NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 21 July to 3 August 2013, CDC Week 30/31

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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.

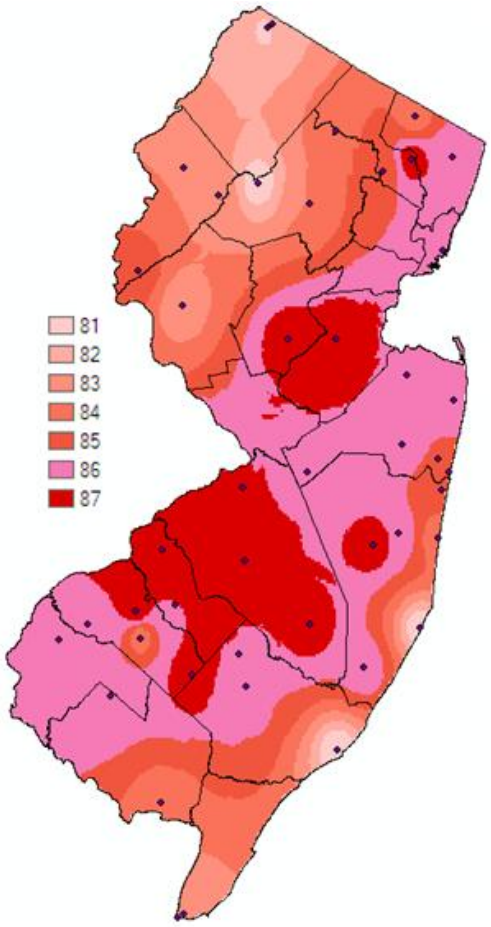
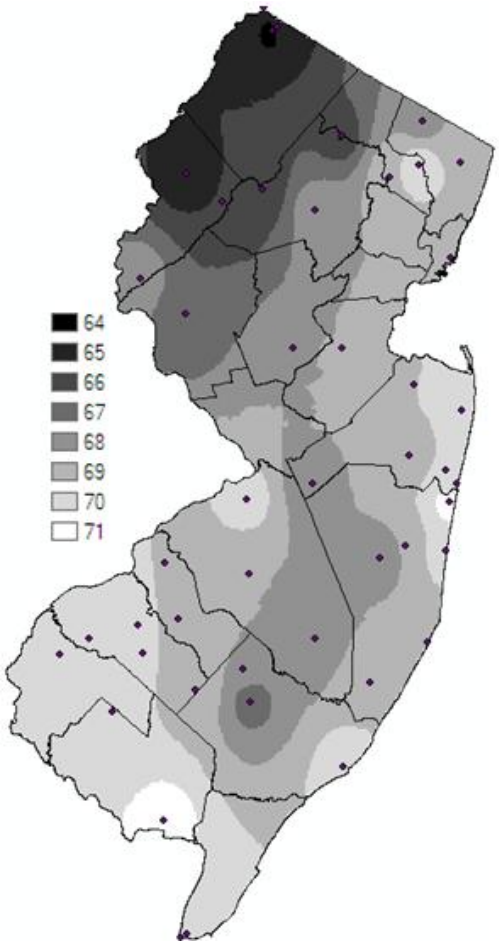
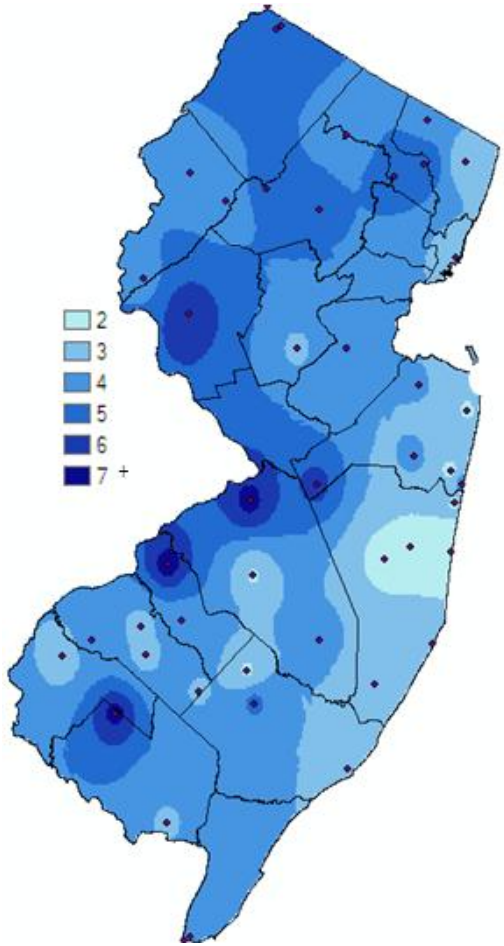
Summary Table – Week 31

	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	**0.64**	**1.56**	**0**	**1.24**	**1.81**	**0**	**0.05**	**0.28**	**0**	**0.00**	**0.20**	**0**
Coastal	**0.27**	**2.32**	**0**	**4.30**	**4.94**	**0**	**0.00**	**0.19**	**0**	**0.02**	**11.55**	**0**
Delaware Bayshore	**nd**	**1.29**	**0**	**nd**	**9.28**	**0**	**nd**	**0.39**	**0**	**nd**	**4.53**	**0**
Delaware River Basin	**nd**	**10.08**	**0**	**nd**	**2.31**	**0**	**nd**	**0.35**	**0**	**nd**	**0.11**	**0**
New York Metro	**0.30**	**2.14**	**0**	**1.14**	**9.29**	**0**	**0.00**	**0.07**	**0**	**0.00**	**0.35**	**0**
North Central Rural	**0.10**	**0.39**	**0**	**0.98**	**0.91**	**1**	**0.04**	**<0.01**	**4**	**0.00**	**0.00**	**0**
Northwest Rural	**2.40**	**5.57**	**0**	**5.54**	**3.28**	**2**	**0.69**	**1.14**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**1.32**	**6.48**	**0**	**3.36**	**2.70**	**1**	**0.00**	**0.19**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.08**	**1.12**	**0**	**0.71**	**2.26**	**0**	**0.30**	**0.40**	**0**	**0.00**	**0.14**	**0**
Suburban Corridor	**0.28**	**4.78**	**0**	**0.19**	**1.83**	**0**	**0.01**	**0.49**	**0**	**0.00**	**<0.01**	**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. nd=no data reported.

State Summary: *Culex* populations were mildly elevated in the North Central Rural, Northwestern Rural and the Philadelphia Metropolitan regions while *Coquillettidia perturbans* numbers, while absolutely low, were elevated significantly above historical trends in the North Central Rural region. *Aedes sollicitans* numbers remain noticeably low in areas with traditionally high numbers.

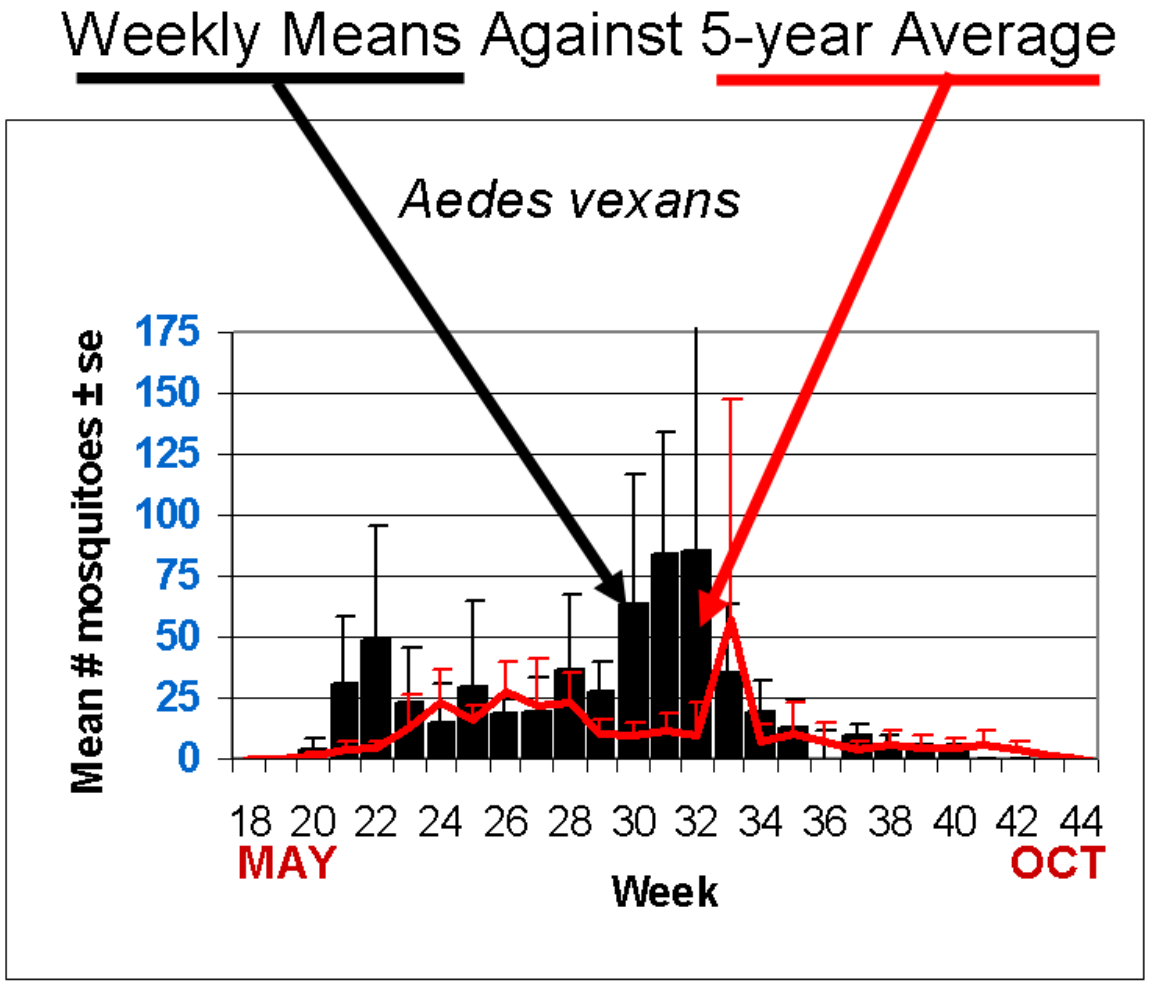
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) from 1 July to 31 July, 2013 in New Jersey. Data points are from about 46 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

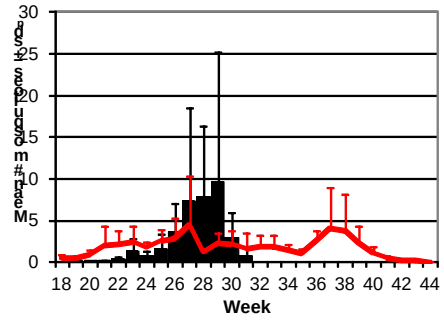
NJ Weather & Climate NETWORK ONJSC at Rutgers University

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 this week (31) are from Bergen, Camden, Essex, Monmouth, Morris, Ocean, Sussex and Warren counties. Data for the previous week(s) are from Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties.

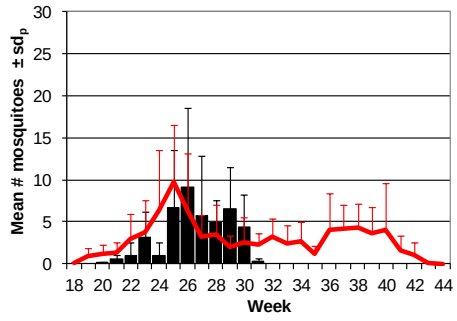


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

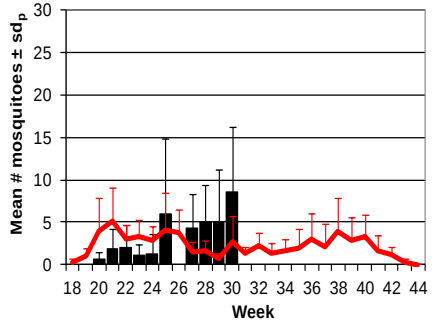
Agricultural



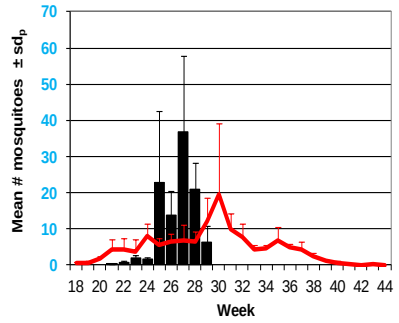
Coastal



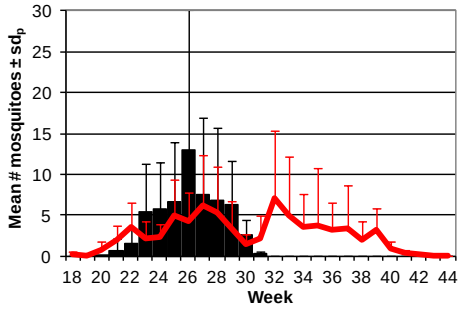
Delaware Bayshore



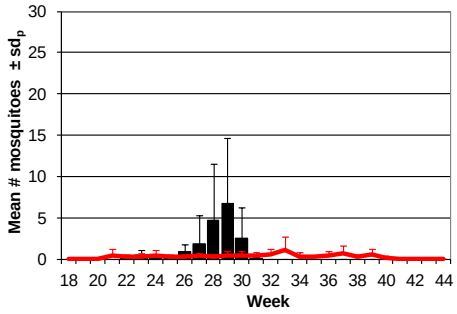
Delaware River Basin



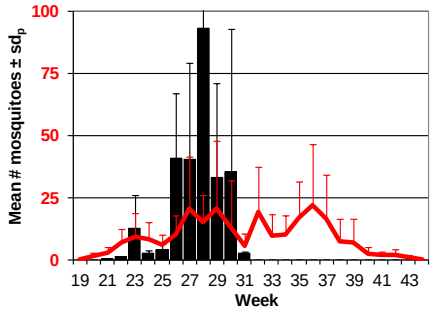
New York Metro



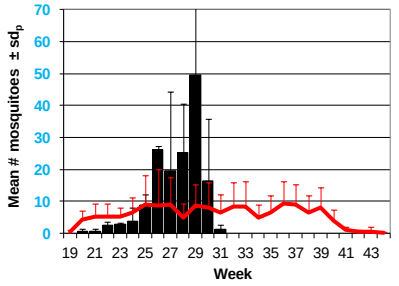
North Central Rural



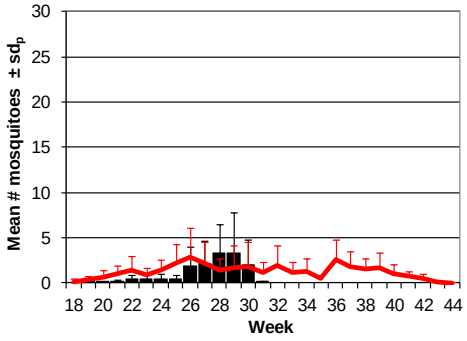
Northwestern Rural



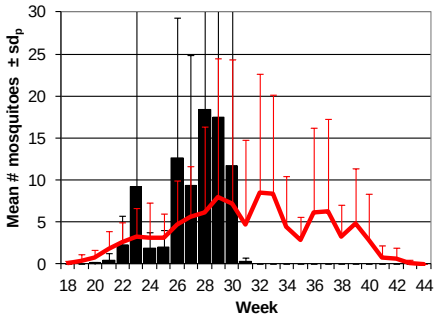
Philadelphia Metro



Pinelands



Suburban Corridor

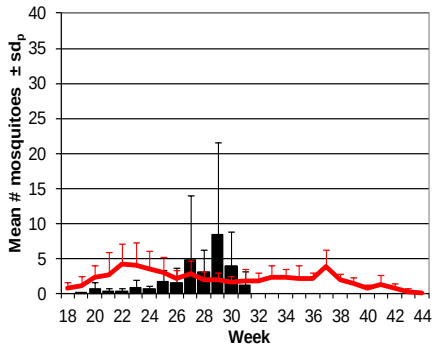


Comments

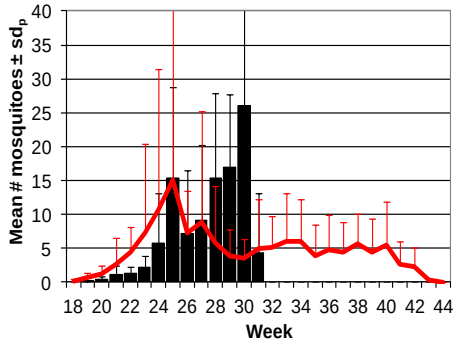
Currently, data suggests that populations of this floodwater species are not above historical trends in all regions. Temperatures have been slightly cooler but recent rainfall going into August may push local emergences again. As data has come in from county agencies, it is apparent how much of the local populations have responded to the higher rainfall of previous weeks, with significant numbers showing up in not only areas of higher production, such as the Northwest Rural or the Philadelphia Metropolitan, but also in regions like the North Central and Suburban Corridor.

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

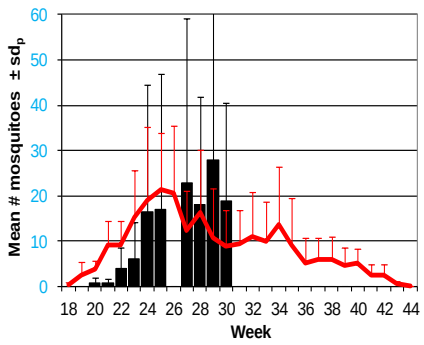
Agricultural



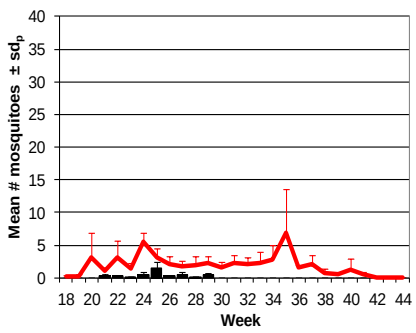
Coastal



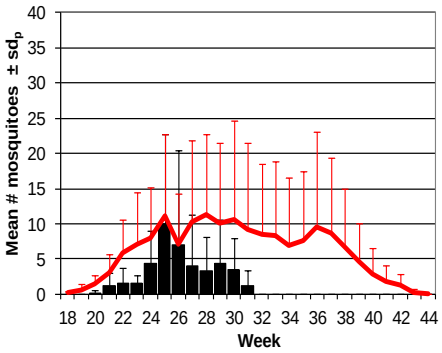
Delaware Bayshore



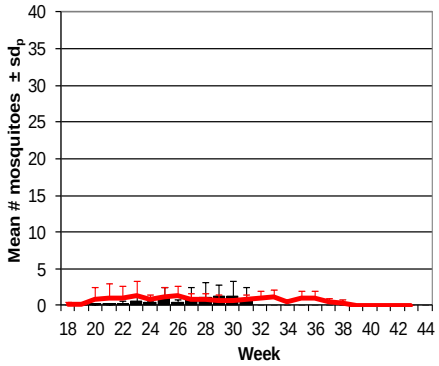
Delaware River Basin



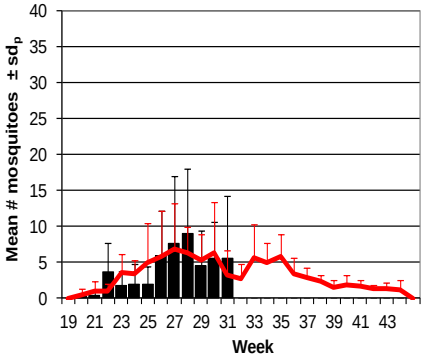
New York Metro



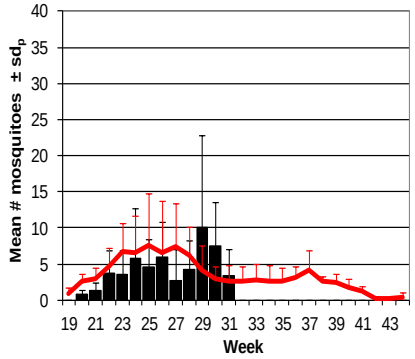
North Central Rural



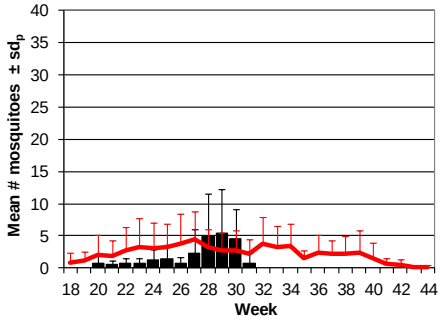
Northwestern Rural



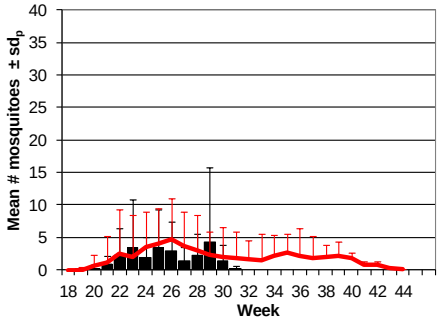
Philadelphia Metro



Pinelands



Suburban Corridor

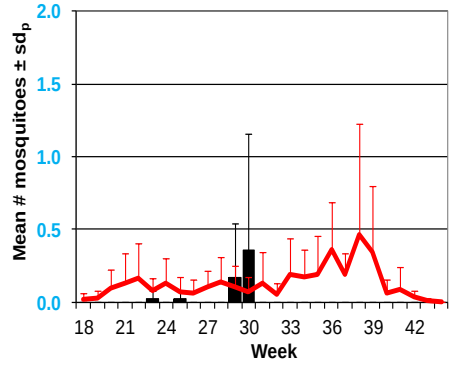


Comments

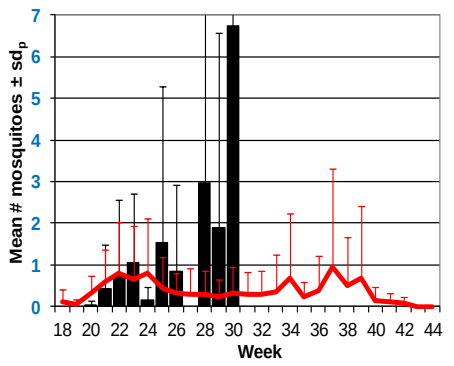
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. *Culex* populations were elevated in the North Central Rural, Northwestern Rural and the Philadelphia Metropolitan to a moderate extent. Recent higher populations also appeared in the Coastal and Delaware Bayshore regions. WNV has been detected in *Culex* species, the enzootic vectors and, most recently, in some bridge vectors.

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

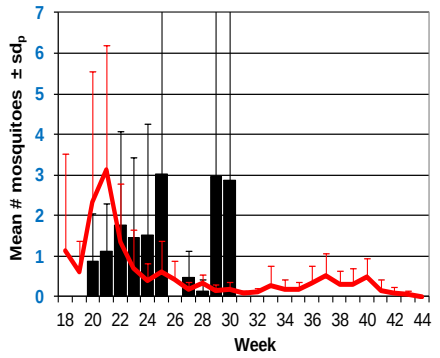
Agricultural



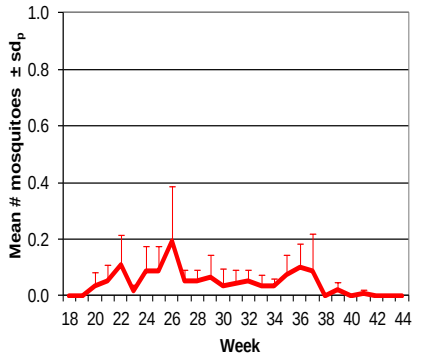
Coastal



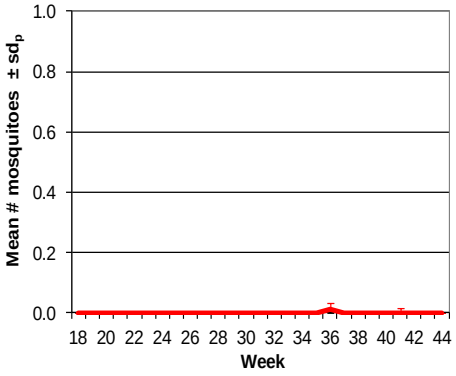
Delaware Bayshore



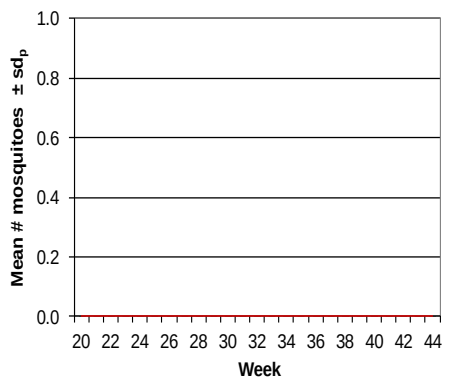
Delaware River Basin



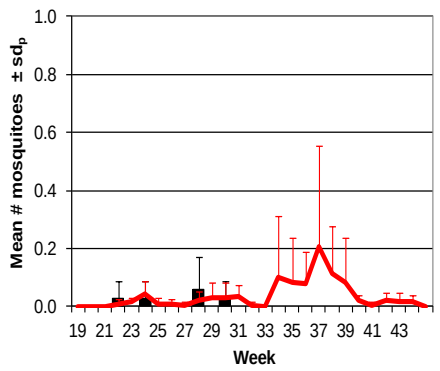
New York Metro



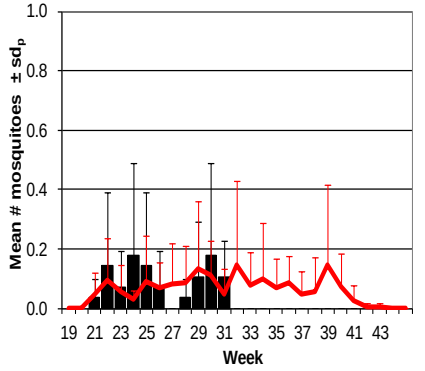
North Central Rural



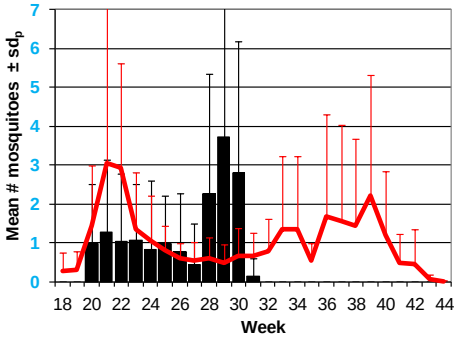
Northwestern Rural



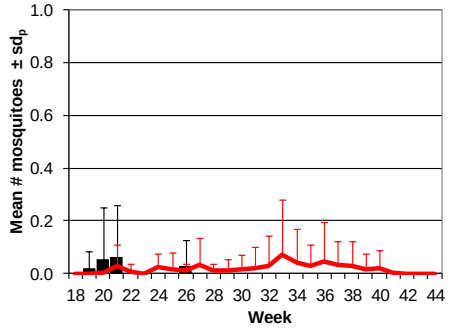
Philadelphia Metro



Pinelands



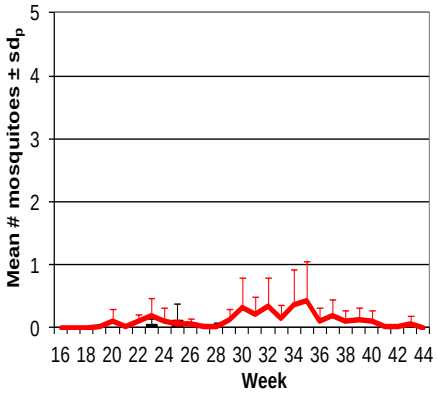
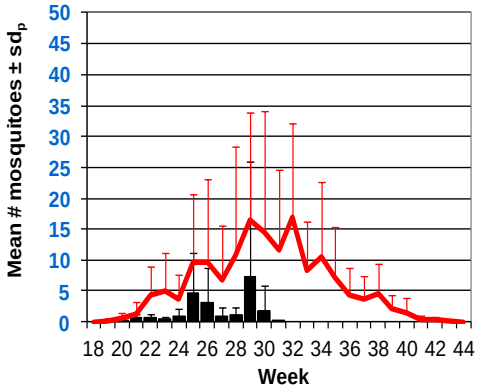
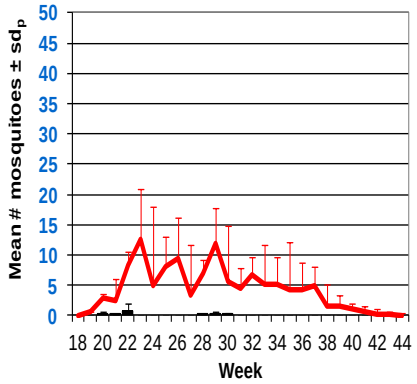
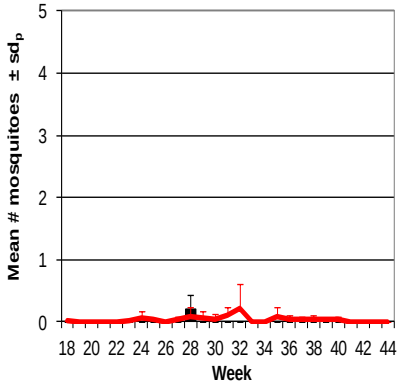
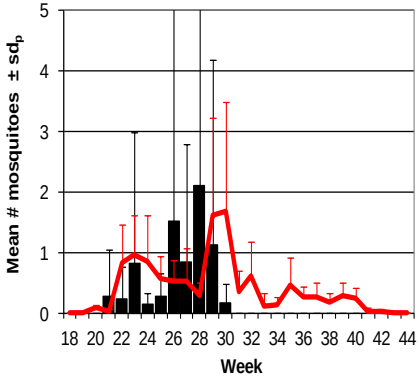
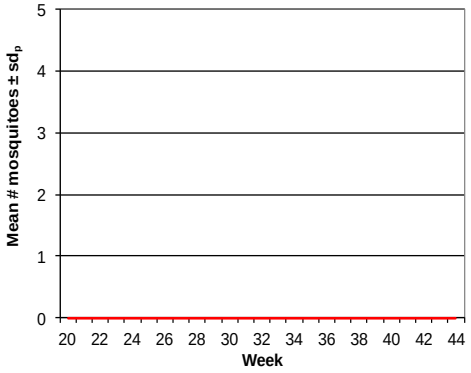
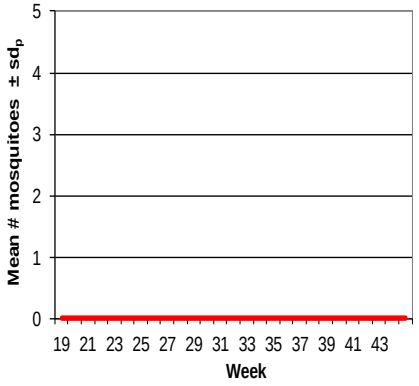
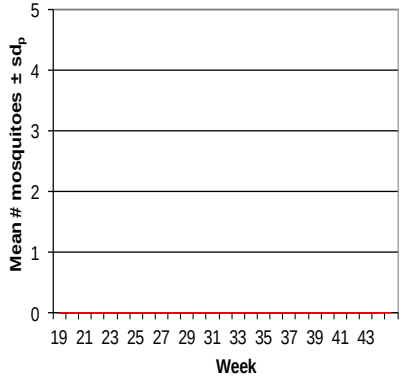
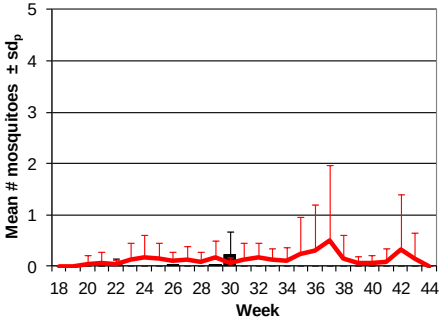
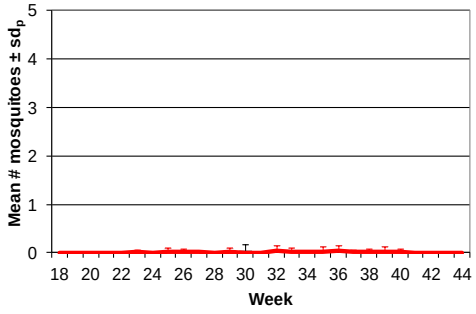
Suburban Corridor



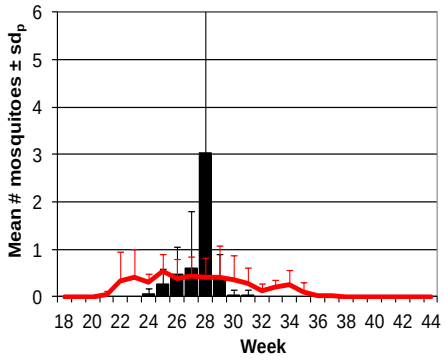
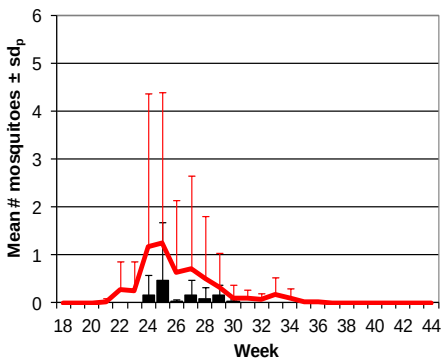
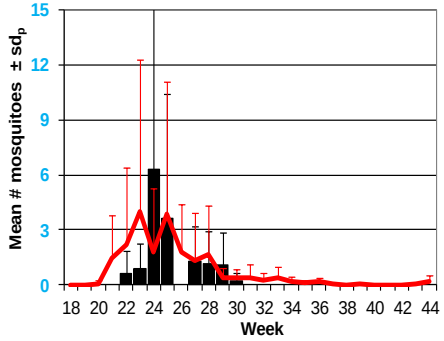
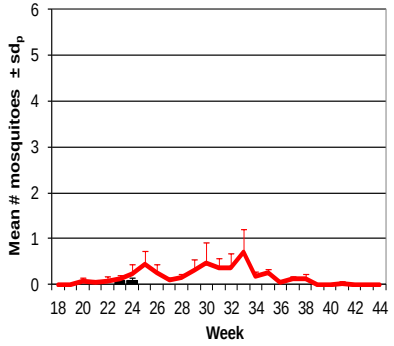
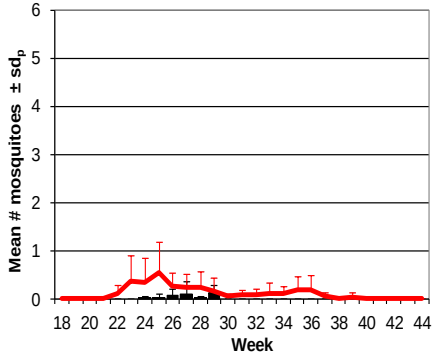
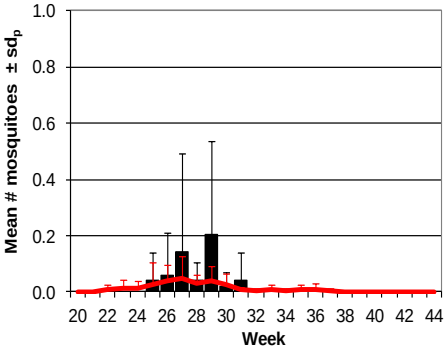
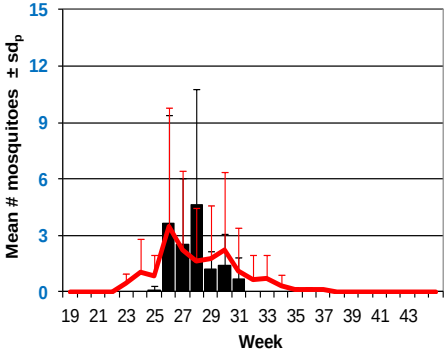
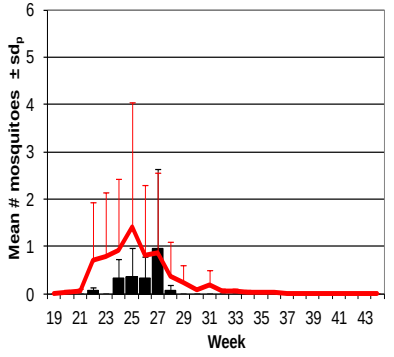
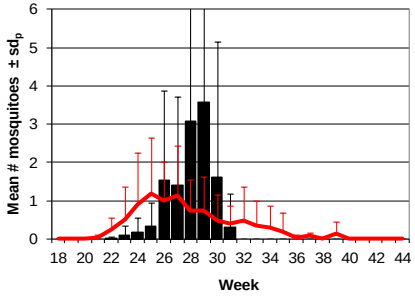
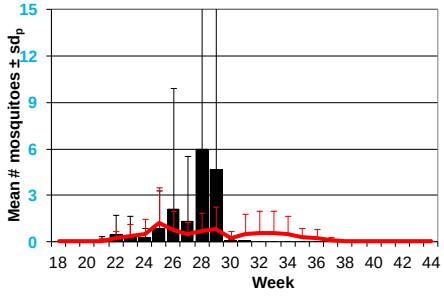
Comments

Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. Numbers for this species have been elevated above historical values in several areas in recent weeks, such as the Coastal, Delaware Bayshore and Pinelands regions. Numbers may continue to be elevated during the current week as data from agencies come in. EEE has been detected in this species, and with potentially higher populations, due caution in their habitat is warranted.

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* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. Populations in the New York Metropolitan region continue to fall. The numbers for the Coastal and Delaware Bayshore regions continue to be well below expectation. Next lunar full moon is August 20th.	

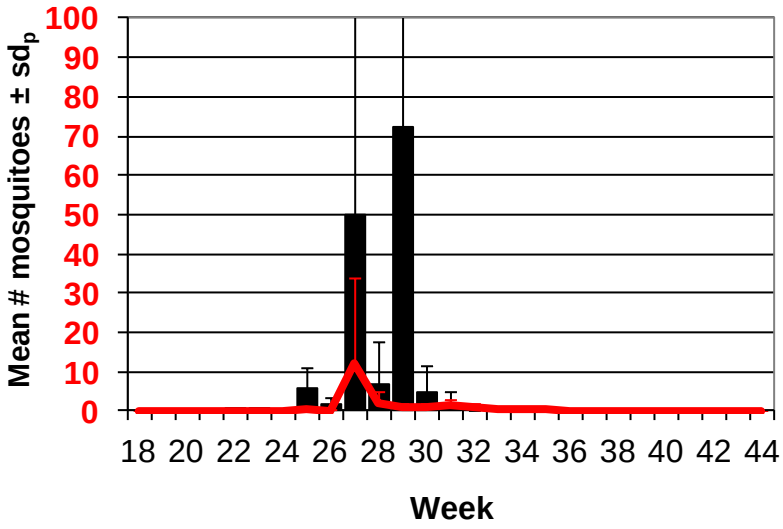
Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation. The North Central Rural region experienced higher than expected populations as has been the case for much of the season. In the recent past, *Coq. perturbans* populations were significantly above the historical levels in the Pinelands and the Suburban Corridor. This species is a likely inland vector for EEE.	

Psorophora columbiae in Agricultural regions. Females of this species has been described as “furious biters,” and with very significant numbers showing up in the Agricultural region, can prove to be of extreme annoyance and potential hazard to livestock. Populations are elevated in several regions in New Jersey, but appear to be most abundant in this region.

Meisch, M.V. 1994. The dark ricefield mosquito Psorophora columbiae. Wing Beats, Vol. 5(1):8.

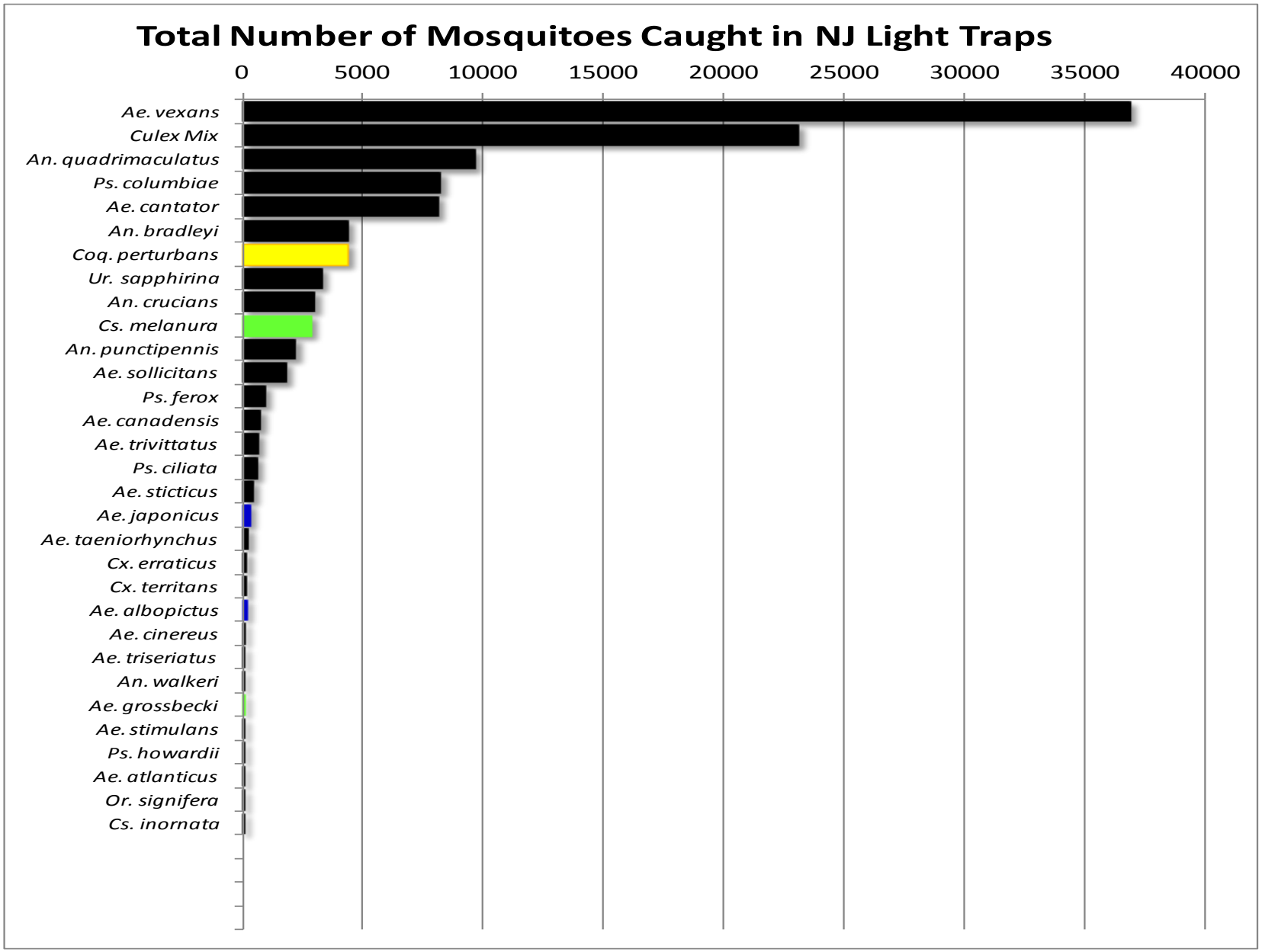
http://www.rci.rutgers.edu/~insects/sp4.htm



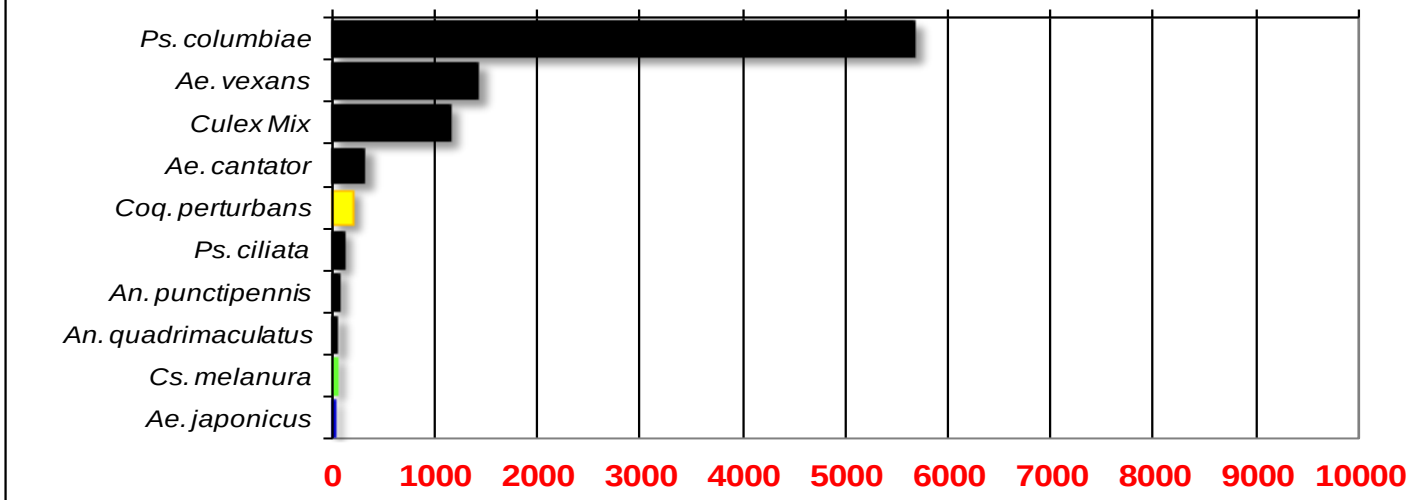
WNV *EEE*

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

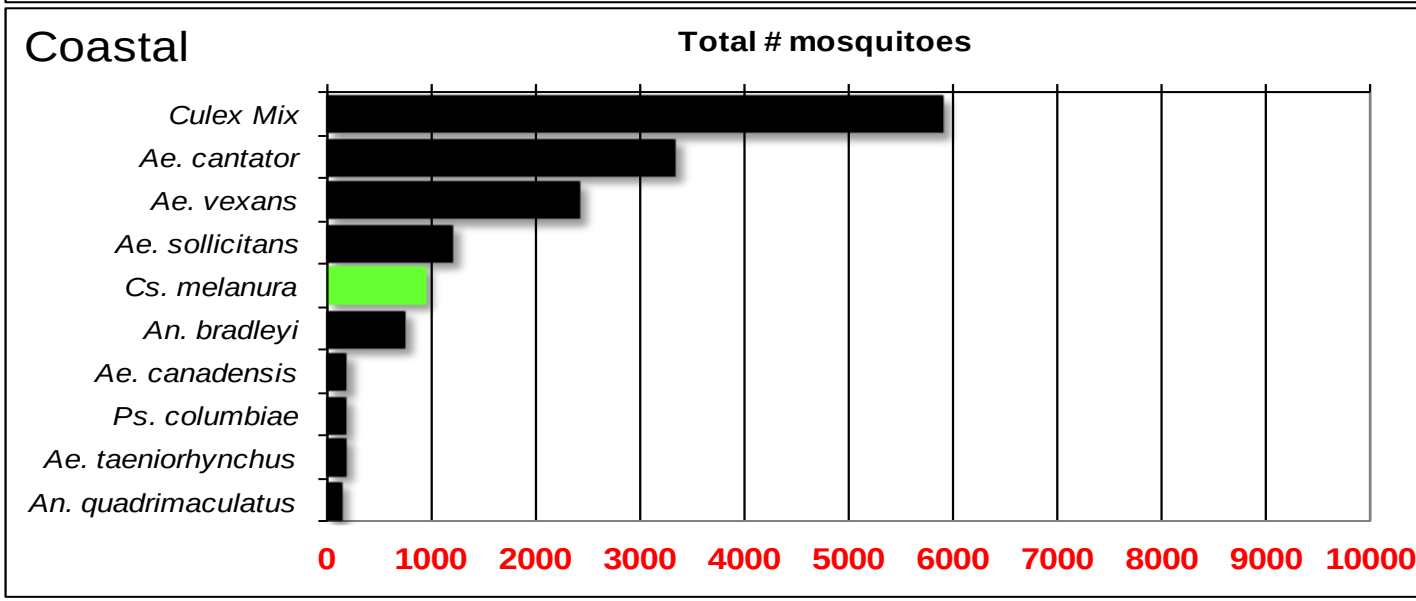
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

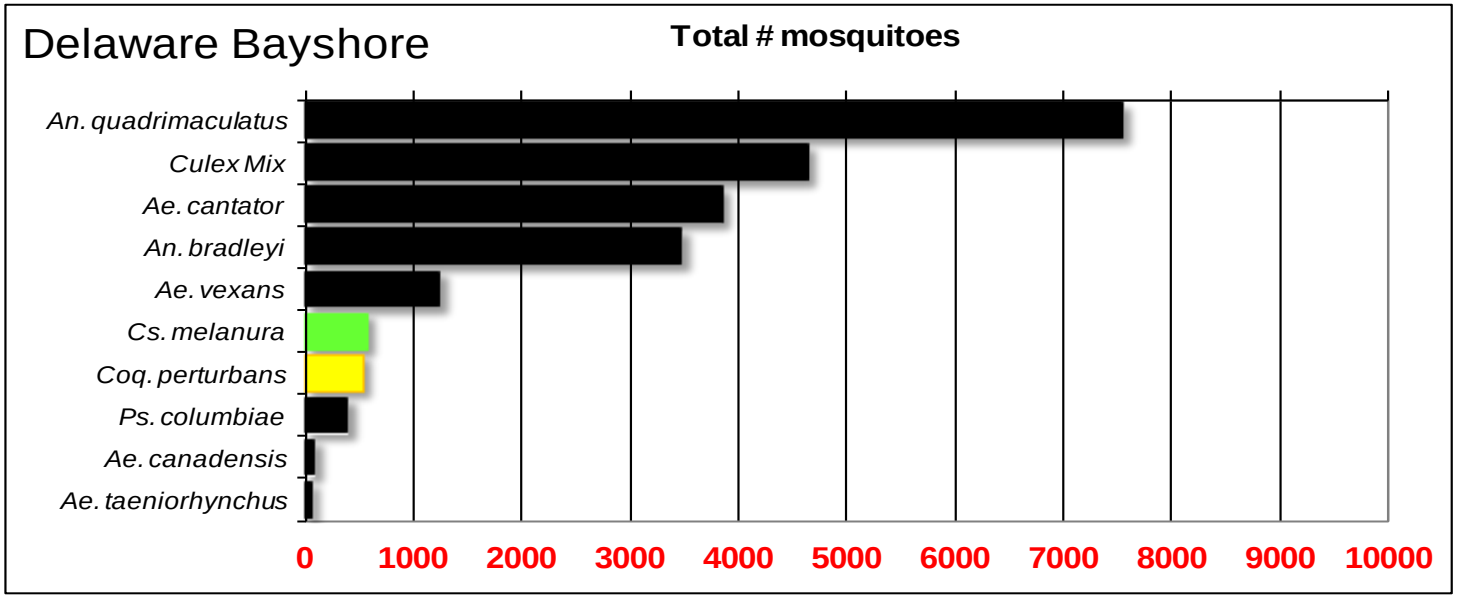


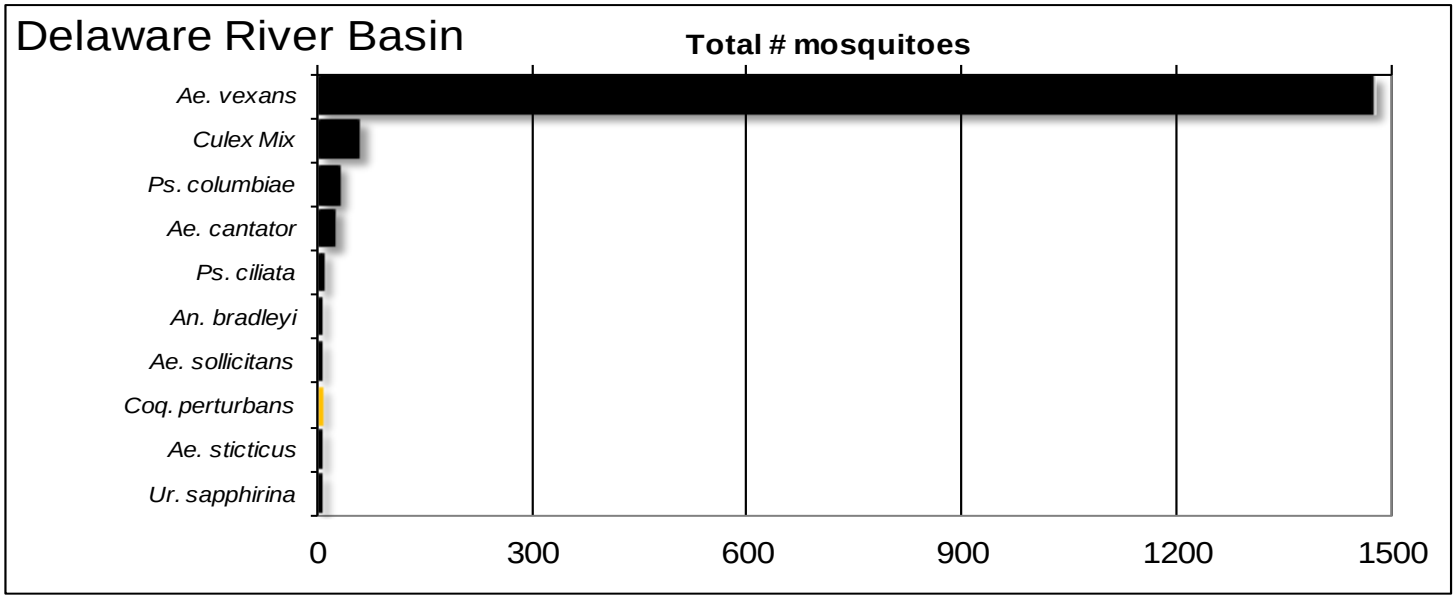
Agricultural

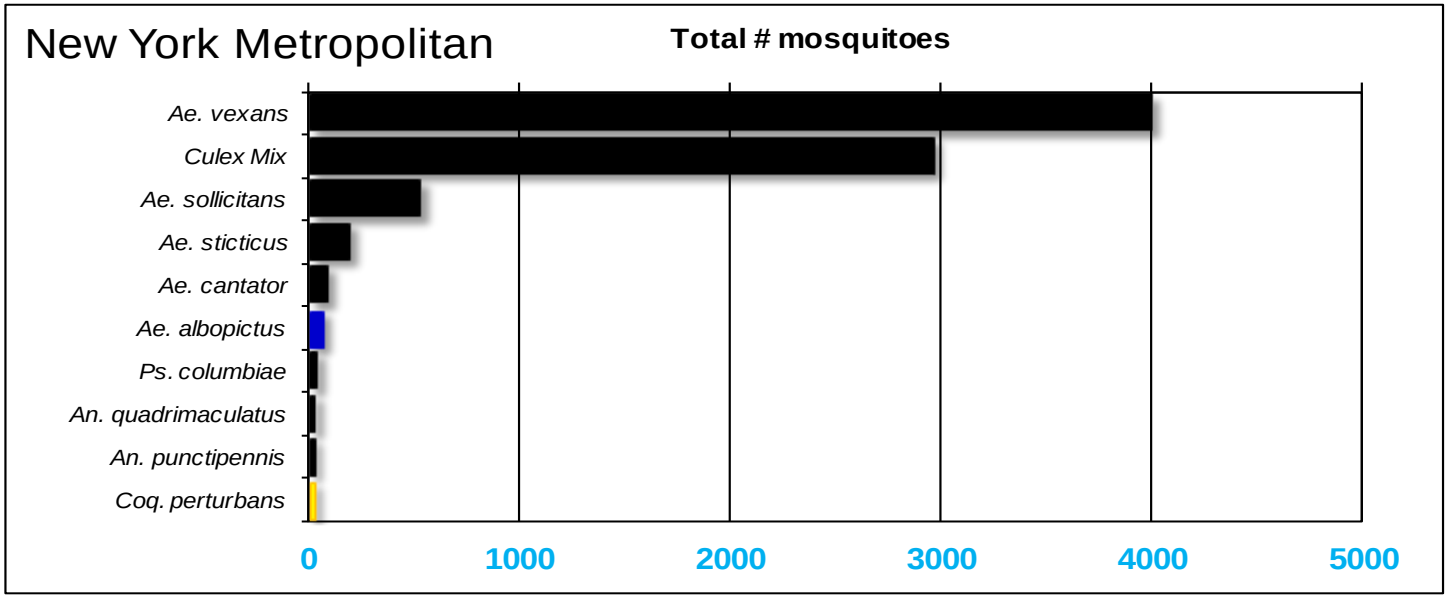


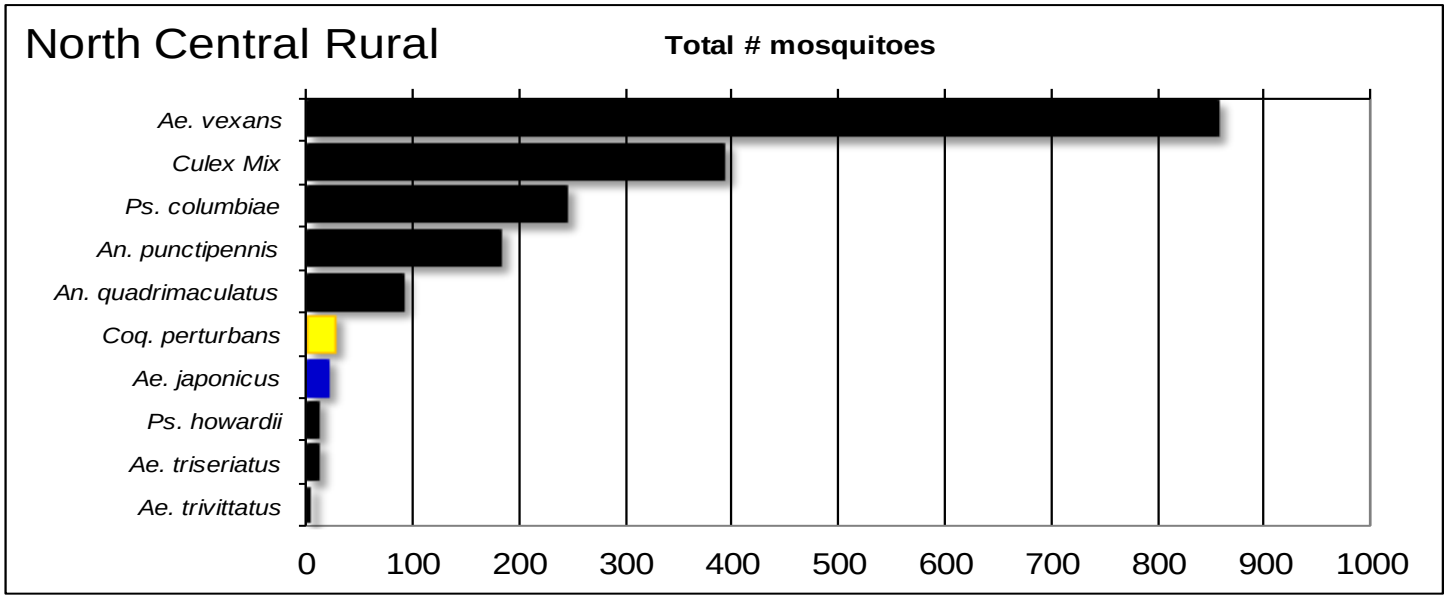
Coastal

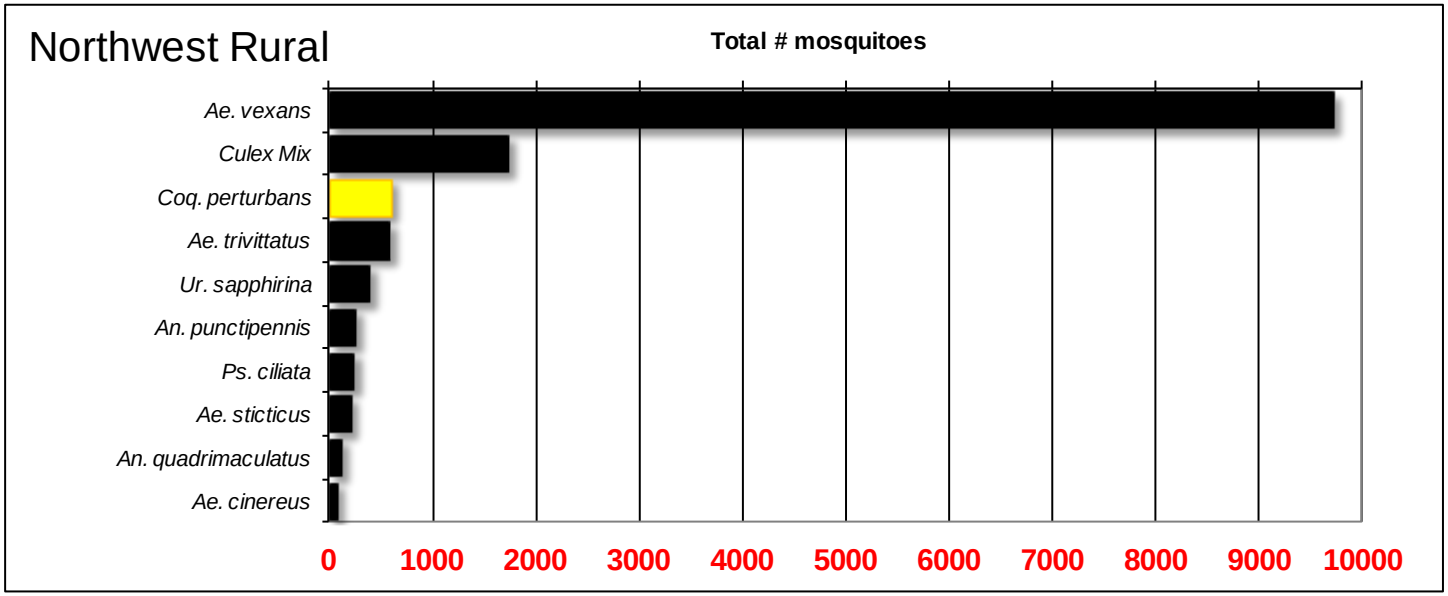


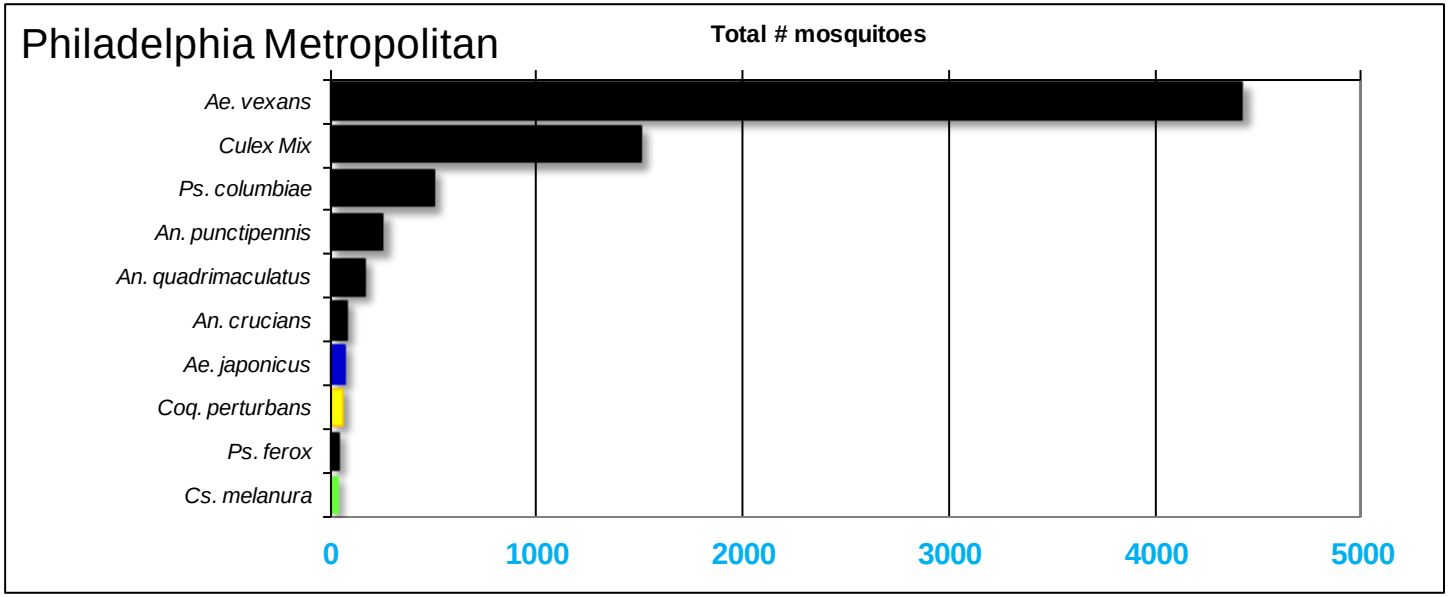

Delaware Bayshore
Total # mosquitoes
An. quadrimaculatus
Culex Mix
Ae. cantator
An. bradleyi
Ae. vexans
Cs. melanura
Coq. perturbans
Ps. columbiae
Ae. canadensis
Ae. taeniorhynchus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

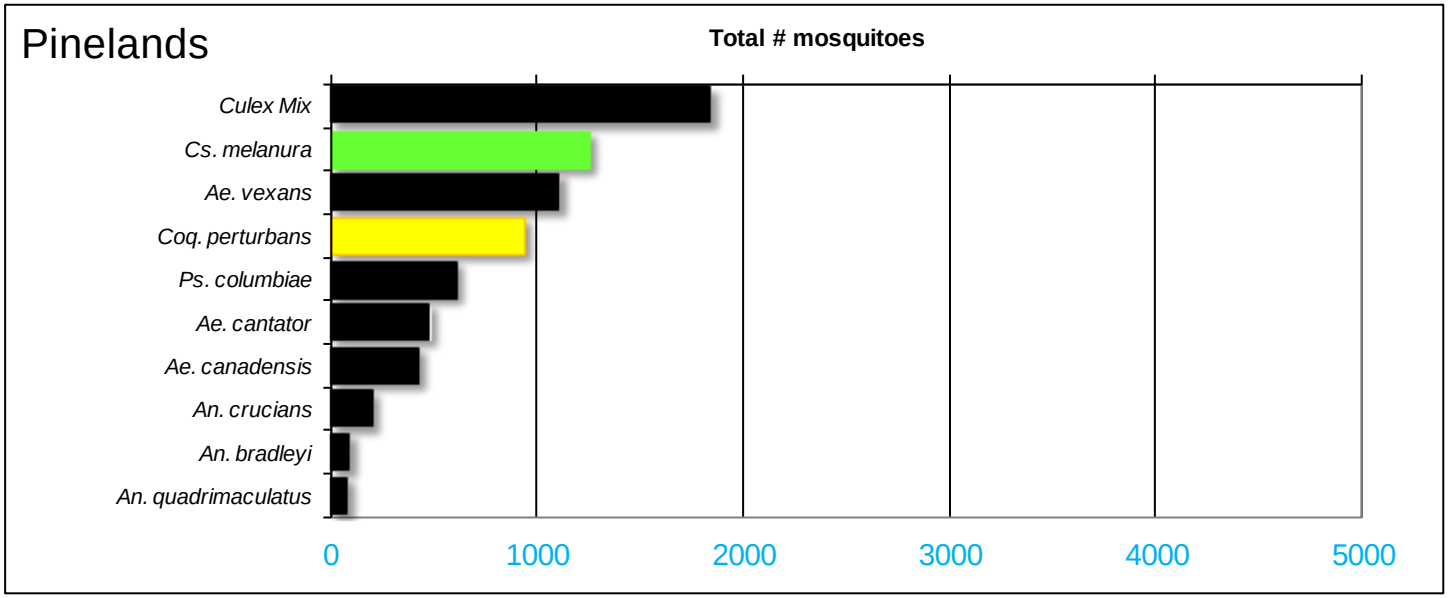

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ps. columbiae
Ae. cantator
Ps. ciliata
An. bradleyi
Ae. sollicitans
Coq. perturbans
Ae. sticticus
Ur. sapphirina
0
300
600
900
1200
1500

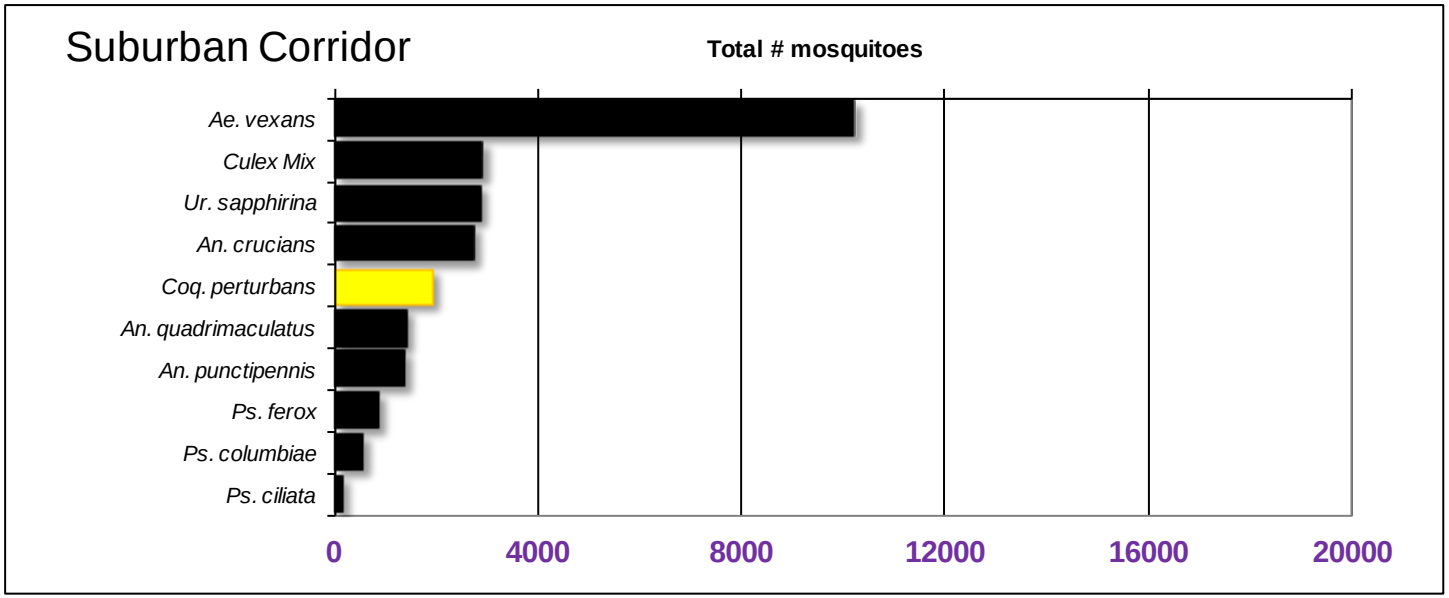

New York Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. sollicitans
Ae. sticticus
Ae. cantator
Ae. albopictus
Ps. columbiae
An. quadrimaculatus
An. punctipennis
Coq. perturbans
0
1000
2000
3000
4000
5000


North Central Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ps. columbiae
An. punctipennis
An. quadrimaculatus
Coq. perturbans
Ae. japonicus
Ps. howardii
Ae. triseriatus
Ae. trivittatus
0
100
200
300
400
500
600
700
800
900
1000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
Ae. trivittatus
Ur. sapphirina
An. punctipennis
Ps. ciliata
Ae. sticticus
An. quadrimaculatus
Ae. cinereus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
Ps. columbiae
An. punctipennis
An. quadrimaculatus
An. crucians
Ae. japonicus
Coq. perturbans
Ps. ferox
Cs. melanura
0
1000
2000
3000
4000
5000


Pinelands
Total # mosquitoes
Culex Mix
Cs. melanura
Ae. vexans
Coq. perturbans
Ps. columbiae
Ae. cantator
Ae. canadensis
An. crucians
An. bradleyi
An. quadrimaculatus
0
1000
2000
3000
4000
5000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
Ur. sapphirina
An. crucians
Coq. perturbans
An. quadrimaculatus
An. punctipennis
Ps. ferox
Ps. columbiae
Ps. ciliata
0
4000
8000
12000
16000
20000