RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 13 June to 19 June 2010, CDC Weeks 24

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Center for Vector Biology

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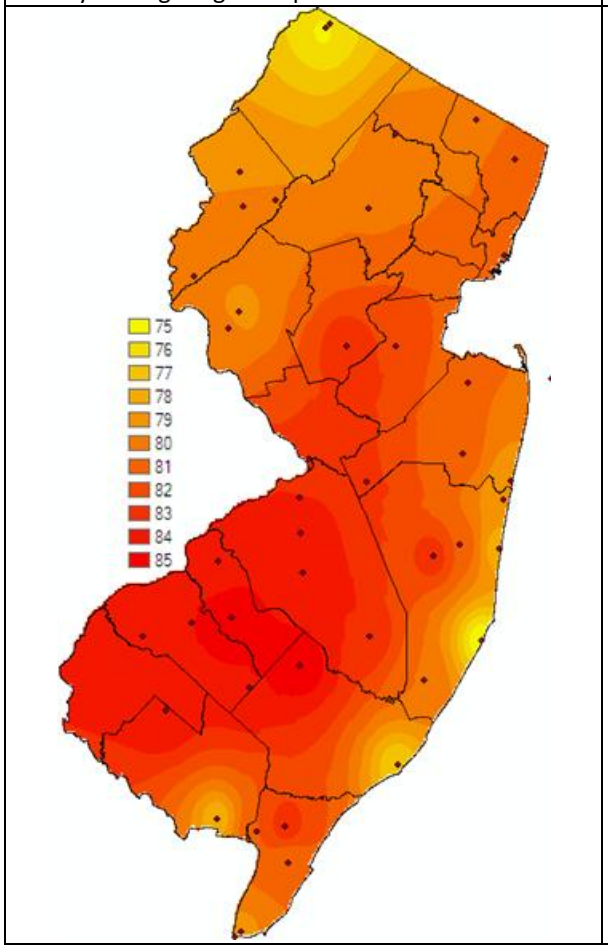
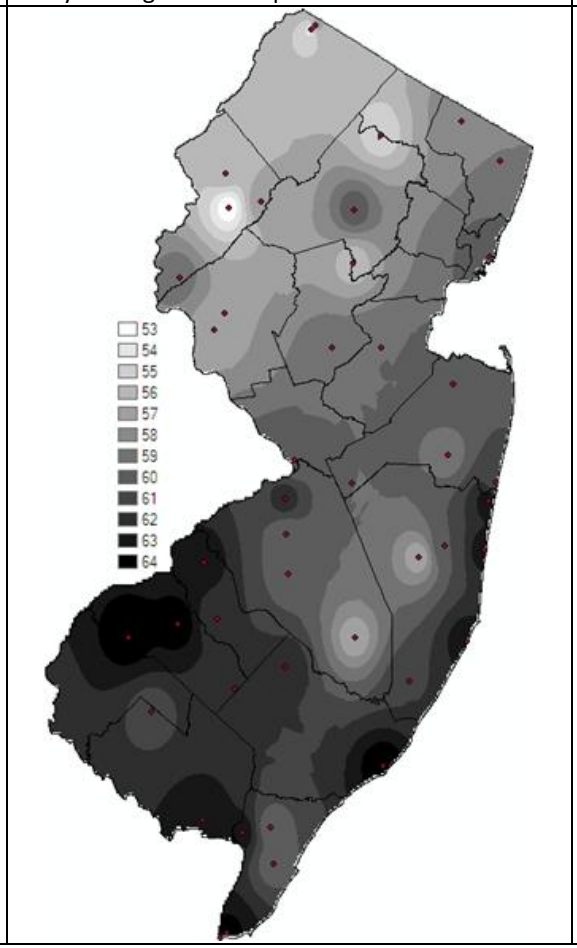
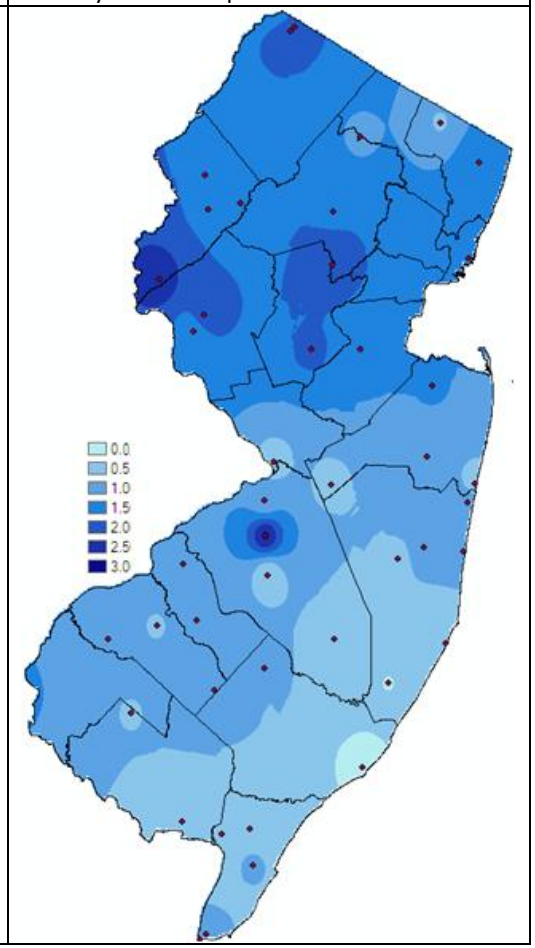
Summary table – Week 24

	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	**0.06**	**2.18**	**0**	**0.11**	**3.96**	**0**	**0.14**	**0.24**	**0**	**0.00**	**0.12**	**0**
Coastal	**1.37**	**11.50**	**0**	**1.89**	**9.11**	**0**	**0.29**	**1.37**	**0**	**0.49**	**12.29**	**0**
Delaware Bayshore	**0.09**	**5.33**	**0**	**2.49**	**14.76**	**0**	**1.23**	**1.71**	**0**	**0.09**	**15.63**	**0**
Delaware River Basin	**0.04**	**9.54**	**0**	**0.14**	**7.83**	**0**	**0.00**	**0.26**	**0**	**0.00**	**0.07**	**0**
New York Metro	**0.30**	**2.07**	**0**	**6.56**	**6.57**	**0**	**0.47**	**0.30**	**2**	**0.06**	**0.97**	**0**
North Central Rural	**0.04**	**0.49**	**0**	**0.76**	**0.88**	**0**	**0.04**	**0.03**	**1**	**0.00**	**0.00**	**0**
Northwest Rural	**0.94**	**7.86**	**0**	**2.00**	**3.95**	**0**	**1.55**	**0.82**	**2**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.26**	**8.95**	**0**	**0.95**	**7.87**	**0**	**0.71**	**2.38**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.35**	**1.68**	**0**	**0.78**	**3.07**	**0**	**1.77**	**0.62**	**4**	**0.00**	**0.07**	**0**
Suburban Corridor	**0.53**	**3.37**	**0**	**2.57**	**2.91**	**0**	**1.03**	**0.46**	**3**	**0.01**	**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: *Coquillettidia perturbans* abundances continue to be elevated in several regions, although not to the extent they were the previous week.

Climate Factors

May Average High Temperatures 1 Jun to 23 Jun	May Average Low Temperatures 1 Jun to 23 Jun	May Total Precipitation 1 Jun to 23 Jun
		

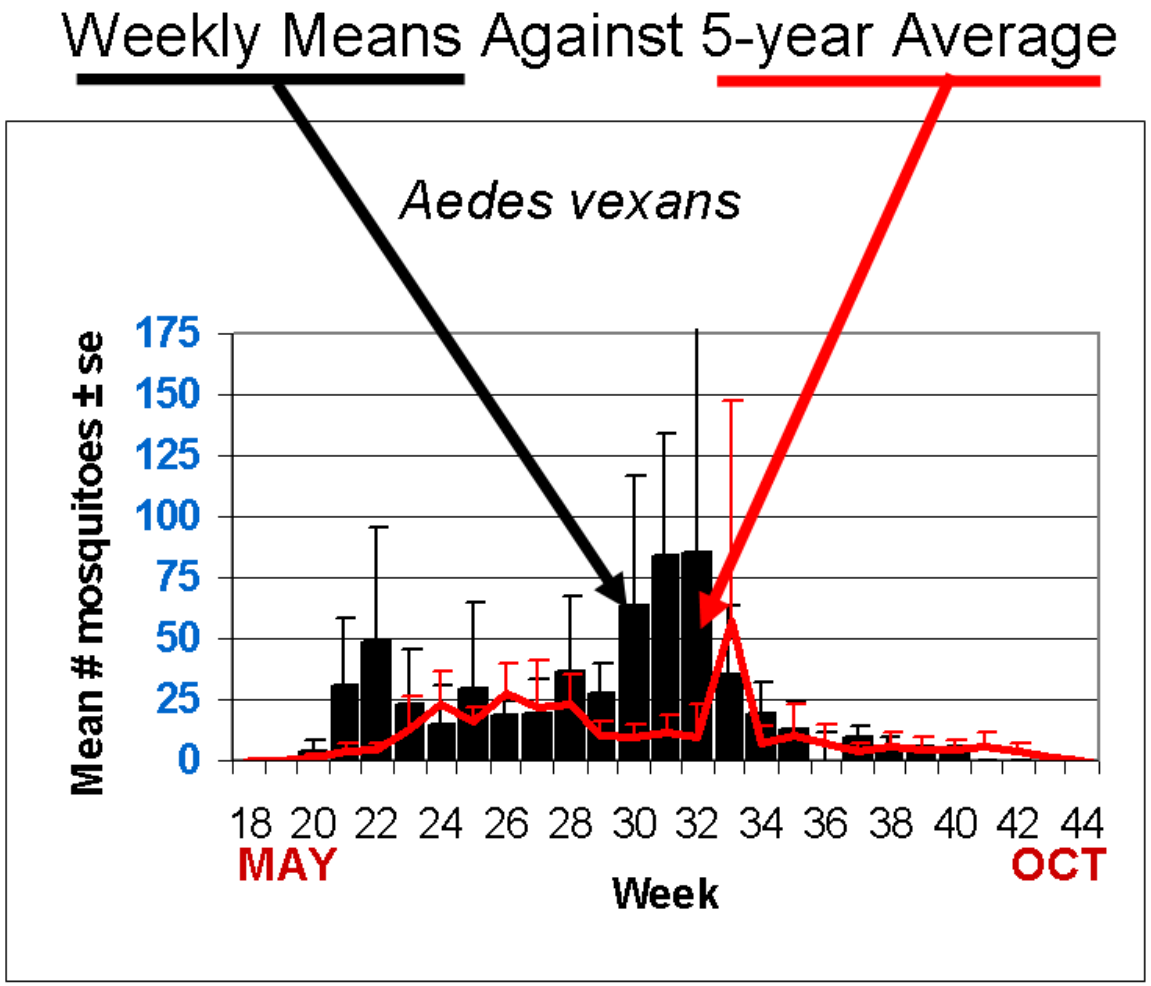
The three figures show the interpolation of average maximum and minimum temperature and total precipitation from June 1 to June 23, 2010 in New Jersey. Data points are from 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

The past week modulated around 1 degree from the previous week. Average high temperatures continued to be highest in the interior portions of New Jersey and coolest along the coastal and northwestern regions. Average low temperatures were lowest in the northern portion of the state with pockets of cooler areas in the Pinelands. Highest rainfall was recorded along the Agricultural and Suburban Corridor northwards, with only minor changes from the previous week.

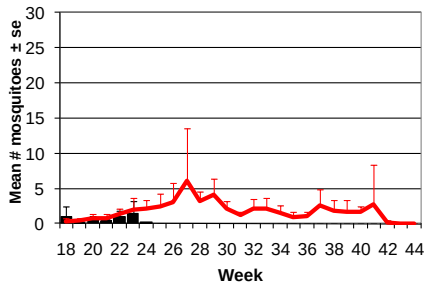
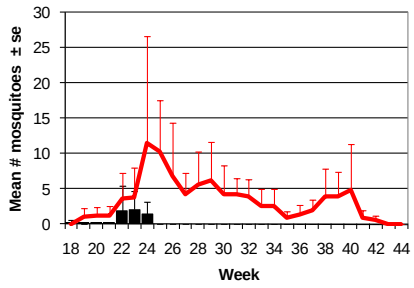
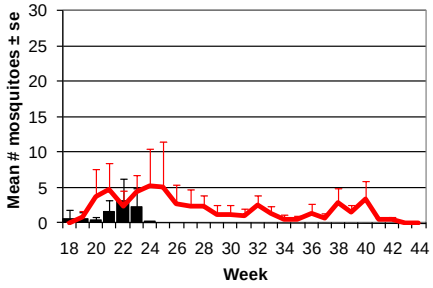
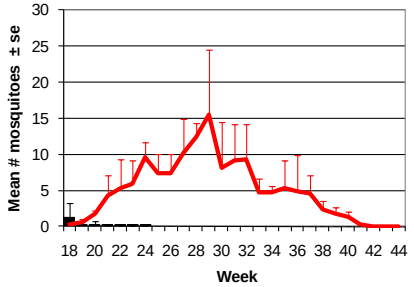
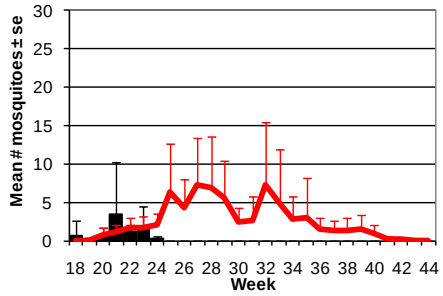
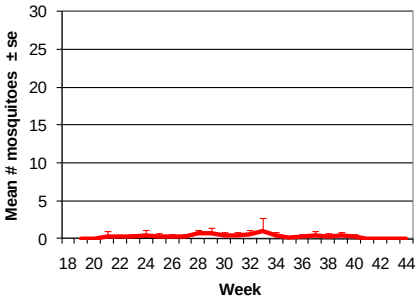
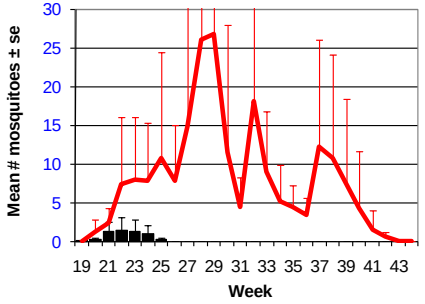
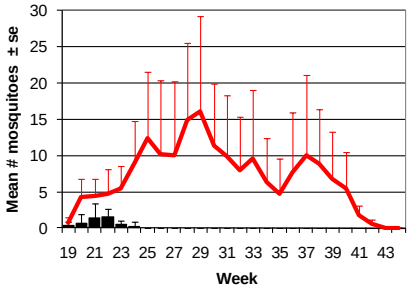
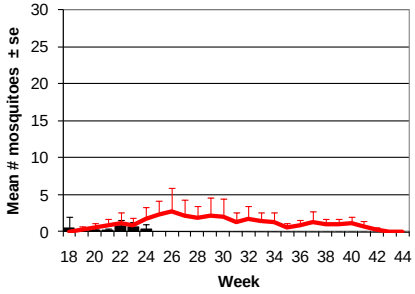
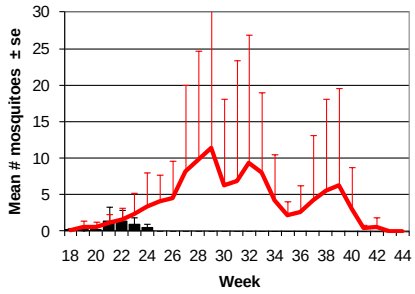
NJ Weather & Climate NETWORK

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 Atlantic, Bergen, Burlington, Cape May, Essex, Hunterdon, Hudson, Mercer, Middlesex, Monmouth, Morris, Ocean, Sussex, Union and Warren counties. Note: Previous week's data are from Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Somerset, Sussex, Union and Warren counties.

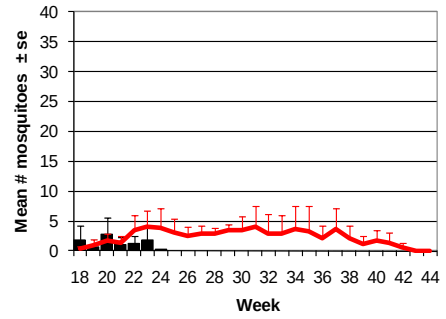


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

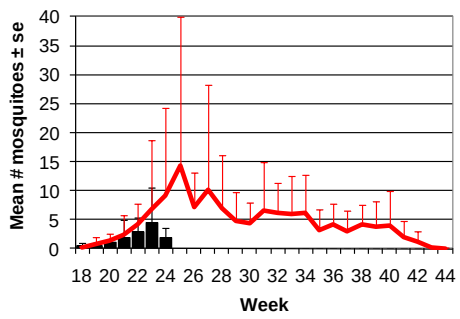
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* abundances continue to track or be below historical trends. As with last week, abundance of this floodwater mosquito continues to be low in the Delaware River Basin, the Northwestern Rural and Philadelphia Metro regions. Rain events were low this past week and until substantial rainfall occurs (either locally or that causes creeks or rivers to overflow their banks from upstream events), *Ae. vexans* populations should remain low. Rainfall and cooler temperatures are forecasted for much of New Jersey in the next few days which may result in local emergences.	

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

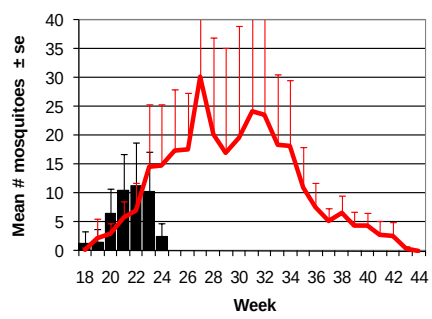
Agricultural



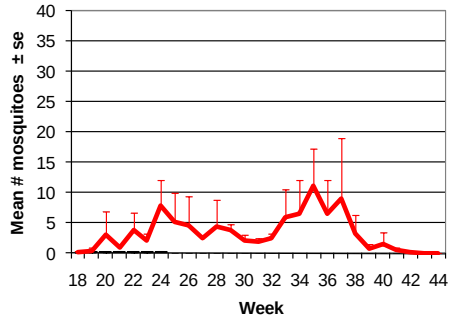
Coastal



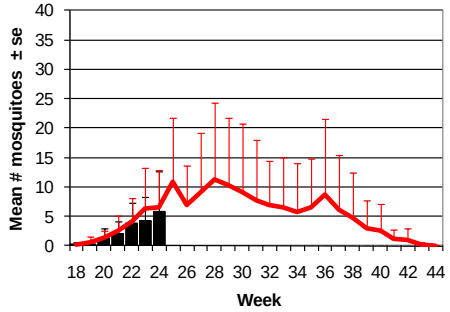
Delaware Bayshore



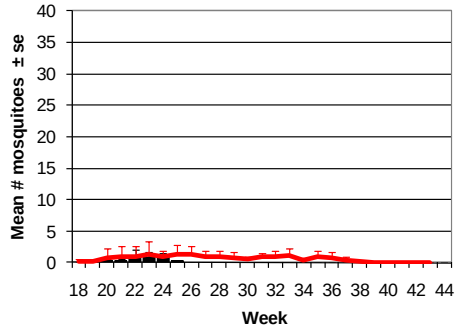
Delaware River Basin



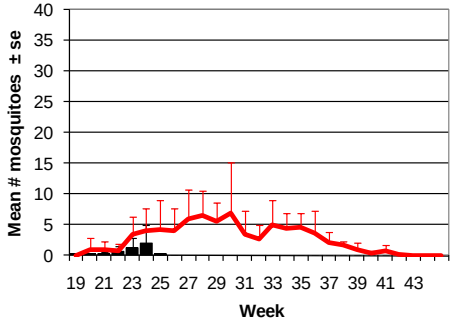
New York Metro



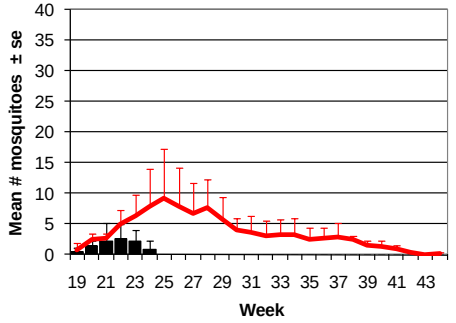
North Central Rural



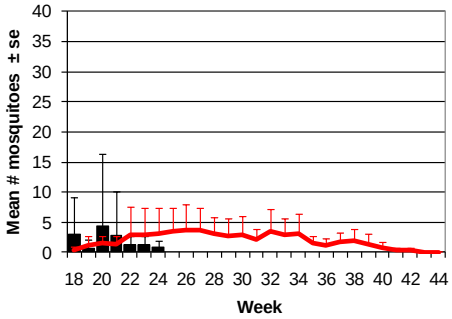
Northwestern Rural



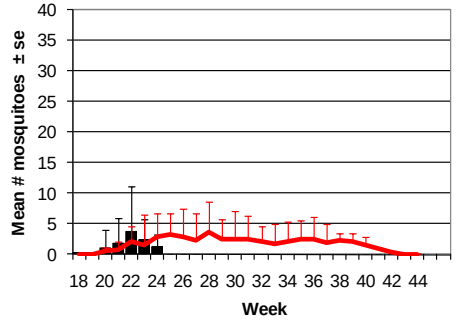
Philadelphia Metro



Pinelands



Suburban Corridor



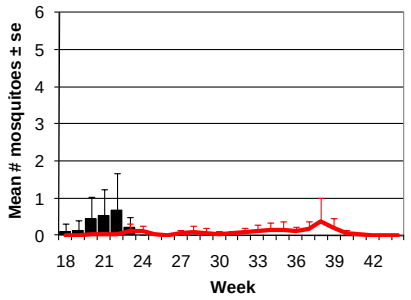
Comments

Culex Mix is represented by three species of *Culex* mosquitoes: *Cx. pipiens, Cx. restuans* and *Cx. salinarius*. These mosquitoes are usually grouped together as there is considerable difficulty in separating them to species easily after travelling through the grind of the light trap, often in the company of protesting moths and beetles.

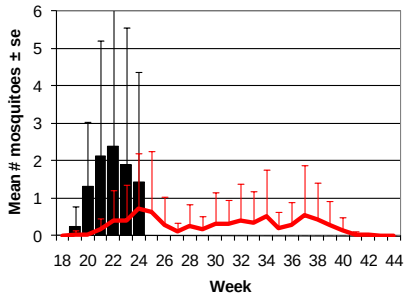
This group often shows the most consistent population trends. To date, they continue to be tracking historical values for most regions. The Delaware River Basin and, to a minor extent, the Philadelphia Metro regions are showing fewer *Culex*.

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

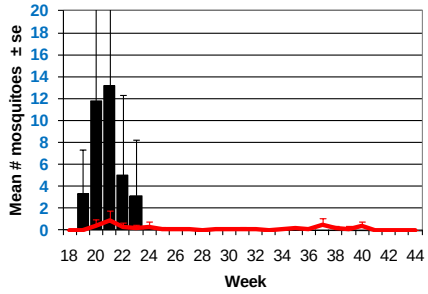
Agricultural



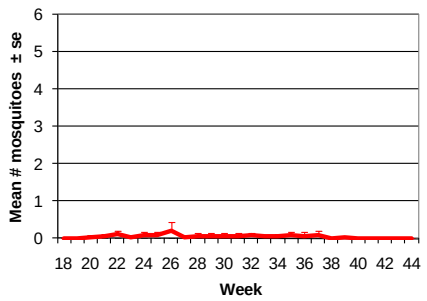
Coastal



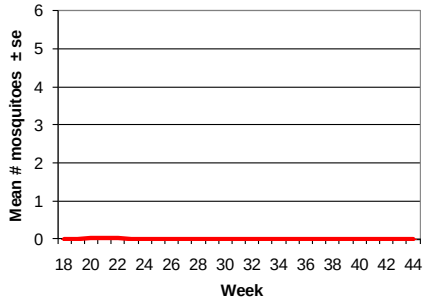
Delaware Bayshore



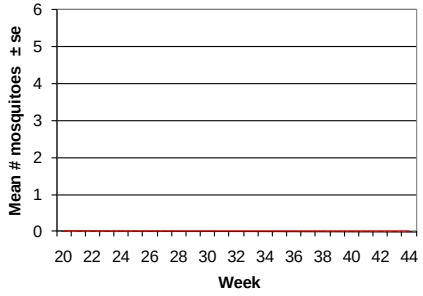
Delaware River Basin



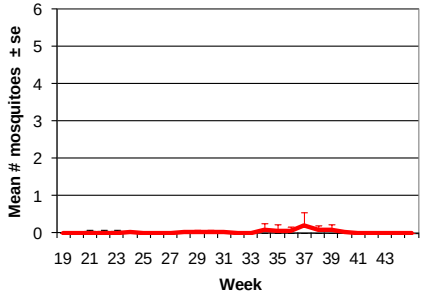
New York Metro



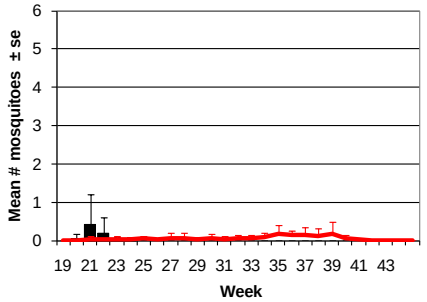
North Central Rural



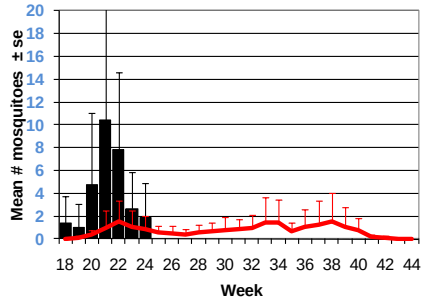
Northwestern Rural



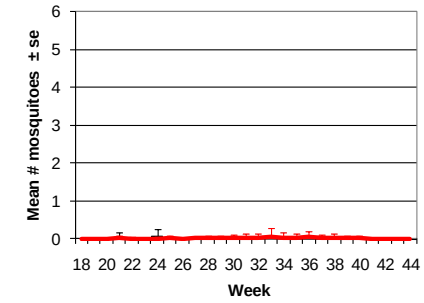
Philadelphia Metro



Pinelands



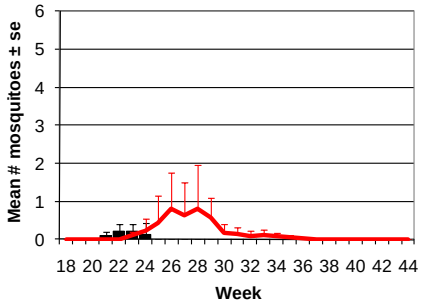
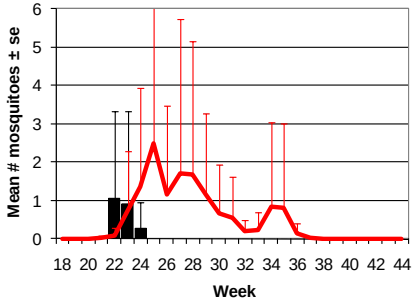
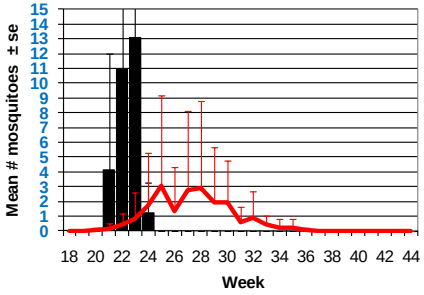
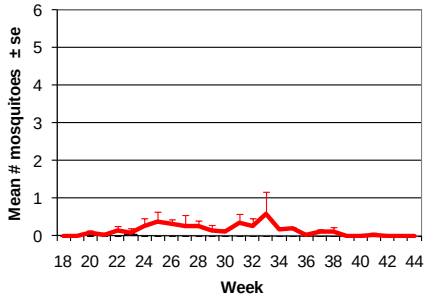
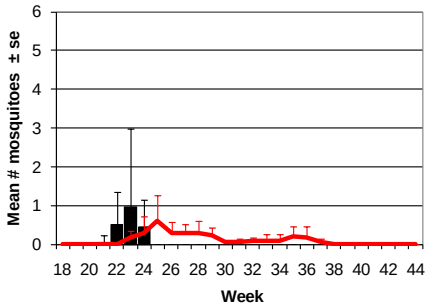
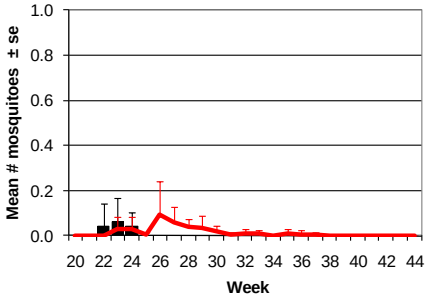
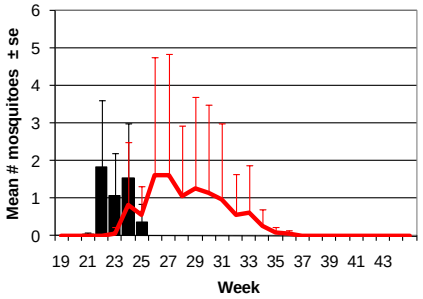
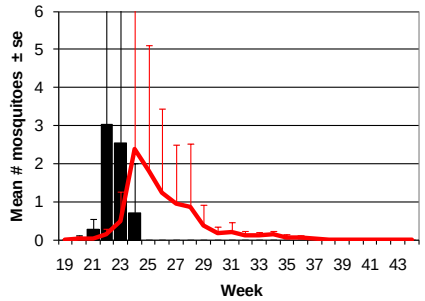
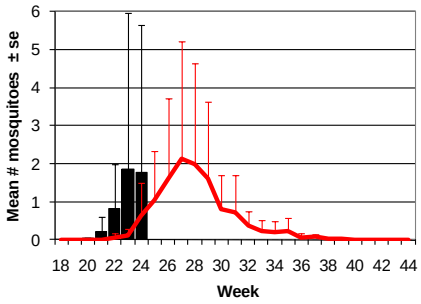
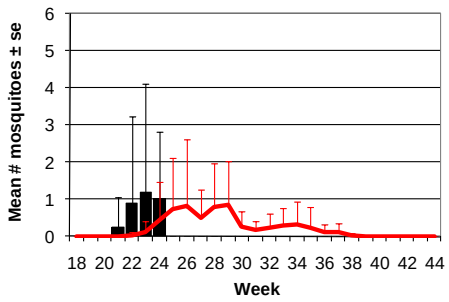
Suburban Corridor



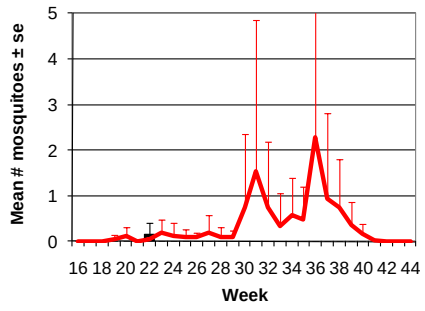
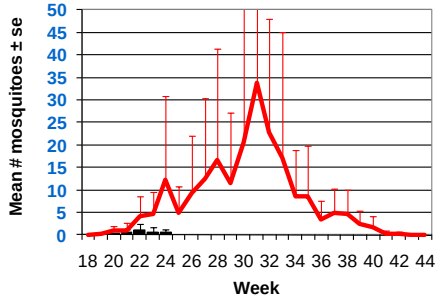
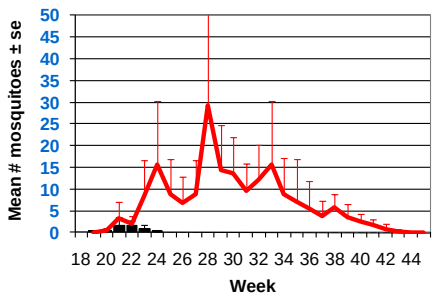
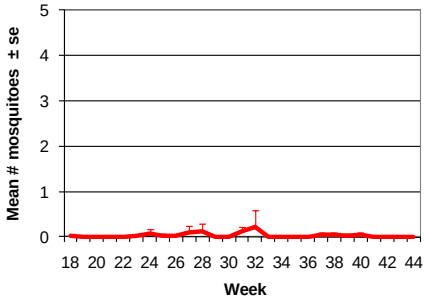
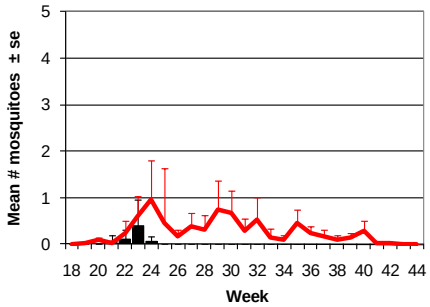
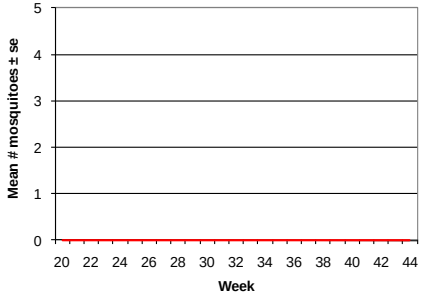
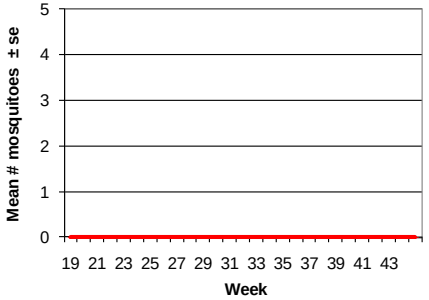
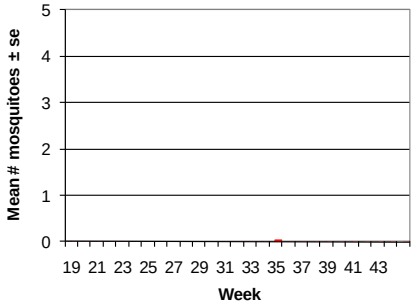
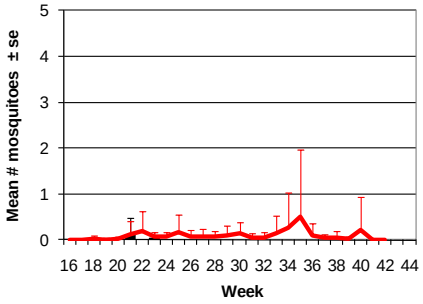
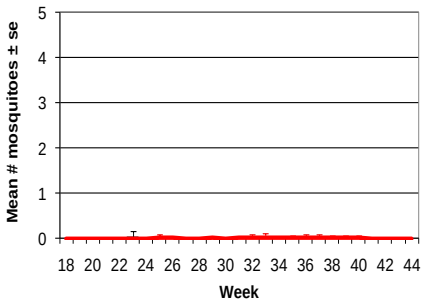
Comments

Culiseta melanura, the enzootic ornithophilic vector of eastern equine encephalitis, continues to show high numbers in the Coastal and Pinelands regions, although, as with other regions, numbers have decreased from a previous high. Abundances in the Agricultural, Delaware Bayshore and Philadelphia Metro regions are around historical values for the current week, possibly signaling an end to the first generation emergence.

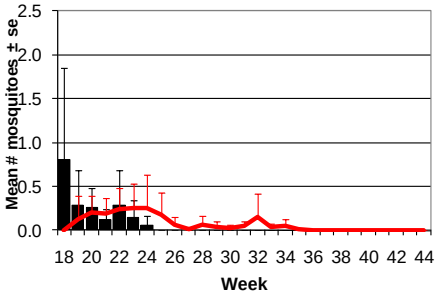
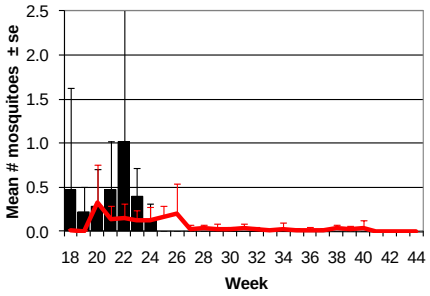
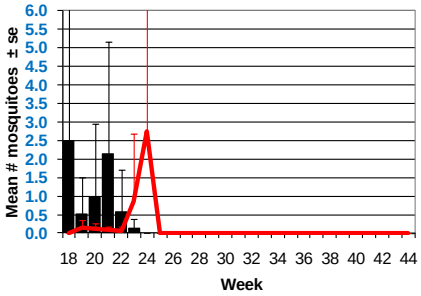
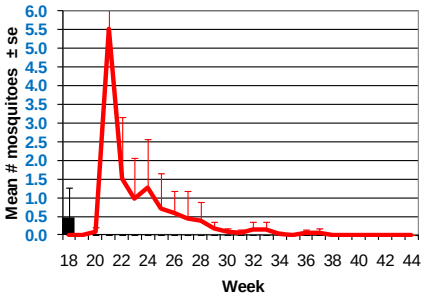
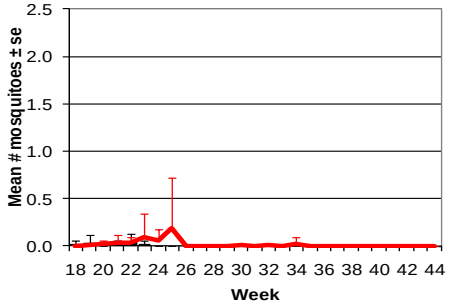
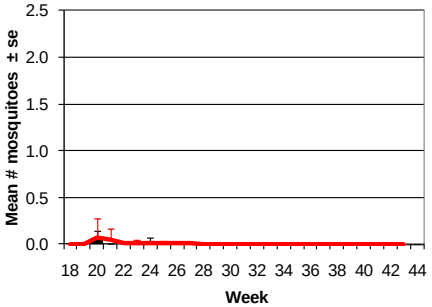
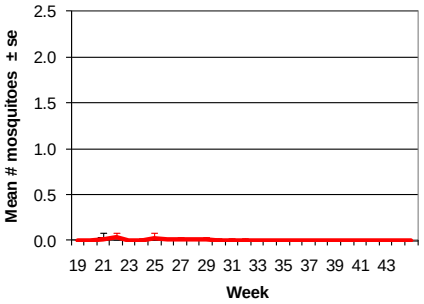
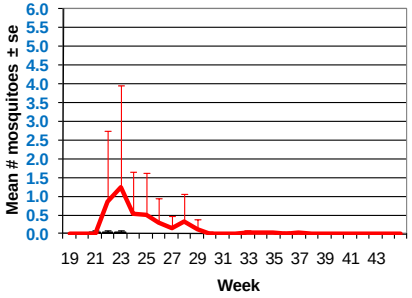
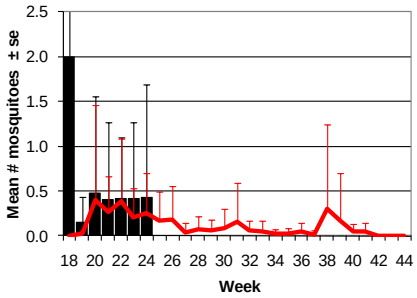
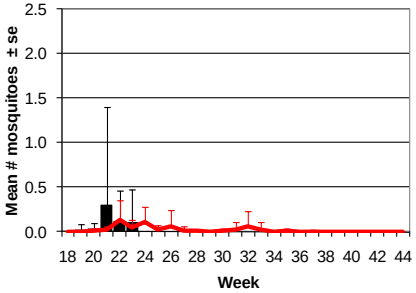
Coquillettidia perturbans – Miscellaneous Group
Monotypic (*Coq. perturbans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Populations of *Coquillettidia perturbans* continued to be high last week in several regions, including the Delaware Bayshore and the Philadelphia Metro regions. This week, numbers appear to be smaller than the previous week. If this trend continues, then there may have been a true shift in the seasonal emergence of this species. However, this species also emerges as overwintering cohorts, similar to *Cs. melanura*. The emergences seen may represent the just the 4th overwintering instar or may be composed of more than one instar. In this manner, future emergences may spread through the season.	

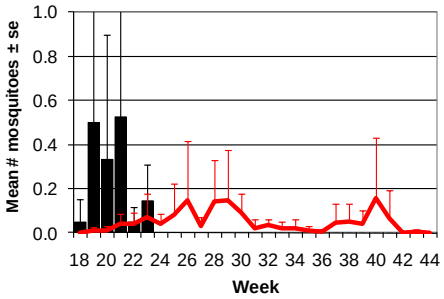
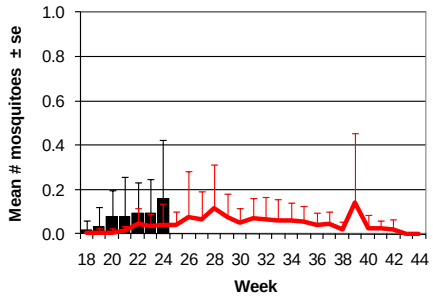
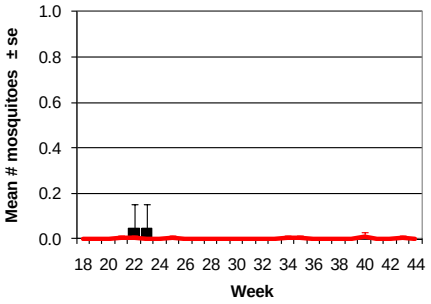
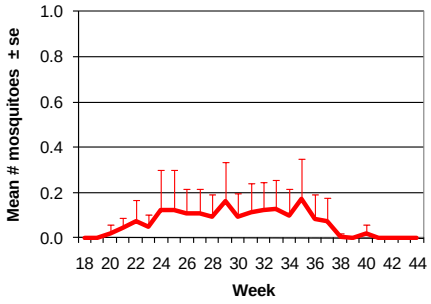
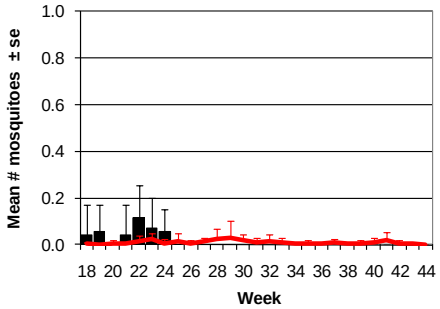
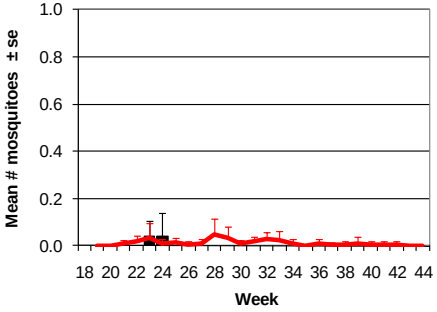
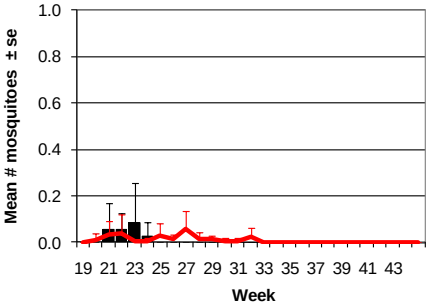
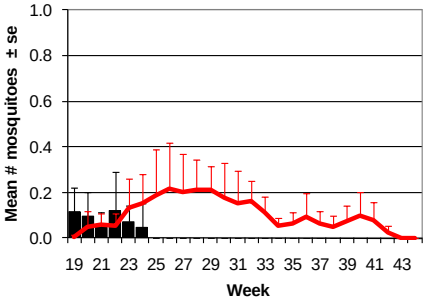
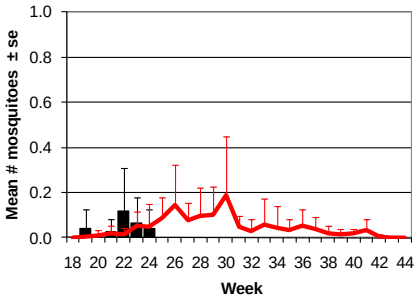
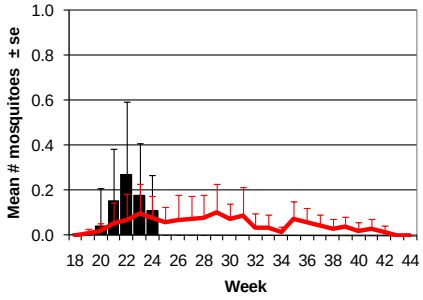
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* population numbers continue to be low at the two regions of highest production, the Coastal and the Delaware Bayshore. The next high tide is 26 June and should produce the first sizeable emergence. This species can emerge quickly, especially if temperatures remain high. Rainfall can also contribute to the flooding events that result in emergences if enough precipitation occurs to flood upper areas of the salt marsh.	

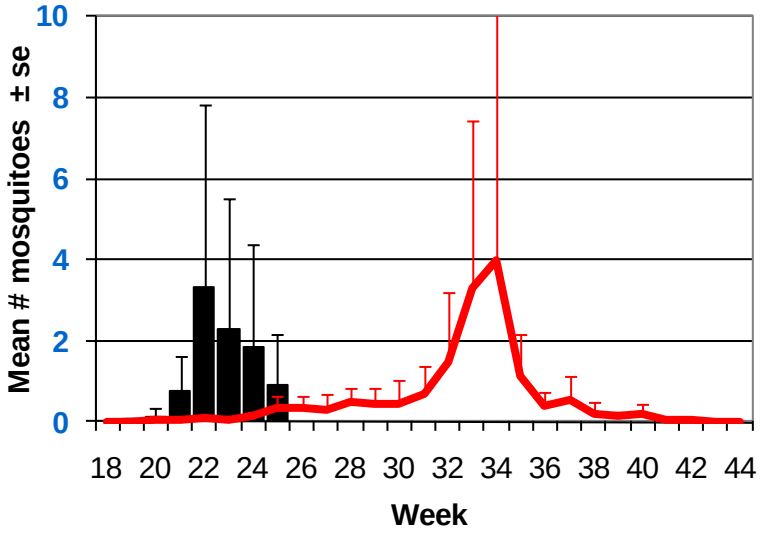
Aedes canadensis – Early Season Species
Univoltine Aedine (*Ae. canadensis* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes canadensis* abundances appear to be in accordance with historical values for the Agricultural, Pinelands and Suburban Corridor, but well below what might have been expected for those regions that usually experience higher population numbers, such as the Delaware Bayshore, River Basin and Philadelphia Metro regions. For the former two regions as well as through most of New Jersey, higher numbers were experienced earlier in the season prior to the beginning of this program.	

Aedes japonicus – Container Species
Multivoltine Aedine (*Ae. triseriatus* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes japonicus*, a hardy cold-tolerant species, continue to show up in many of the regions with numbers higher (Coastal) or around historical (Suburban Corridor) values. One region in where *Ae. japonicus* is less than historical trends are the Delaware River Basin, where it has yet to appear despite past abundant numbers. Light trap numbers for this species, although low, follow other trap indicators for population trends.	

Anopheles quadrimaculatus
Multivoltine *Culex/Anopheles* (*An. quadrimaculatus* Type)

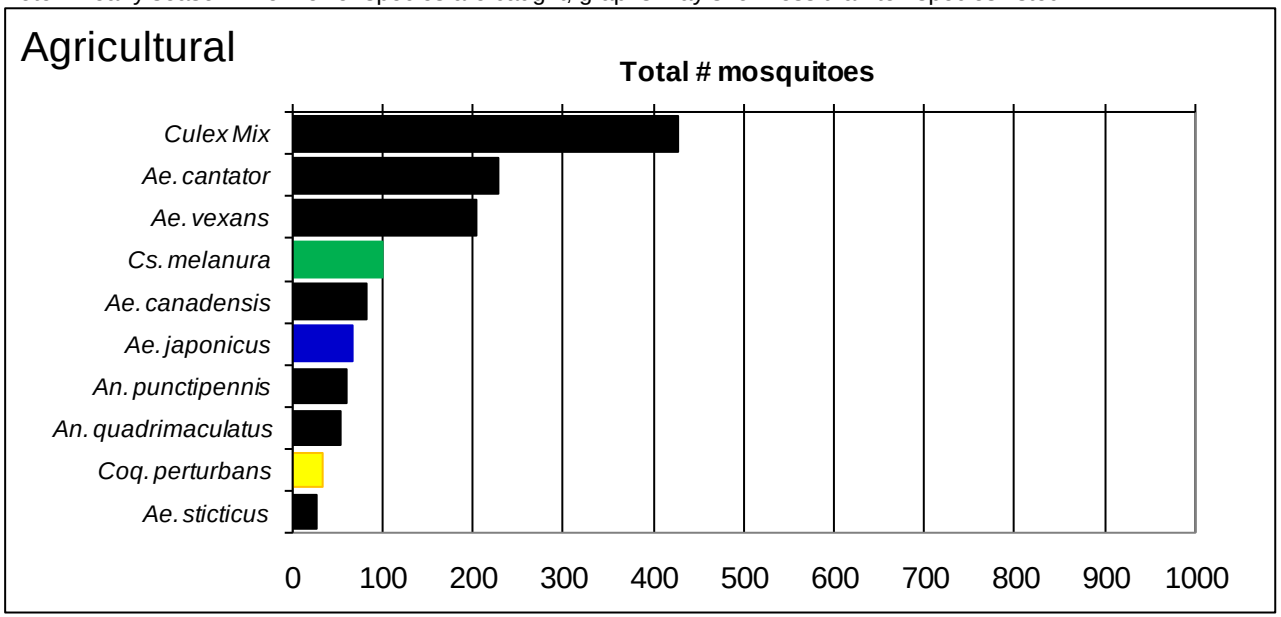


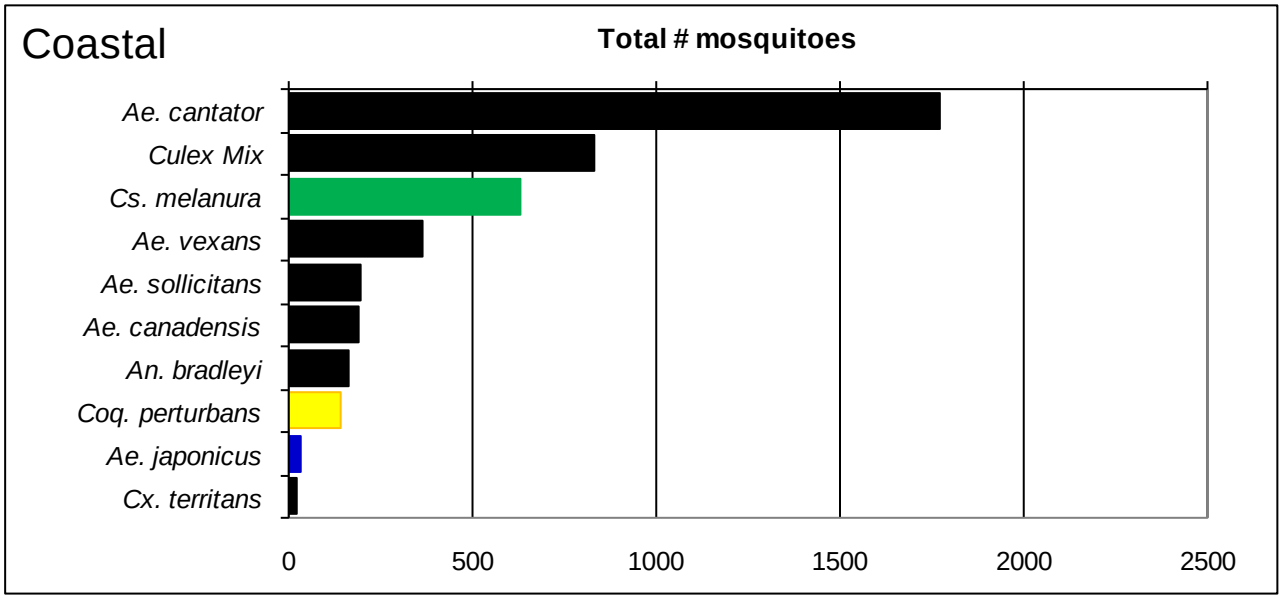
As historical data indicates, this species normally appears in the Northwestern Rural region around mid summer, after building up populations typical for a multivoltine species. *An. quadrimaculatus* overwinter as inseminated females. In the graph, most of the adults caught are from one trap in Warren County, located near a beaver dam. Beavers created the dam last year and provided permanent water. Warren County reported seeing *An. quadrimaculatus* early on in the season that were likely the overwintering females, so the current peak are not overwintering adults, but the result of habitat and warmer spring temperatures. This, along with other species such as *Coquillettidia perturbans* have shown earlier than historical activity this year.

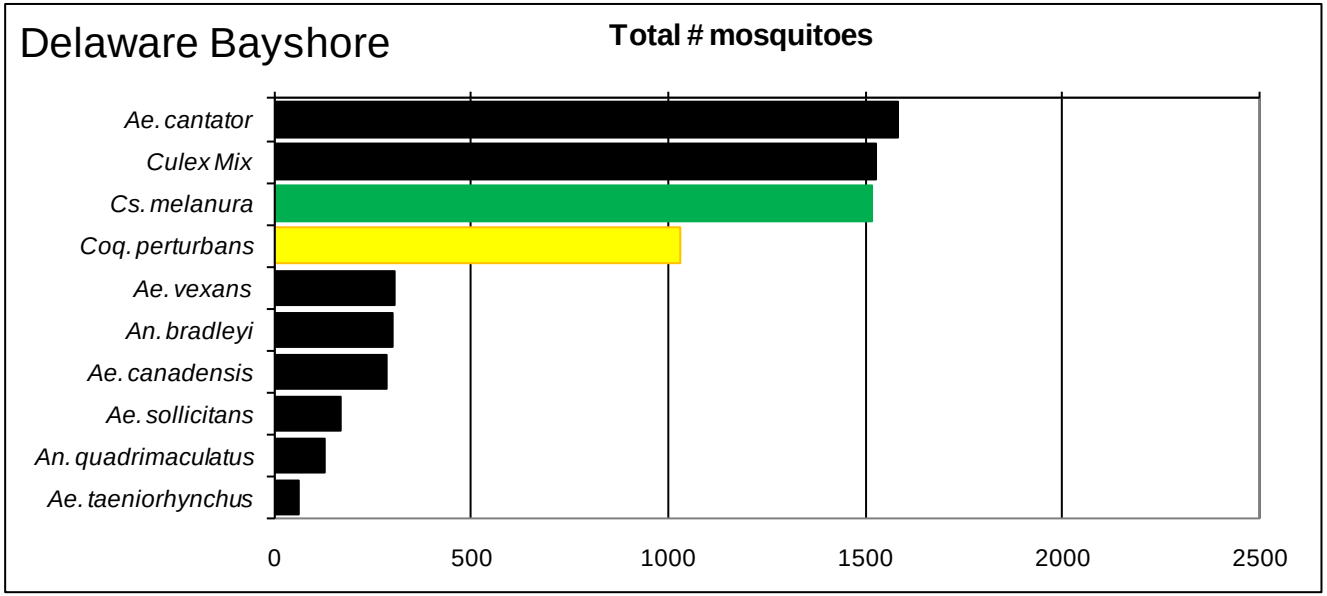
WNV *EEE*

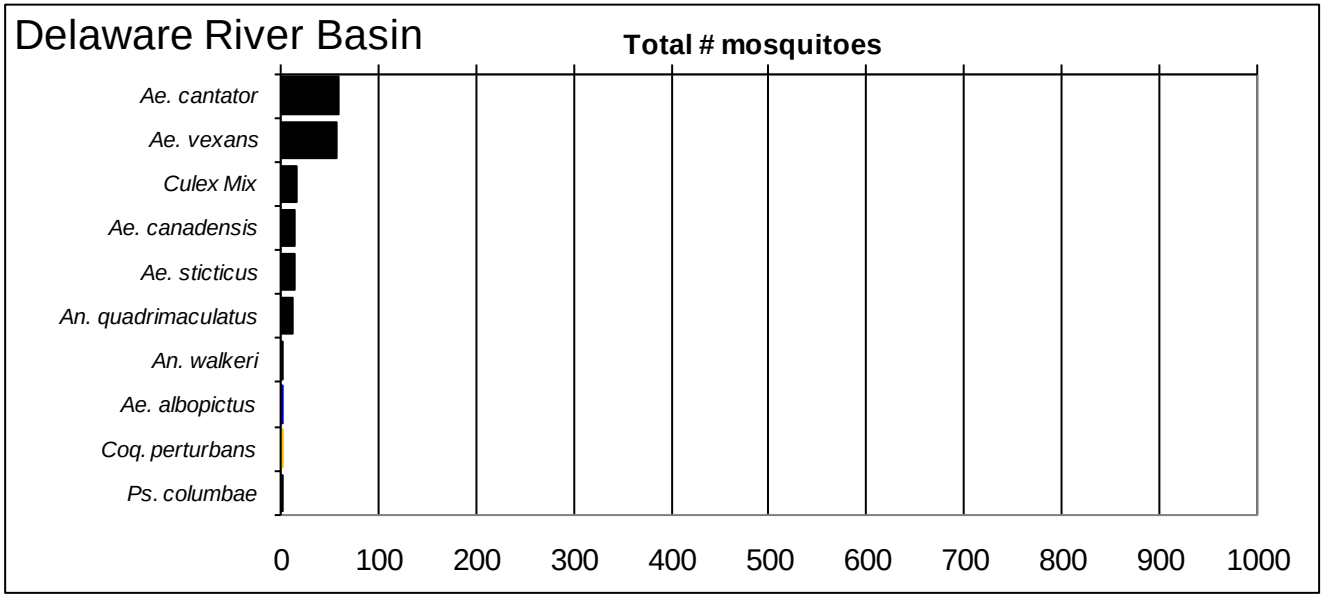
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

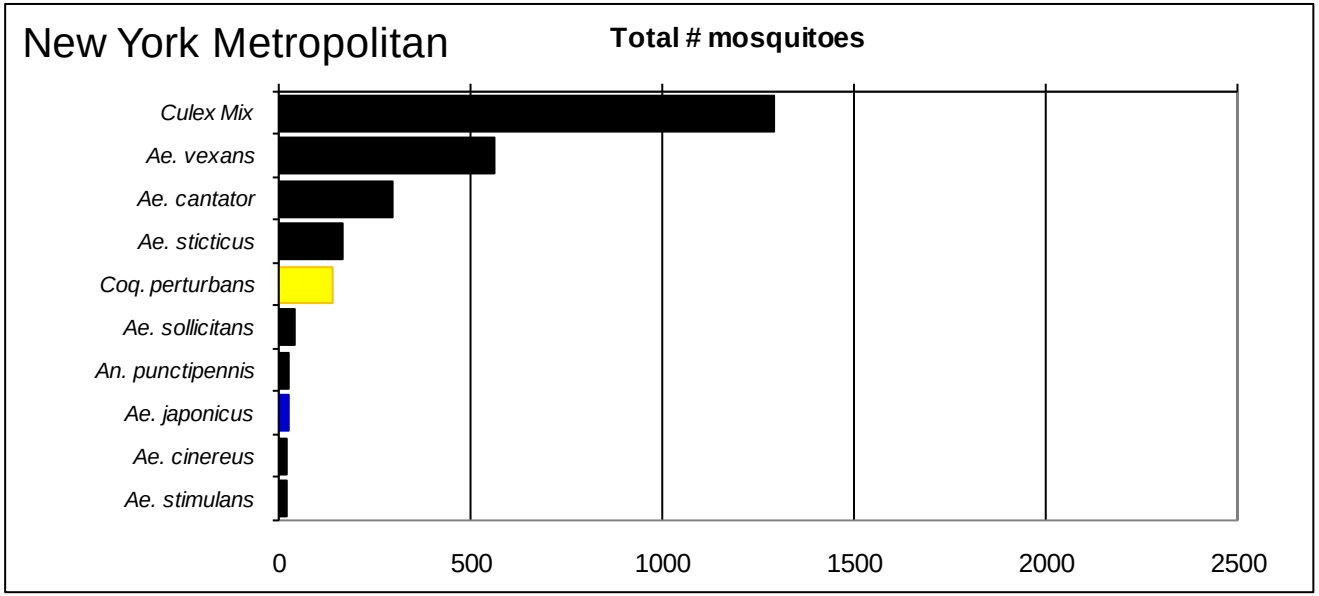
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

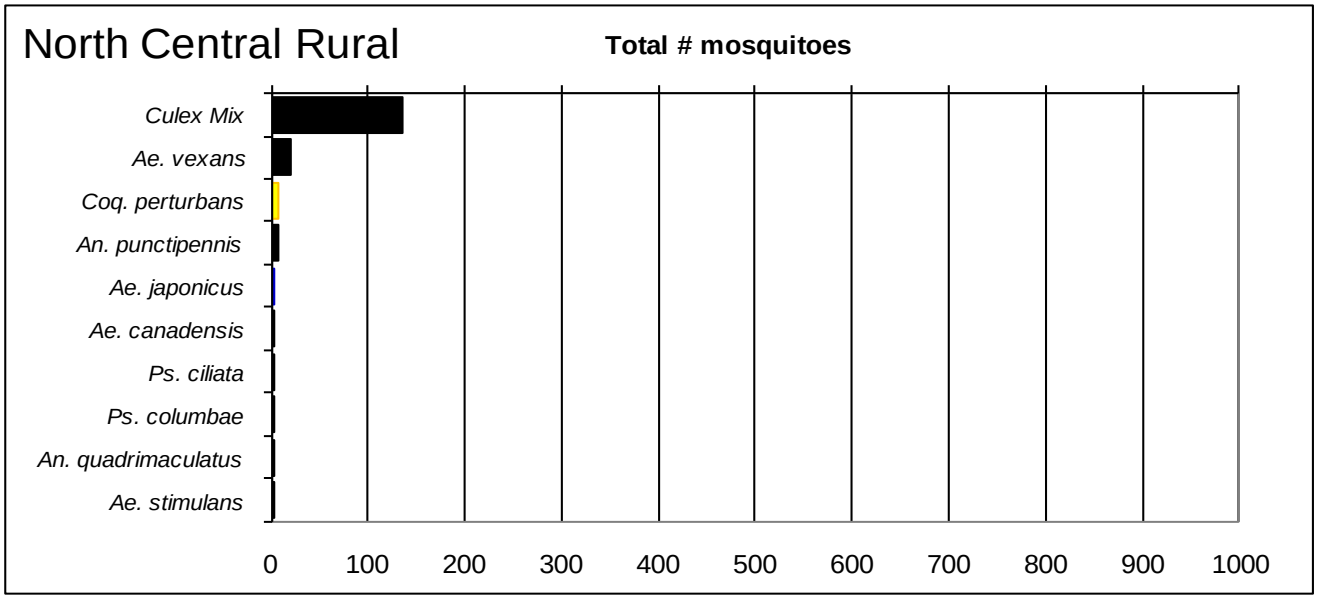


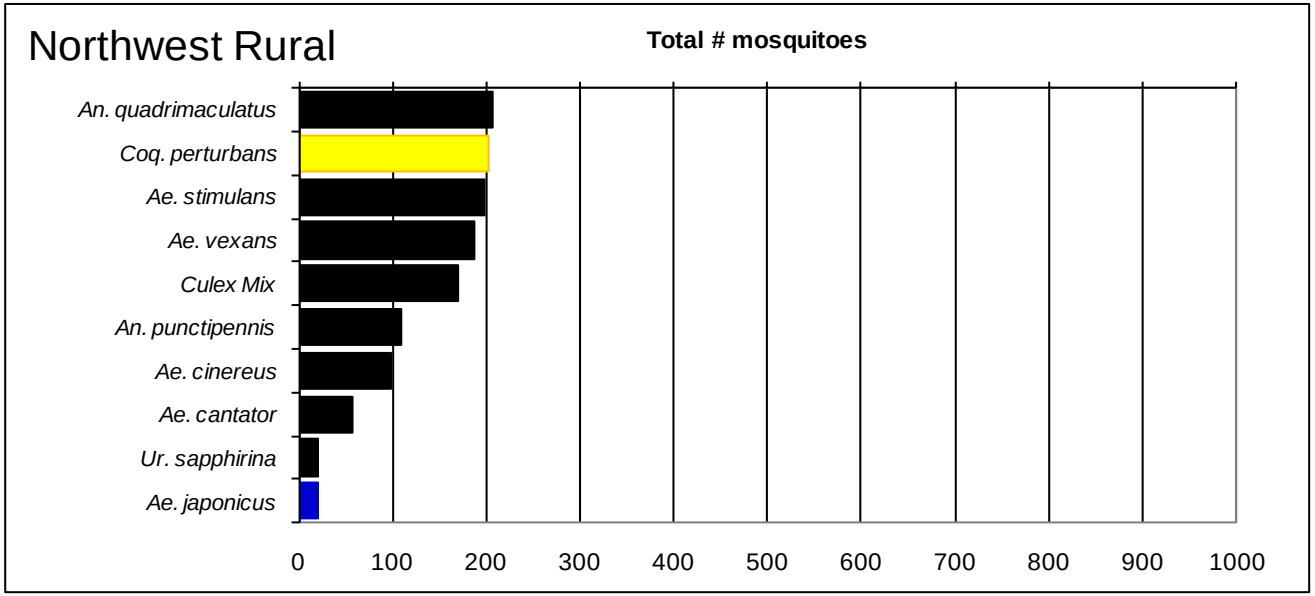


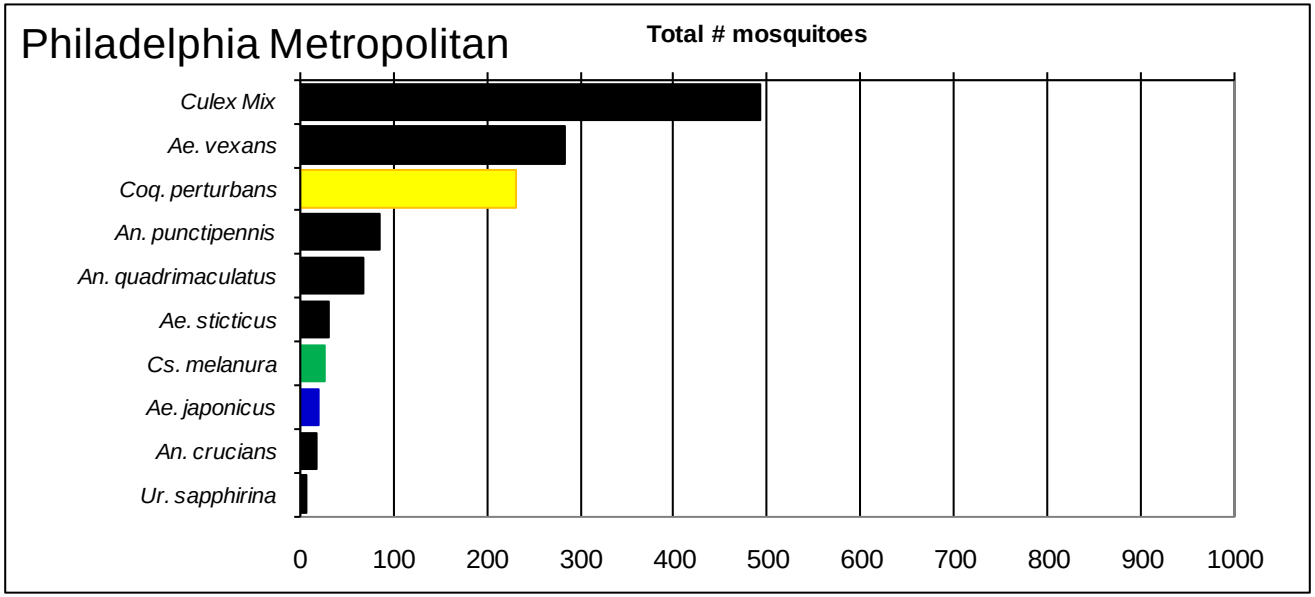

Delaware Bayshore
Total # mosquitoes
Ae. cantator
Culex Mix
Cs. melanura
Coq. perturbans
Ae. vexans
An. bradleyi
Ae. canadensis
Ae. sollicitans
An. quadrimaculatus
Ae. taeniorhynchus
0
500
1000
1500
2000
2500

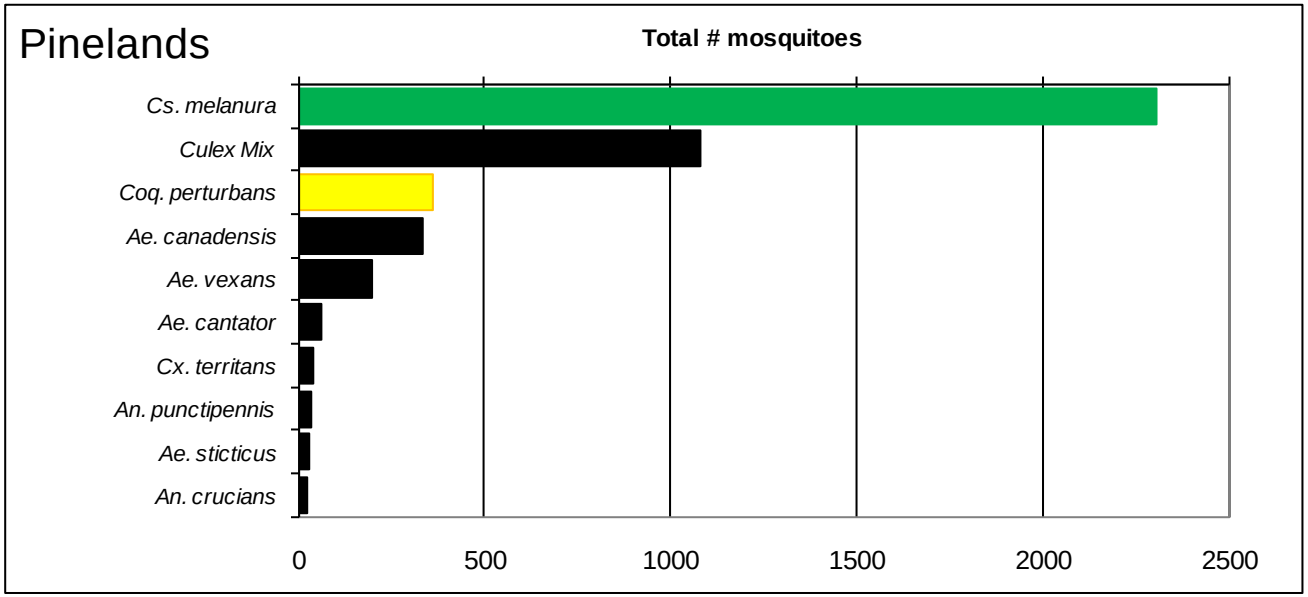

Delaware River Basin
Total # mosquitoes
Ae. cantator
Ae. vexans
Culex Mix
Ae. canadensis
Ae. sticticus
An. quadrimaculatus
An. walkeri
Ae. albopictus
Coq. perturbans
Ps. columbae
0
100
200
300
400
500
600
700
800
900
1000

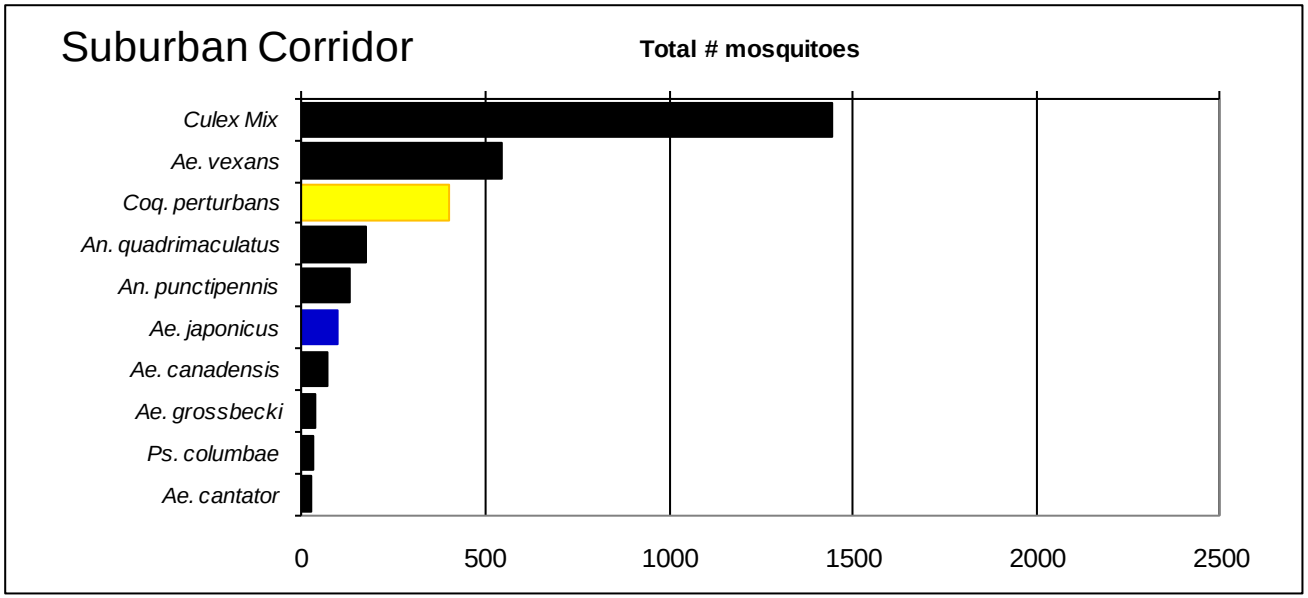

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sticticus
Coq. perturbans
Ae. sollicitans
An. punctipennis
Ae. japonicus
Ae. cinereus
Ae. stimulans
0
500
1000
1500
2000
2500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
An. punctipennis
Ae. japonicus
Ae. canadensis
Ps. ciliata
Ps. columbae
An. quadrimaculatus
Ae. stimulans
0
100
200
300
400
500
600
700
800
900
1000


Northwest Rural
Total # mosquitoes
An. quadrimaculatus
Coq. perturbans
Ae. stimulans
Ae. vexans
Culex Mix
An. punctipennis
Ae. cinereus
Ae. cantator
Ur. sapphirina
Ae. japonicus
0
100
200
300
400
500
600
700
800
900
1000


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ae. sticticus
Cs. melanura
Ae. japonicus
An. crucians
Ur. sapphirina
0
100
200
300
400
500
600
700
800
900
1000


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Coq. perturbans
Ae. canadensis
Ae. vexans
Ae. cantator
Cx. territans
An. punctipennis
Ae. sticticus
An. crucians
0
500
1000
1500
2000
2500


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
An. quadrimaculatus
An. punctipennis
Ae. japonicus
Ae. canadensis
Ae. grossbecki
Ps. columbae
Ae. cantator
0
500
1000
1500
2000
2500