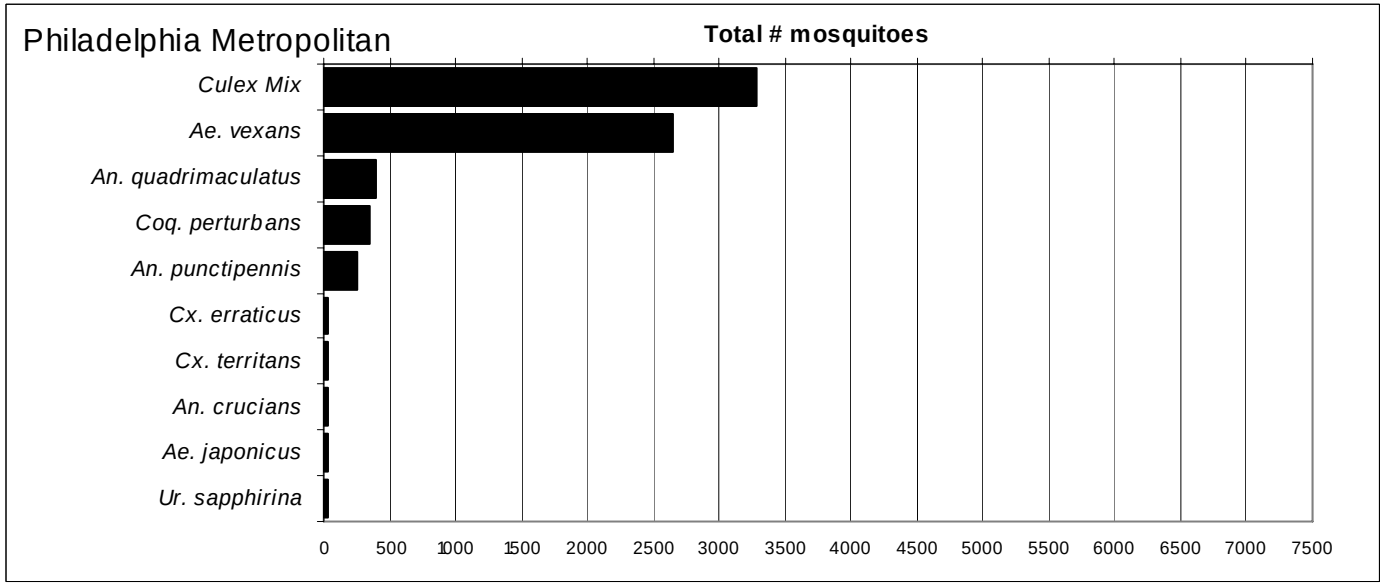
Delaware River Basin



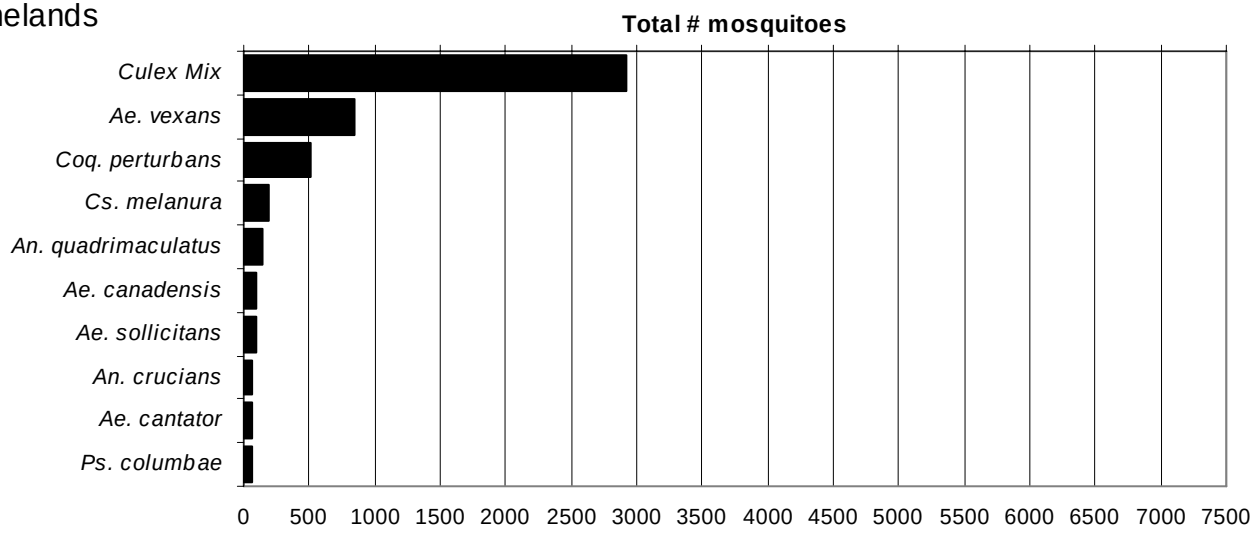

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. sollicitans
Ae. cantator
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ae. stimulans
Ae. japonicus
Ae. sticticus
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
Coq. perturbans
An. quadrimaculatus
Ae. japonicus
Ur. sapphirina
Ae. canadensis
Ps. columbae
Ae. cinereus
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. stimulans
Coq. perturbans
Ur. sapphirina
An. punctipennis
Ae. cinereus
An. quadrimaculatus
Ae. cantator
Ae. trivittatus
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
An. quadrimaculatus
Coq. perturbans
An. punctipennis
Cx. erraticus
Cx. territans
An. crucians
Ae. japonicus
Ur. sapphirina
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500

Pinelands



Suburban Corridor