NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 26 June to 2 July 2011, CDC Week 26

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Center for Vector Biology

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funding from the NJ State Mosquito Control Commission and with the participation of the 21 county mosquito control agencies of New Jersey.

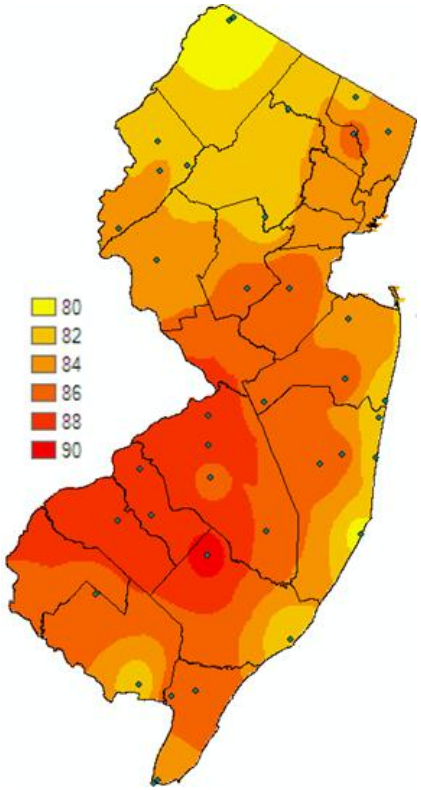
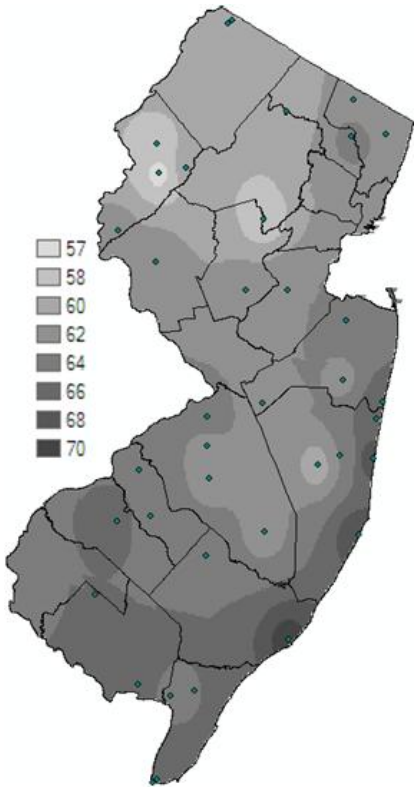
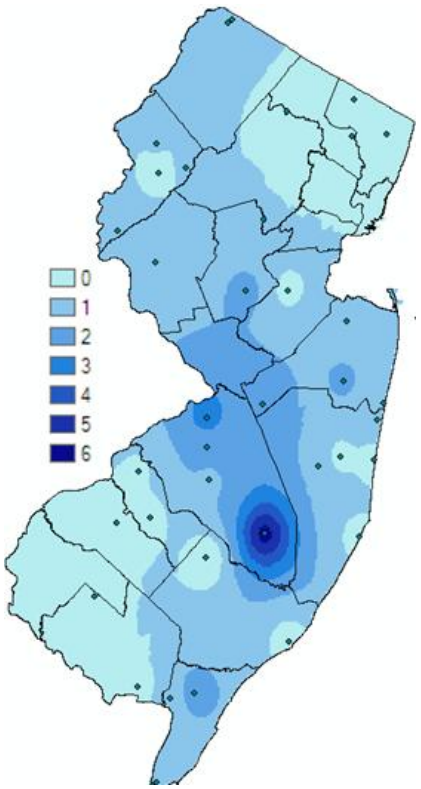
Summary Table – Week 26

	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	**0.23**	**2.92**	**0**	**0.37**	**2.51**	**0**	**0.26**	**0.49**	**0**	**0.09**	**0.05**	**2**
Coastal	**1.03**	**6.43**	**0**	**5.27**	**6.97**	**0**	**0.21**	**0.63**	**0**	**29.89**	**4.62**	**4**
Delaware Bayshore	**6.43**	**2.67**	**3**	**28.80**	**15.63**	**2**	**6.23**	**1.42**	**4**	**6.49**	**6.86**	**0**
Delaware River Basin	**2.86**	**6.55**	**0**	**1.50**	**2.09**	**0**	**1.07**	**0.16**	**4**	**0.00**	**0.01**	**0**
New York Metro	**0.60**	**4.29**	**0**	**4.17**	**6.76**	**0**	**0.07**	**0.24**	**0**	**0.79**	**0.18**	**4**
North Central Rural	**0.12**	**0.23**	**0**	**0.29**	**1.25**	**0**	**0.00**	**0.04**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**1.20**	**7.94**	**0**	**4.63**	**3.50**	**1**	**0.50**	**3.36**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.64**	**9.74**	**0**	**1.00**	**7.60**	**0**	**0.04**	**0.96**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.79**	**2.66**	**0**	**1.81**	**3.37**	**0**	**0.29**	**1.05**	**0**	**0.25**	**0.06**	**4**
Suburban Corridor	**2.71**	**4.71**	**0**	**1.64**	**3.80**	**0**	**0.14**	**0.76**	**0**	**0.00**	**0.02**	**0**

*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: Significant increases in pestiferous populations continue. Higher than recent historical values for *Aedes* vexans was observed in the Delaware Bayshore. For *Culex* Mix, higher numbers continued in the Delaware Bayshore and the Northwest Rural. *Coquillettidia perturbans* numbers also continued with high abundance in the Delaware Bayshore and River Basin. *Aedes sollicitans* numbers were high in the two regions of traditionally significant values, the Coastal and Delaware Bayshore as well as in the New York Metro and Pinelands.

Climate Factors

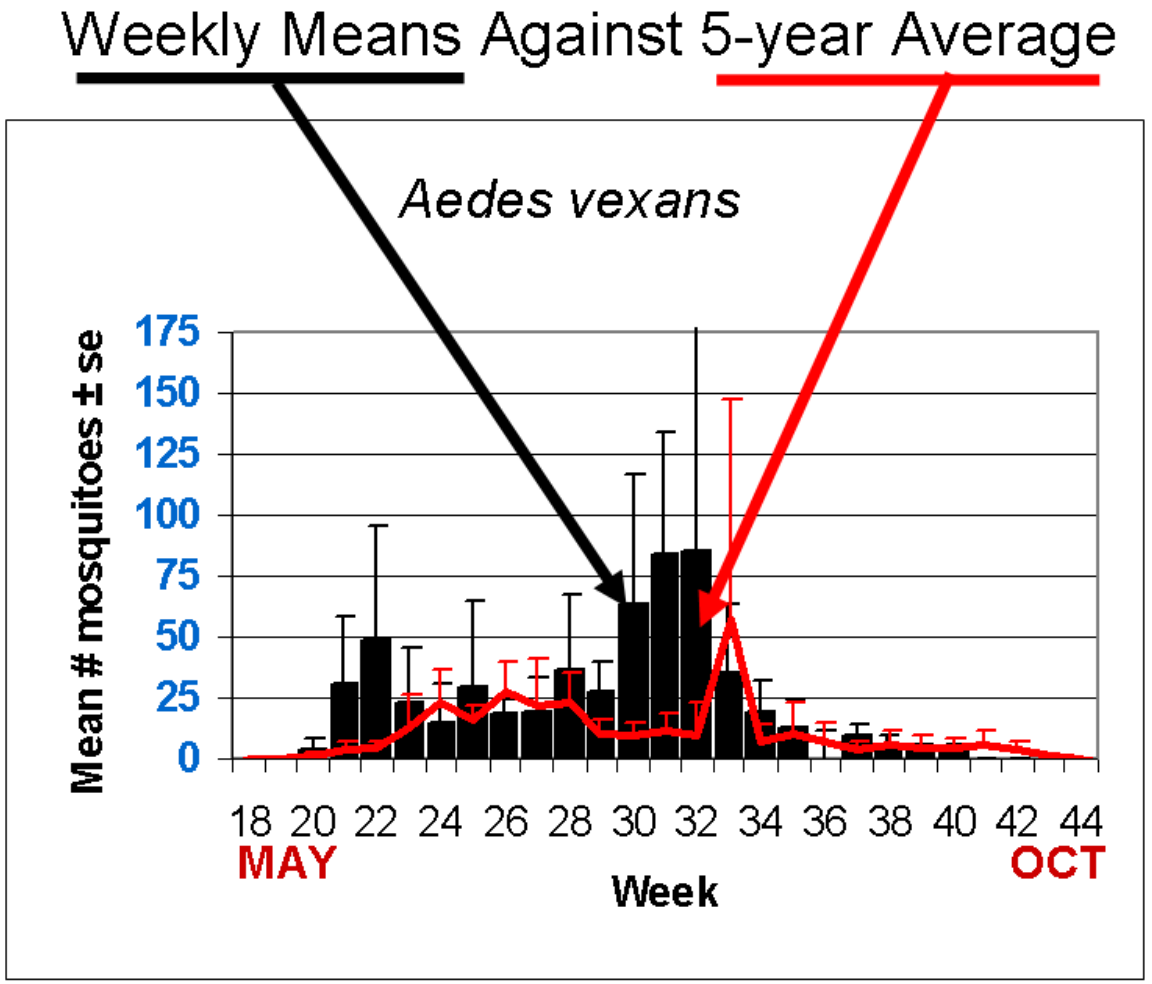
Average High Temperature	Average Low Temperature	Total Precipitation
		

The three figures show the interpolation of average maximum and minimum temperature and total precipitation from 1 July to 8 July, 2011 in New Jersey. Data points are from about 37 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.

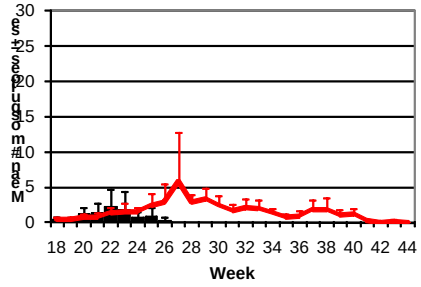
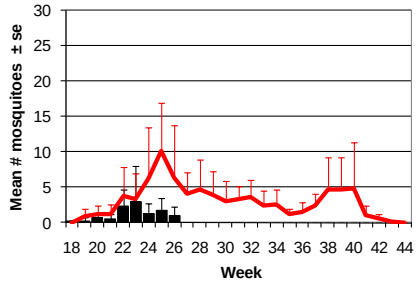
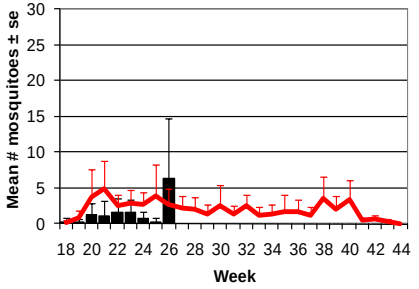
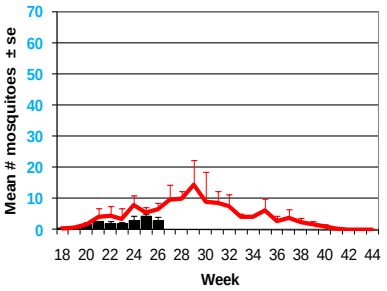
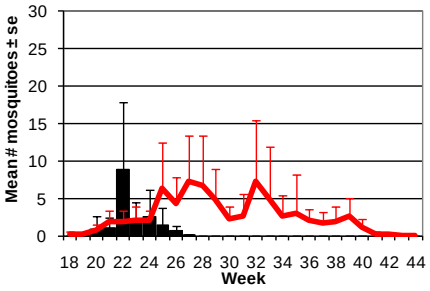
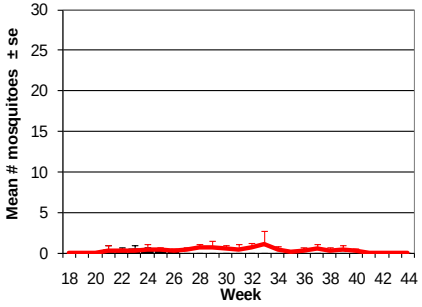
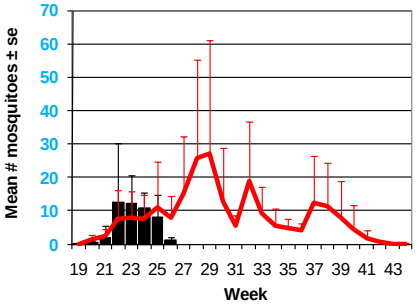
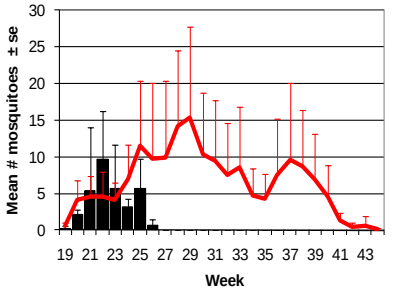
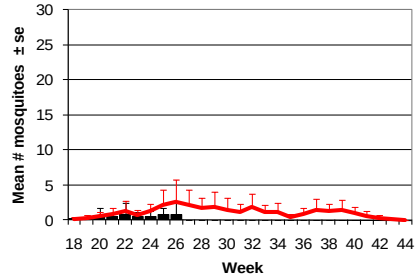
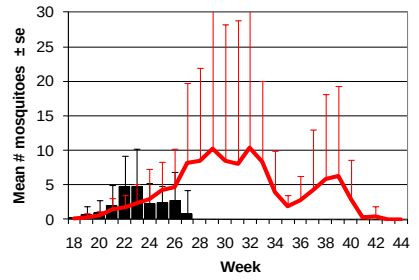
Average high temperatures were seen in the interior southern half of New Jersey. Average low temperatures were slightly warmer than last week and were highest along the coastal region (moderating effects of large bodies of water – i.e., the Atlantic Ocean). Precipitation patterns changed as higher rainfall shifted southward.

NJ Weather & Climate NETWORK ONJSC at Rutgers University

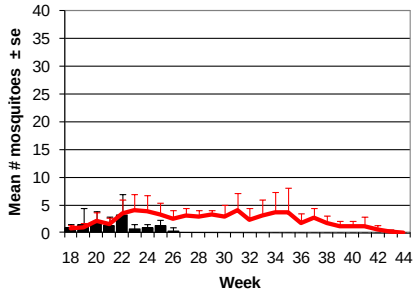
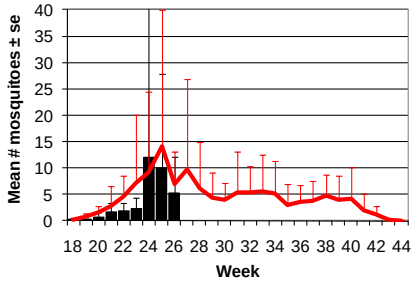
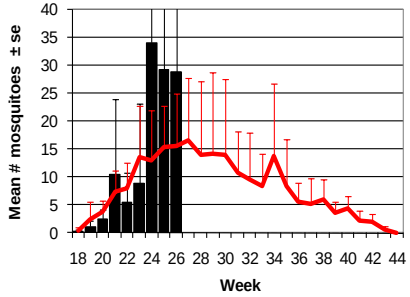
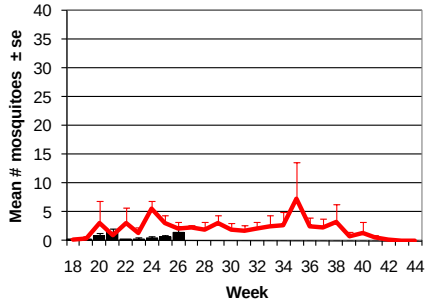
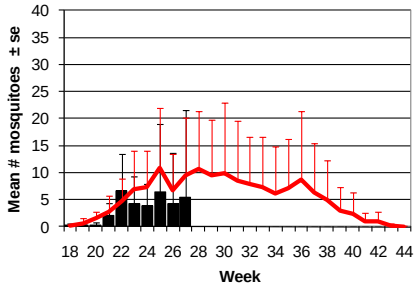
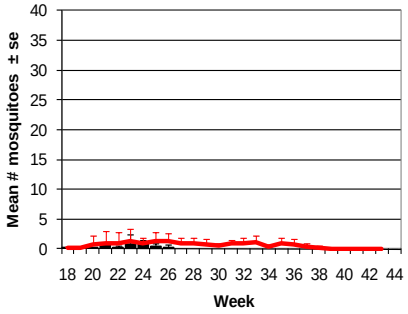
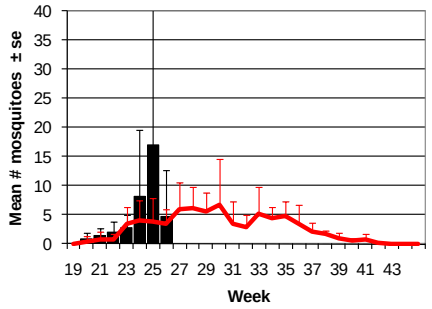
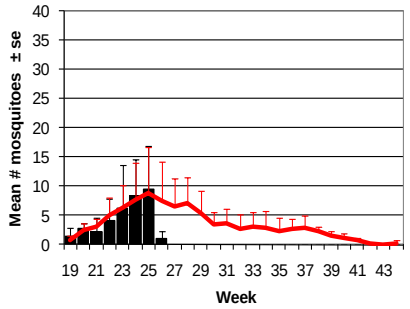
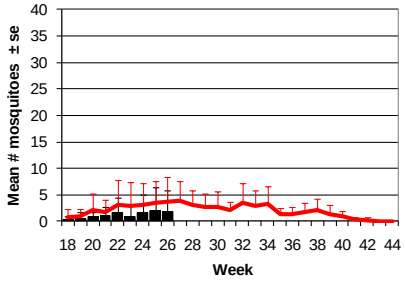
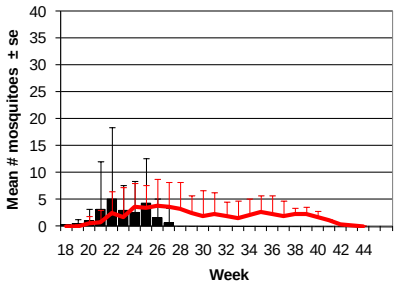
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 these weeks are from Atlantic, Bergen, Camden, Cape May, Hunterdon, Mercer, Monmouth, Morris, Ocean, Salem, Sussex, Union and Warren counties. Last week included Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties. Note: County data is sent in at a variety of times during the week.



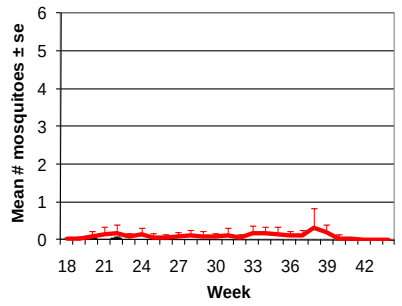
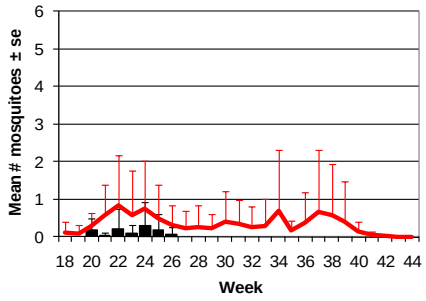
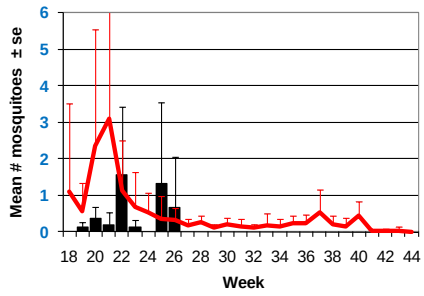
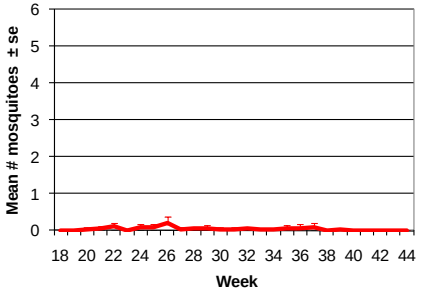
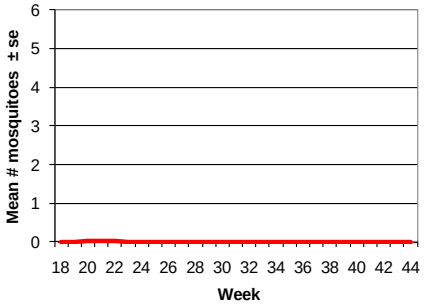
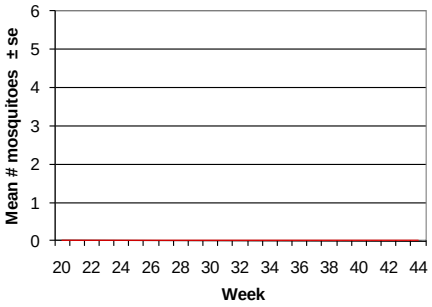
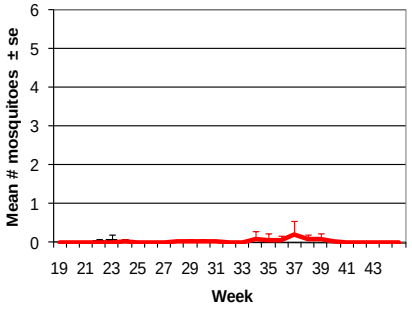
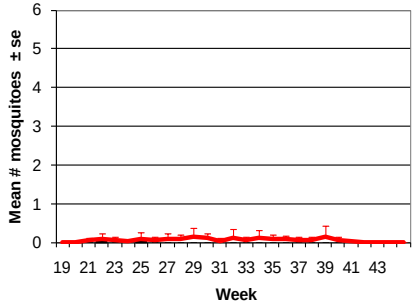
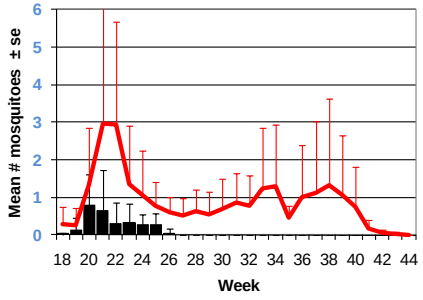
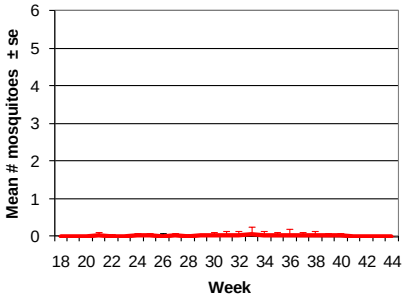
Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations remain at or lower than historical values in all but the Delaware Bayshore. While most of the activity from traps for that region showed a slight increase in numbers, one locale was particularly active. This was despite June's lower precipitation for southern NJ as compared to the northern half of the state. There was minor local rainfall event that occurred earlier, likely contributing to enough flooding conditions for emergence to occur.	

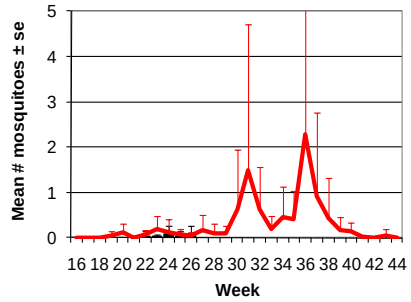
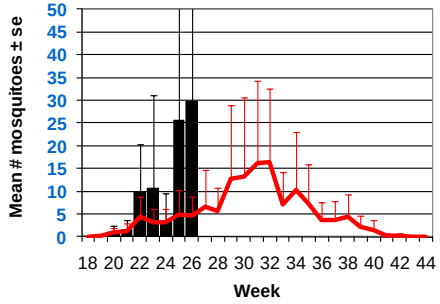
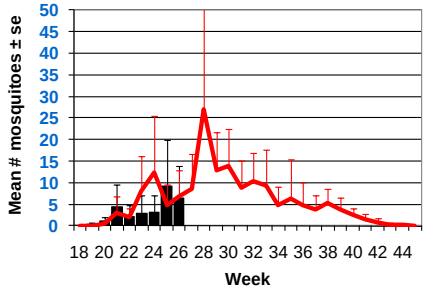
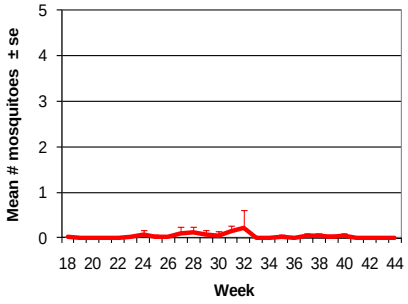
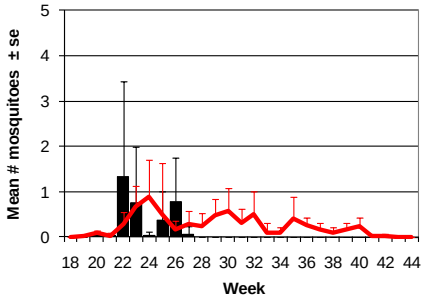
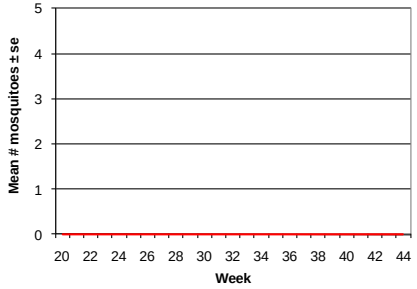
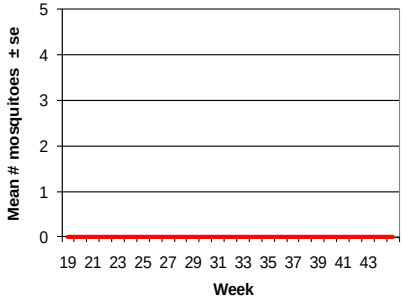
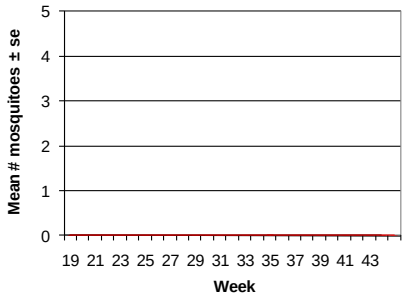
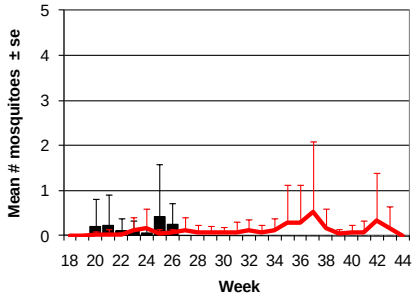
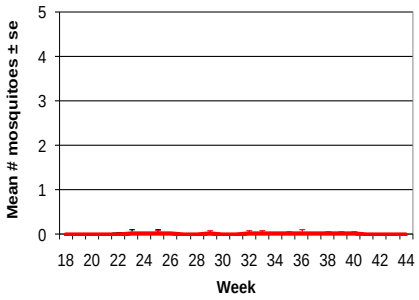
Culex Mix – Permanent Water Species
Multivoltine *Culex/Anopheles* (*Cx. pipiens* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*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. Currently, local populations in the Delaware Bayshore continue to show significant increases, with most of the contribution from *Cx. salinarius*.	

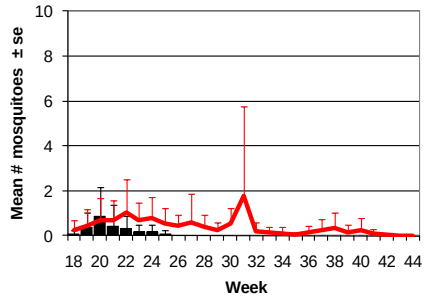
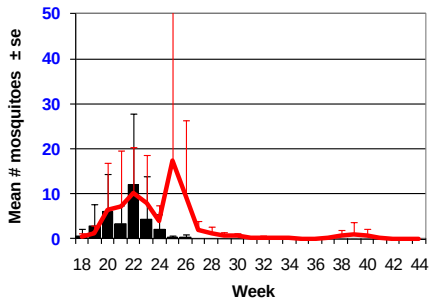
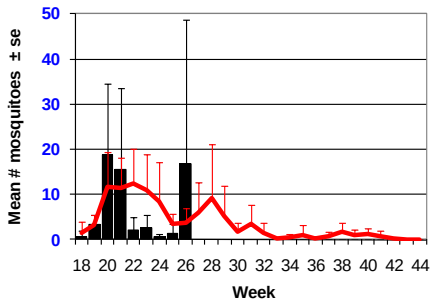
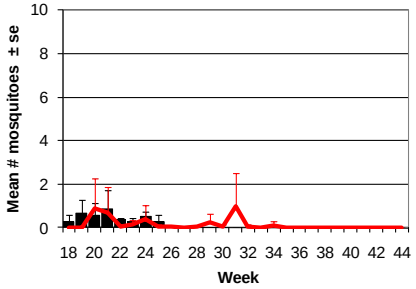
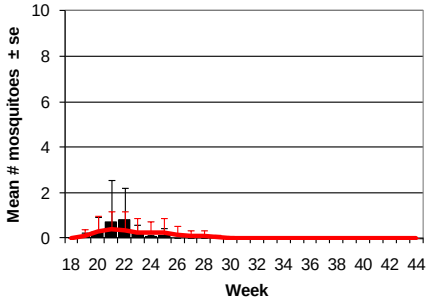
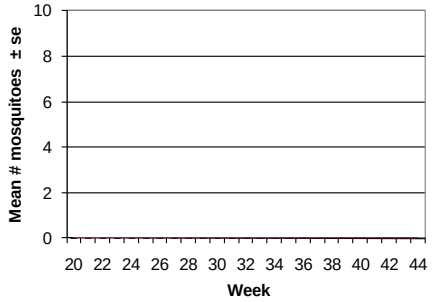
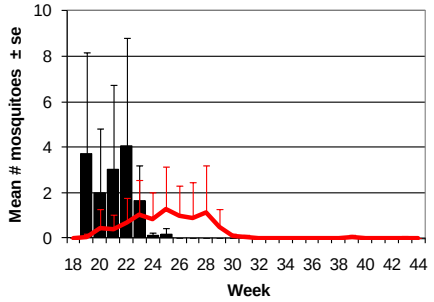
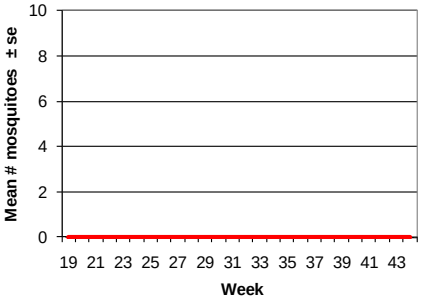
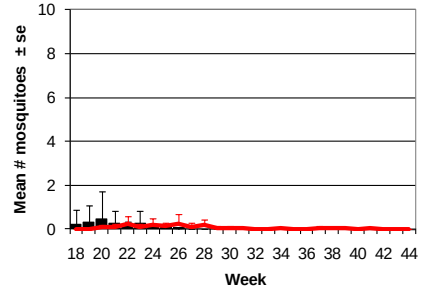
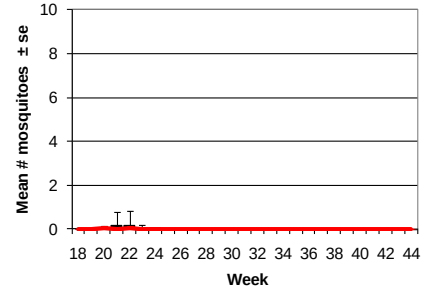
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* is the enzootic ornithophilic vector of eastern equine encephalitis. Some recent activity for this species has been observed in the Delaware Bayshore region. This is in contrast to the below historical trends observed in the resting boxes, a preferred trap. Numbers are expected to be low at this period between generations. Numbers should begin to rise as the offspring from the current generation, plus overwinter firsts and seconds finally develop, showing the typical rise in population numbers as displayed by the historical trends in the Pinelands.	

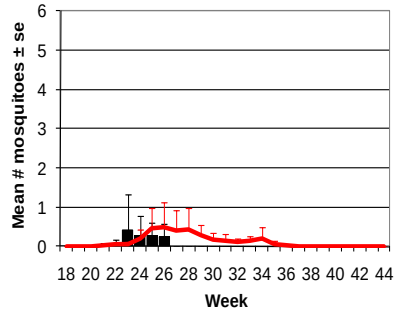
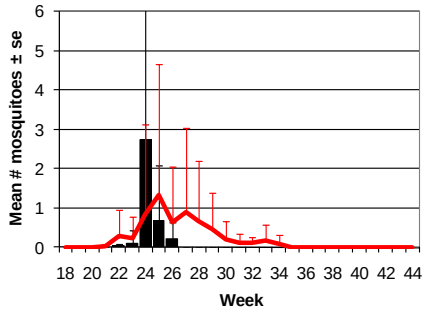
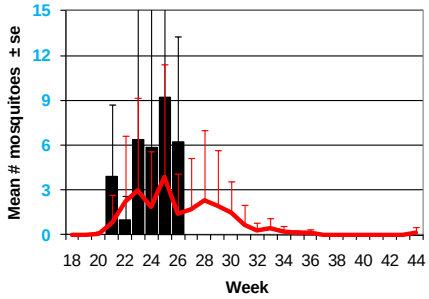
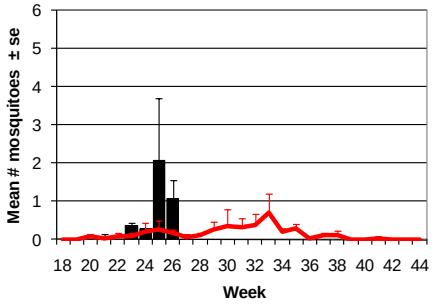
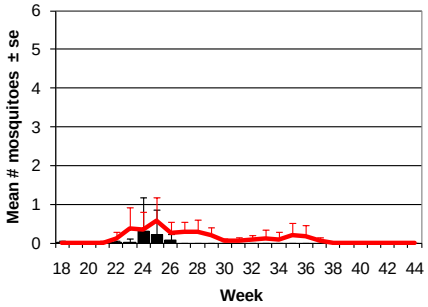
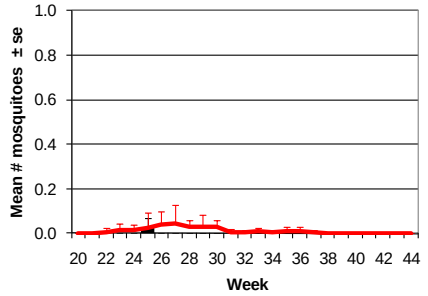
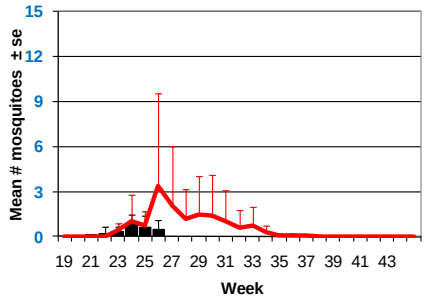
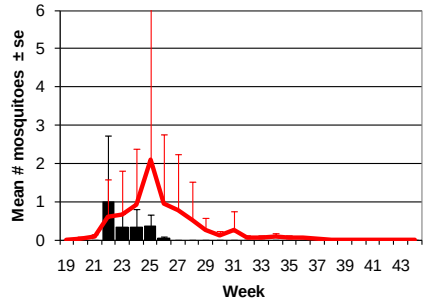
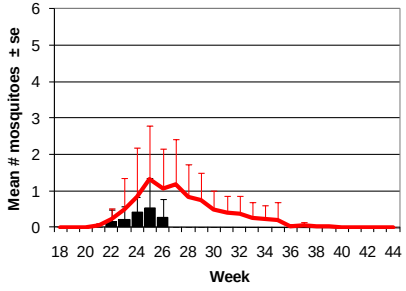
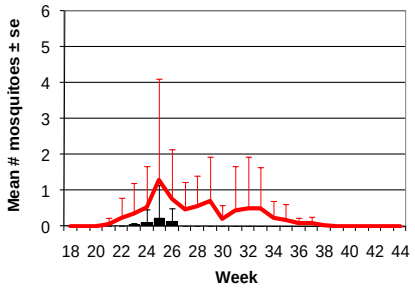
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* population abundances remain significantly high in the Coastal and Delaware Bayshore regions as this second emergence continues. Numbers were also above historical trends in the New York Metro region. The migratory nature of this species is also reflected in the higher populations of the Pinelands. Next Full Moon: 15 July.	

Aedes cantator - 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**	
		Last week, *Aedes cantator* populations appeared to be on the decline and this was to be the last set of graphs for this species unless unusual activity is observed. While most populations continued to decline, high activity was observed in the Delaware Bayshore. This was at the same site that *Aedes vexans* populations were also high. Both species being a floodwater species (one fresh, one salt) suggests that a significant (but local) rainfall event occurred, but likely not within the correct conditions required for exceptional *Ae. sollicitans* hatching.	

Coquillettidia perturbans
Monotypic (*Coq. perturbans* Type)

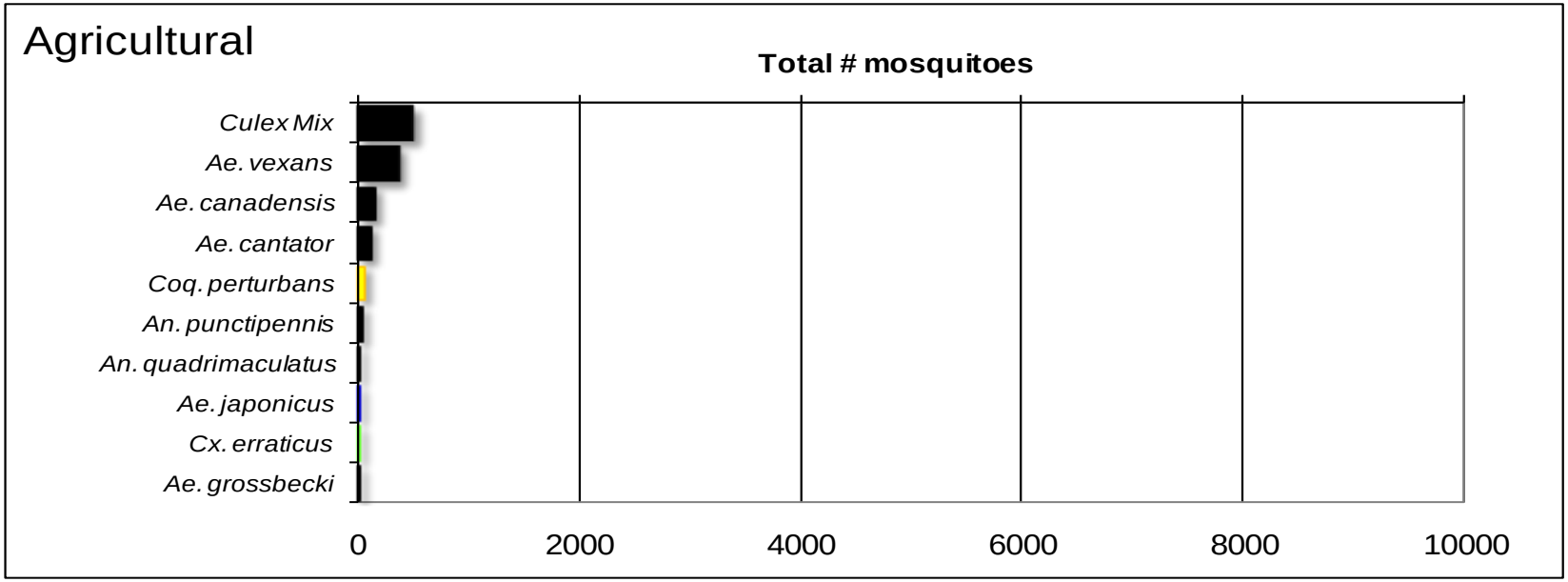
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations have shown some significant activity in the Delaware Bayshore and Delaware River Basin regions, as well as earlier in the Coastal region. This species, a potential inland vector for Eastern Equine Encephalitis, can be a difficult species to control as the larvae are found attached to plant roots and stems to obtain oxygen (Romanowski and Candeletti). Drainage may be the most effective method for larval control.	

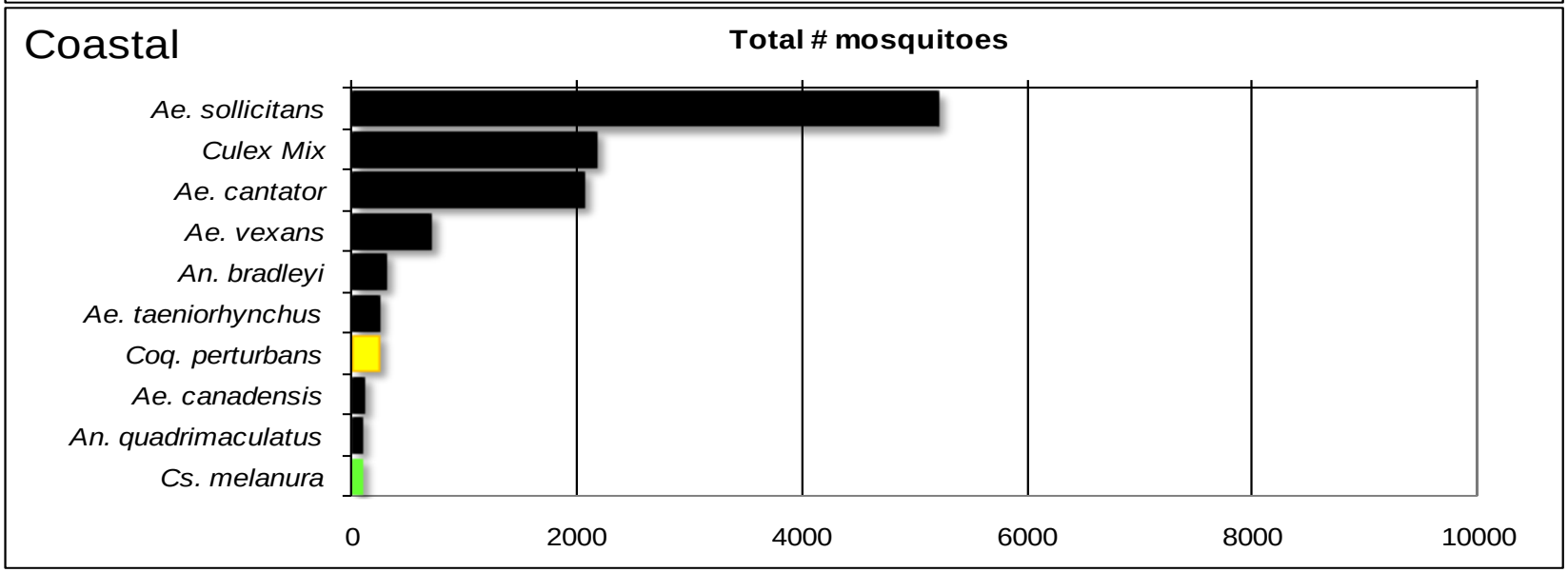
Romanowski, M and Candeletti T. 1984. Identification and surveillance of Coquillettidia perturbans breeding habitat, with observations on larviciding techniques, in Ocean County, N.J. Proc. N. J. Mosquito Control Assoc. pp. 54-58. http://www.rci.rutgers.edu/~insects/sp16.htm

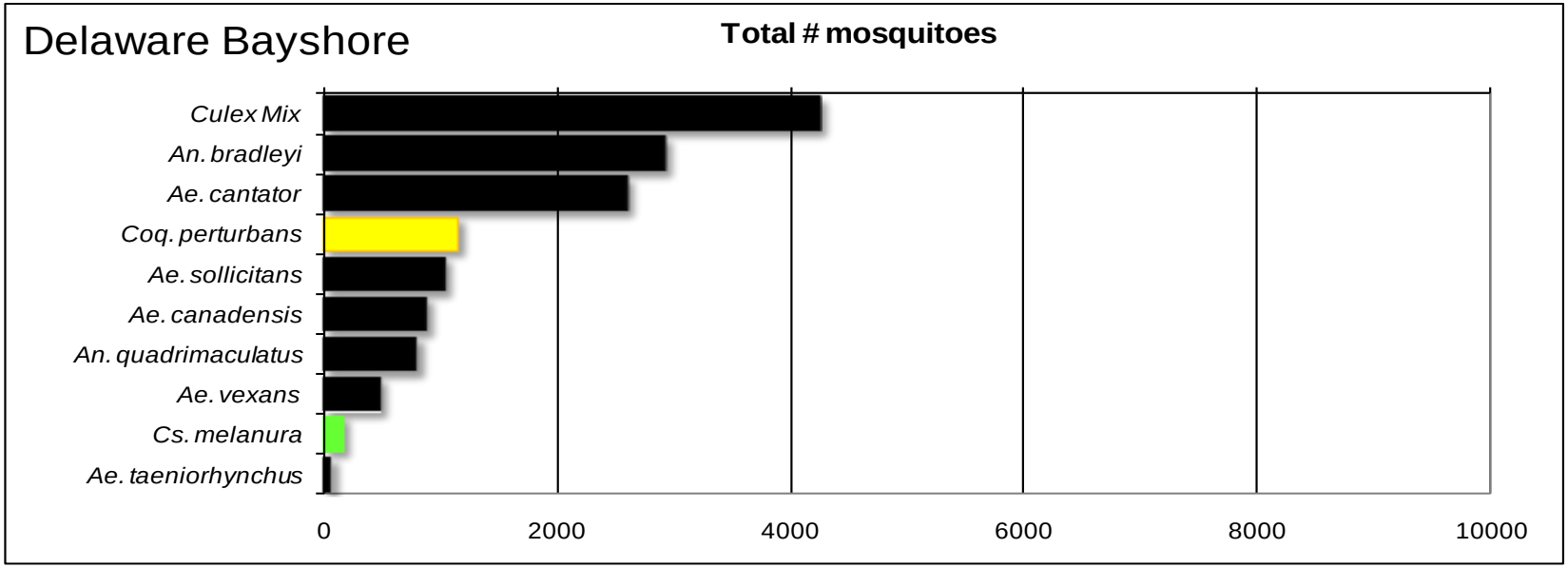
WNV *EEE*

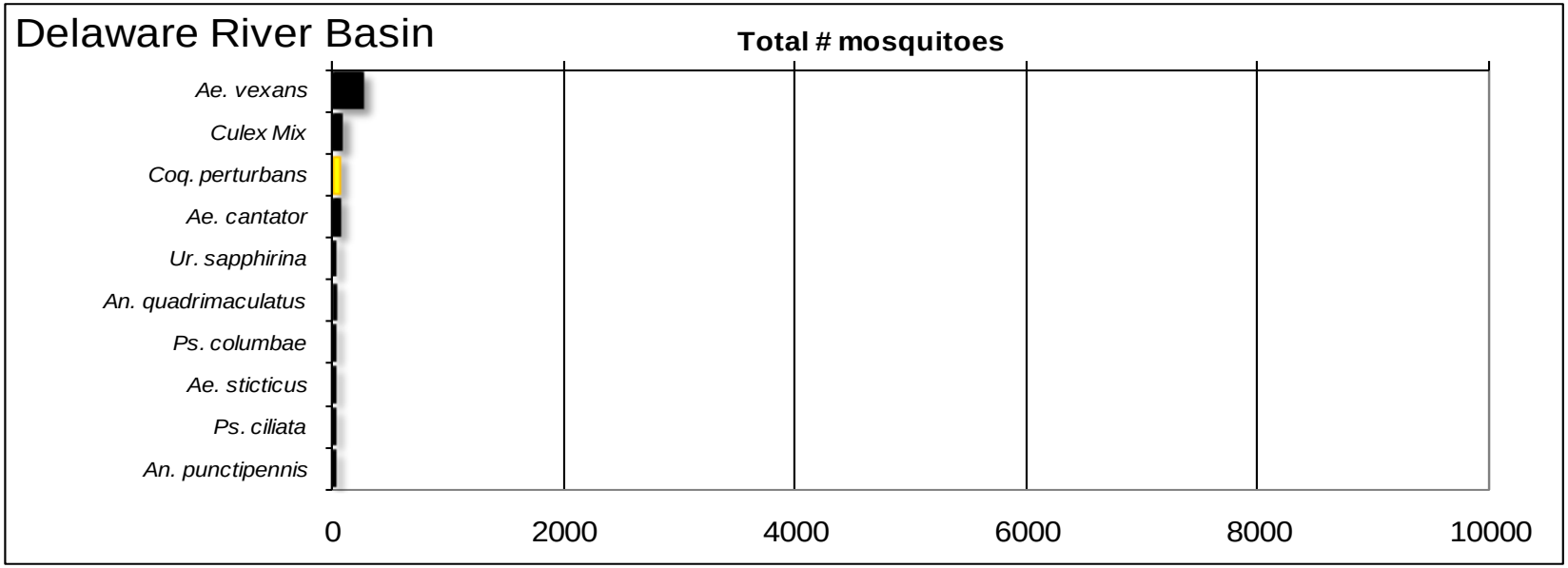
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

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

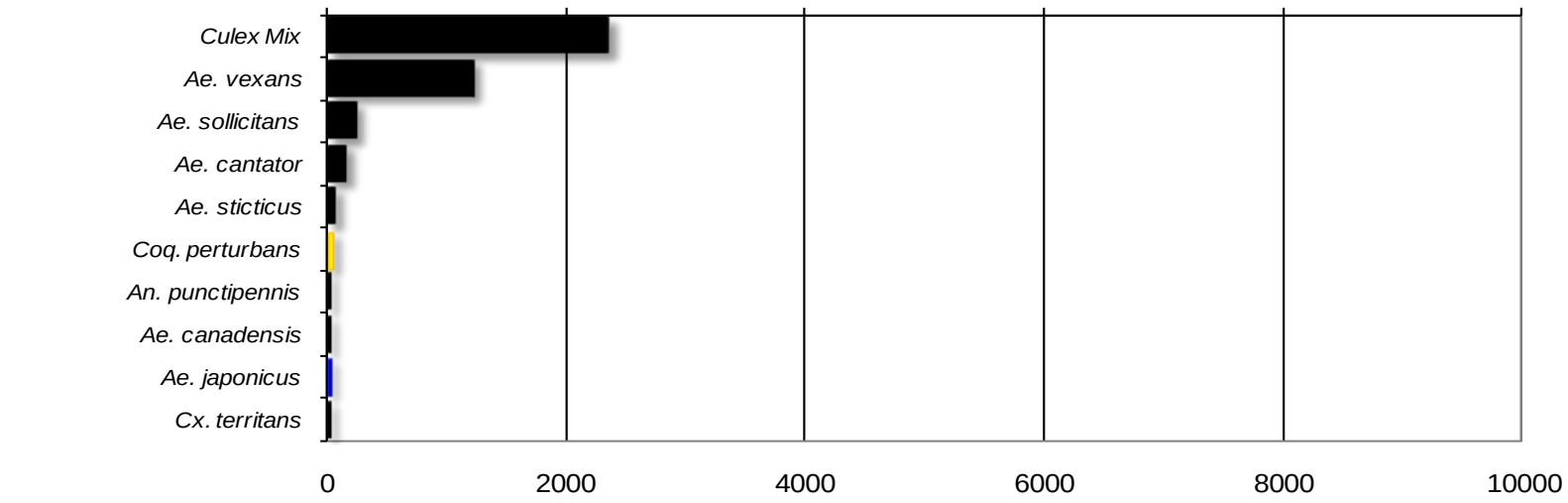




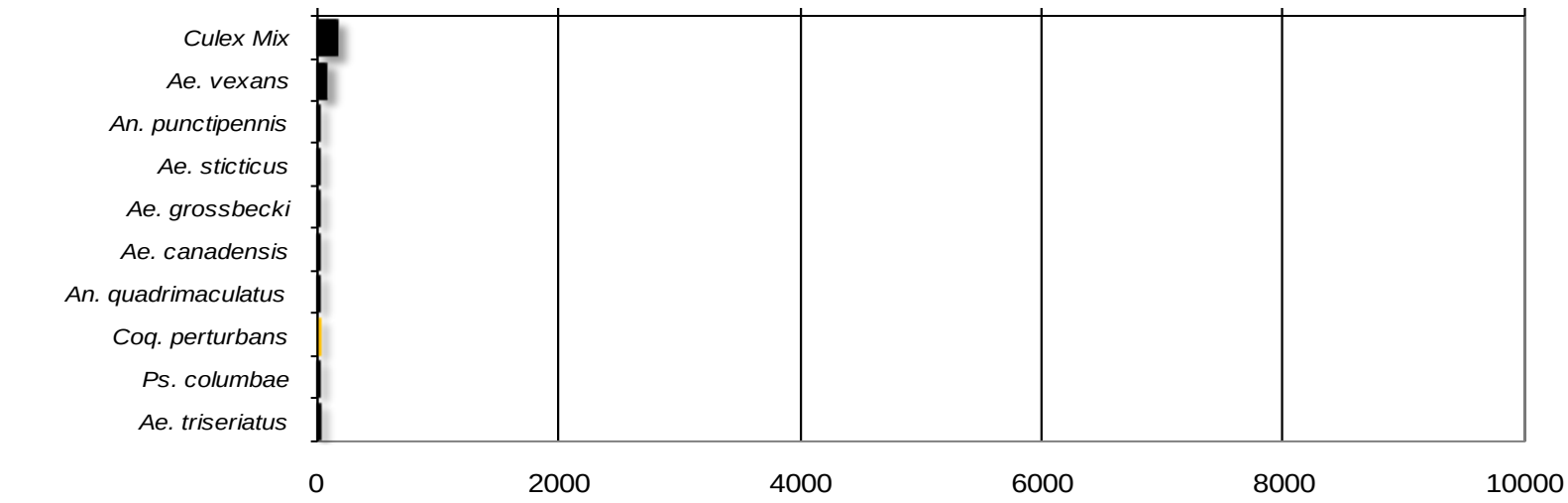

Delaware Bayshore
Total # mosquitoes
Culex Mix
An. bradleyi
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. canadensis
An. quadrimaculatus
Ae. vexans
Cs. melanura
Ae. taeniorhynchus
0
2000
4000
6000
8000
10000


Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
Ae. cantator
Ur. sapphirina
An. quadrimaculatus
Ps. columbae
Ae. sticticus
Ps. ciliata
An. punctipennis
0
2000
4000
6000
8000
10000

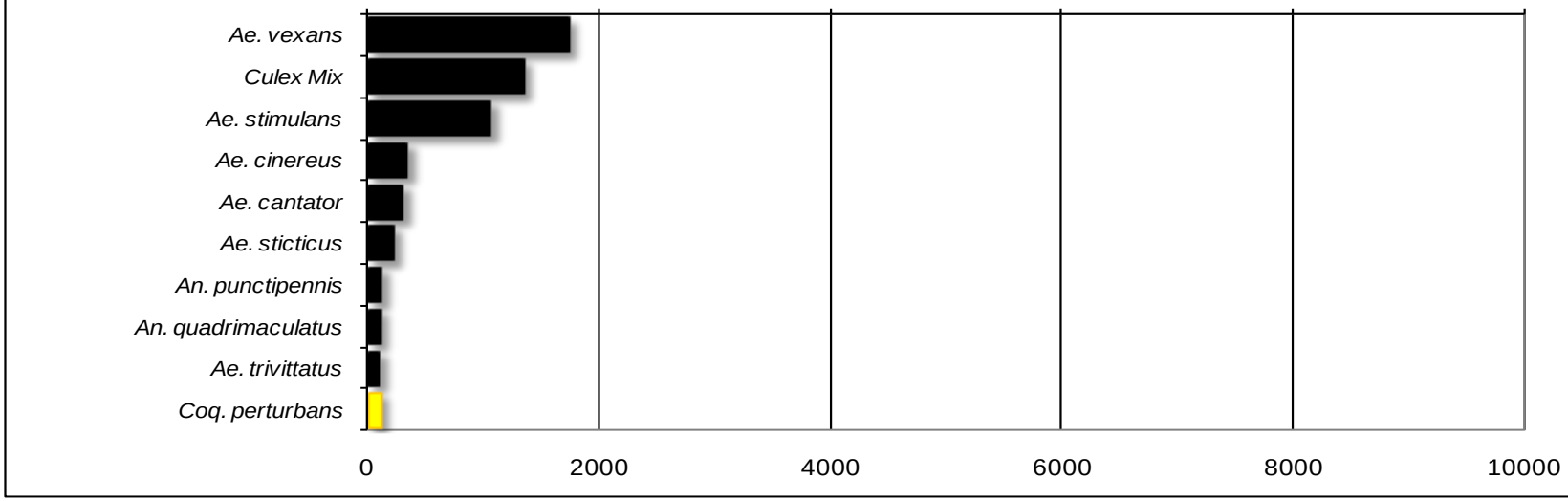
New York Metropolitan



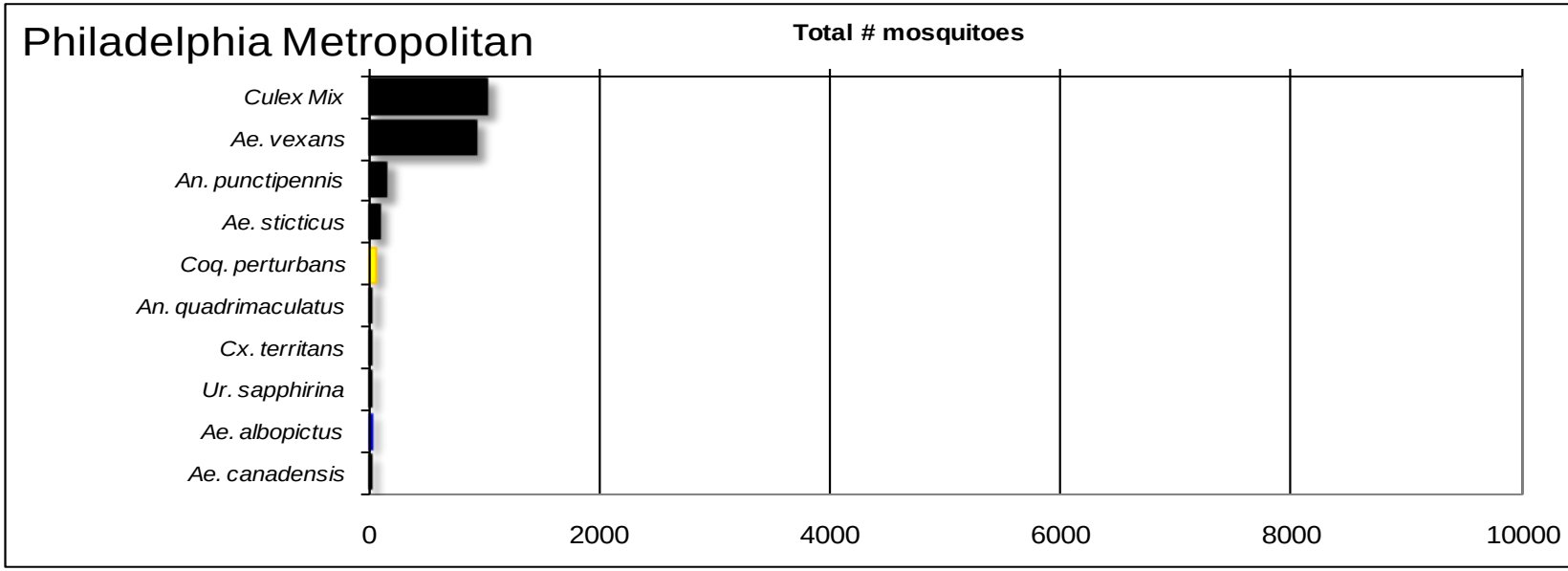
North Central Rural



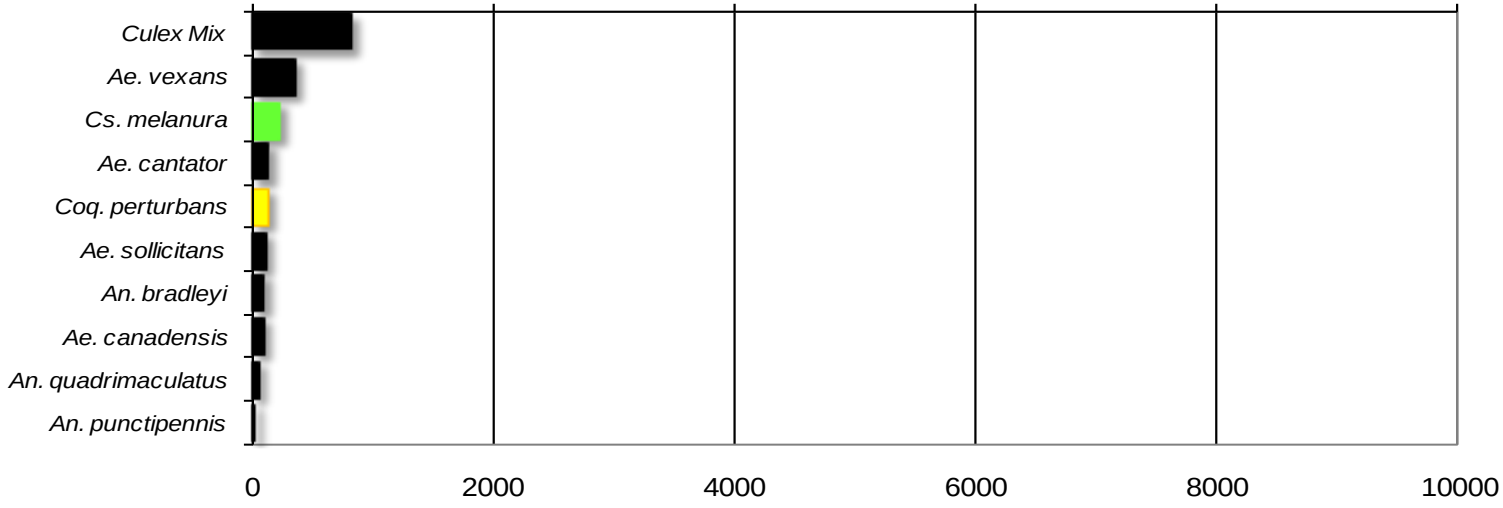
Northwest Rural



Philadelphia Metropolitan



Pinelands



Suburban Corridor