RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 3 October to 9 October 2010, CDC Week 40

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Center for Vector Biology

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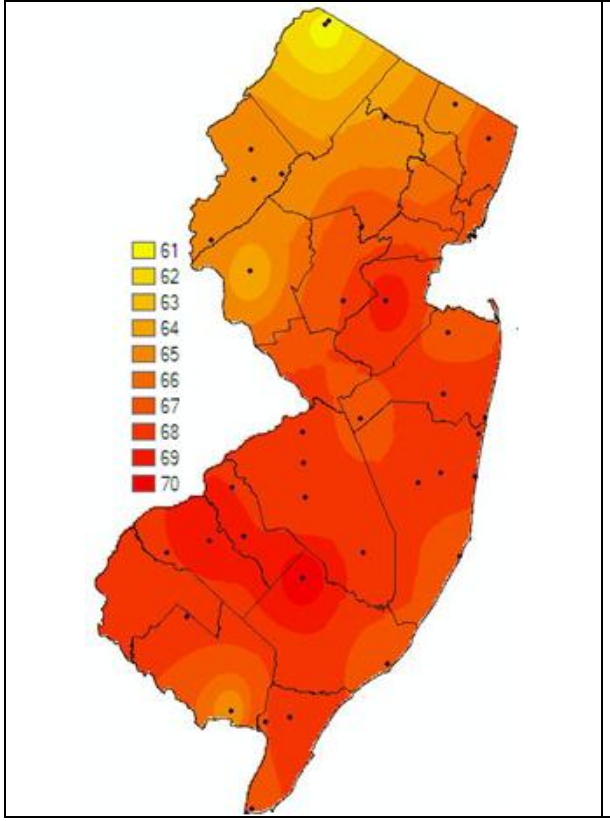
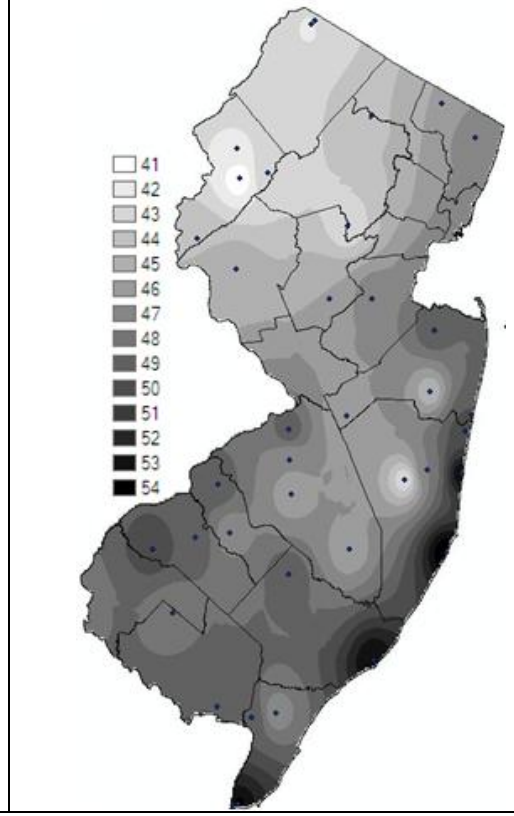
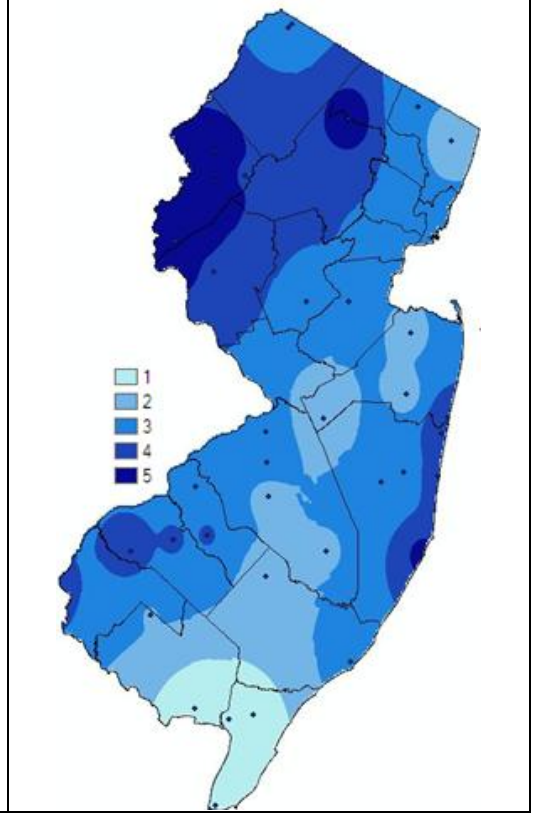
Summary table – Week 40

	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	**0.19**	**1.60**	**0**	**0.24**	**1.64**	**0**	**0.00**	**<0.01**	**0**	**0.00**	**0.16**	**0**
Coastal	**0.41**	**4.90**	**0**	**0.94**	**3.99**	**0**	**0.00**	**0.00**	**0**	**0.17**	**1.79**	**0**
Delaware Bayshore	**0.11**	**3.38**	**0**	**0.54**	**4.43**	**0**	**0.00**	**0.00**	**0**	**0.00**	**2.59**	**0**
Delaware River Basin	**0.00**	**1.28**	**0**	**0.00**	**1.55**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.04**	**0**
New York Metro	**1.16**	**0.94**	**1**	**0.47**	**2.62**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.28**	**0**
North Central Rural	**0.00**	**0.28**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.09**	**4.32**	**0**	**0.23**	**0.46**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.64**	**5.42**	**0**	**0.55**	**1.34**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.17**	**1.12**	**0**	**0.44**	**0.83**	**0**	**0.00**	**<0.01**	**0**	**0.01**	**0.23**	**0**
Suburban Corridor	**0.04**	**3.04**	**0**	**0.04**	**1.60**	**0**	**0.00**	**<0.01**	**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: As mosquito populations dwindle, *Aedes vexans* activity in the New York Metropolitan region has picked up over historical trends, although numbers are low. Numbers continue to decrease for *Culex* Mix and *Aedes sollicitans* while *Coquillettidia perturbans* is done for the season.

Climate Factors

Average High Temperatures	Average Low Temperatures	Total Precipitation
		

The three figures show the interpolation of average maximum and minimum temperature and total precipitation for October 1-14, 2010 in New Jersey. Data points are from ~40 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

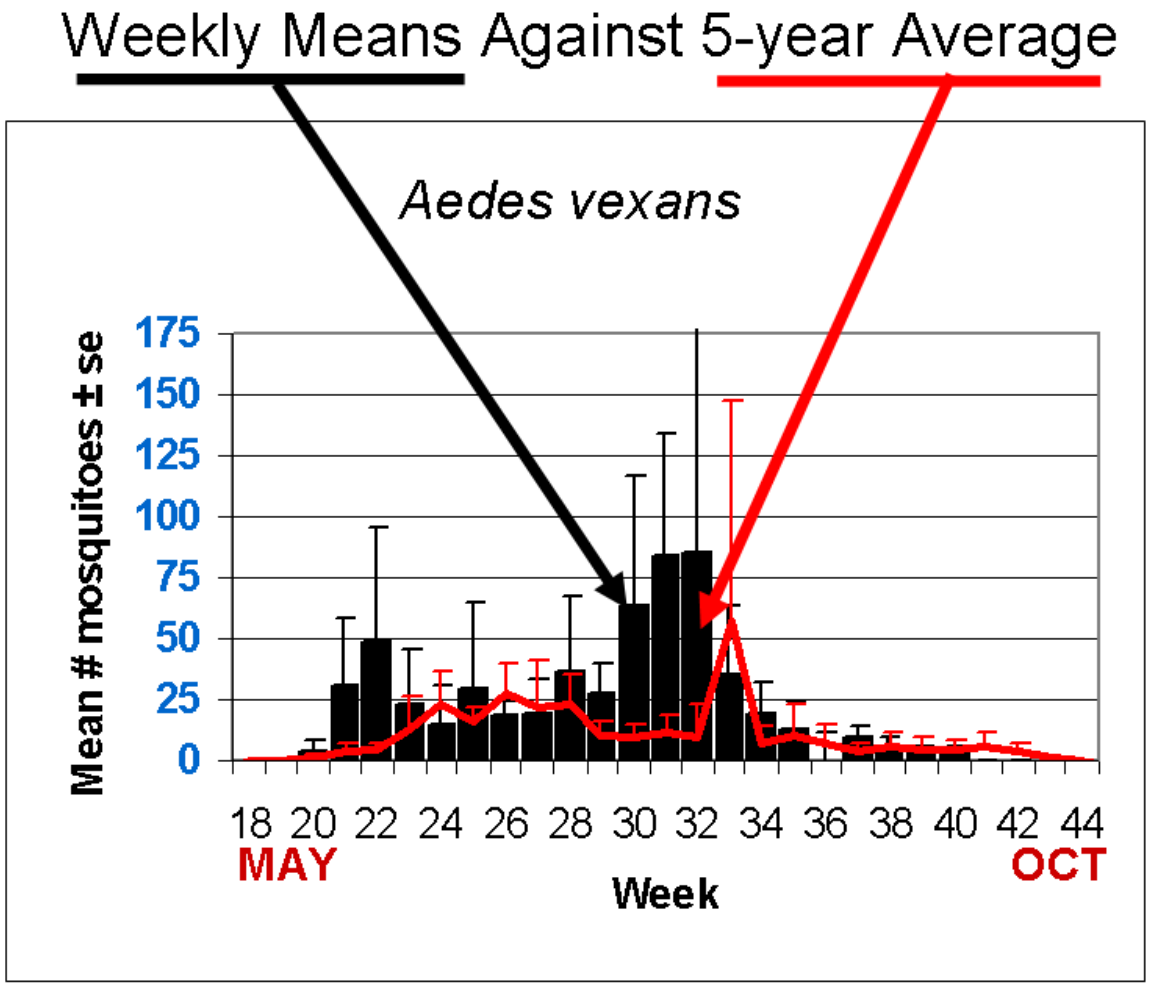
Daytime average temperatures increased slightly while nighttime average temperatures decreased more. Daytime temperatures were highest in the pinelands the center of the state while nighttime temperatures were warmest along the coast. Precipitation was highest in the northwestern and coastal portions of the state.

NJ Weather & Climate NETWORK

ONJSC at Rutgers University

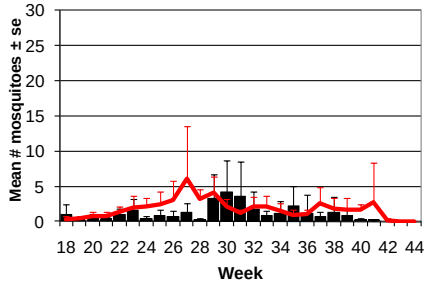
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hudson, Monmouth, Morris, Salem, and Warren counties. Note: Previous week's data are from Atlantic, Bergen, Camden, Cape May, Essex, Hudson, Monmouth, Morris, Ocean, Salem, Somerset, Union and Warren counties.

Participation is concluding for the year for several counties as mosquito populations are decreasing rapidly and seasonal help has ended.

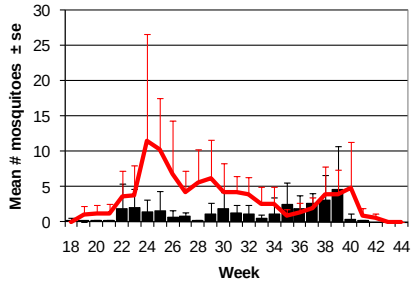


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

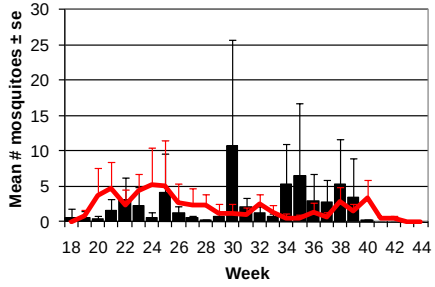
Agricultural



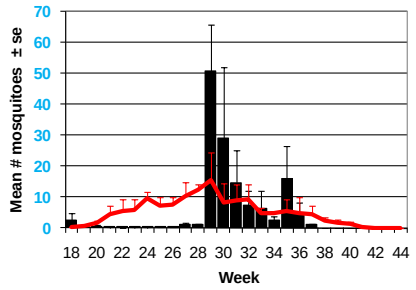
Coastal



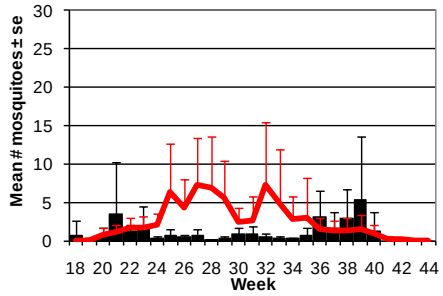
Delaware Bayshore



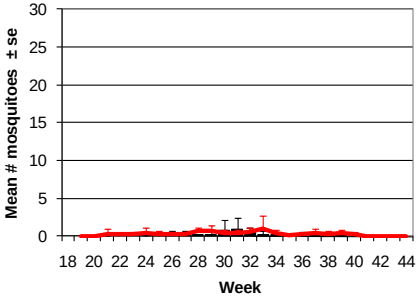
Delaware River Basin



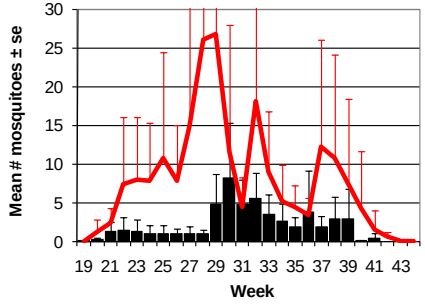
New York Metro



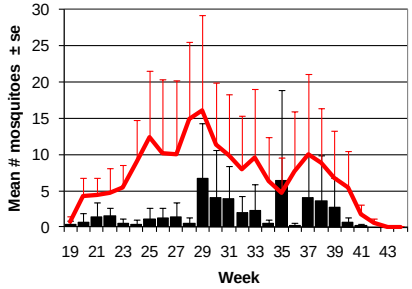
North Central Rural



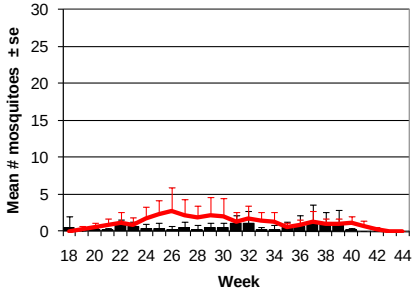
Northwestern Rural



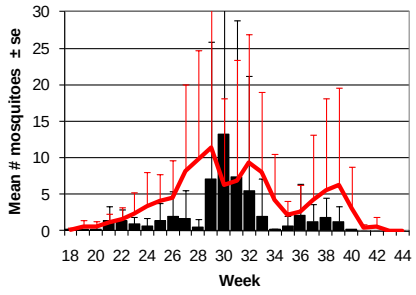
Philadelphia Metro



Pinelands



Suburban Corridor

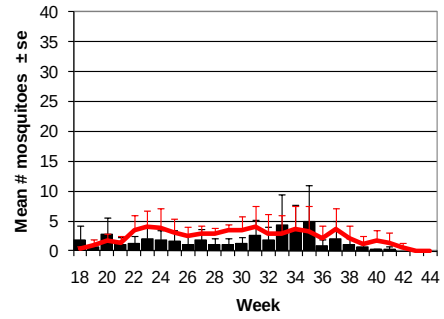


Comments

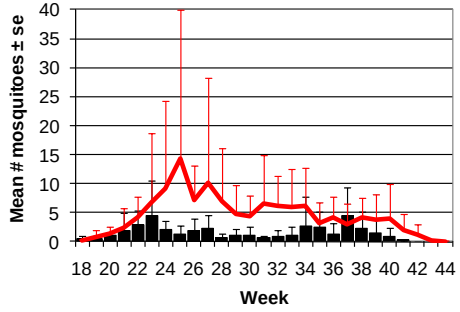
Aedes vexans populations have decreased throughout the state, but populations in the New York Metropolitan region remained above historical trends despite the decrease. Recent rains may have provided habitat in some regions, but recent cold nighttime temperatures may have ameliorated those effects. Eggs laid this year should survive a colder winter than a more moderately temperatured one, with higher survivorship in a more humid environment (Brust and Costello, 1969 Mosquitoes of Manitoba: II The effects of storage temperature and relative humidity on hatching of eggs of *Aedes vexans* and *Aedes abserratus* (Diptera: Culicidae). Canadian Entomologist 101(12): 1285-91.

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

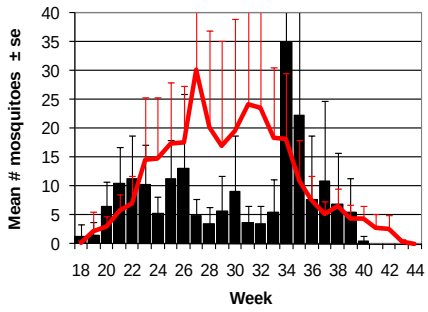
Agricultural



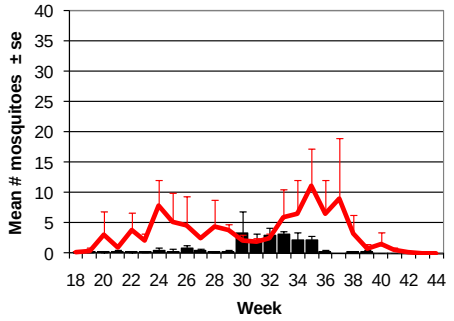
Coastal



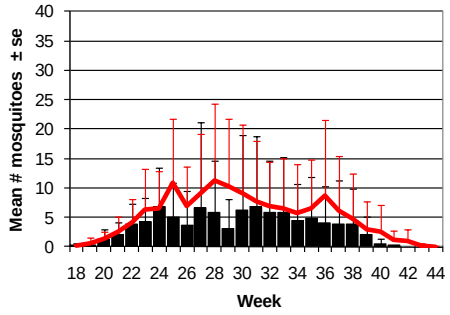
Delaware Bayshore



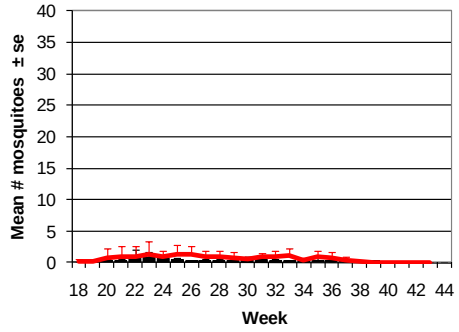
Delaware River Basin



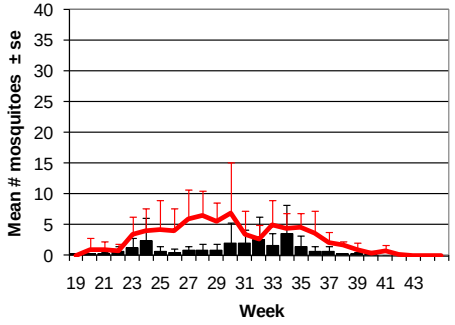
New York Metro



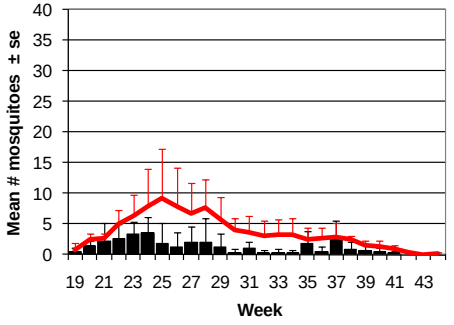
North Central Rural



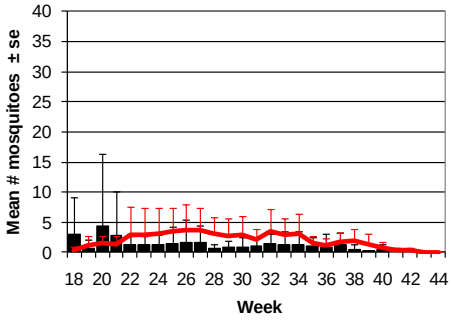
Northwestern Rural



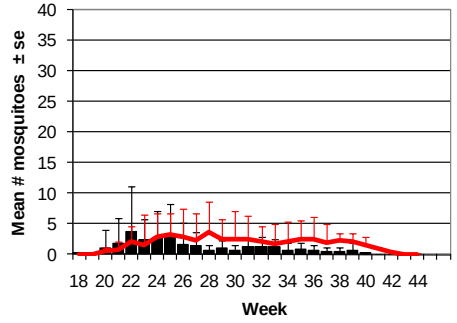
Philadelphia Metro



Pinelands



Suburban Corridor

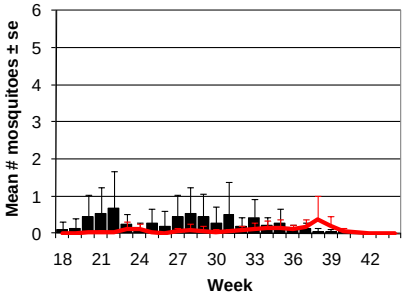
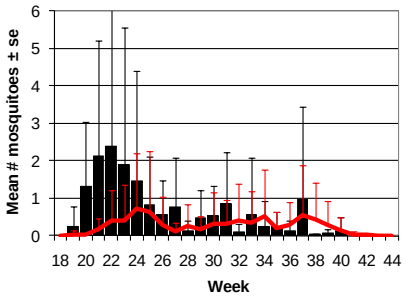
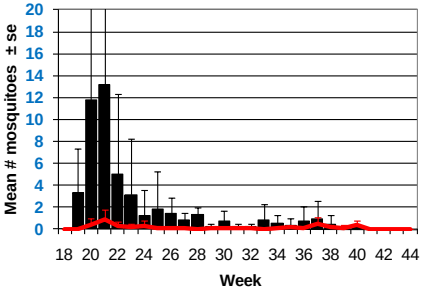
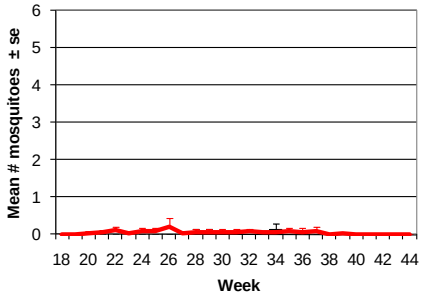
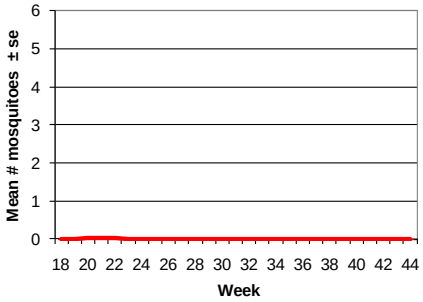
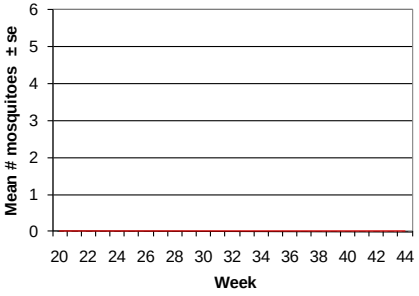
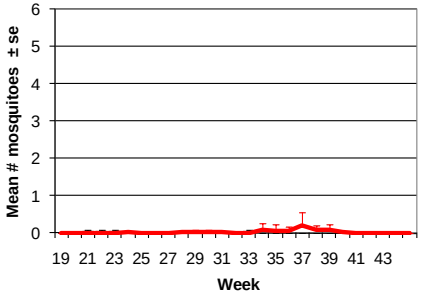
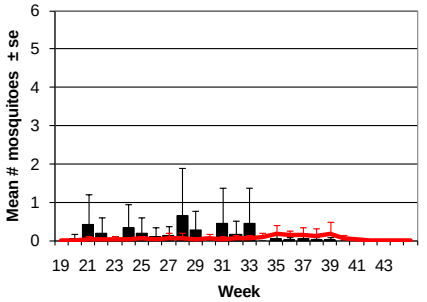
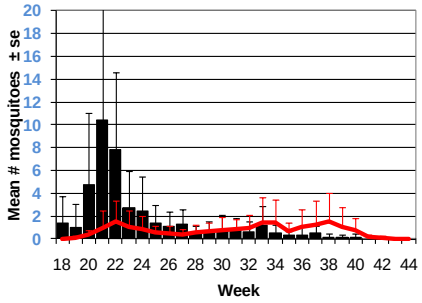
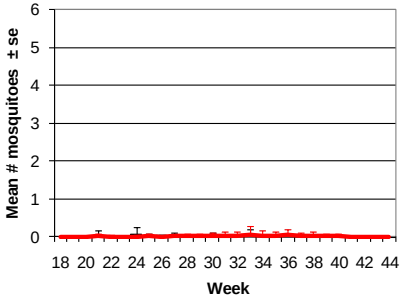


Comments

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.

Culex Mix populations in most regions continue to track at or below historical levels in all regions. Inseminated females are entering hibernaculae to overwinter. Studies such as Slaff and Crans (1977 Parous rates of overwintering *Culex pipiens pipiens* in New Jersey. Mosquito News 37(1): 11-14) indicate that few parous females (those likely with arboviruses) survive overwintering in New Jersey and other studies such as Reisen et al (2006. Overwintering of West Nile virus in southern Califrornia. Journal of Medical Entomology. 43(2): 344-55) suggests that there are multiple mechanisms of virus overwintering.

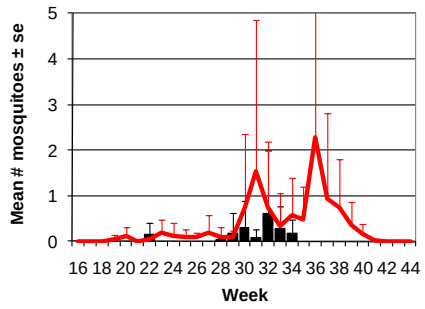
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

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 population numbers that are at or below historical values.	

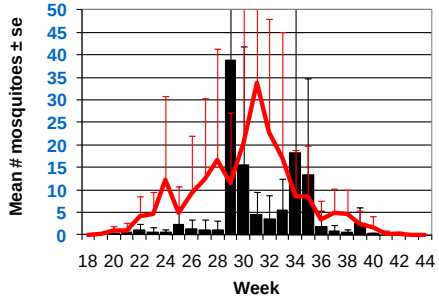
Aedes sollicitans - Salt Floodwater Species

Multivoltine Aedine (*Ae. sollicitans* Type)

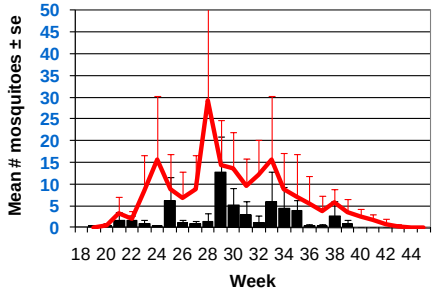
Agricultural



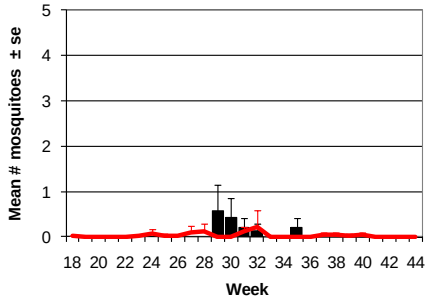
Coastal



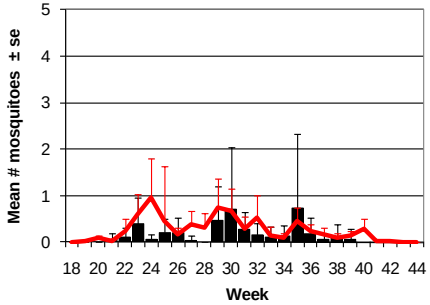
Delaware Bayshore



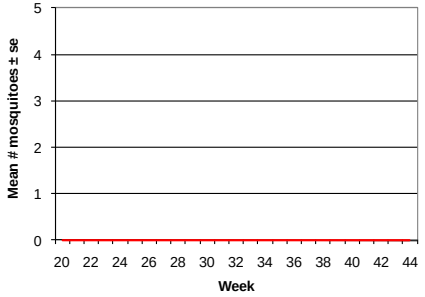
Delaware River Basin



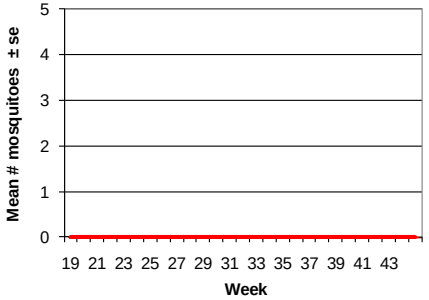
New York Metro



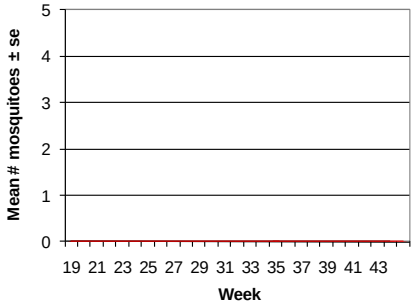
North Central Rural



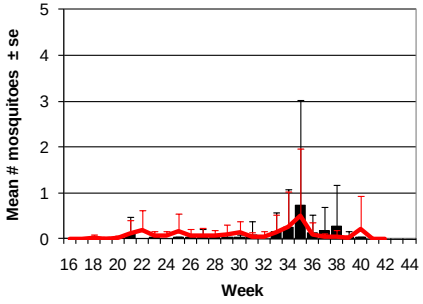
Northwestern Rural



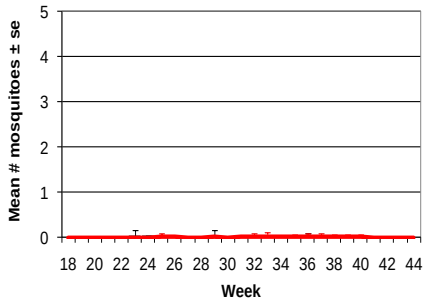
Philadelphia Metro



Pinelands



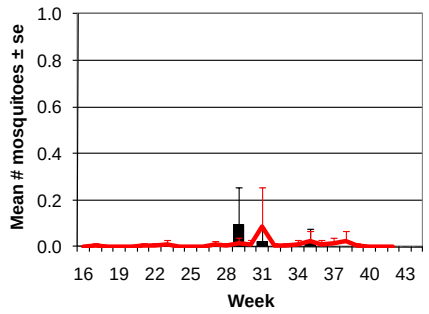
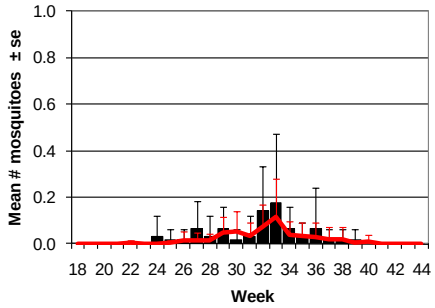
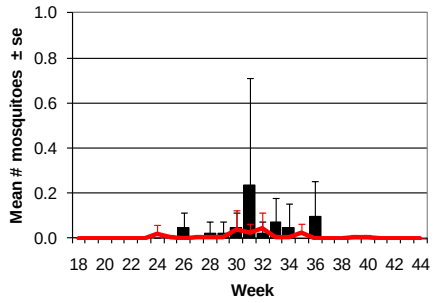
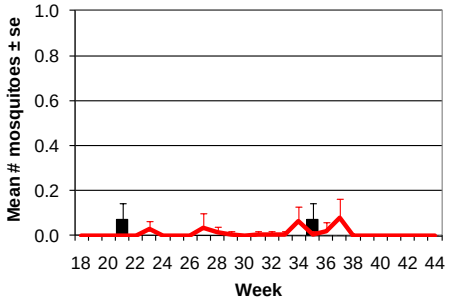
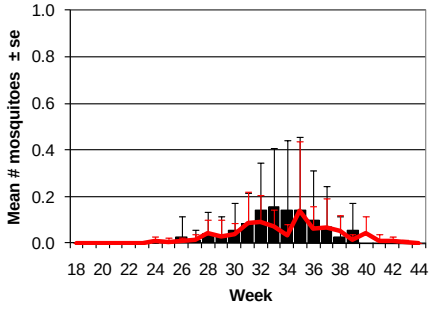
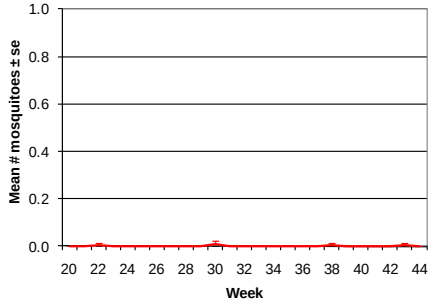
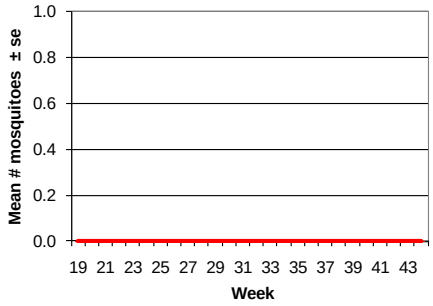
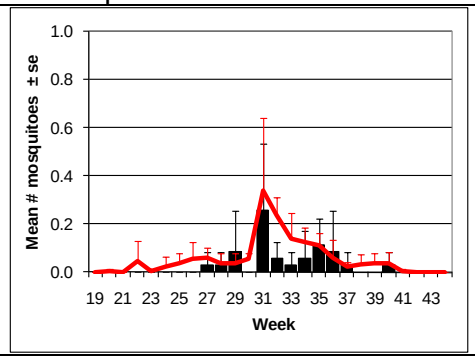
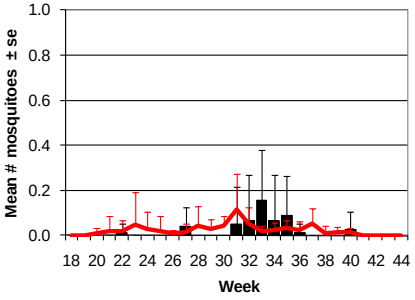
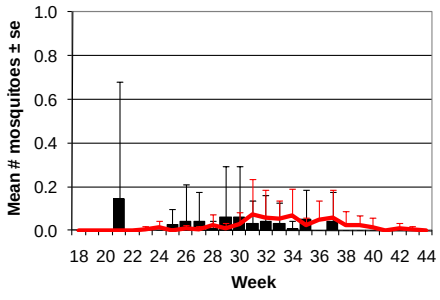
Suburban Corridor



Comments

Aedes sollicitans populations continue to track below historical values. This season appears to have produced five emergences. These emergences appear to be more distinct that on most other years, possibly due to the prolonged drought reducing rainfall effect on this floodwater species.

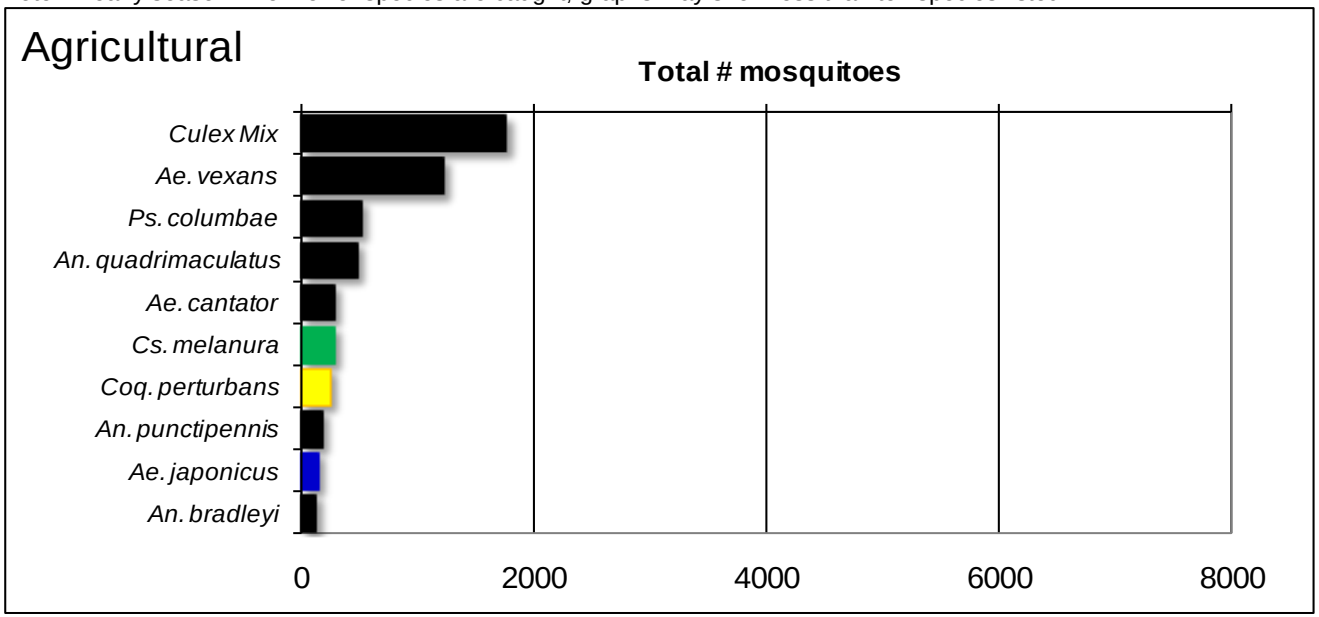
Aedes albopictus – Container Species
Multivoltine Aedine (*Ae. triseriatus* Type)

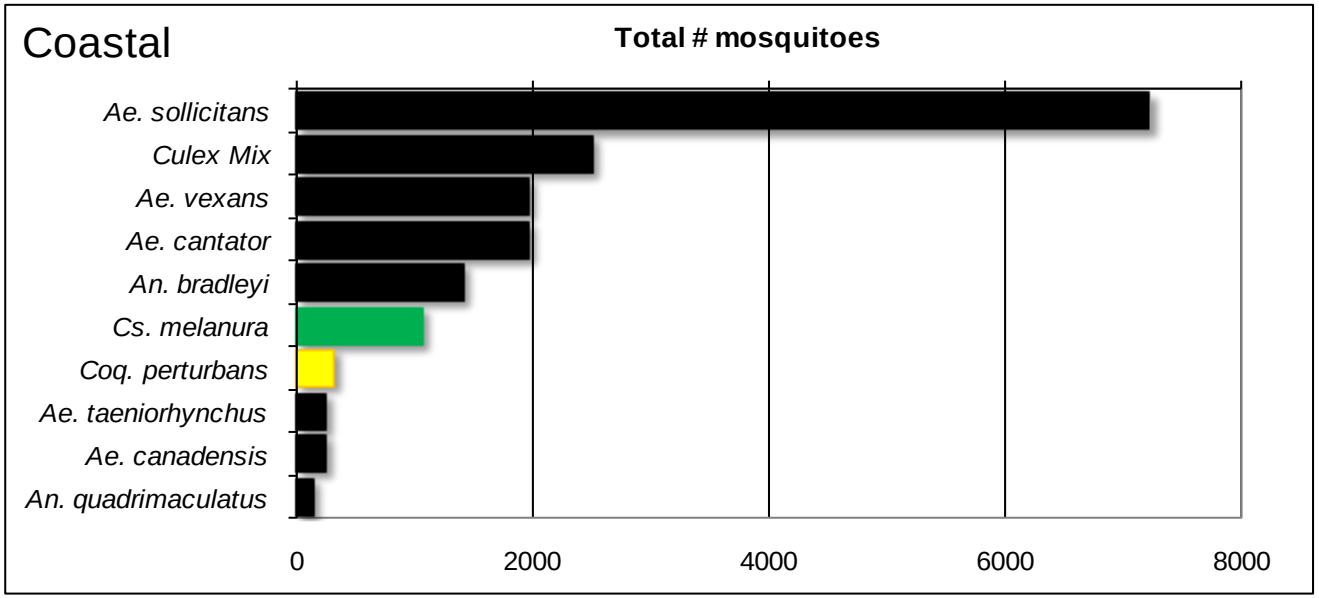
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Last week, *Aedes albopictus*, the Asian Tiger Mosquito, continued to be present in the two regions where heat can be trapped: the New York and Philadelphia Metropolitan regions. This trend continues this week, with additional activity seen in the Pinelands region as well.	

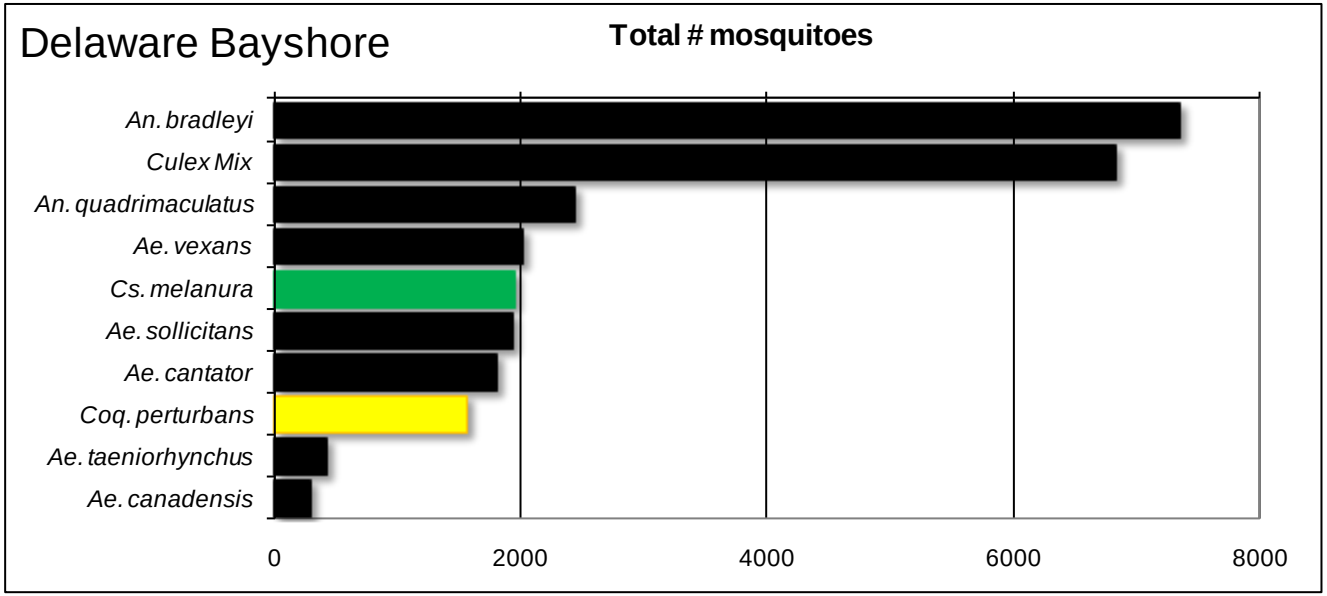
WNV *EEE*

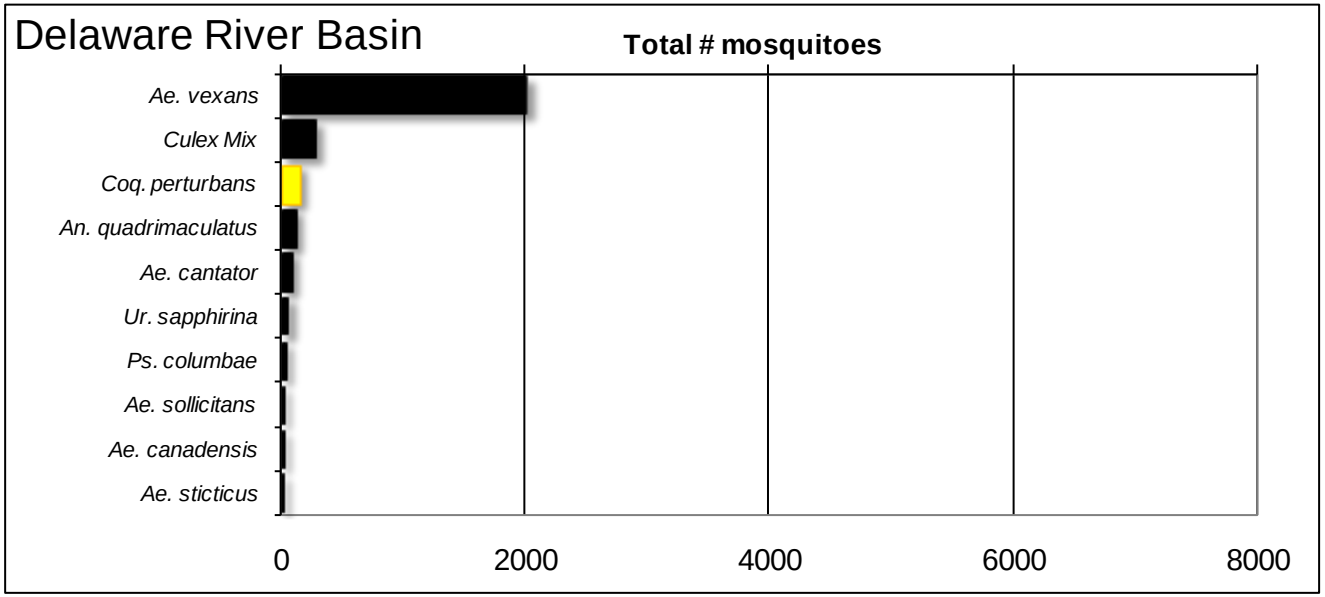
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

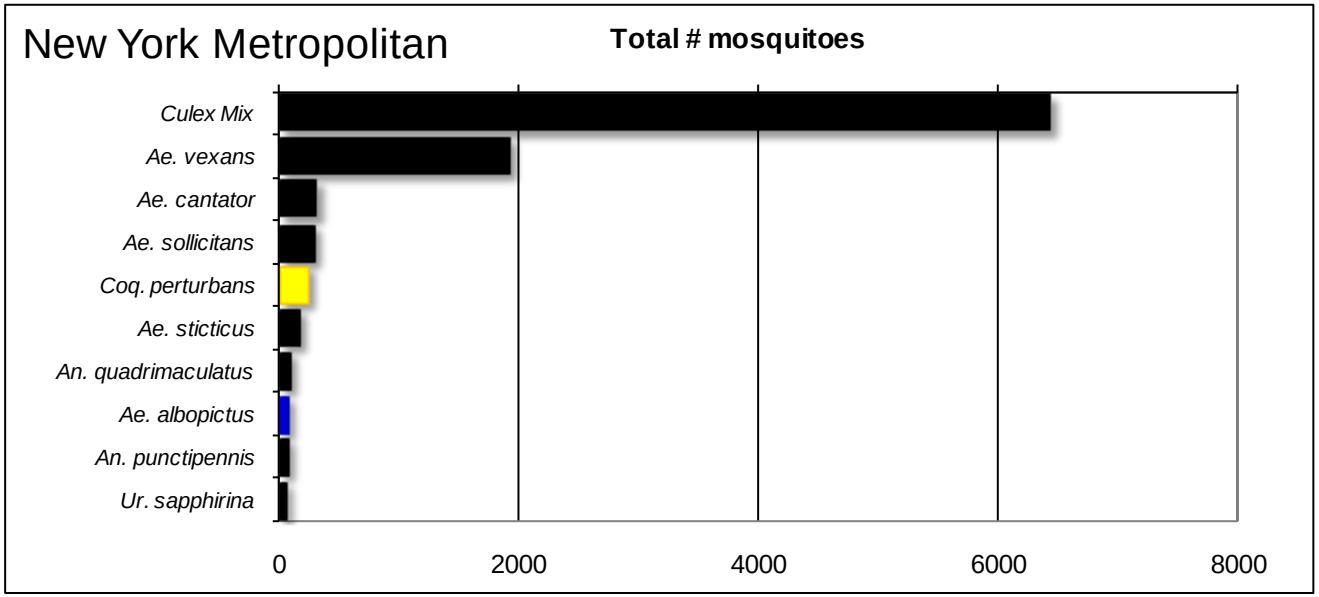
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

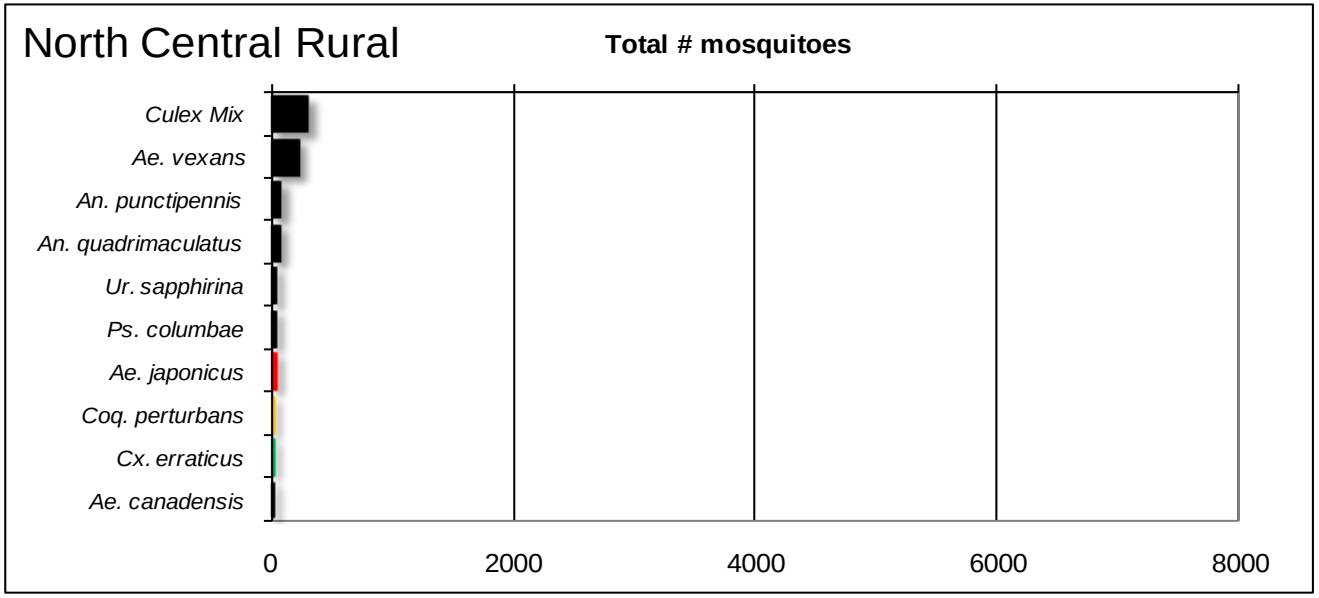


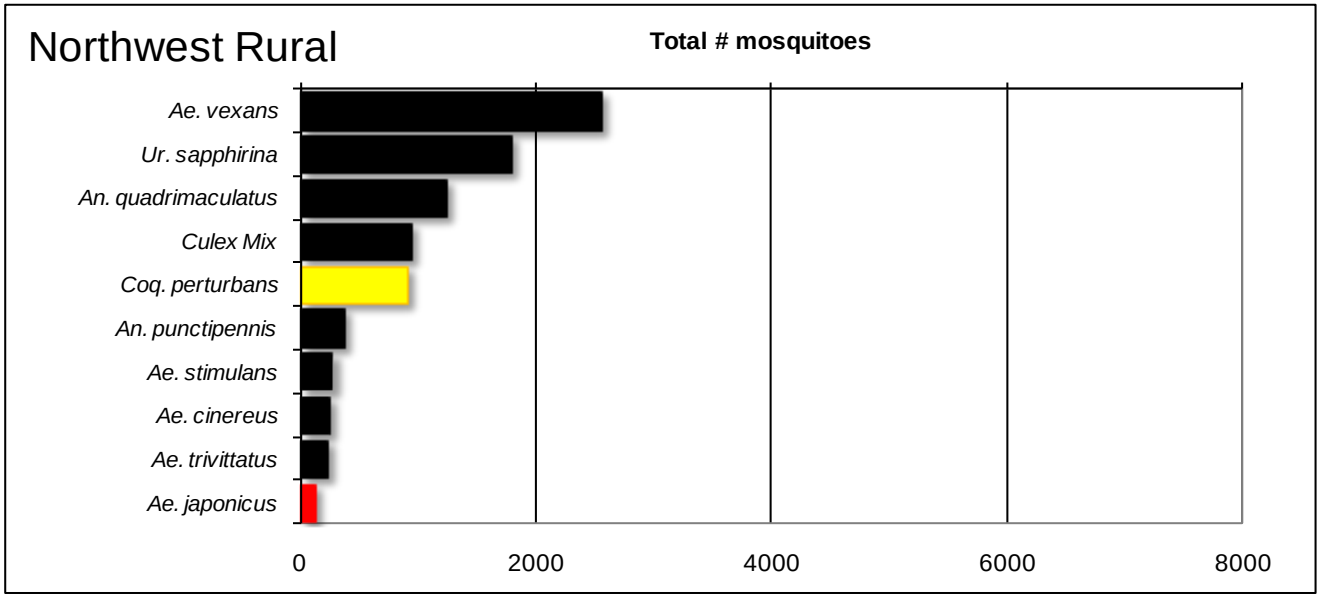


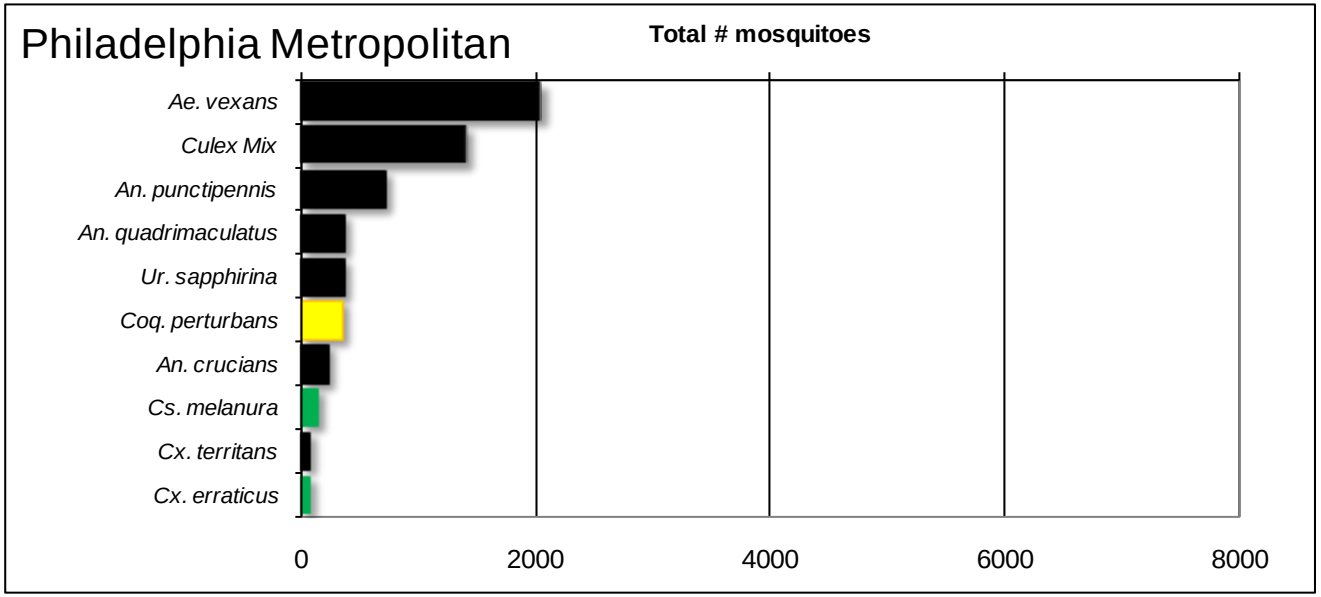

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
An. quadrimaculatus
Ae. vexans
Cs. melanura
Ae. sollicitans
Ae. cantator
Coq. perturbans
Ae. taeniorhynchus
Ae. canadensis
0
2000
4000
6000
8000

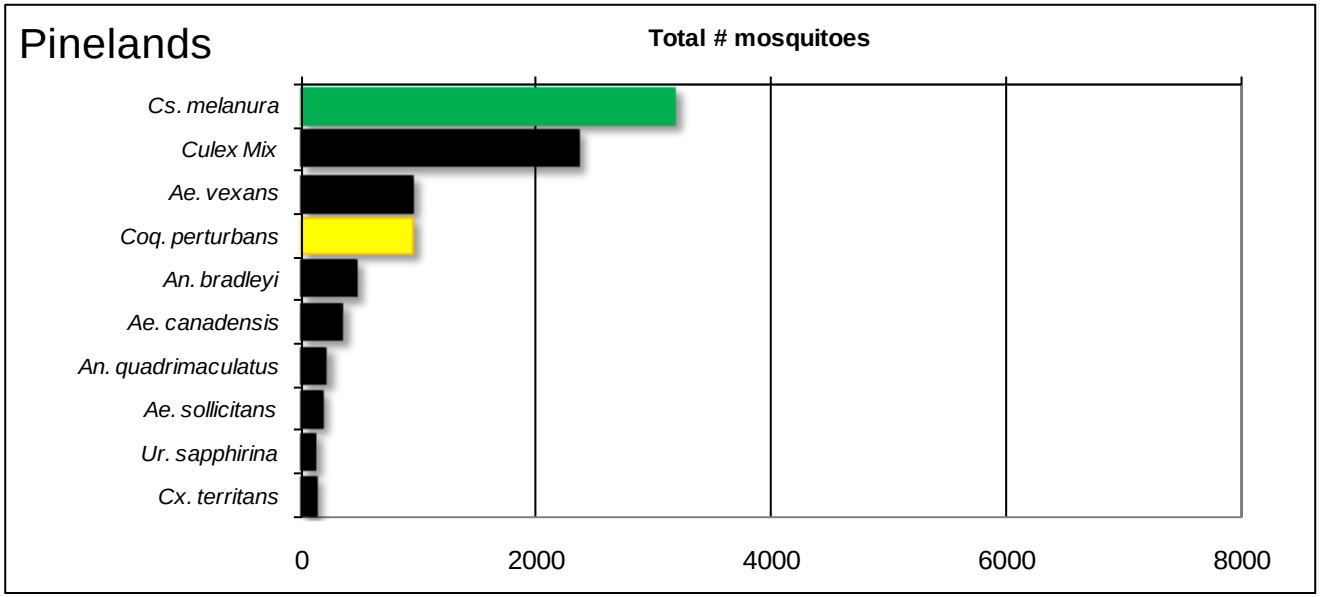

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
Ae. cantator
Ur. sapphirina
Ps. columbae
Ae. sollicitans
Ae. canadensis
Ae. sticticus
0
2000
4000
6000
8000

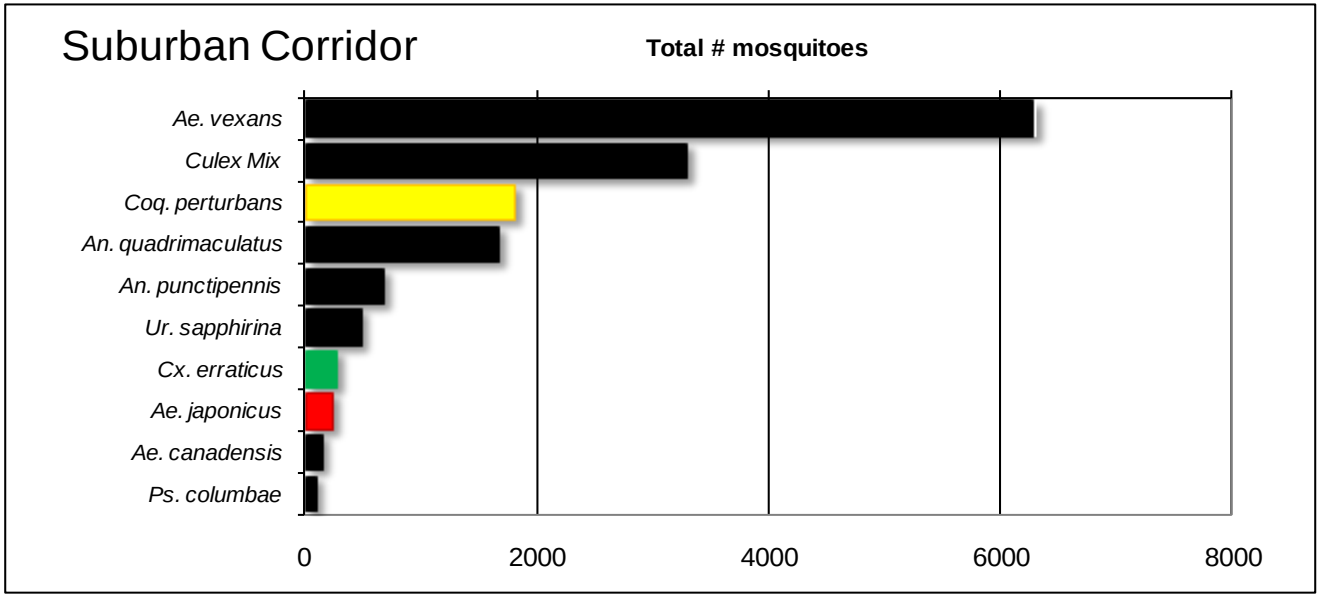

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
Ae. sticticus
An. quadrimaculatus
Ae. albopictus
An. punctipennis
Ur. sapphirina
0
2000
4000
6000
8000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Ur. sapphirina
Ps. columbae
Ae. japonicus
Coq. perturbans
Cx. erraticus
Ae. canadensis
0
2000
4000
6000
8000


Northwest Rural
Total # mosquitoes
Ae. vexans
Ur. sapphirina
An. quadrimaculatus
Culex Mix
Coq. perturbans
An. punctipennis
Ae. stimulans
Ae. cinereus
Ae. trivittatus
Ae. japonicus
0
2000
4000
6000
8000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
An. quadrimaculatus
Ur. sapphirina
Coq. perturbans
An. crucians
Cs. melanura
Cx. territans
Cx. erraticus
0
2000
4000
6000
8000


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Ae. vexans
Coq. perturbans
An. bradleyi
Ae. canadensis
An. quadrimaculatus
Ae. sollicitans
Ur. sapphirina
Cx. territans
0
2000
4000
6000
8000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
An. punctipennis
Ur. sapphirina
Cx. erraticus
Ae. japonicus
Ae. canadensis
Ps. columbae
0
2000
4000
6000
8000