RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 16 August to 22 August 2009, CDC Weeks 33

Prepared by Lisa M. Reed, Scott Crans, Dina Fonseca and Randy Gaugler
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.

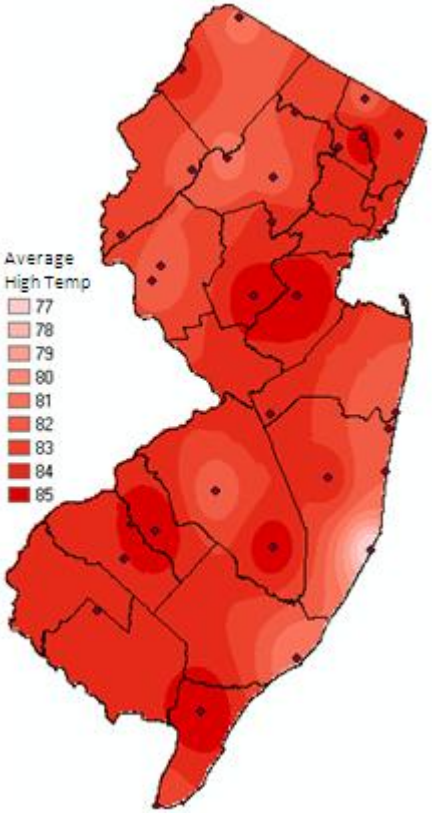
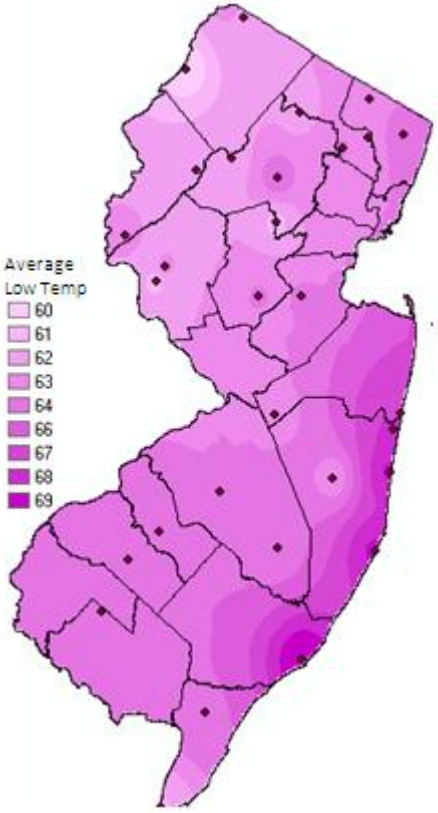
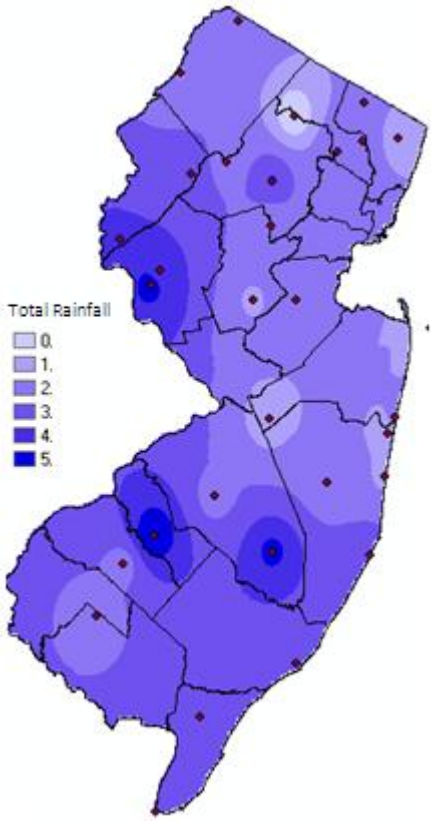
Summary table – Week 33

	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	**1.93**	**2.25**	**0**	**0.04**	**7.03**	**0**	**0.00**	**0.18**	**0**	**0.00**	**0.49**	**0**
Coastal	**2.10**	**2.29**	**0**	**4.13**	**4.49**	**0**	**0.02**	**0.32**	**0**	**4.59**	**16.19**	**0**
Delaware Bayshore	**0.54**	**1.36**	**0**	**4.23**	**21.90**	**0**	**0.00**	**0.87**	**0**	**1.00**	**13.67**	**0**
Delaware River Basin	**0.00**	**11.89**	**0**	**0.00**	**9.44**	**0**	**0.00**	**0.74**	**0**	**0.00**	**<0.01**	**0**
New York Metro	**2.70**	**3.09**	**0**	**2.77**	**7.28**	**0**	**0.01**	**0.10**	**0**	**0.26**	**0.62**	**0**
North Central Rural	**0.04**	**0.52**	**0**	**0.35**	**0.66**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**4.77**	**4.26**	**1**	**5.26**	**2.43**	**3**	**1.91**	**0.12**	**4**	**0.00**	**0.00**	**0**
Philadelphia Metro	**10.62**	**8.82**	**1**	**1.48**	**4.33**	**0**	**0.00**	**0.16**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.39**	**1.28**	**0**	**1.32**	**1.75**	**0**	**0.04**	**0.32**	**0**	**0.00**	**0.16**	**0**
Suburban Corridor	**8.45**	**3.60**	**3**	**2.69**	**1.91**	**1**	**0.00**	**0.37**	**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.

State Summary: *Aedes vexans* and *Culex* species increased in the Northwestern Rural, Philadelphia Metro and Suburban Corridors after a period of warmer days following a cool July. These numbers are likely to be maintained in the New York Metro region where populations have been high all season long.

Climate Factors

August Average High Temperature (Days 1-18)	August Average Low Temperature (Days 1-18)	August Total Precipitation (Days 1-18)
		

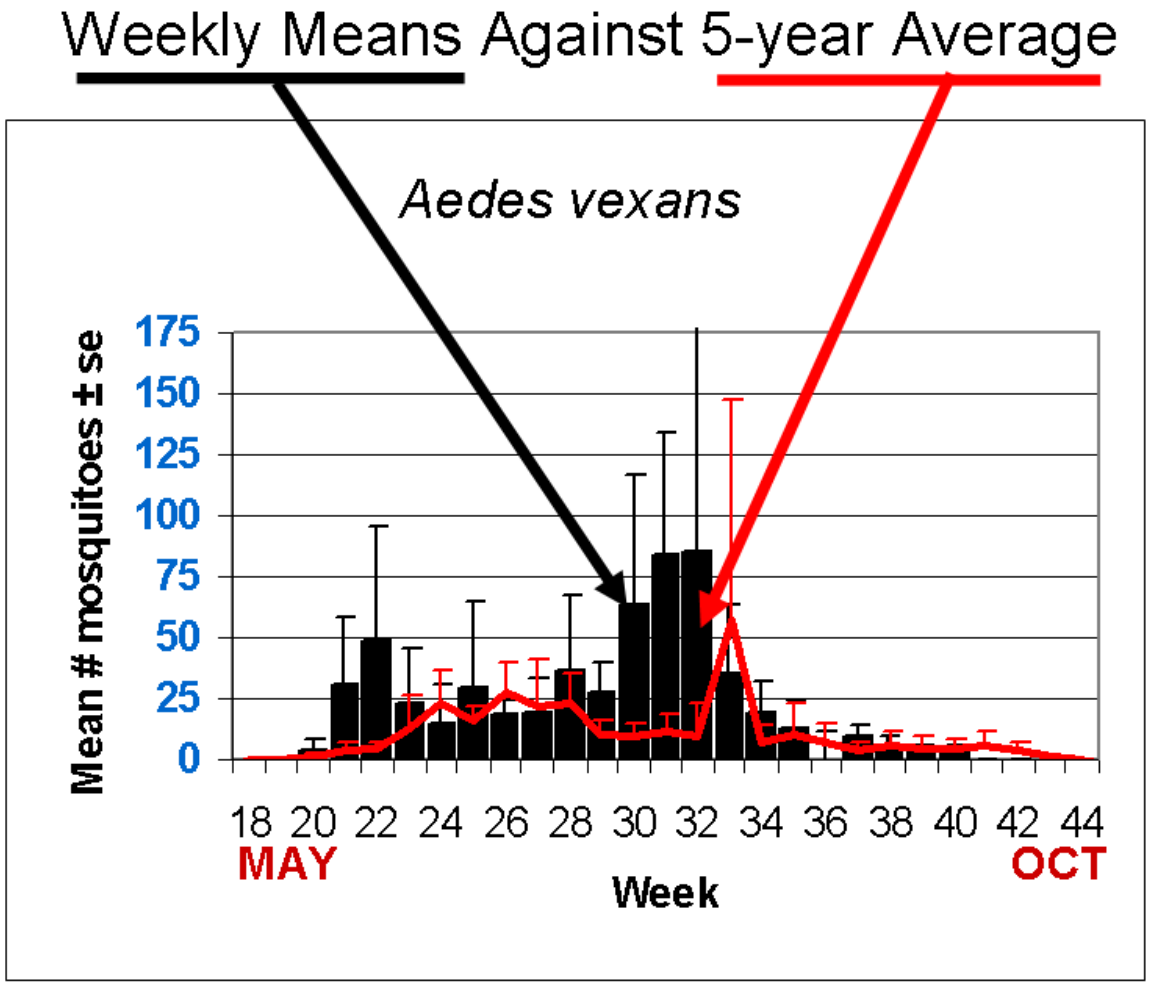
The three figures show the interpolation of average maximum and minimum temperature and total precipitation days 1-18 of August in New Jersey. Data points are from 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points were performed through ArcMap 9.2.

In August to date, average high temperatures were higher through the suburban corridor and parts of Camden, Gloucester and Cape May counties. Average low temperatures were again highest along the coastal region. The western portion of the state as well as parts of Burlington and Morris counties experienced higher rainfall. In general, it was warmer in central New Jersey during the day, warmer along the coast at night and wetter on the western and southern portions of the state.

NJ Weather & Climate NETWORK

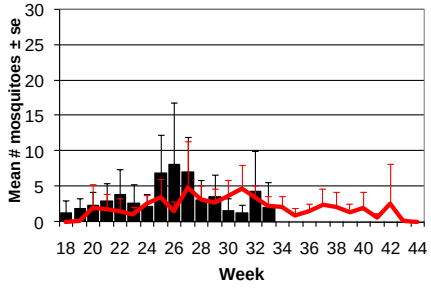
ONJSC at Rutgers University

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 are from Camden, Cape May, Monmouth, Morris, Ocean, Sussex, Union and Warren counties. Note: County data is sent in at a variety of times during the week.

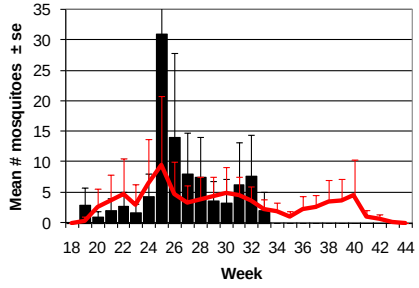


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

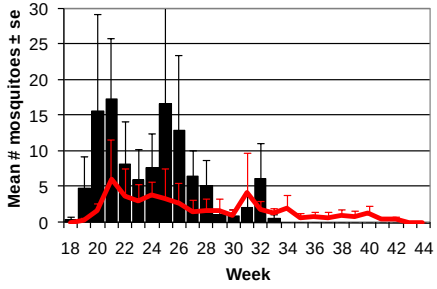
Agricultural



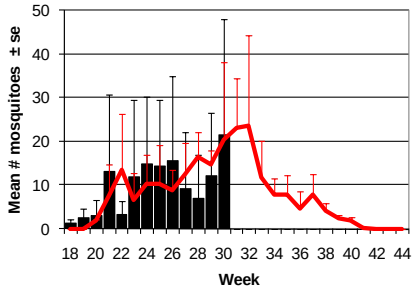
Coastal



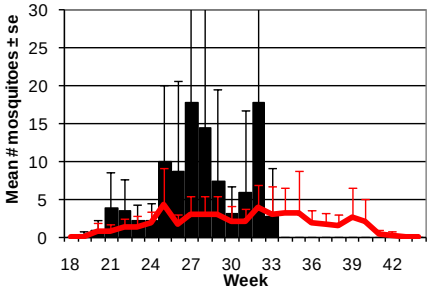
Delaware Bayshore



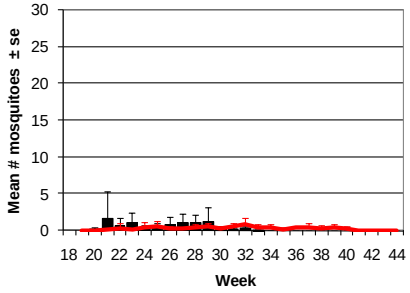
Delaware River Basin



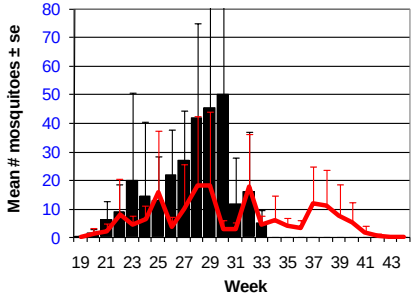
New York Metro



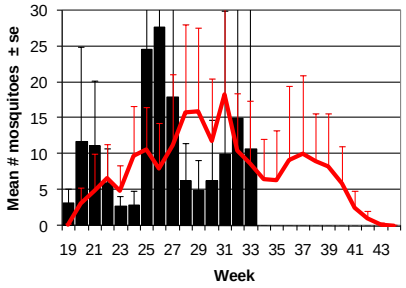
North Central Rural



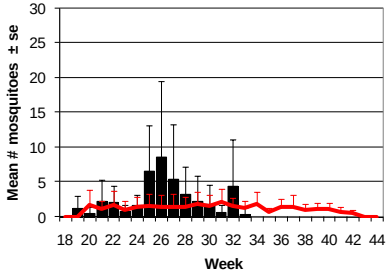
Northwestern Rural



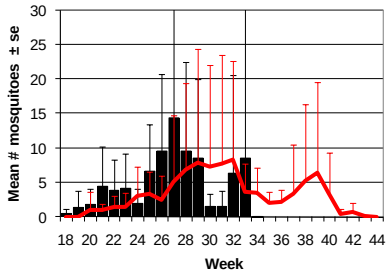
Philadelphia Metro



Pinelands



Suburban Corridor

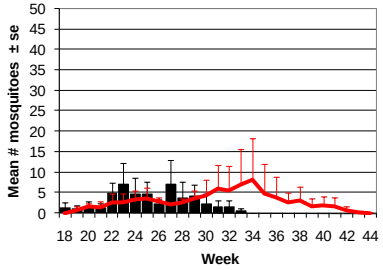


Comments

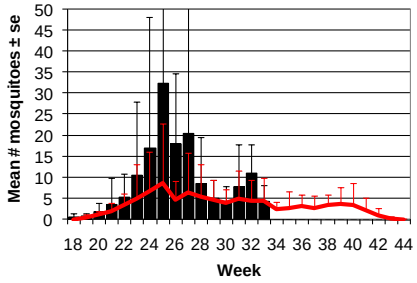
Aedes vexans abundance has increased to or above historical values in many regions including Agricultural, Coastal, the Delaware Bayshore, New York Metropolitan, North Central Rural, Northwestern Rural and the Suburban Corridor. This may precipitate complaints as people go outside as the evening temperature becomes milder.

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

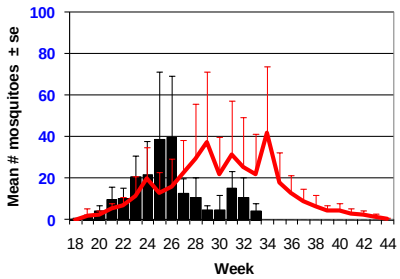
Agricultural



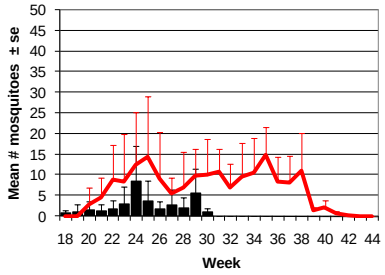
Coastal



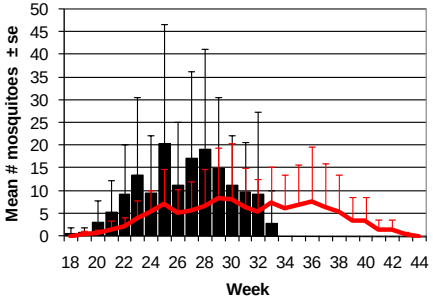
Delaware Bayshore



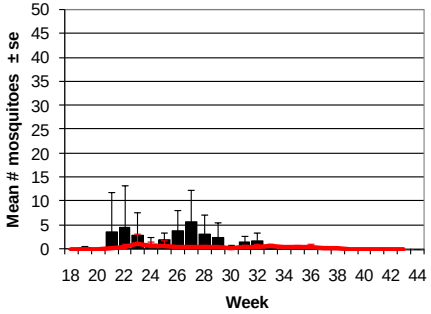
Delaware River Basin



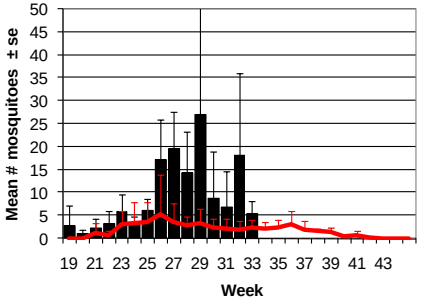
New York Metro



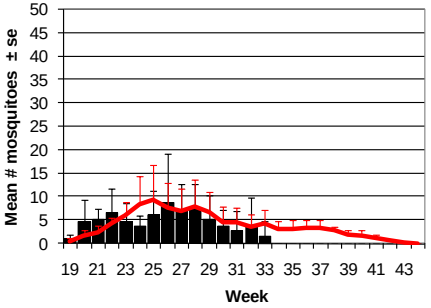
North Central Rural



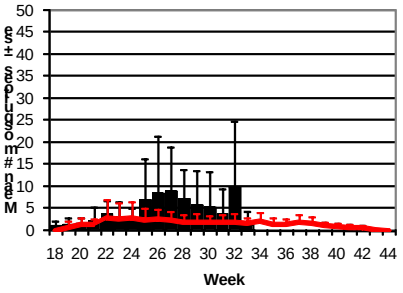
Northwestern Rural



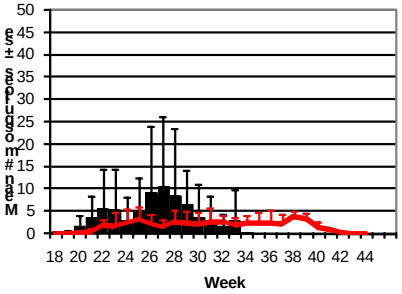
Philadelphia Metro



Pinelands



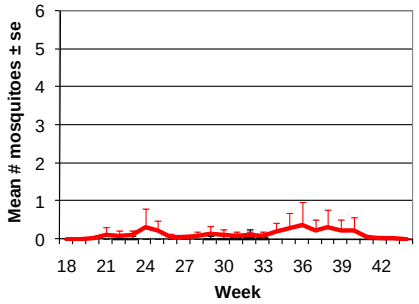
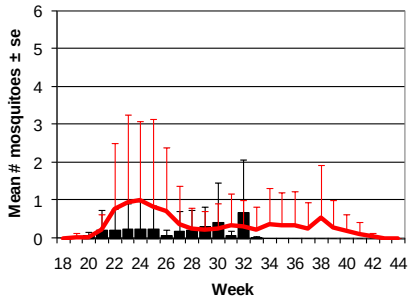
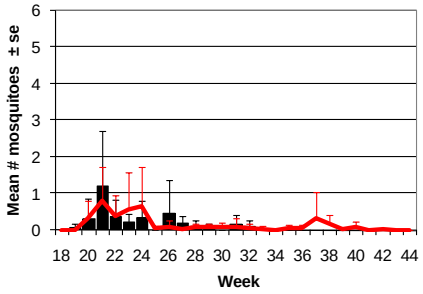
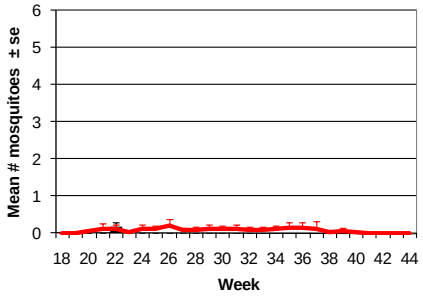
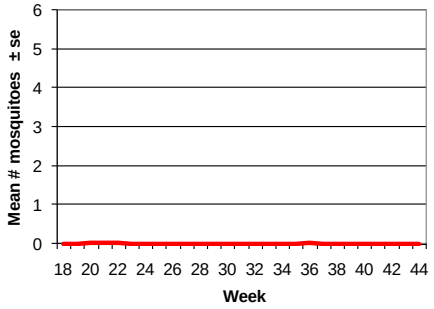
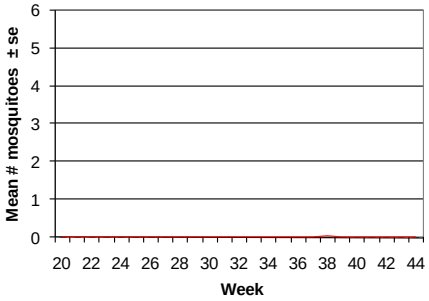
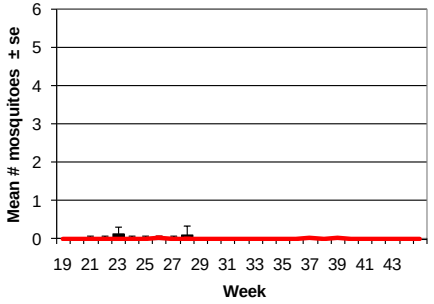
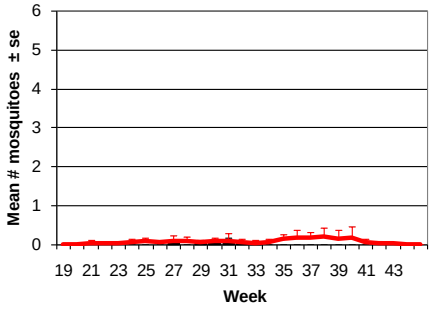
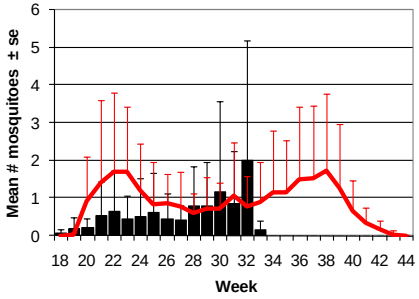
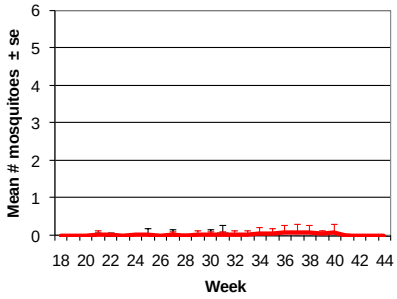
Suburban Corridor



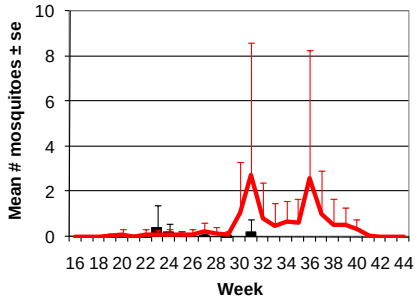
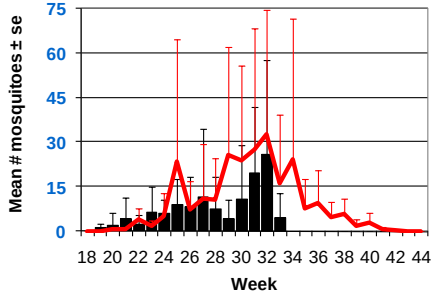
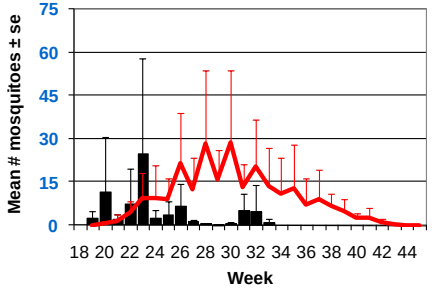
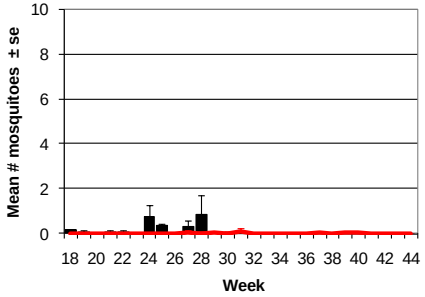
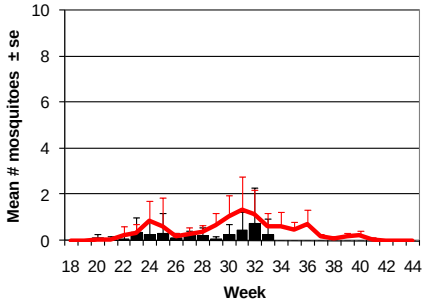
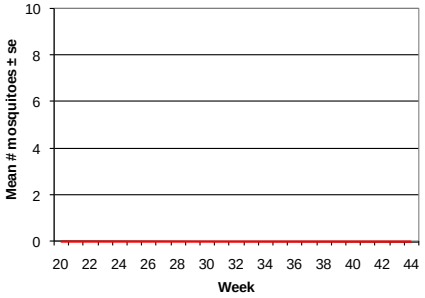
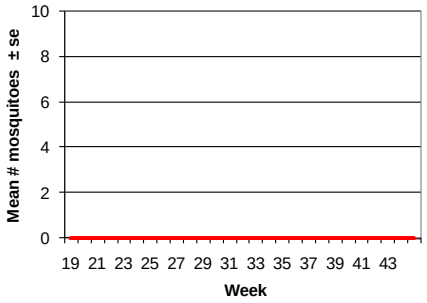
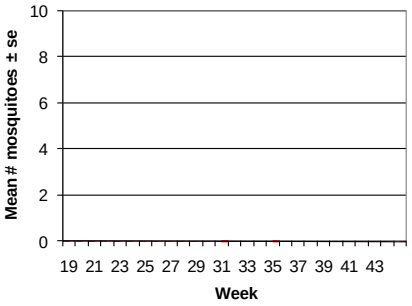
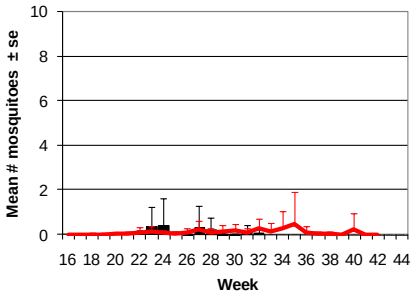
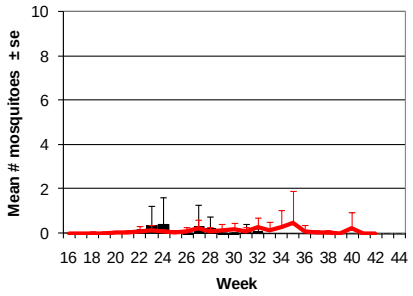
Comments

While some *Culex* populations may be decreasing (such as *Culex restuans* in Agricultural regions), others such as *Culex salinarius* may increase in other areas like the Coastal region. *Cx. salinarius* is a opportunistic biter and will feed on humans and other mammals in the early part of the evening. It is a competent West Nile virus vector.

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**	
		Pineland populations of *Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, appear to be increasing, although the current week is in low numbers. Resting box collections from the Vector Surveillance program has shown recent increases as well. Eastern equine encephalitis virus has been increasing through southern New Jersey this year, with multiple positive pools detected in this species as well as other probable bird-feeders (Mixed *Culex* pools) and *Cx. salinarius*.	

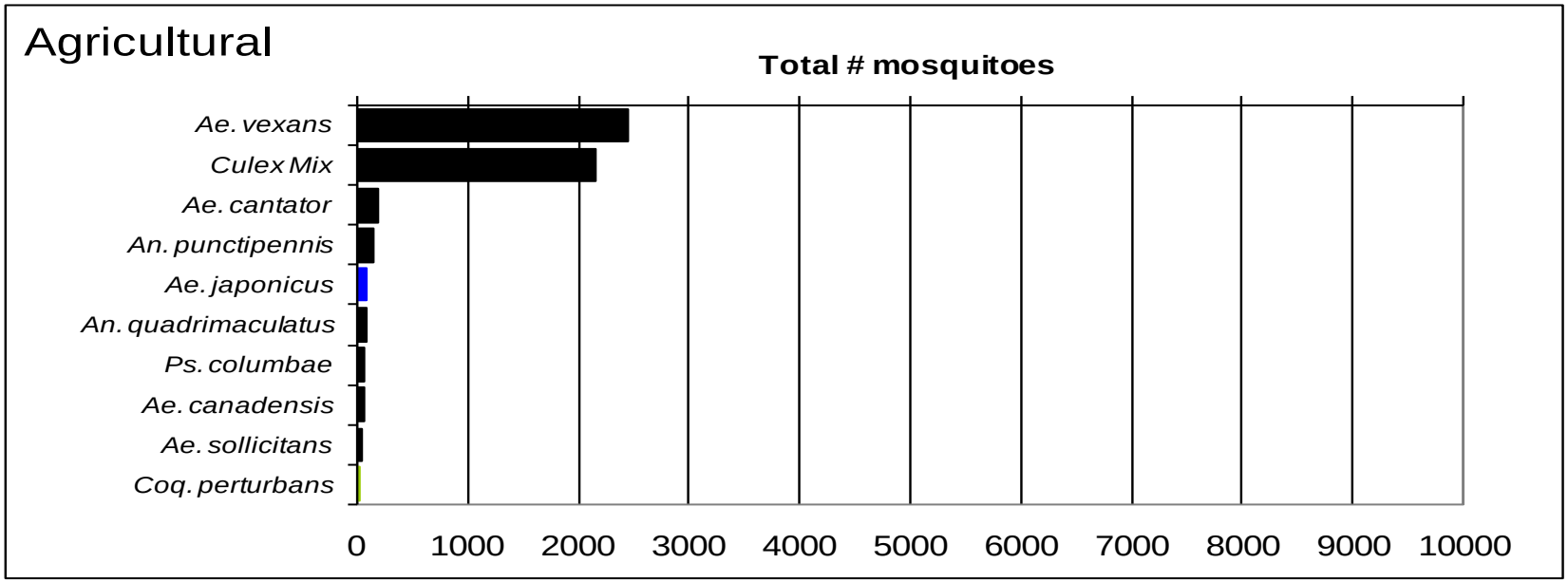
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

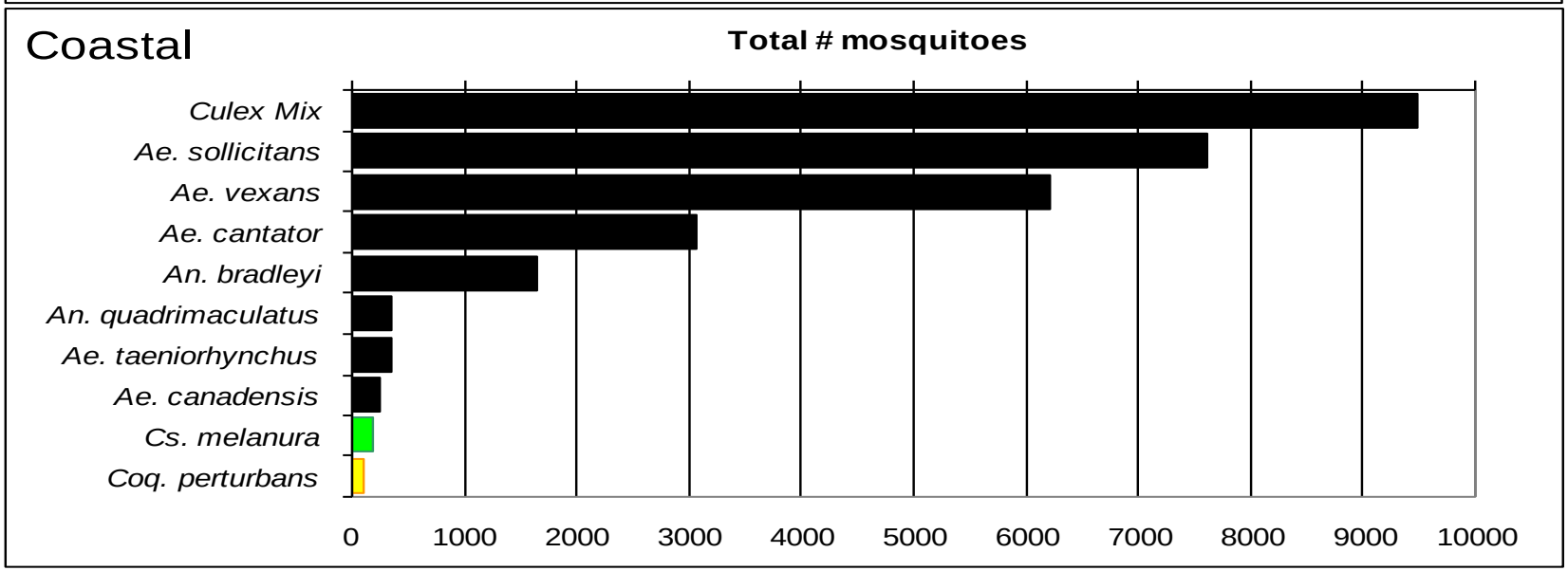
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* populations have likely peaked in the Coastal region although complaints originating from this species may actually increase as abundance decreases. *Ae. sollicitans* should begin to shift feeding times and targets as the season progresses. This species is likely a competent vector for EEE along coastal communities (Crans WJ, et al, 1986. Isolation of eastern equine encephalitis virus from *Aedes sollicitans* during an epizootic in southern New Jersey. JAMCA 2: 68–72. Also see Arrigo et al 2008 Experimental Infection of *Aedes sollicitans* and *Aedes taeniorhynchus* with Two Chimeric Sindbis/Eastern Equine Encephalitis Virus Vaccine Candidates, AJTMH, 93-97.) Next Full Moon: 4 September	

WNV *EEE*

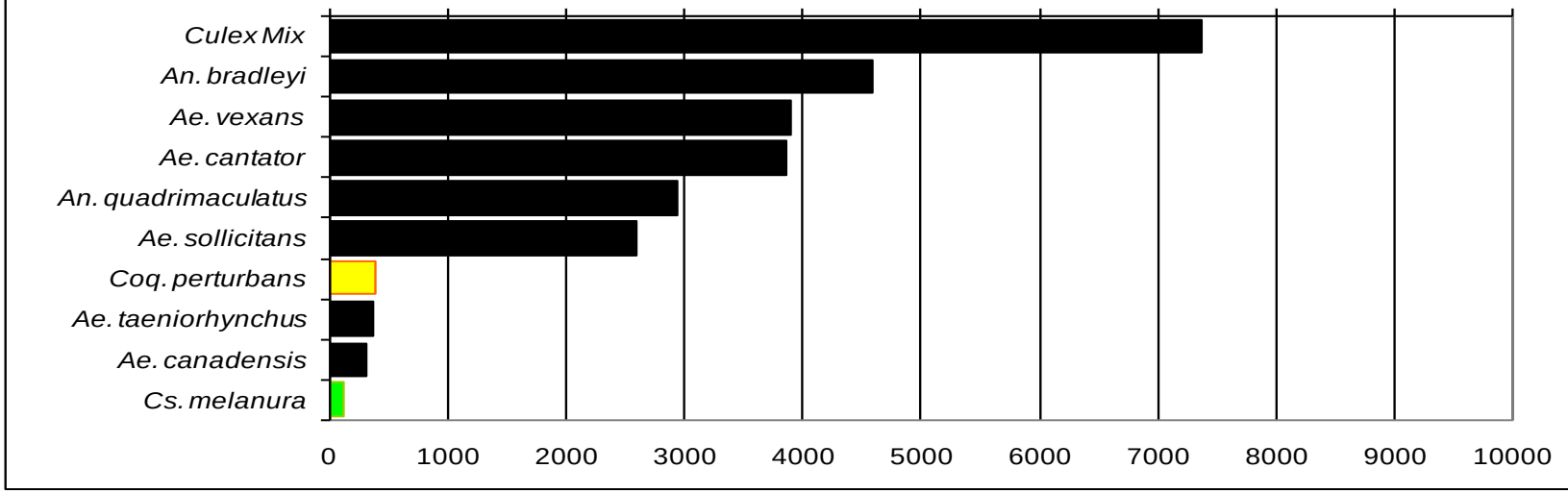
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

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

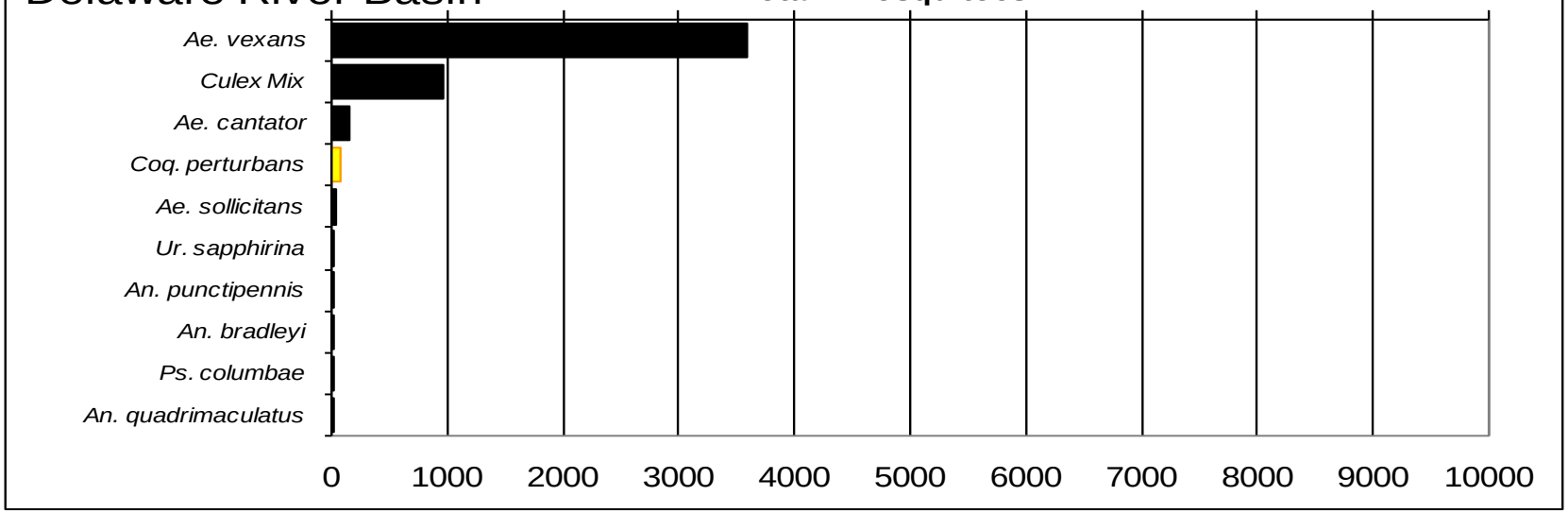


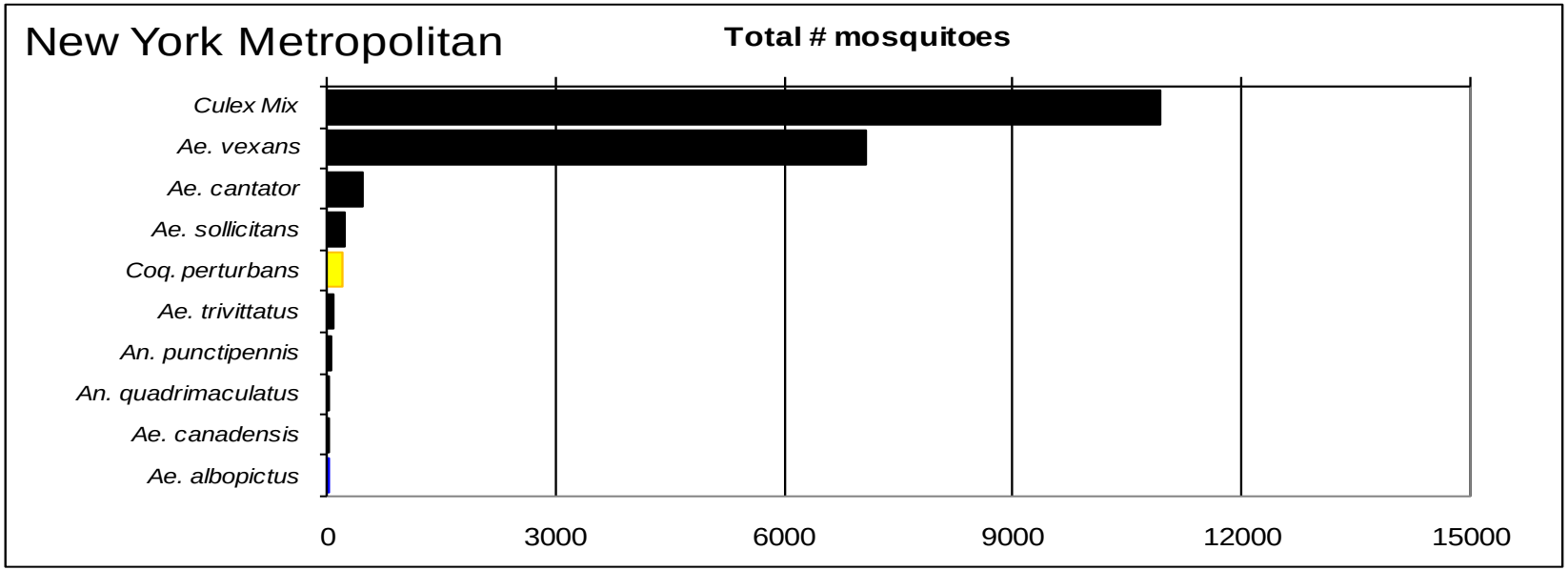


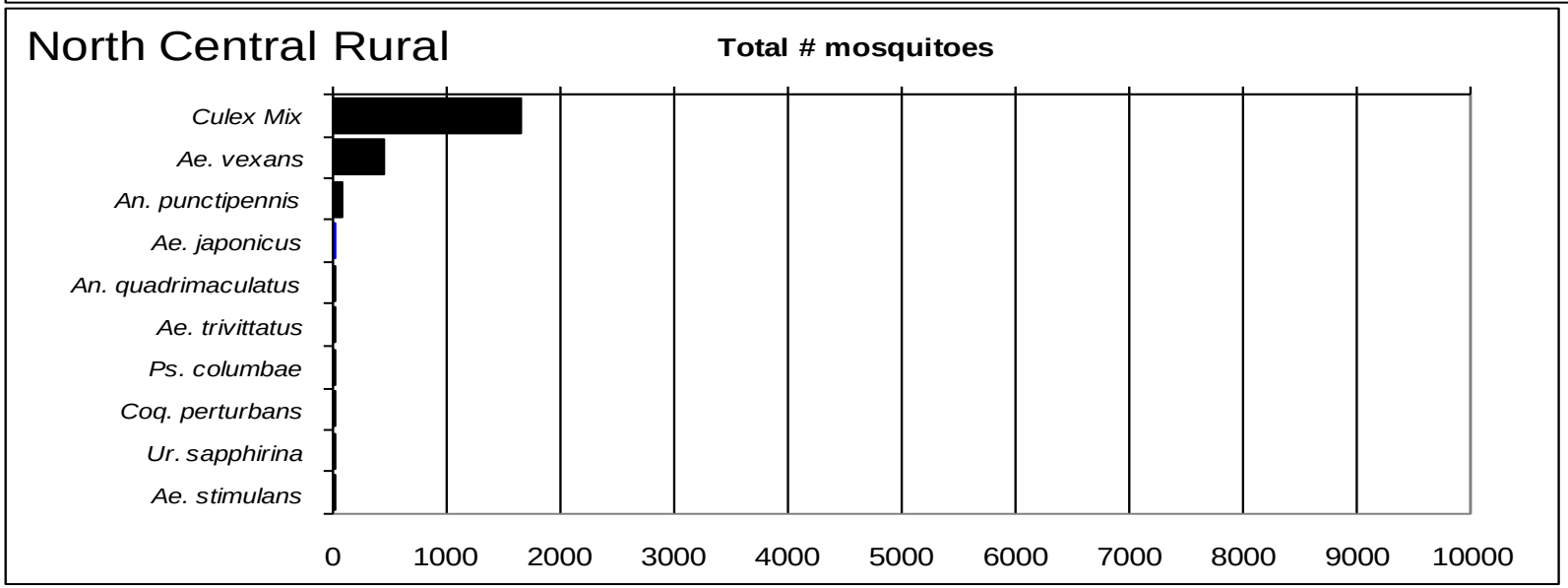
Delaware Bayshore

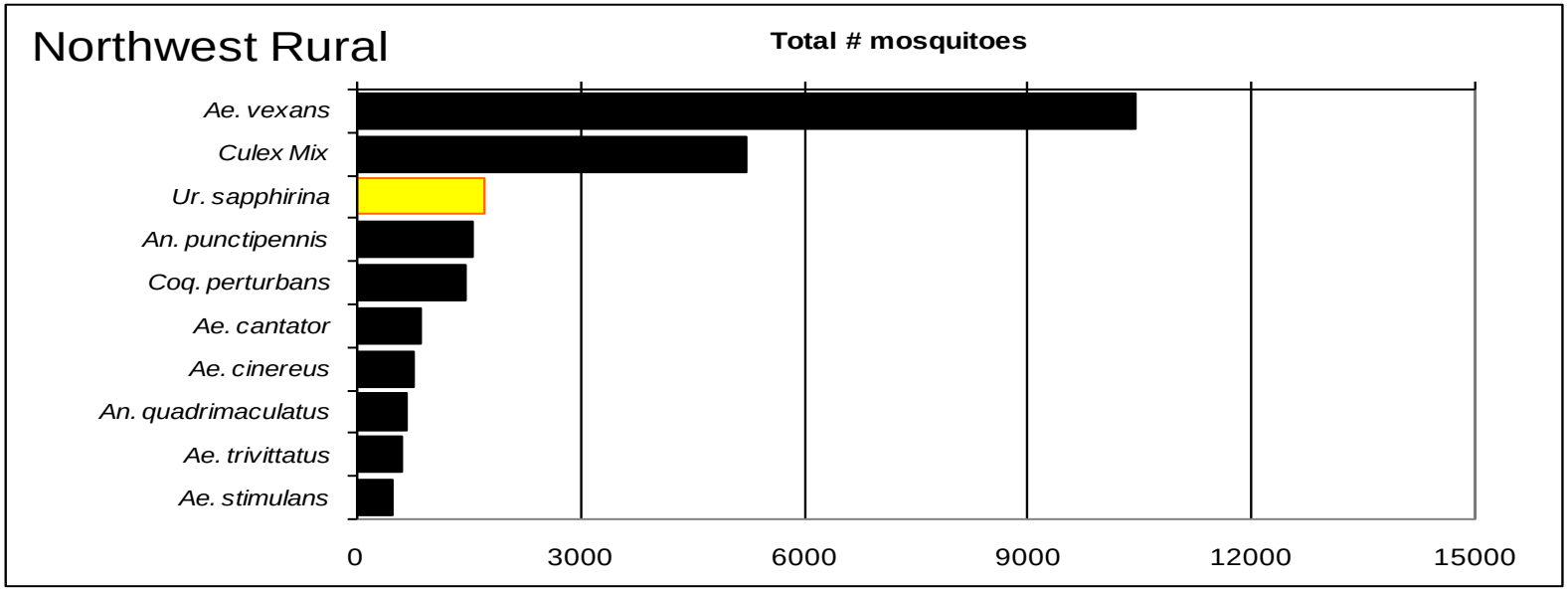


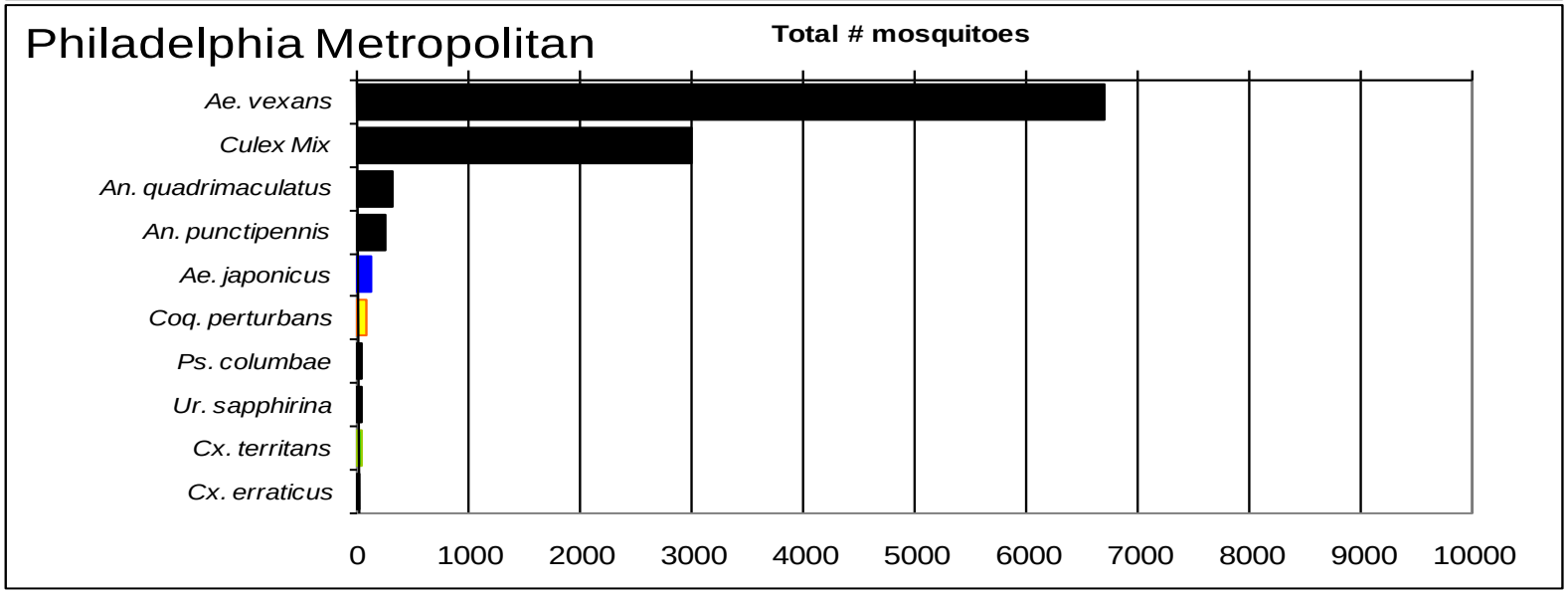
Delaware River Basin

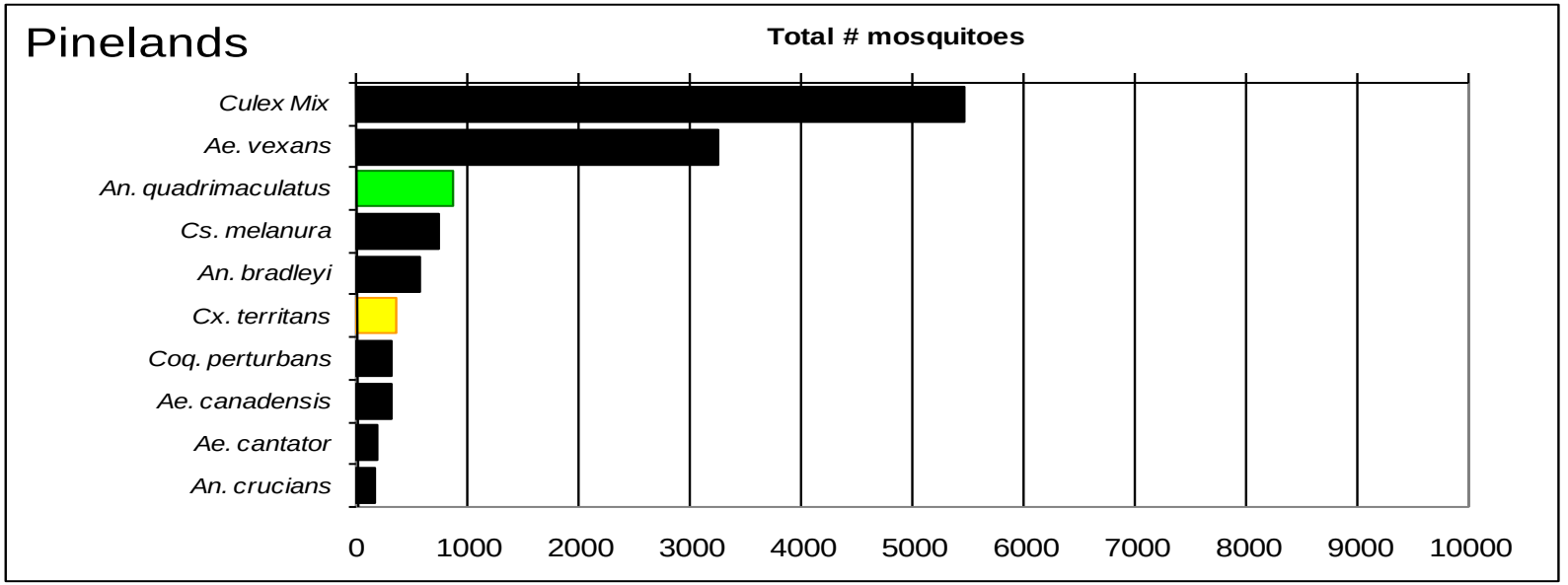


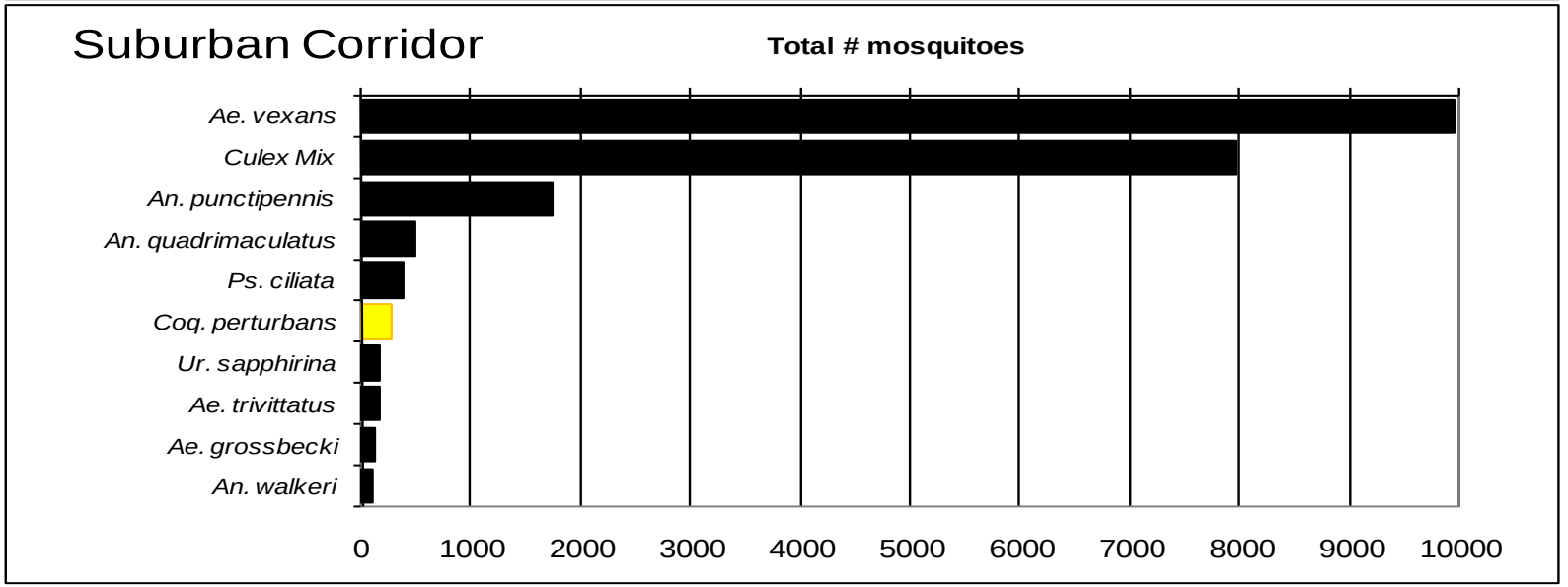

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
Ae. trivittatus
An. punctipennis
An. quadrimaculatus
Ae. canadensis
Ae. albopictus
0
3000
6000
9000
12000
15000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
Ae. japonicus
An. quadrimaculatus
Ae. trivittatus
Ps. columbae
Coq. perturbans
Ur. sapphirina
Ae. stimulans
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ur. sapphirina
An. punctipennis
Coq. perturbans
Ae. cantator
Ae. cinereus
An. quadrimaculatus
Ae. trivittatus
Ae. stimulans
0
3000
6000
9000
12000
15000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
An. punctipennis
Ae. japonicus
Coq. perturbans
Ps. columbae
Ur. sapphirina
Cx. territans
Cx. erraticus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Pinelands
Total # mosquitoes
Culex Mix
Ae. vexans
An. quadrimaculatus
Cs. melanura
An. bradleyi
Cx. territans
Coq. perturbans
Ae. canadensis
Ae. cantator
An. crucians
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
An. quadrimaculatus
Ps. ciliata
Coq. perturbans
Ur. sapphirina
Ae. trivittatus
Ae. grossbecki
An. walkeri
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000