NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 28 August to 3 September 2011, CDC Week 35

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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.

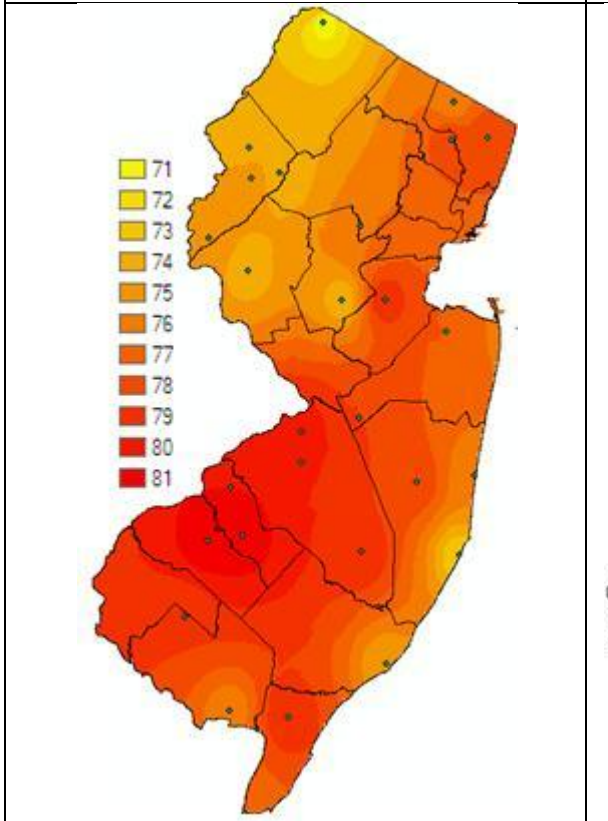
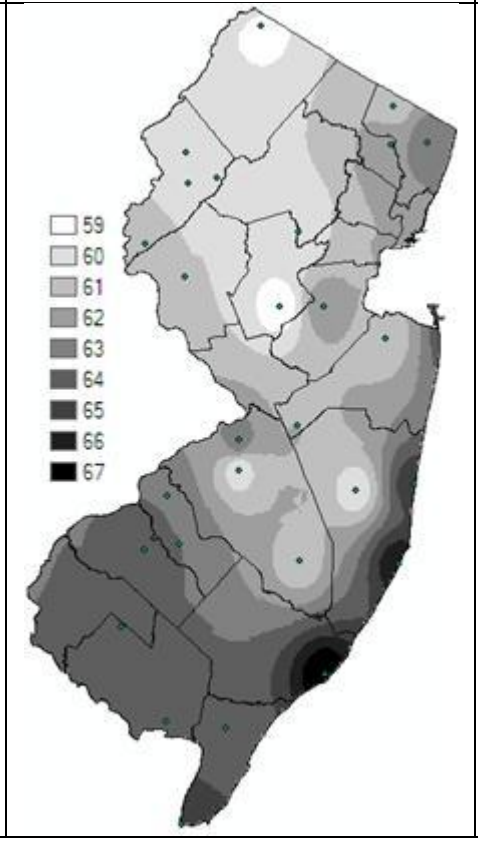
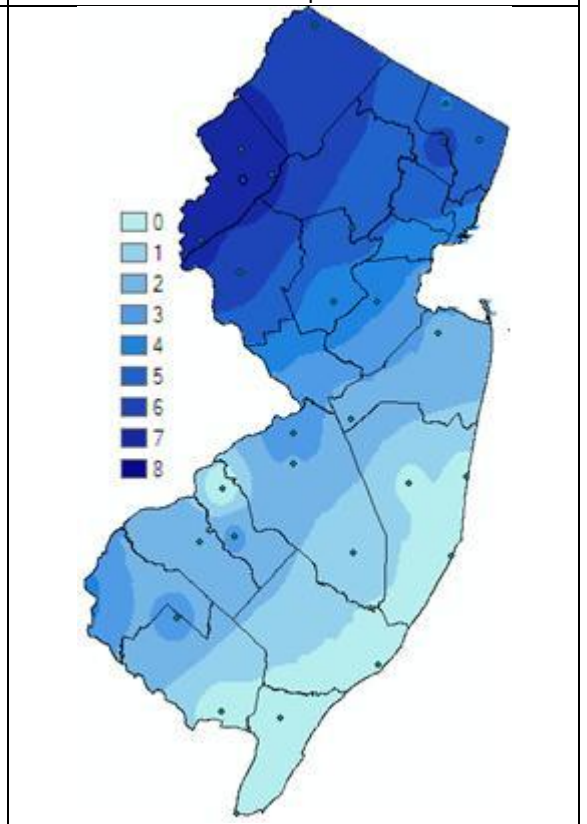
Summary Table – Week 35

	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	**1.50**	**0.70**	**3**	**1.45**	**3.66**	**0**	**0.38**	**0.06**	**4**	**0.07**	**0.41**	**0**
Coastal	**0.35**	**1.15**	**0**	**3.11**	**3.04**	**1**	**0.00**	**0.01**	**0**	**1.27**	**7.39**	**0**
Delaware Bayshore	**1.11**	**1.66**	**0**	**11.66**	**8.42**	**1**	**0.00**	**0.12**	**0**	**1.00**	**6.21**	**0**
Delaware River Basin	**7.43**	**6.26**	**1**	**3.43**	**7.27**	**0**	**0.00**	**0.29**	**0**	**0.64**	**0.03**	**4**
New York Metro	**2.69**	**2.89**	**0**	**0.71**	**7.18**	**0**	**0.00**	**0.20**	**0**	**0.11**	**0.41**	**0**
North Central Rural	**0.00**	**0.16**	**0**	**0.00**	**0.95**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**52.74**	**4.72**	**4**	**5.37**	**4.82**	**1**	**0.00**	**0.10**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**11.32**	**4.31**	**4**	**4.46**	**2.31**	**2**	**0.00**	**0.05**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.69**	**0.43**	**2**	**2.23**	**1.39**	**2**	**0.14**	**0.22**	**0**	**0.01**	**0.28**	**0**
Suburban Corridor	**0.82**	**1.92**	**0**	**0.27**	**2.74**	**0**	**0.00**	**0.30**	**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: Several regions responded to the influx of water brought by rains of Hurricane Irene and generally wet conditions with increasing populations of *Aedes vexans*. *Culex* populations also increased moderately in several regions while *Aedes sollicitans* and *Coquillettidia perturbans* were not as pronounced. It should be noted that several agencies were unable to submit light trap data for various reasons due to the hurricane and that some of the values for some regions may change significantly.

Climate Factors

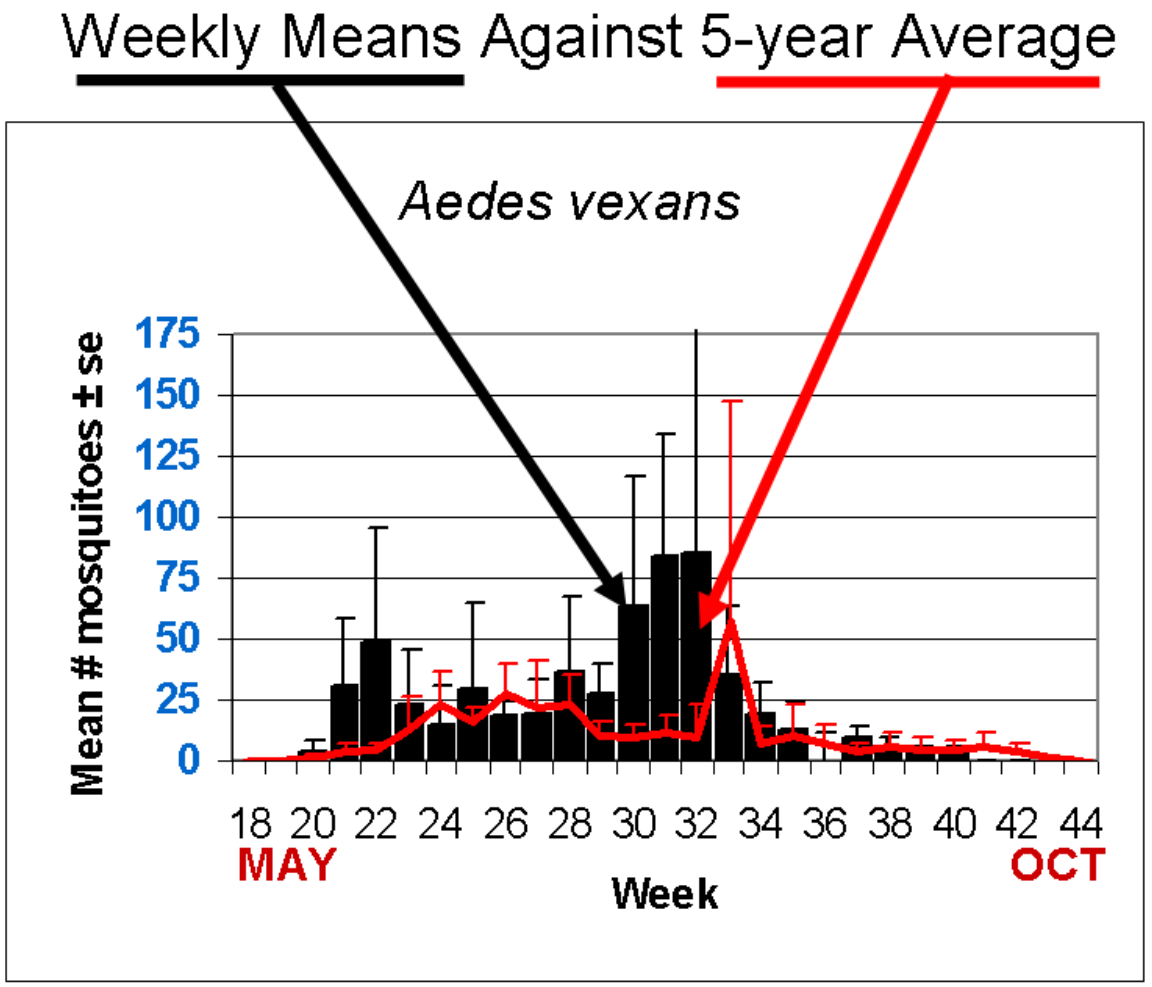
Average High Temperature	Average Low Temperature	Total Precipitation
		

The three figures show the interpolation of average maximum and minimum temperature and total precipitation through 1 September to 9 September, 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.

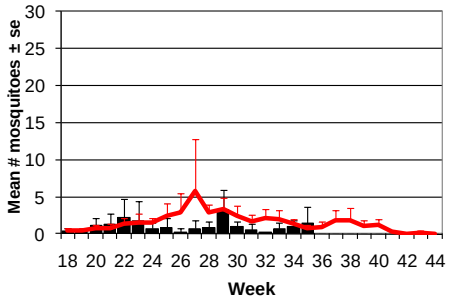
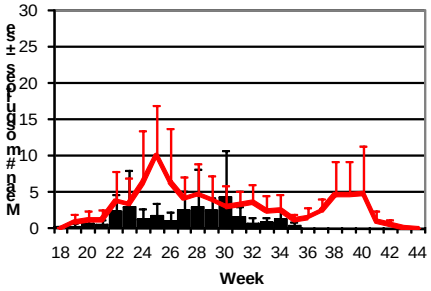
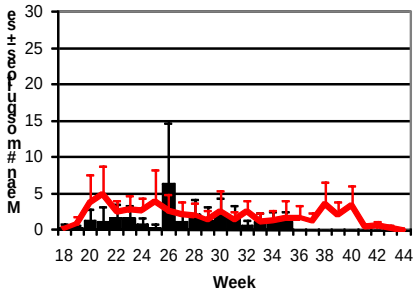
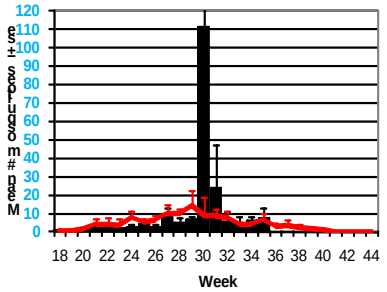
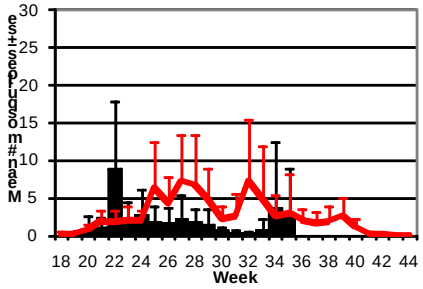
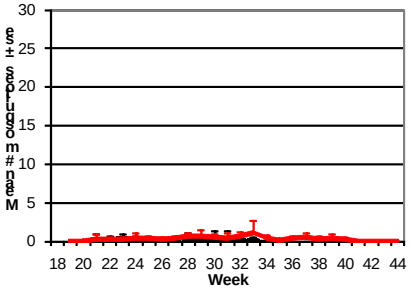
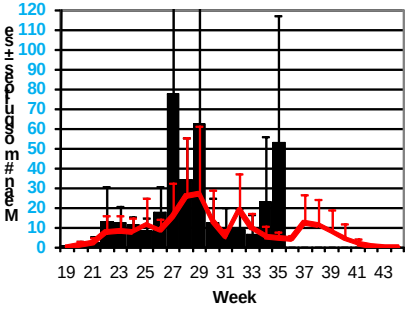
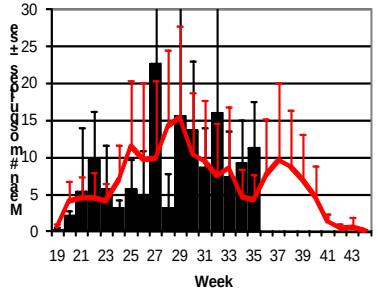
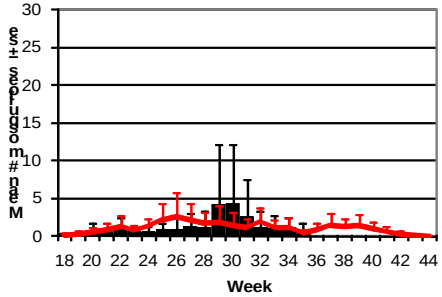
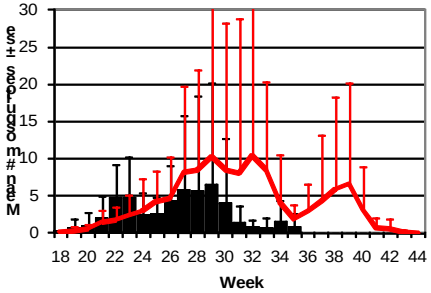
Average high and low temperatures were decreased considerably in September from August after the passing of Hurricane Irene. Precipitation remained high in the first week of September in the north and western portions of the state. Flooding concerns remain well after Irene as major rivers peaked several times due to run-off from both Irene and the weather systems that followed.

NJ Weather & Climate NETWORK ONJSC at Rutgers University

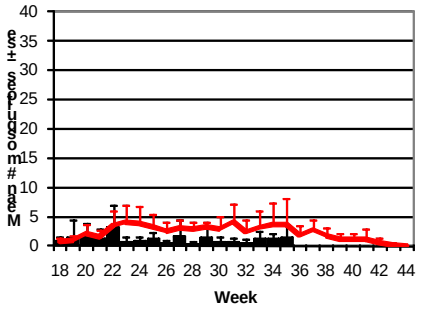
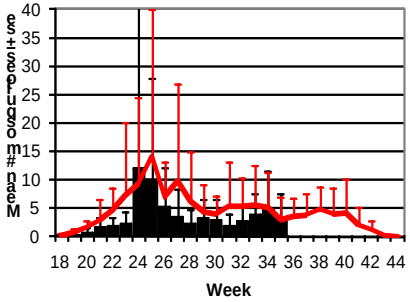
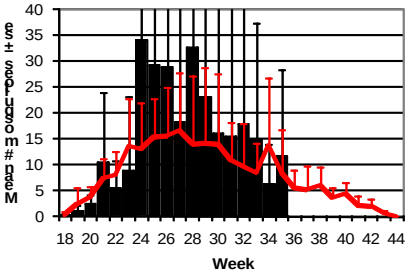
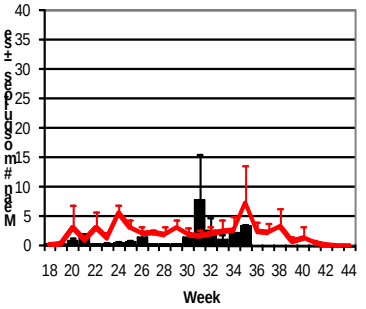
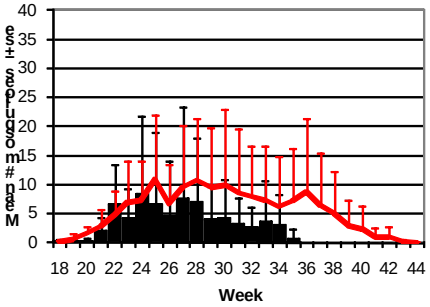
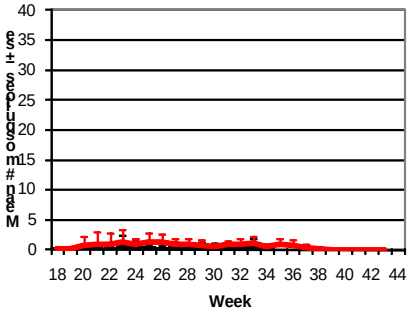
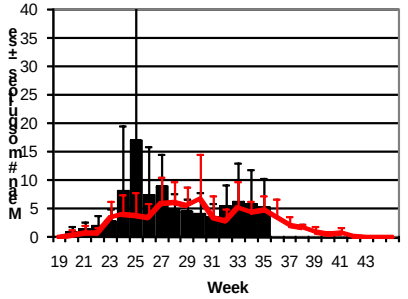
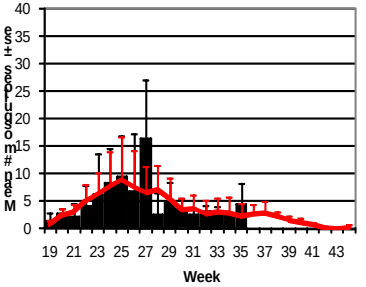
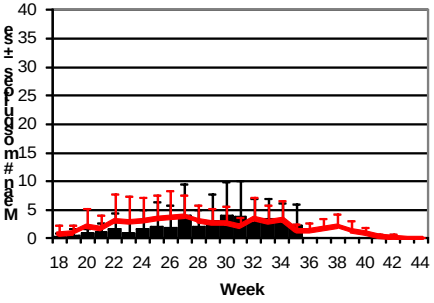
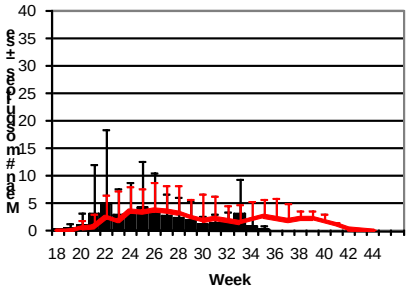
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 last week are from Bergen, Burlington, Camden, Cape May, Essex, Hunterdon, Monmouth, Ocean, Salem, Sussex and Warren counties. Previous 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.
Also note: Hurricane Irene disrupted many services for a wide portion of New Jersey. Several counties were unable to retrieve samples due to power outage, inaccessibility of traps and the need to deal with the more immediate needs of local situations.



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

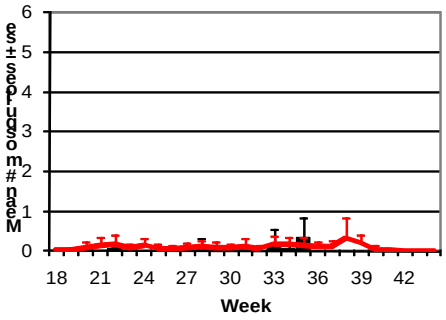
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations were above historical levels in half of the regions, likely due to not only the passage of Hurricane Irene, but also of the considerable precipitation just prior and after. Other floodwater species are likely responding to the increase presence of water. If temperatures increase (as is possible with the remaining mosquito season), plenty of habitat exists as well as mosquito eggs to have more broods emerging.	

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

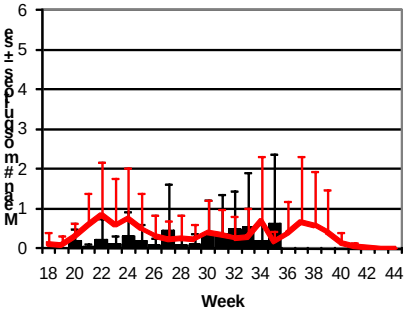
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. In five of the ten regions, *Culex* populations have been moderately higher than historical trends (Coastal, Delaware Bayshore, Northwest Rural, Philadelphia Metro and the Pinelands regions). Unlike the past several years, the New York Metropolitan region has experienced lower population numbers. These species overwinter as mated females and should begin to go into hibernaculae (building structures or natural caves).	

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

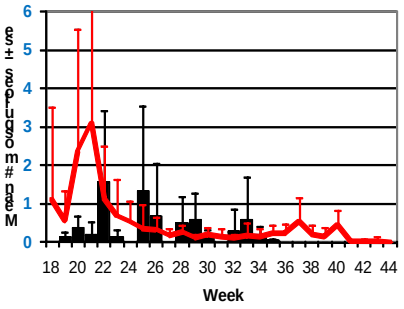
Agricultural



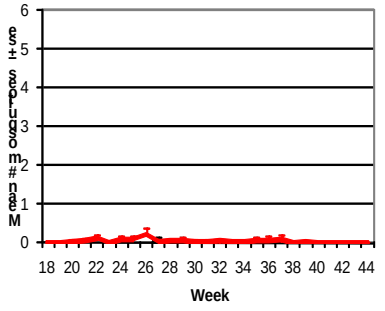
Coastal



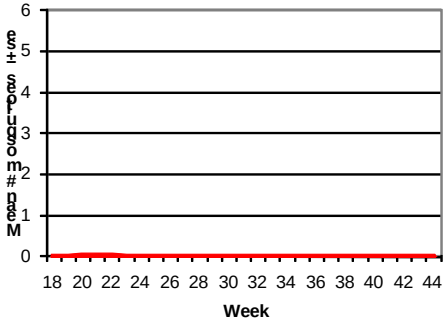
Delaware Bayshore



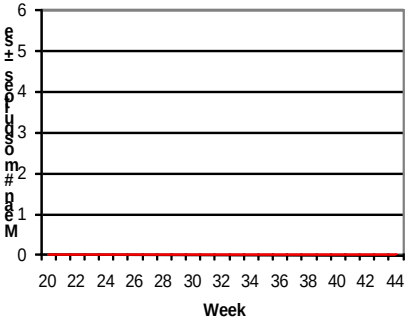
Delaware River Basin



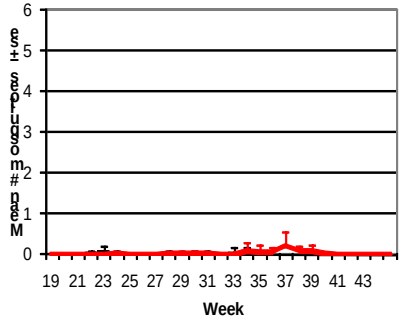
New York Metro



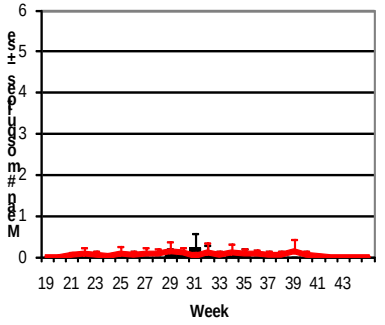
North Central Rural



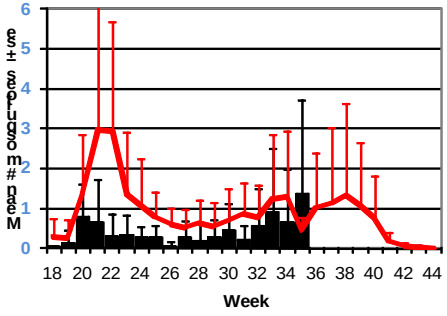
Northwestern Rural



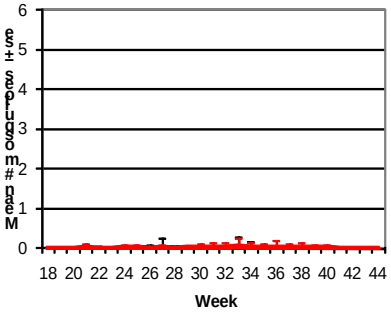
Philadelphia Metro



Pinelands



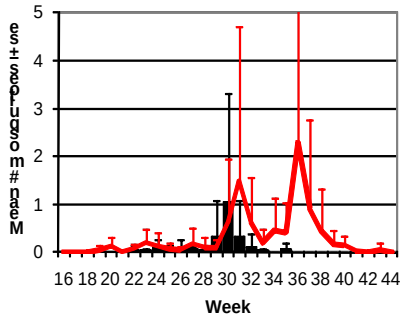
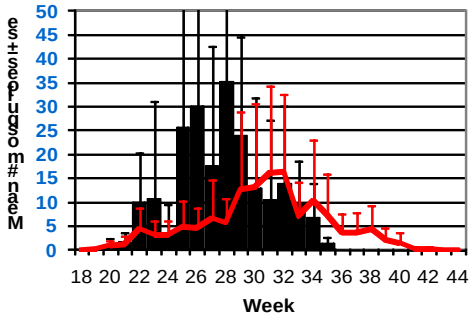
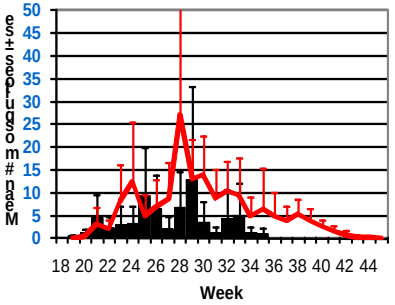
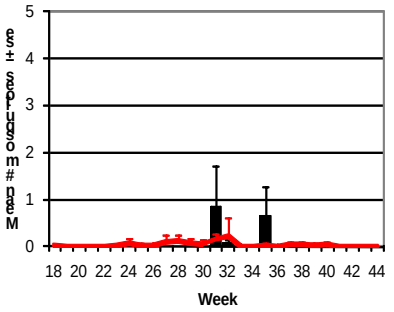
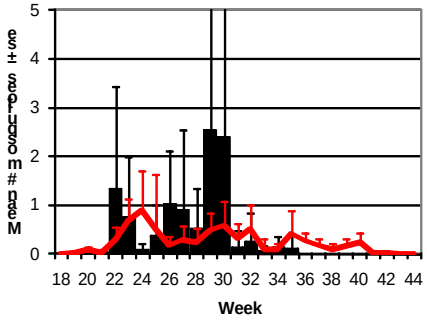
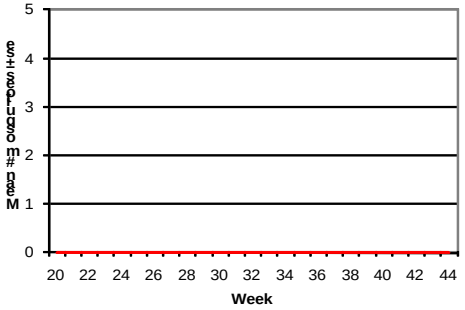
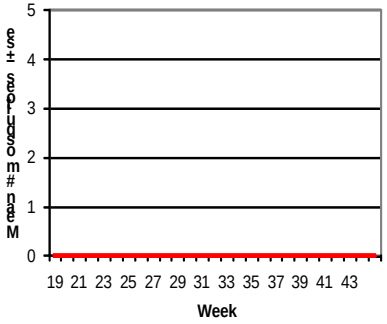
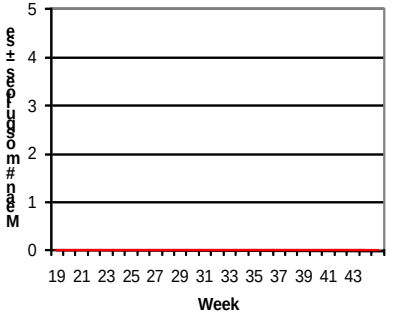
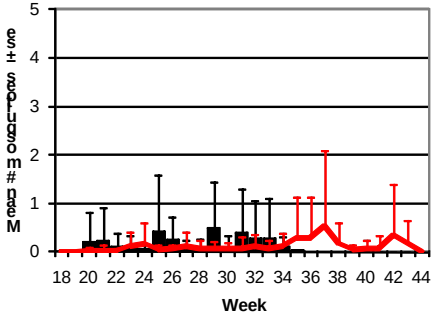
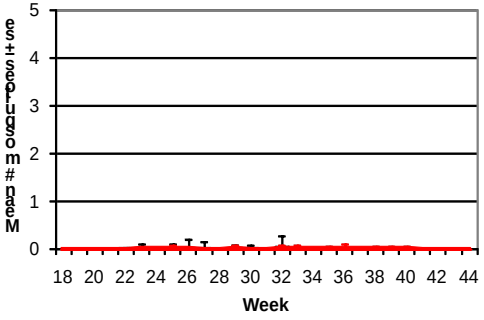
Suburban Corridor



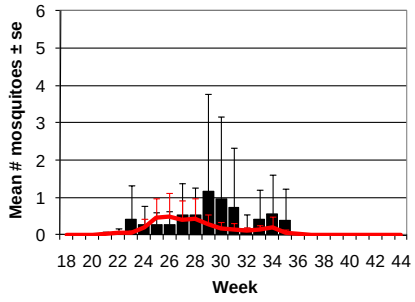
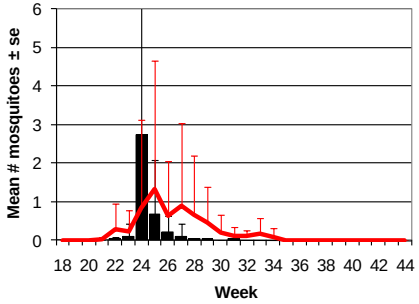
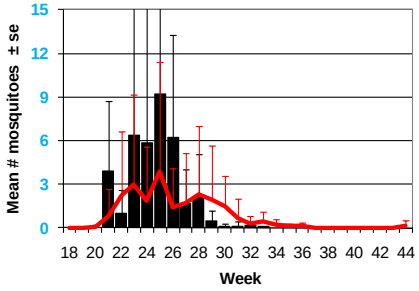
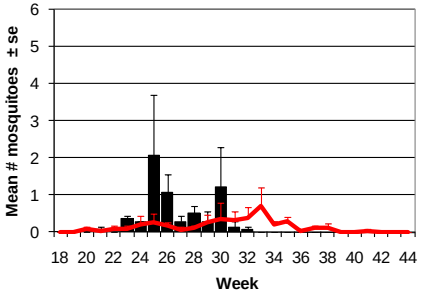
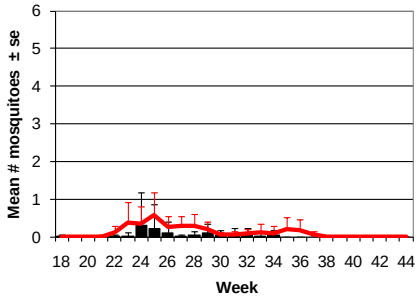
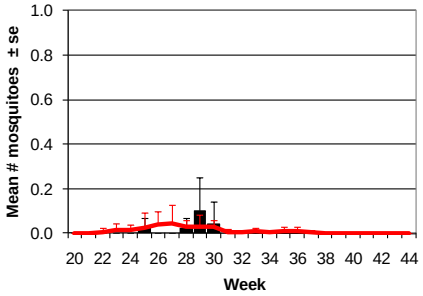
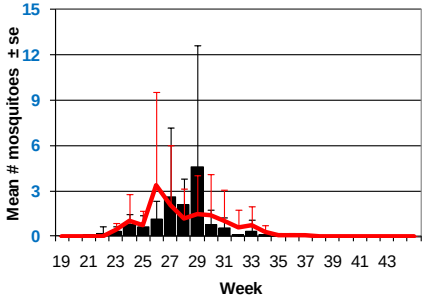
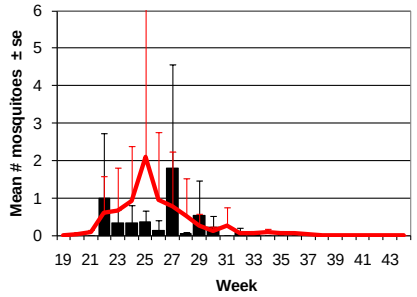
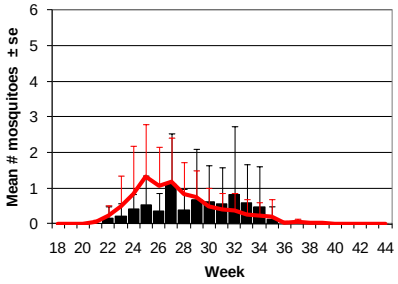
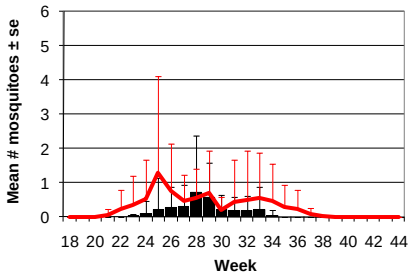
Comments

Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. *Cs. melanura* abundances have generally been below historical levels, although the Pinelands populations have been showing increases over the last several weeks as the second generation emerges. EEE activity has not been recorded in New Jersey this year. However, activity has been evident in the surrounding states, and detection of EEE has occurred within low population numbers in the past.

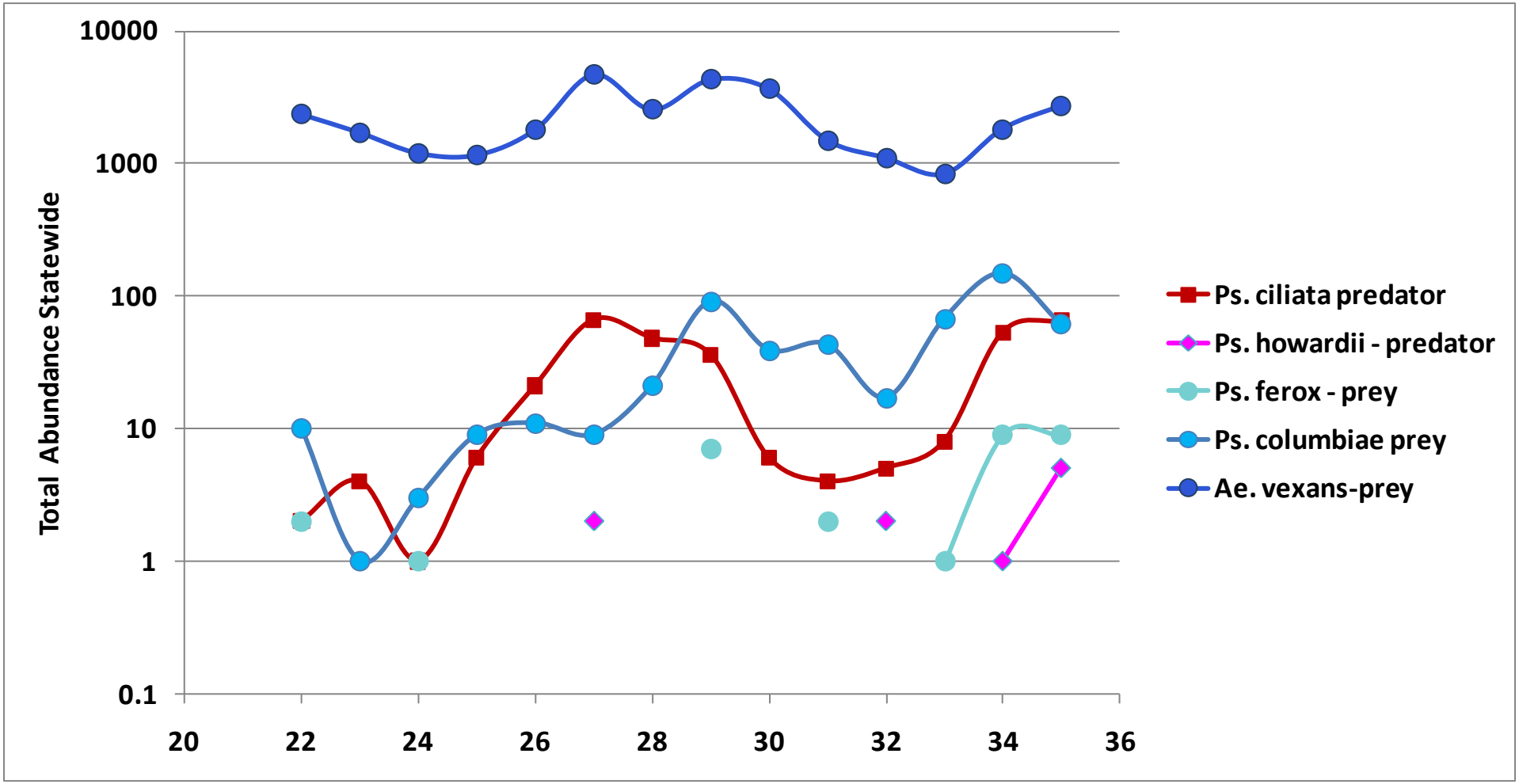
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* populations were higher than historical values in only the Delaware River Basin. This area generally records lower number of this species than the Coastal or the Delaware Bayshore regions. Next Full Moon: 12 September.	

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* abundances were higher than historical values in the Agricultural region only. This species should disappear in the next few weeks and this is likely the last graphs unless unusual activity should occur.	

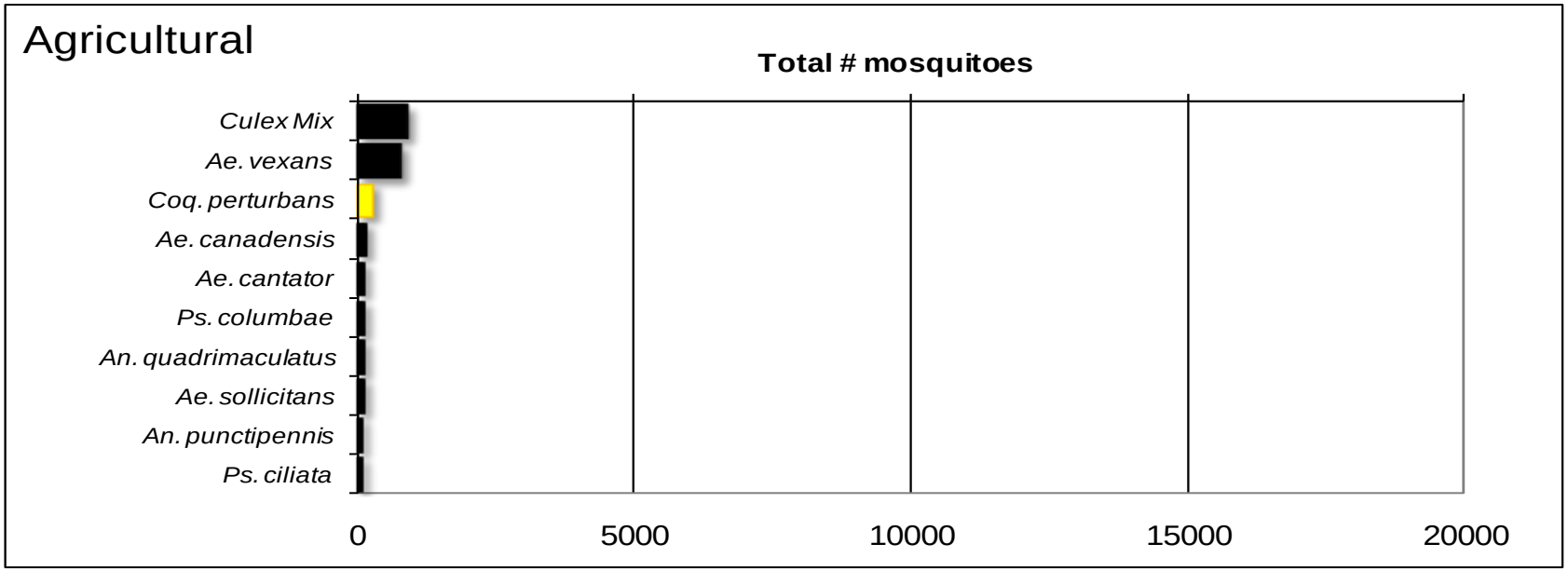
The *Psorophorans*: Some counties and other agencies have received reports of citizens being bit by “large and hairy” mosquitoes. These were very likely *Psorophora ciliata* or *Psorophora ferox* – persistent and aggressive biters with a particular affinity to large mammals such as horses. *Psorophora ciliata* is also a predator of other mosquito larvae. In Headlee’s 1945 book, “The Mosquitoes of New Jersey and their Control,” he wrote, “Another collector found pools swarming with small *Aedes vexans* and a goodly population of *Psorophora* among them. A few days later only *Psorophora* remained, and they were scattered and difficult to find.” Psorophorans are also cannibalistic.

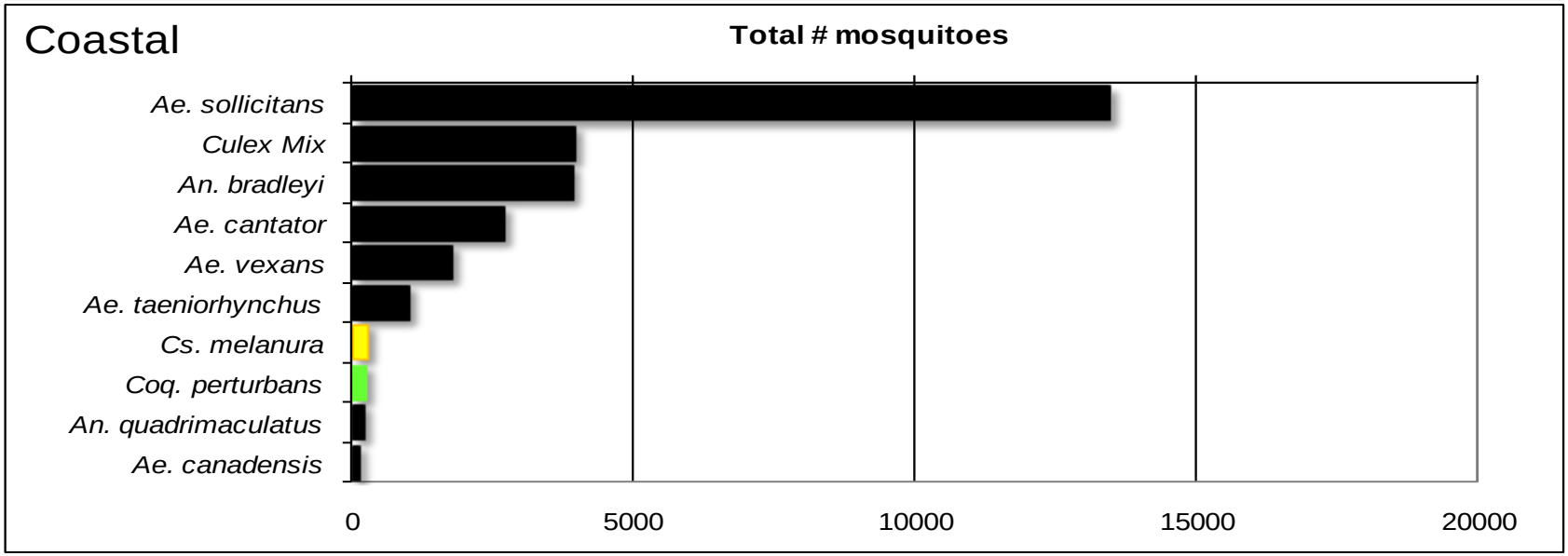


WNV *EEE*

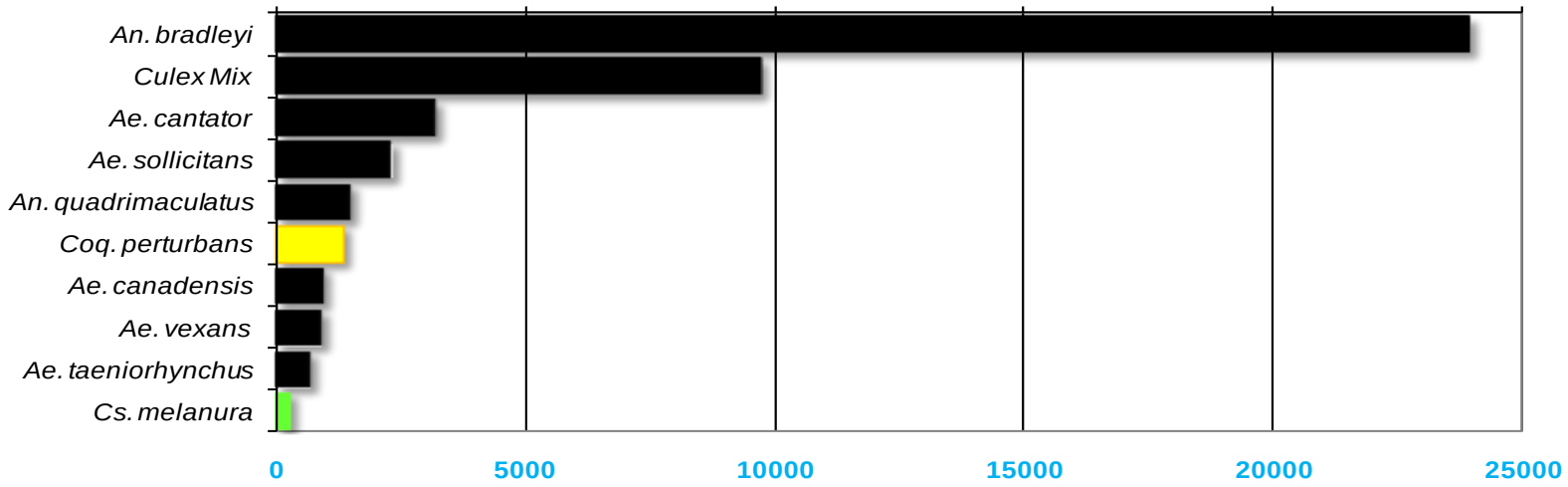
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

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

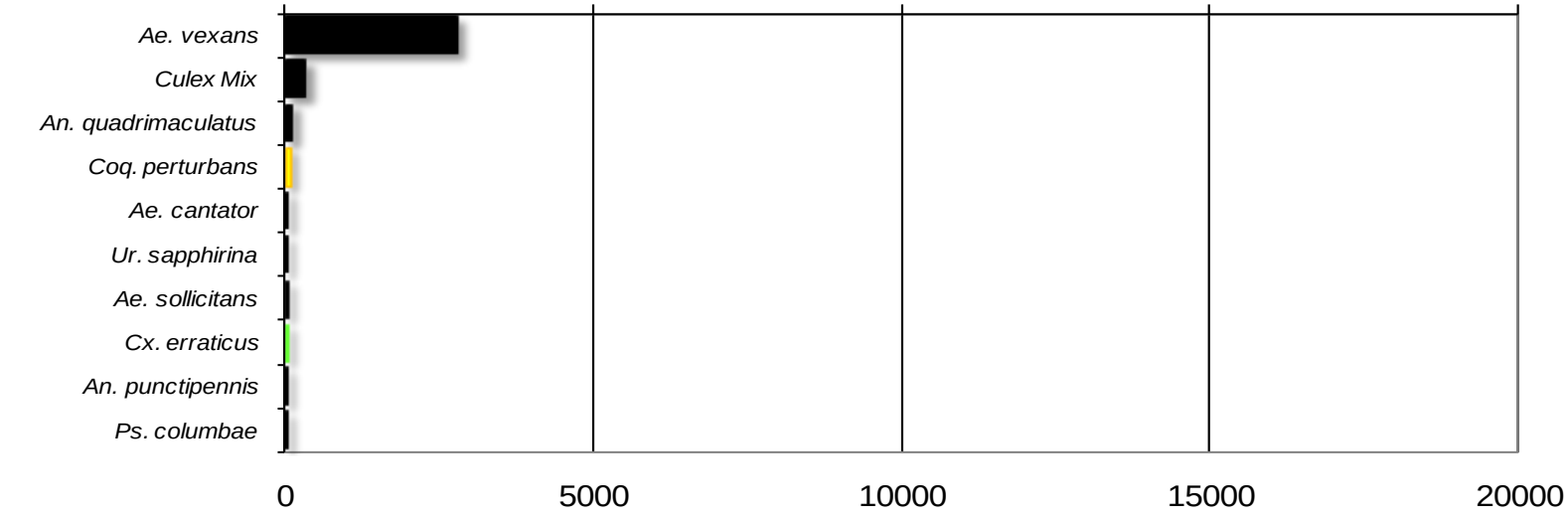




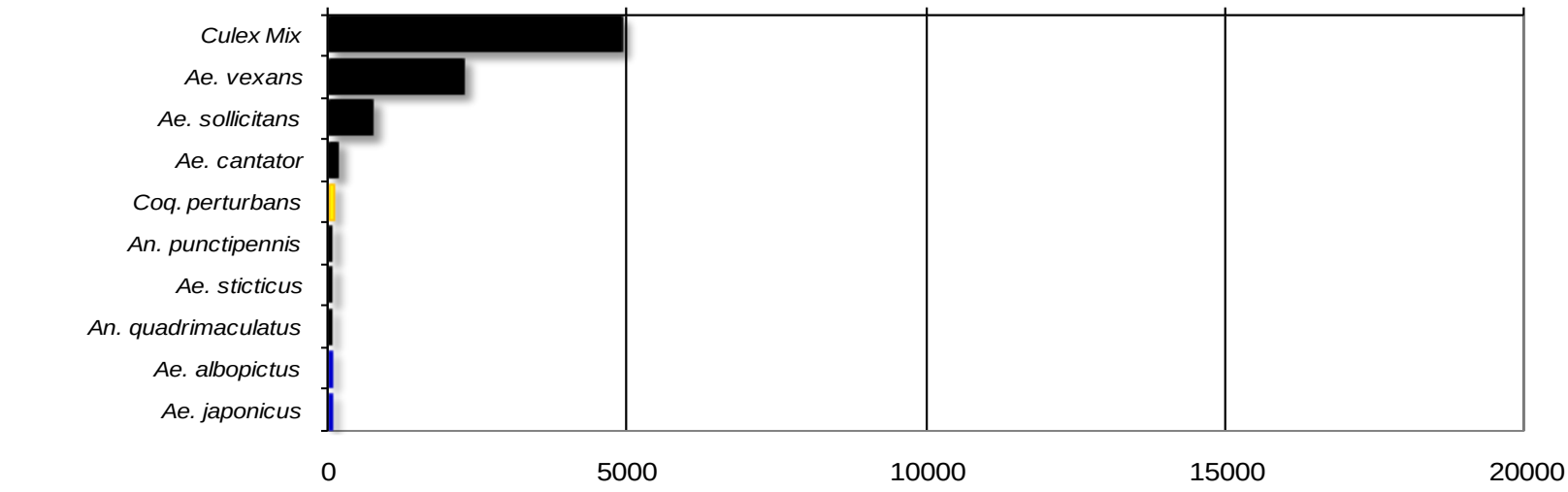
Delaware Bayshore



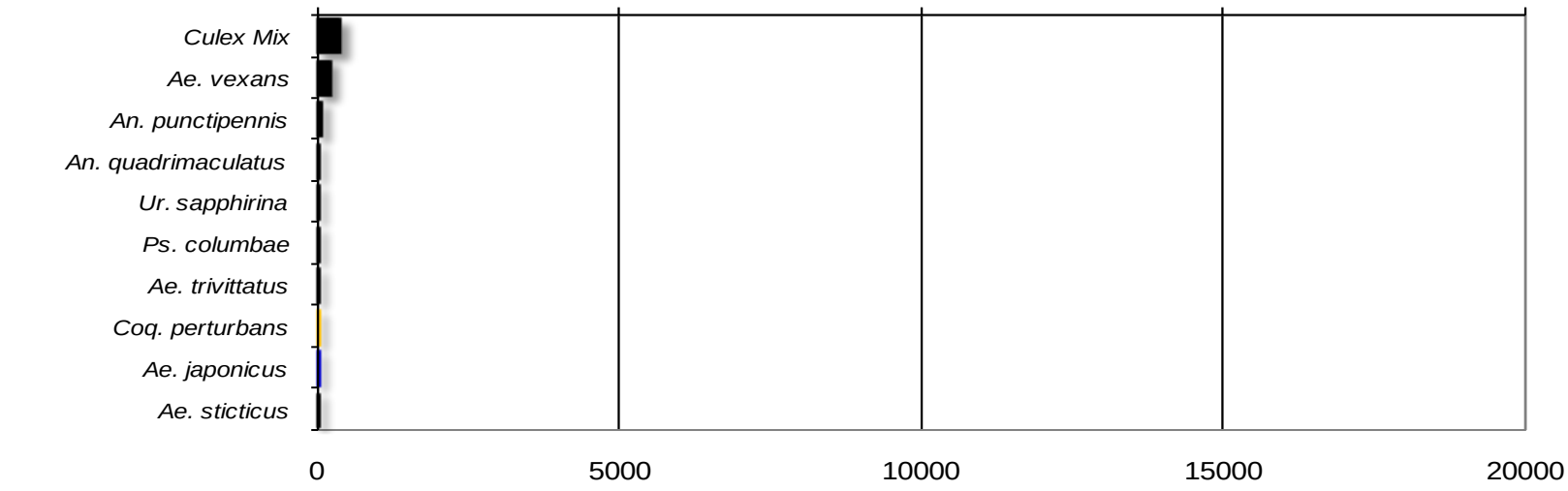
Delaware River Basin

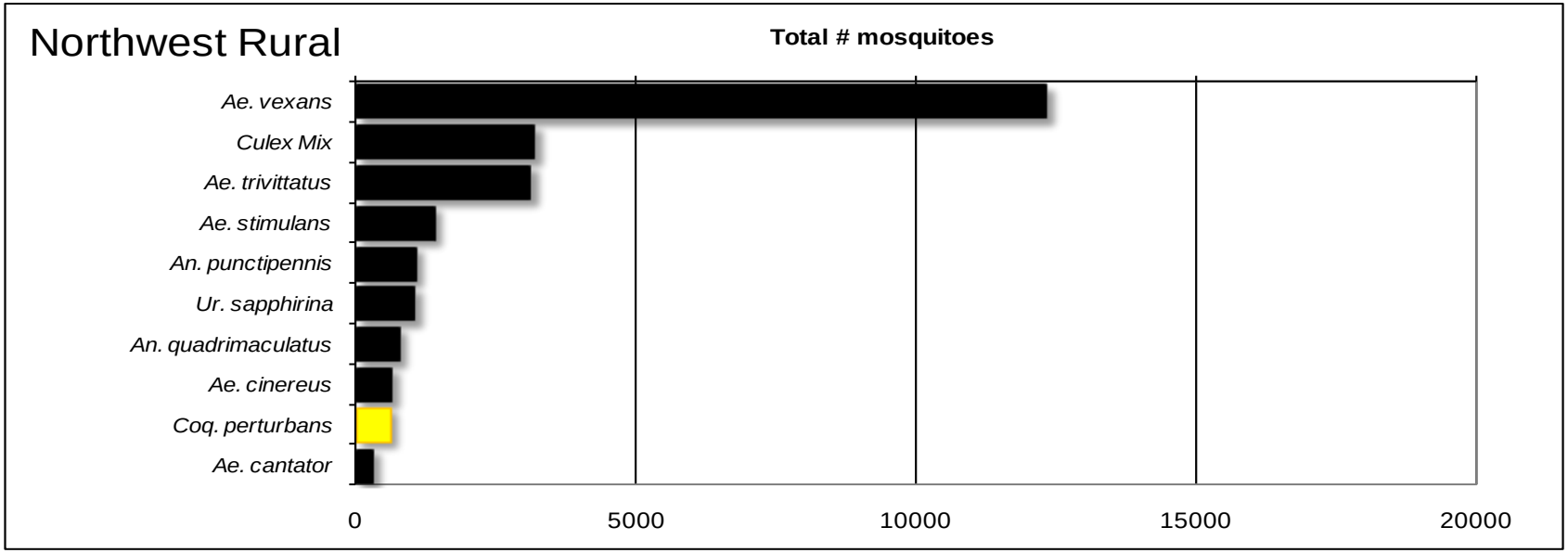


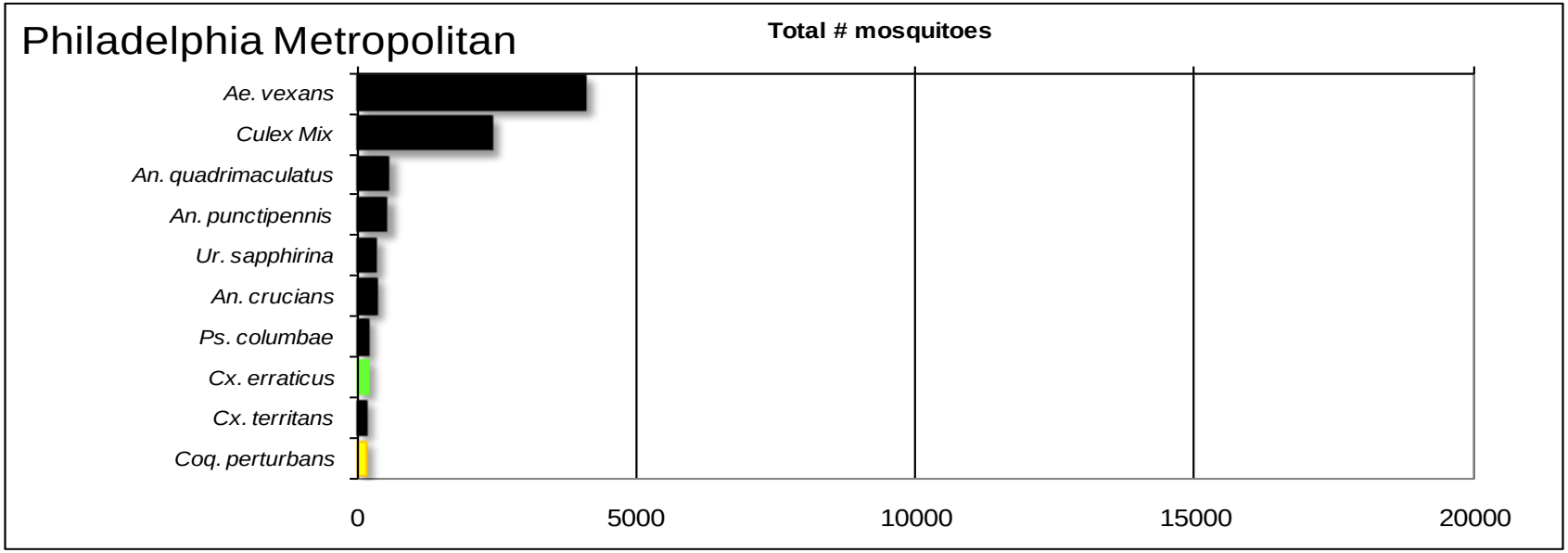
New York Metropolitan



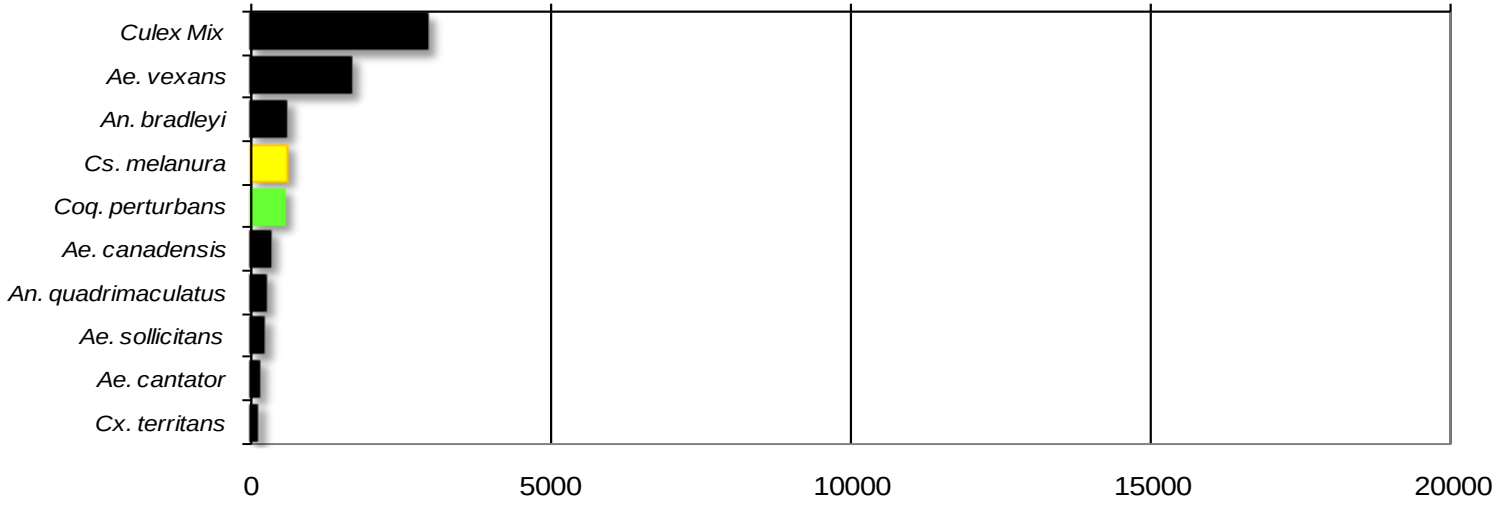
North Central Rural




Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. trivittatus
Ae. stimulans
An. punctipennis
Ur. sapphirina
An. quadrimaculatus
Ae. cinereus
Coq. perturbans
Ae. cantator
0
5000
10000
15000
20000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
An. punctipennis
Ur. sapphirina
An. crucians
Ps. columbae
Cx. erraticus
Cx. territans
Coq. perturbans
0
5000
10000
15000
20000

Pinelands



Suburban Corridor