RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 12 September to 18 September 2010, CDC Week 37

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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.

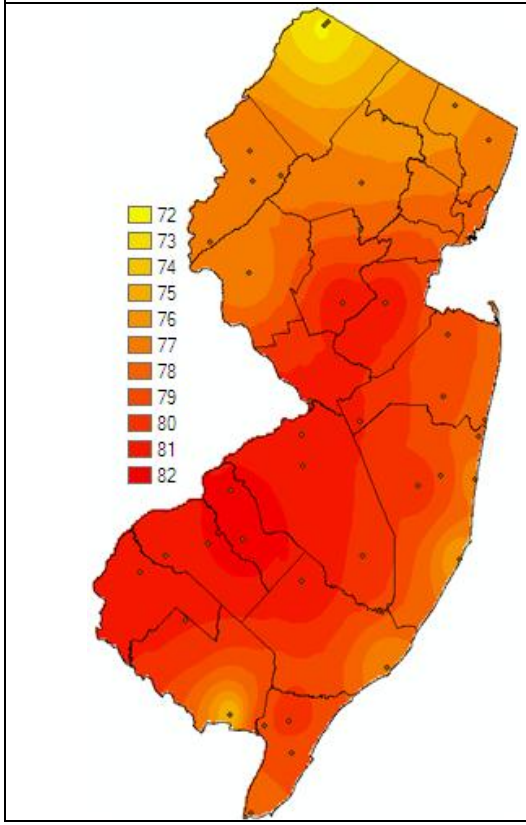
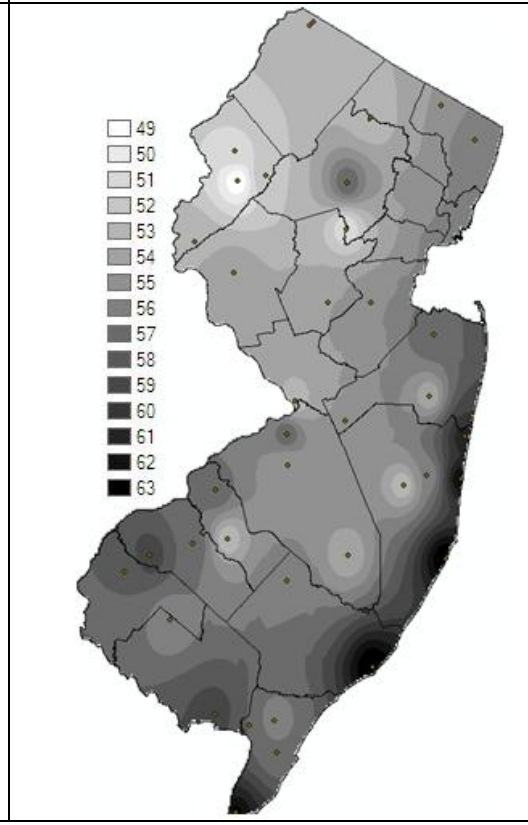
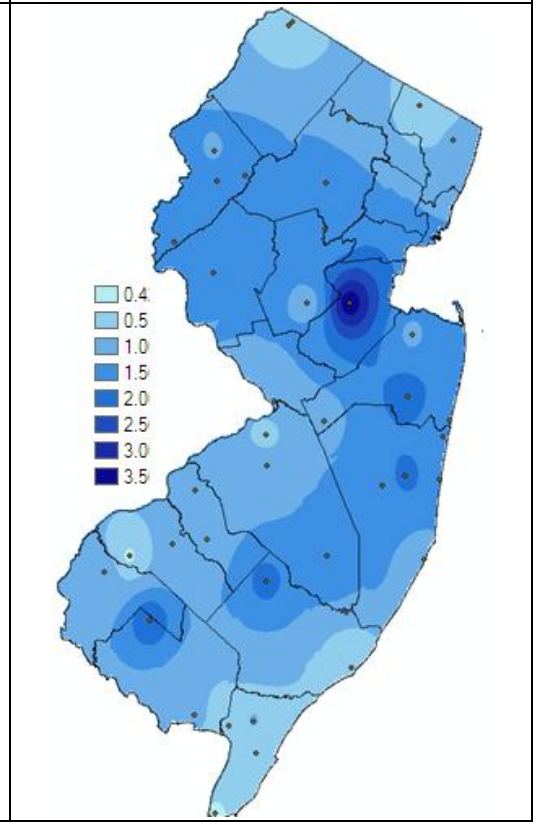
Summary table – Week 37

	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	**0.31**	**2.59**	**0**	**1.50**	**3.67**	**0**	**0.02**	**<0.01**	**4**	**0.00**	**0.94**	**0**
Coastal	**1.89**	**1.95**	**0**	**1.97**	**3.08**	**0**	**0.00**	**0.02**	**0**	**0.67**	**4.82**	**0**
Delaware Bayshore	**1.23**	**0.73**	**2**	**2.63**	**5.29**	**0**	**0.00**	**0.01**	**0**	**0.09**	**3.89**	**0**
Delaware River Basin	**1.14**	**4.62**	**0**	**0.00**	**9.01**	**0**	**0.00**	**0.11**	**0**	**0.00**	**0.05**	**0**
New York Metro	**1.46**	**1.33**	**1**	**3.44**	**6.19**	**0**	**0.00**	**0.06**	**0**	**0.06**	**0.16**	**0**
North Central Rural	**0.08**	**0.48**	**0**	**0.06**	**0.40**	**0**	**0.00**	**<0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**1.86**	**12.20**	**0**	**0.60**	**3.63**	**0**	**0.02**	**0.01**	**3**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.38**	**10.06**	**0**	**0.52**	**2.80**	**0**	**0.00**	**0.04**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.32**	**1.25**	**0**	**0.42**	**1.81**	**0**	**0.00**	**0.07**	**0**	**0.04**	**0.04**	**0**
Suburban Corridor	**0.83**	**4.20**	**0**	**0.44**	**1.83**	**0**	**0.00**	**0.12**	**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: *Aedes vexans* activity continues in the Delaware Bayshore and New York Metropolitan regions while *Coquillettidia perturbans* population values for the Agricultural and the Northwest Rural regions are also elevated above historical trends (but at very low levels).

Climate Factors

Average High Temperatures	Average Low Temperatures	Total Precipitation
		

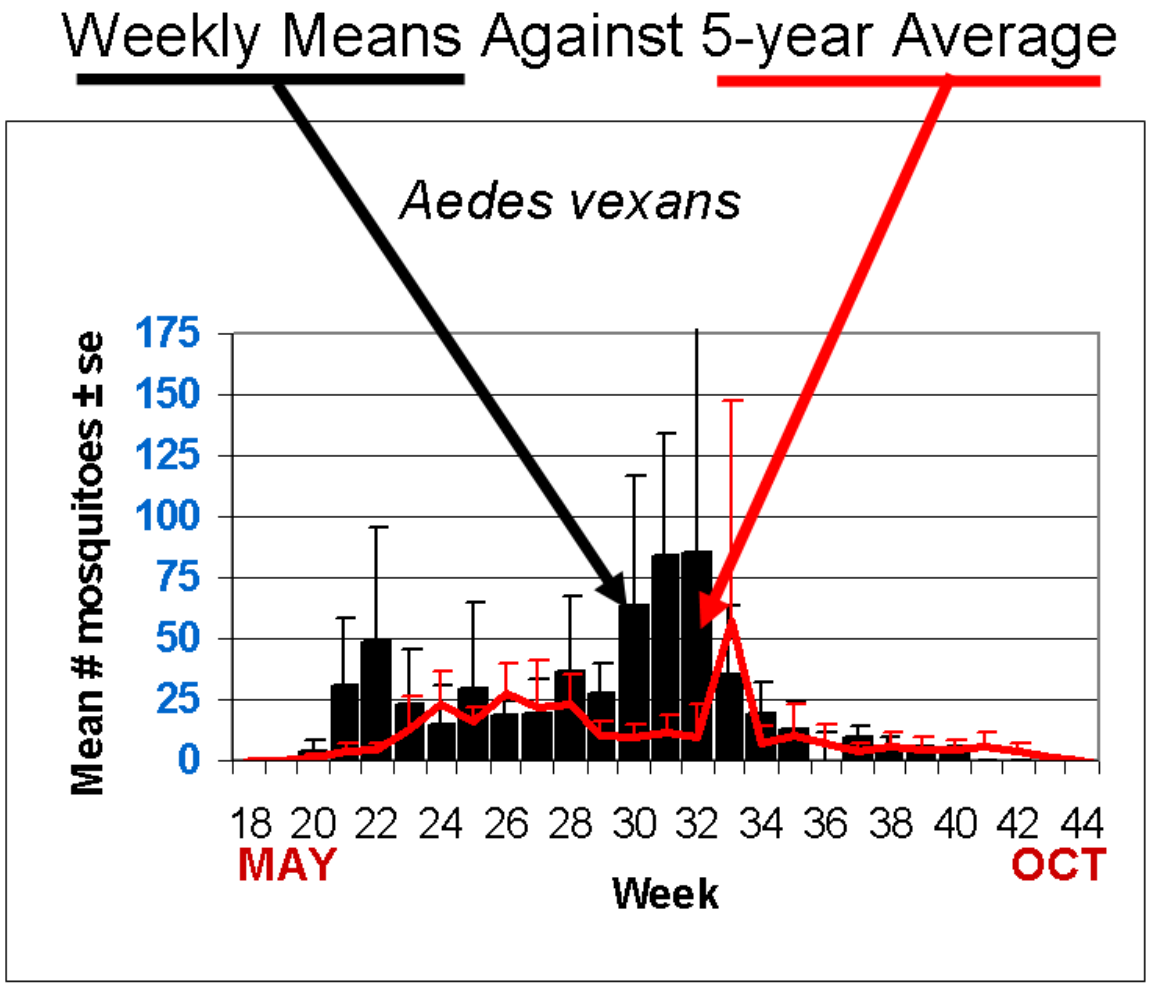
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for September 1-23, 2010 in New Jersey. Data points are from 43 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

Cooling trends continued with the largest drops coming in nighttime temperatures. Some northern areas dropped into the mid to high 40's during the night. Coastal and higher elevation areas are cooler during the day, but the coastal areas retain heat during the night. Precipitation increases occurred particularly through the middle portion of the state.

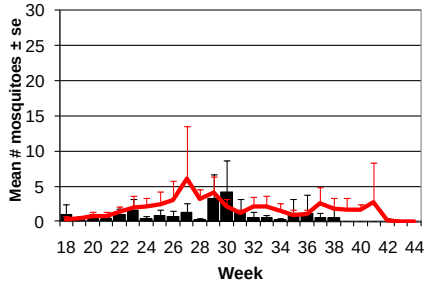
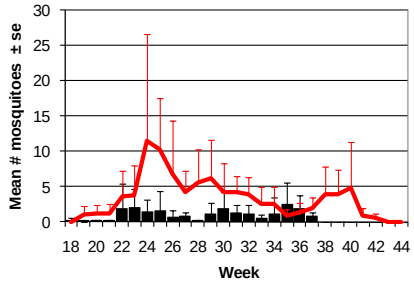
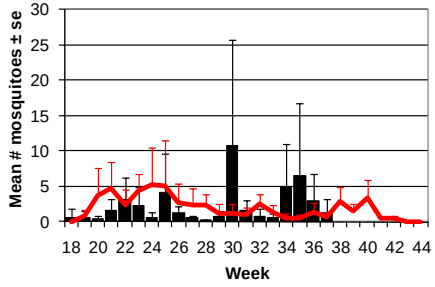
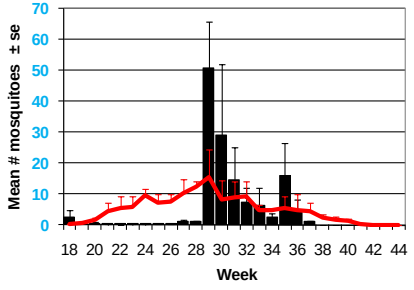
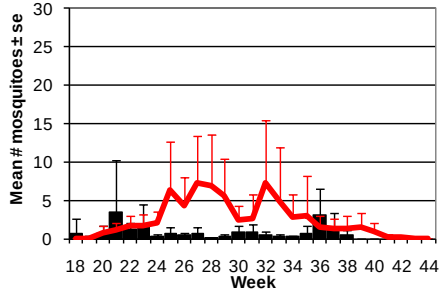
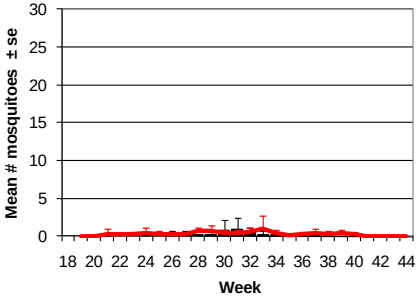
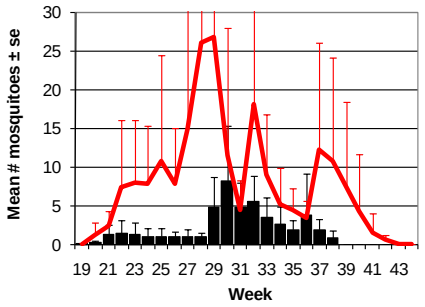
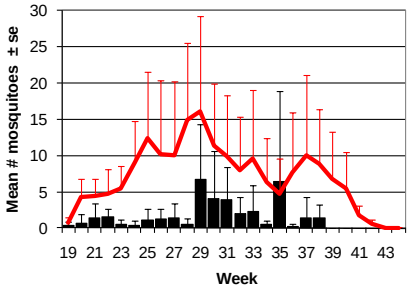
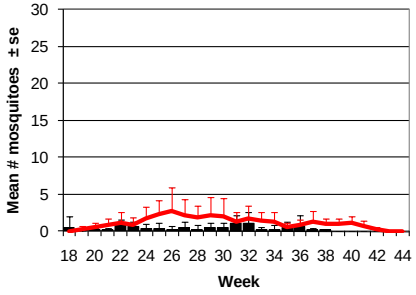
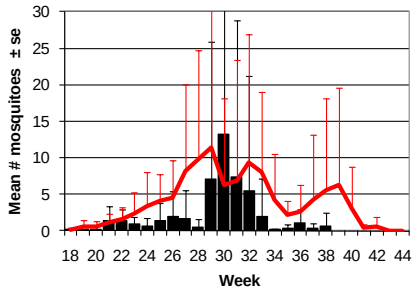
NJ Weather & Climate NETWORK

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

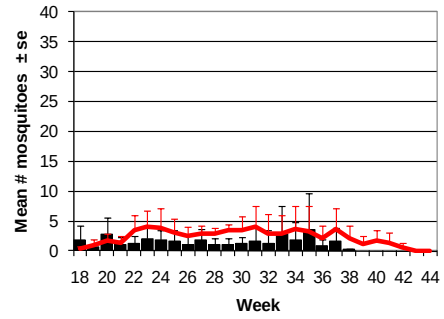


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

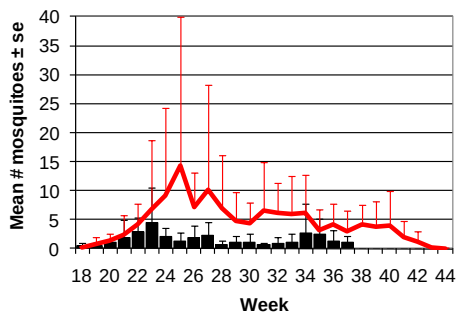
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations are mildly higher than for historical values in the Delaware Bayshore and the New York Metropolitan region. Elsewhere, population levels continue to decrease, in some areas being significantly lower than historical levels (e.g., Northwestern and Philadelphia Metropolitan regions.) This species overwinters as eggs.	

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

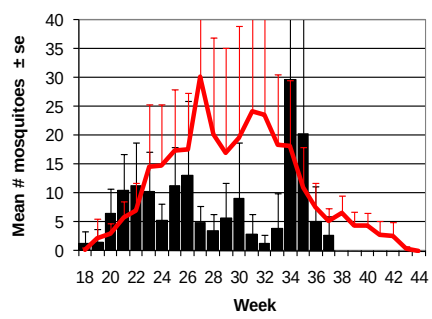
Agricultural



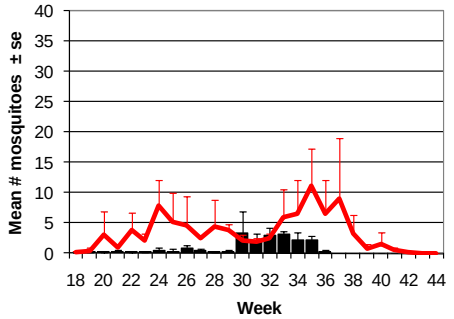
Coastal



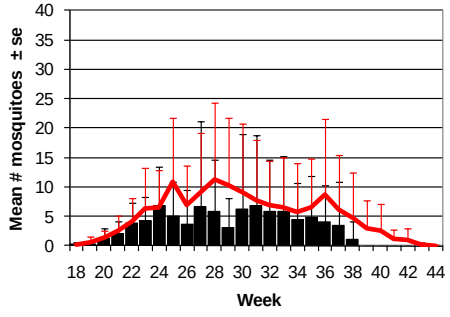
Delaware Bayshore



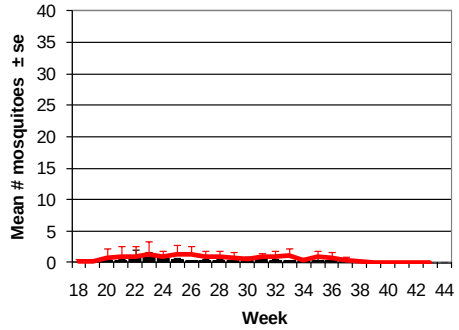
Delaware River Basin



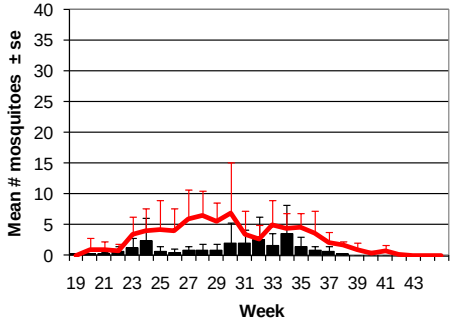
New York Metro



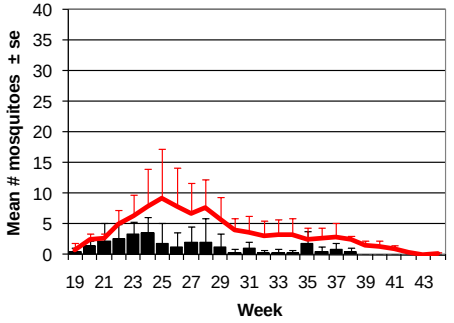
North Central Rural



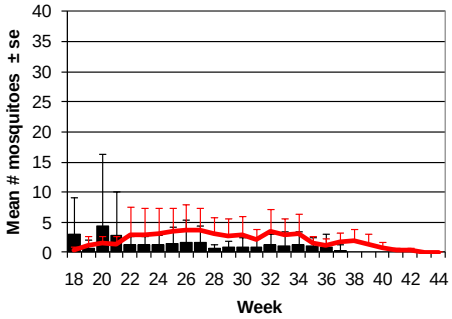
Northwestern Rural



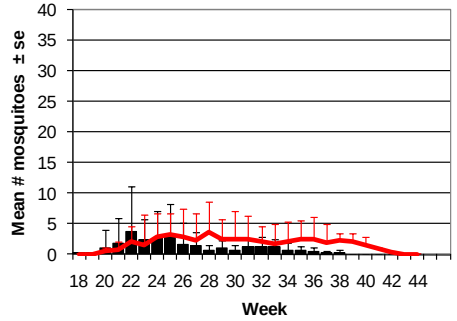
Philadelphia Metro



Pinelands



Suburban Corridor



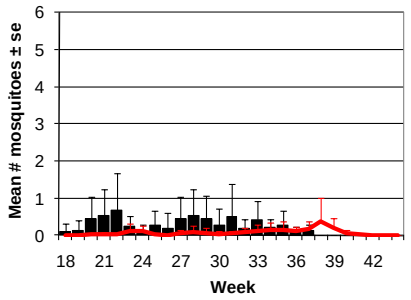
Comments

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.

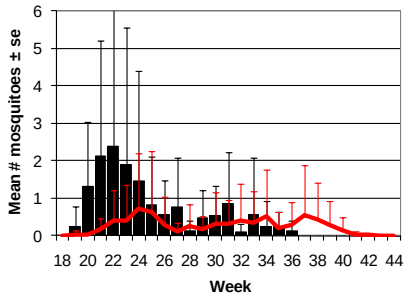
Culex Mix population numbers continue to decline.

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

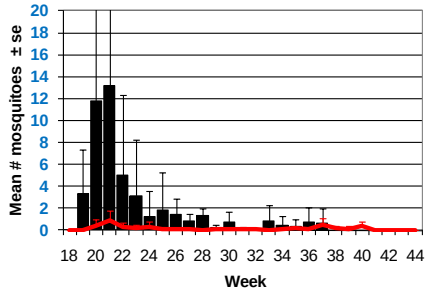
Agricultural



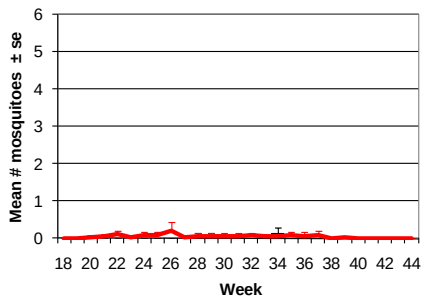
Coastal



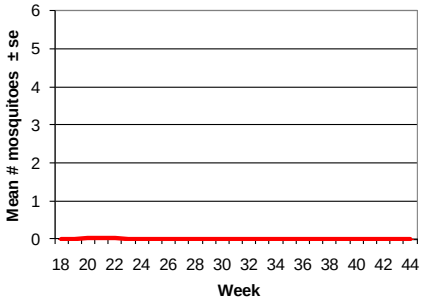
Delaware Bayshore



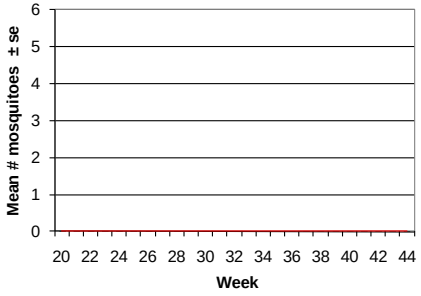
Delaware River Basin



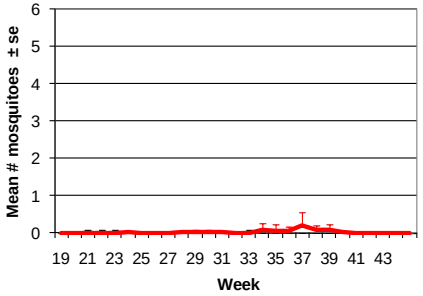
New York Metro



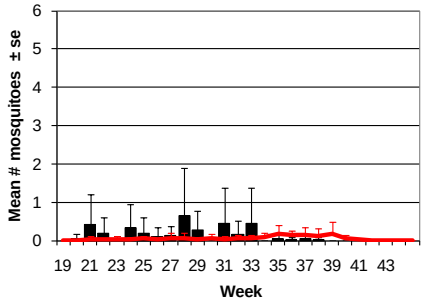
North Central Rural



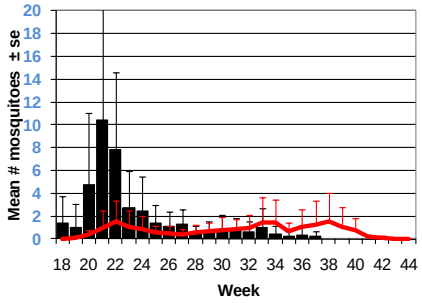
Northwestern Rural



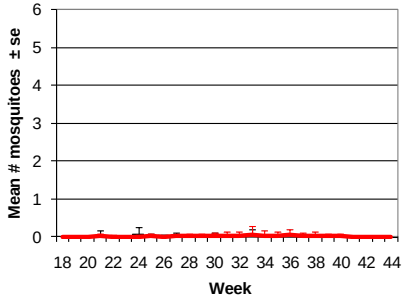
Philadelphia Metro



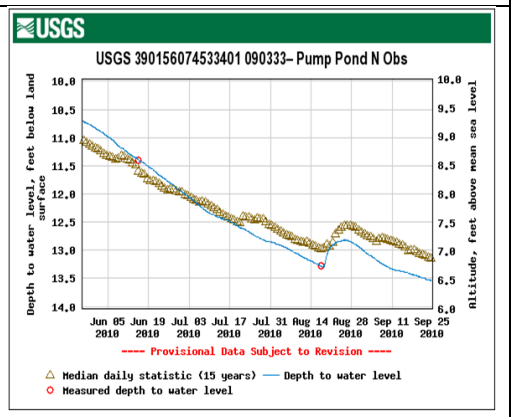
Pinelands



Suburban Corridor



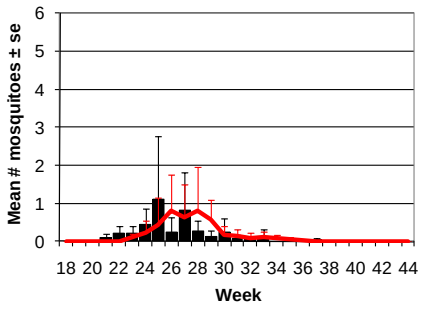
Comments



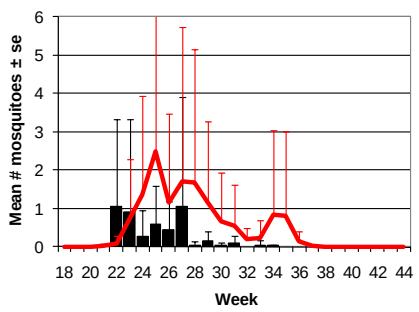
After a fairly spectacular entry into the season, *Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, has returned to, and sometimes below historical trends. This may be a fortunate consequence of the extended drought New Jersey has been experiencing by decreasing the water table levels. Graph to right is of ground water level in Cape May (current blue line, 15 year historical yellow triangles), showing higher water levels from early in season to lower levels halfway through the season. Data from http://waterdata.usgs.gov/nj/nwis/rt

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

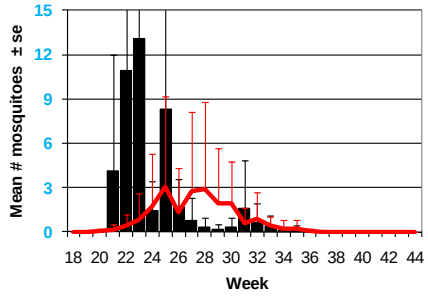
Agricultural



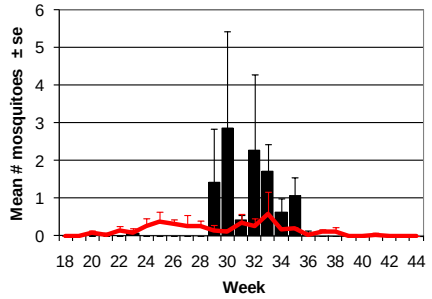
Coastal



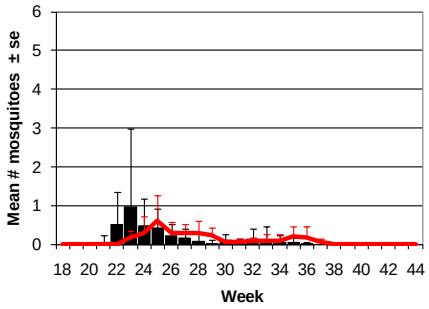
Delaware Bayshore



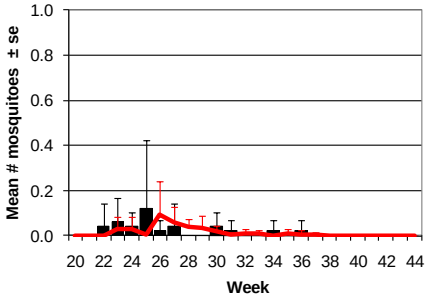
Delaware River Basin



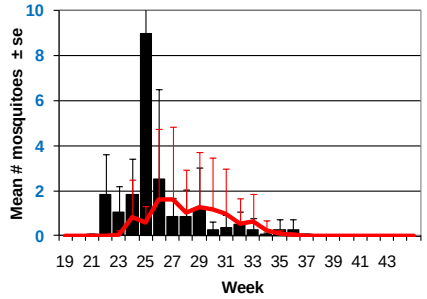
New York Metro



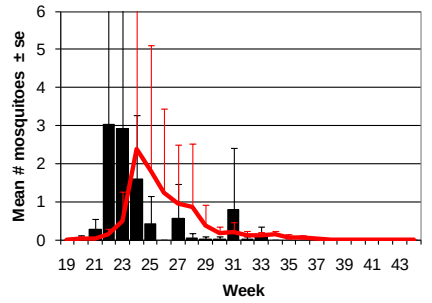
North Central Rural



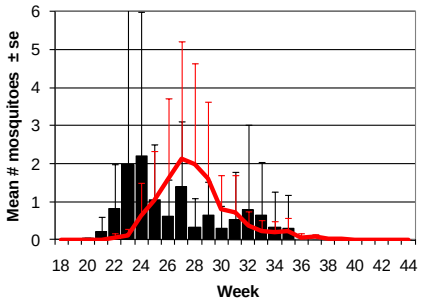
Northwestern Rural



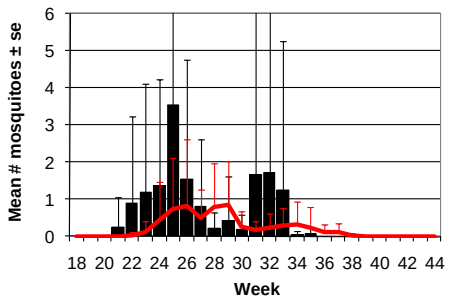
Philadelphia Metro



Pinelands



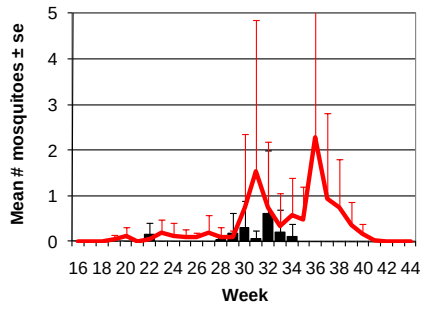
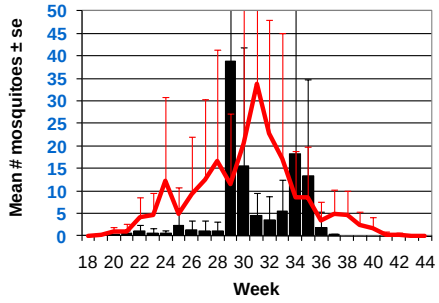
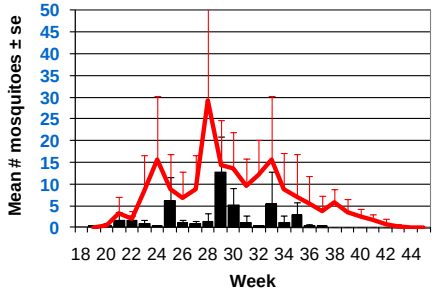
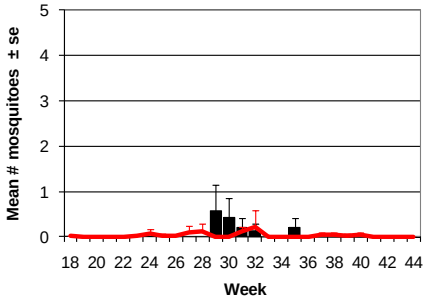
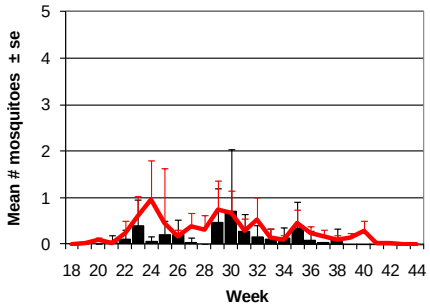
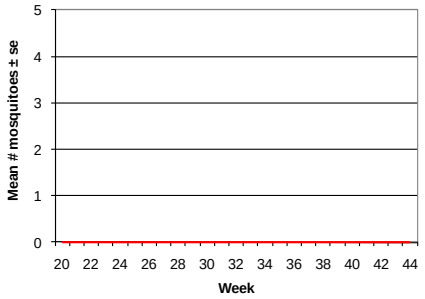
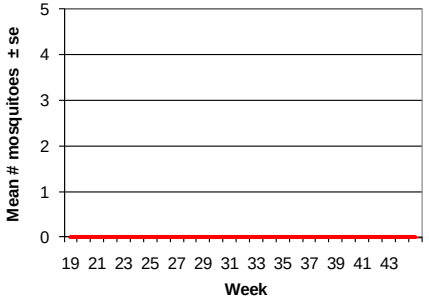
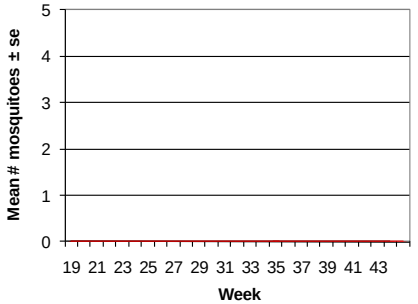
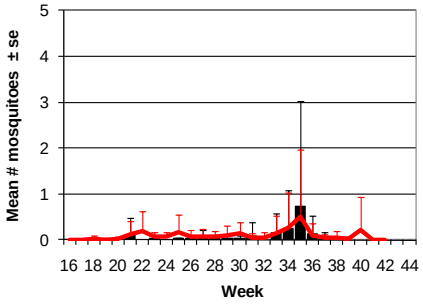
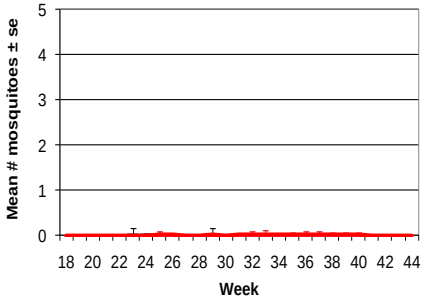
Suburban Corridor



Comments

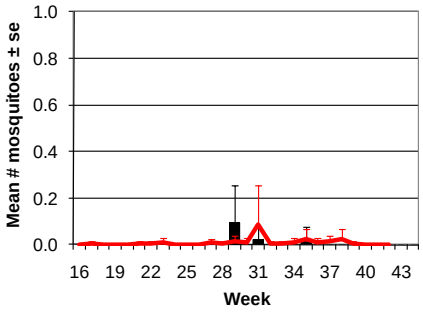
Coquillettidia perturbans populations continue to make their presence known in the Agricultural and Northwestern Rural regions, albeit with very small numbers. This species attaches to the roots of emergent vegetation, and, not surprisingly, can exploit habitat with low oxygen levels. This year, the extended time over the season that *Coq. perturbans* has had due to the warmer weather may have allowed the overwintering third and fourth instar larvae to emerge at different times, producing separate peaks, as seen in the Pinelands and Suburban Corridor regions.

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

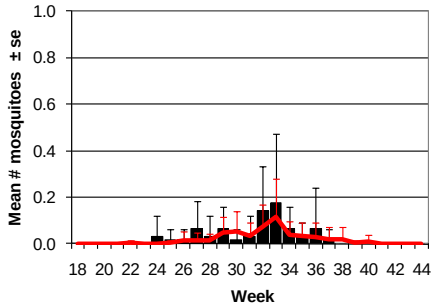
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* populations are lower than historical trends and continue to decline as the season progresses into the fall. If any more emergences occur, they should be very minor. September 23rd was the last full moon.	

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

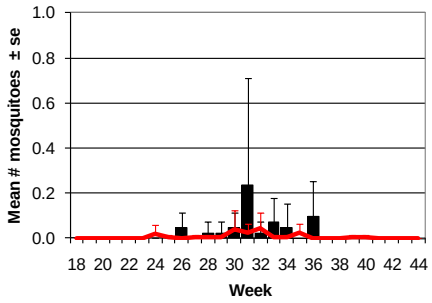
Agricultural



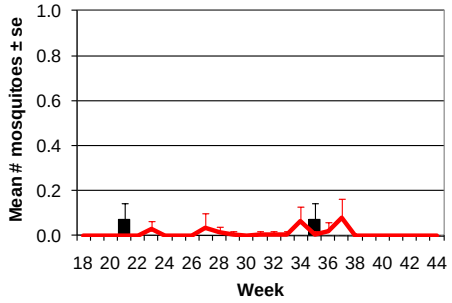
Coastal



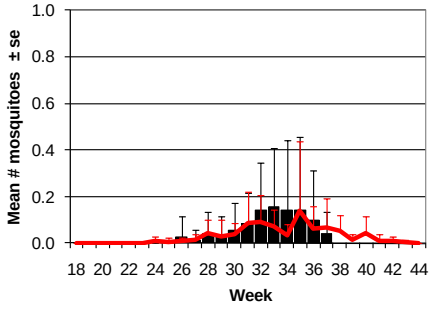
Delaware Bayshore



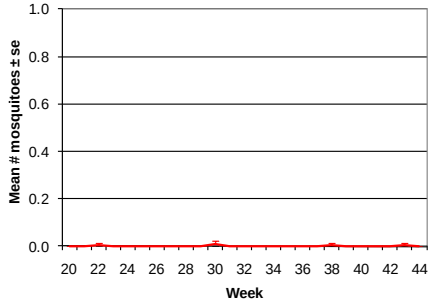
Delaware River Basin



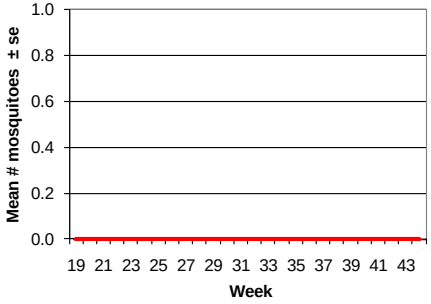
New York Metro



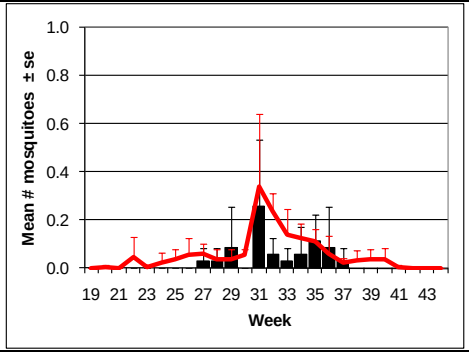
North Central Rural



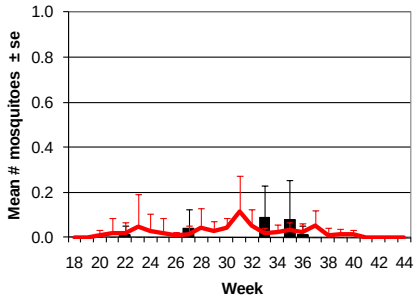
Northwestern Rural



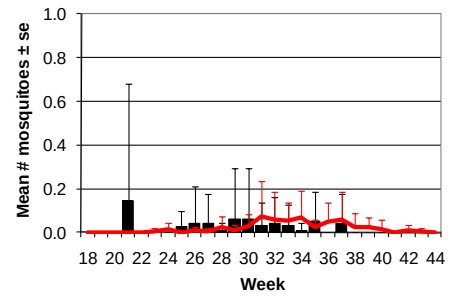
Philadelphia Metro



Pinelands



Suburban Corridor



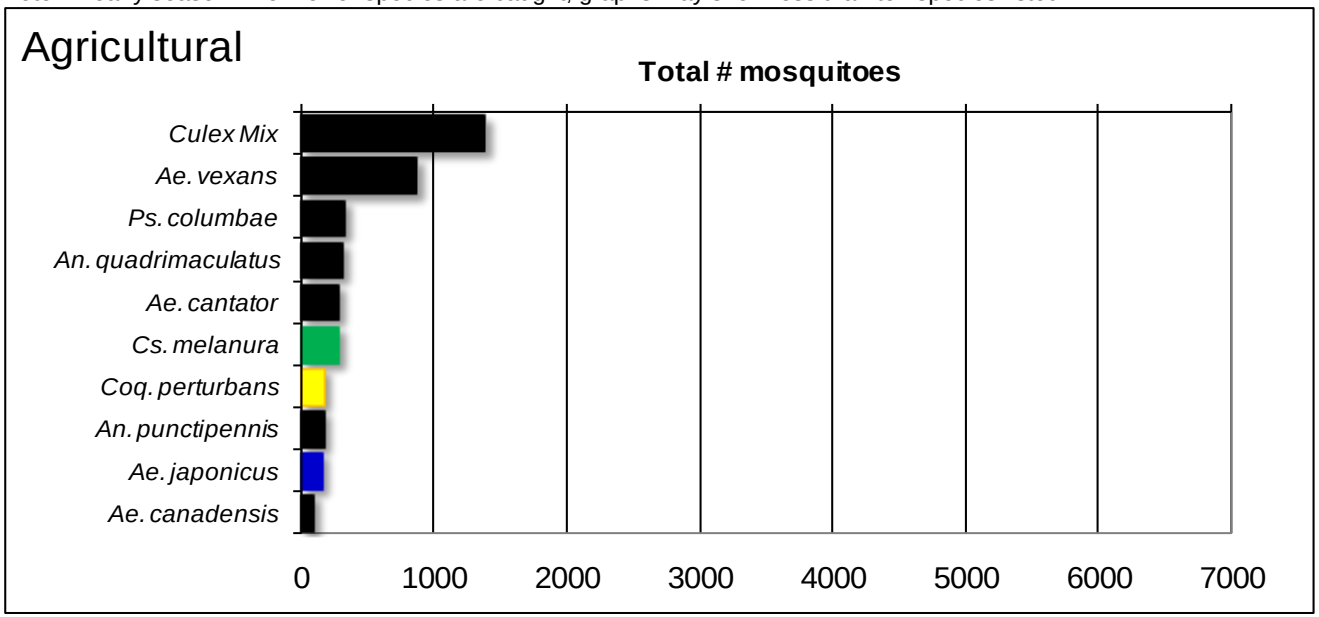
Comments

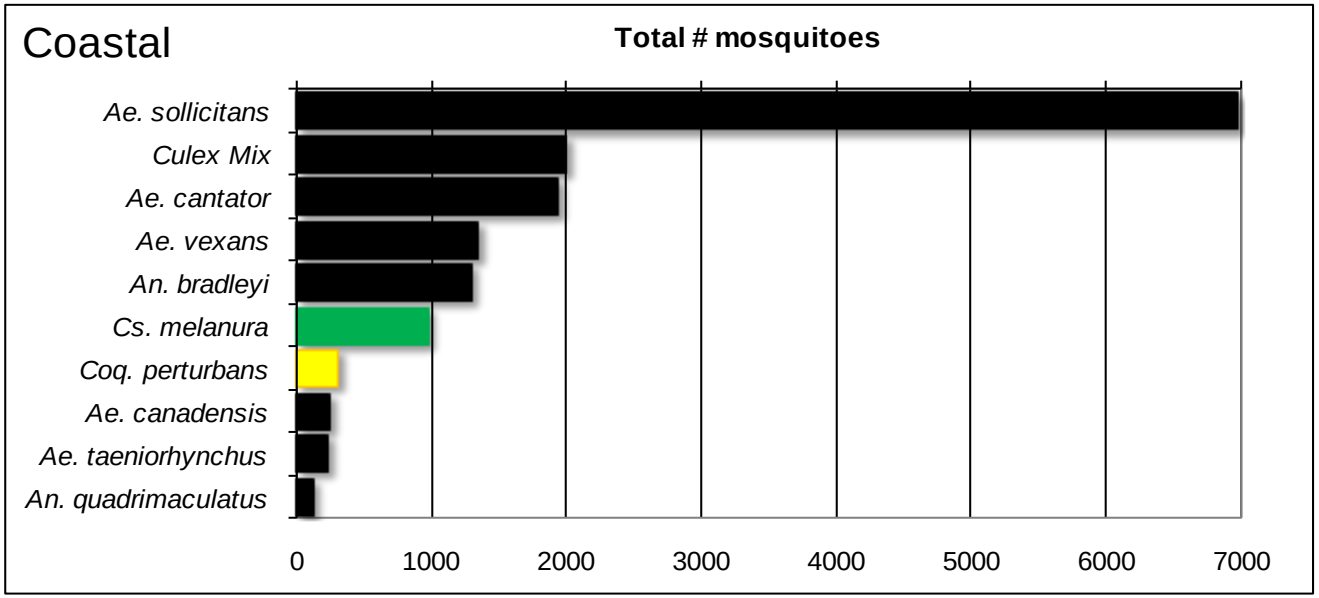
Aedes albopictus, the Asian Tiger Mosquito, is still apparent in the two Metropolitan regions while numbers elsewhere in the state appear to be decreasing. Numbers should decline rapidly when cooler weather sets in. So far, this species, plus *Culex salinarius*, is the only mammalophilic species in which WNV has been detected in pooled samples. The Asian tiger mosquito is an efficient vector of WNV and other viruses.

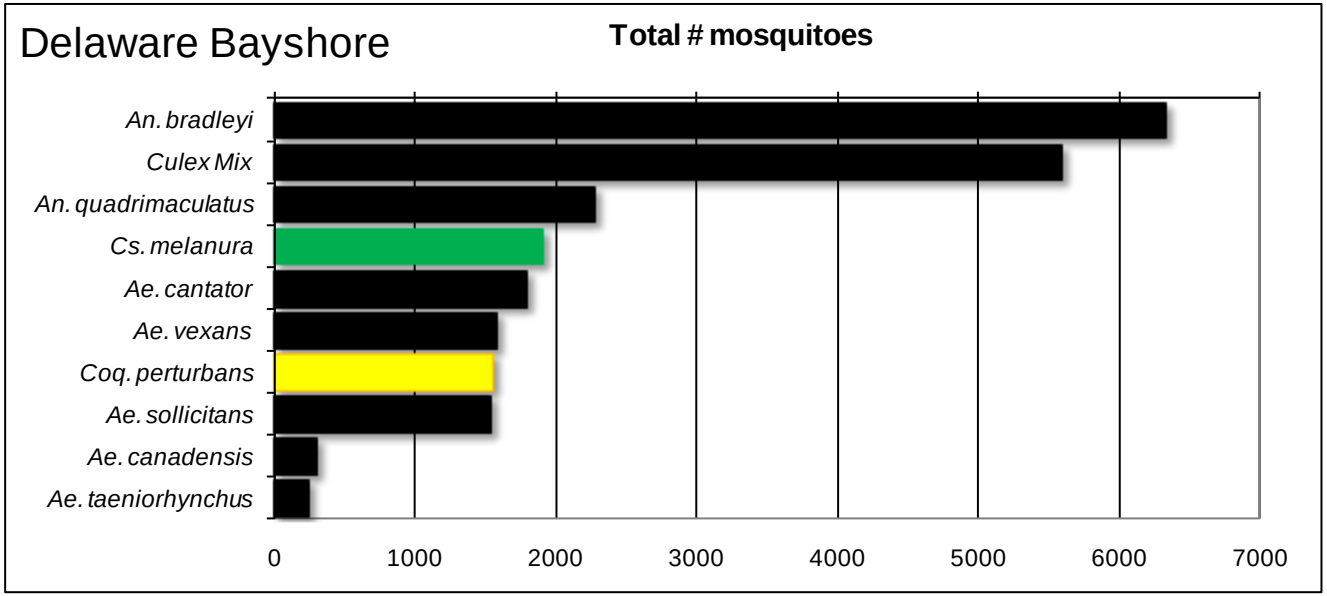
WNV *EEE*

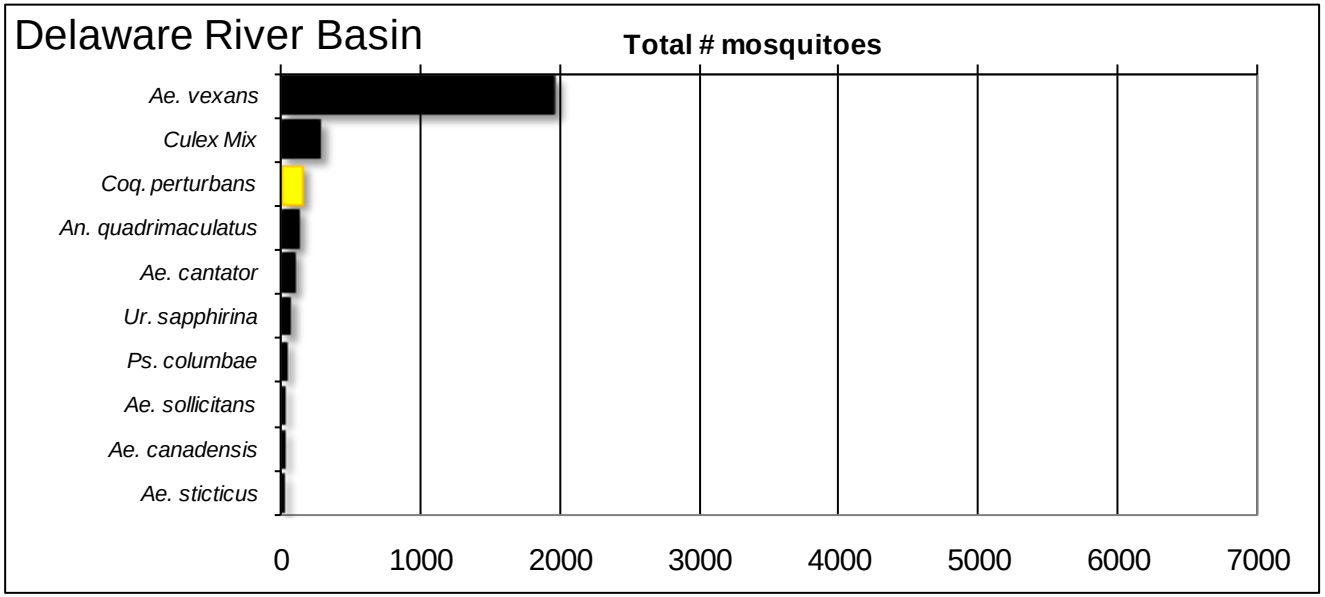
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

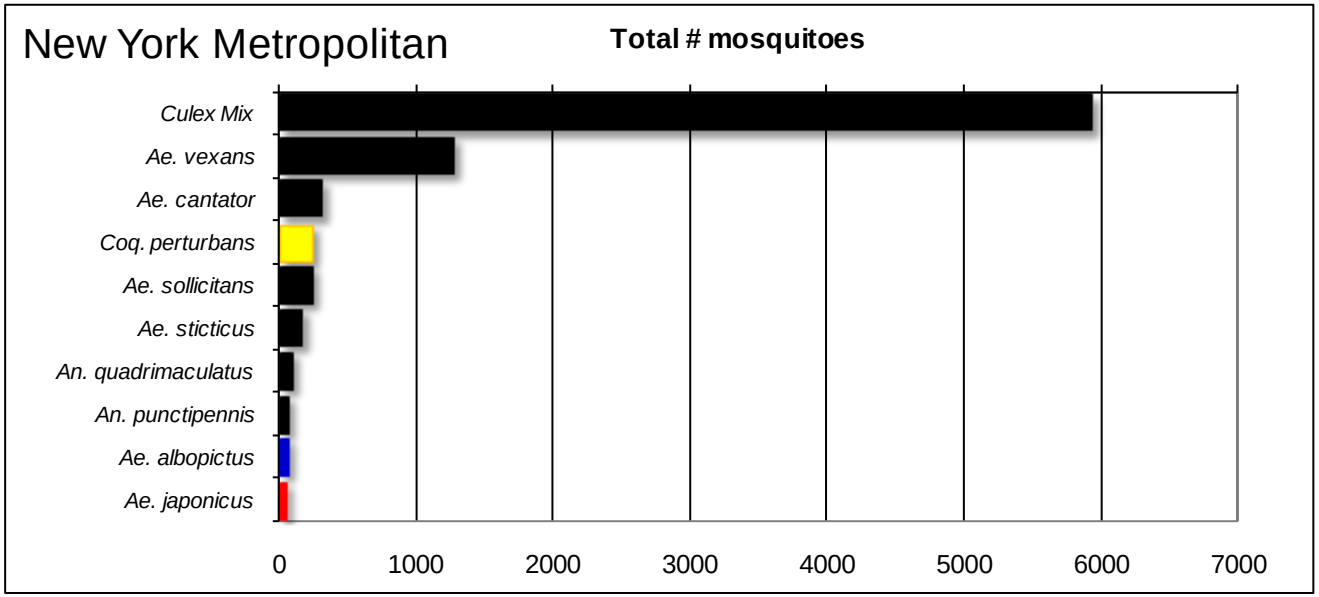
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

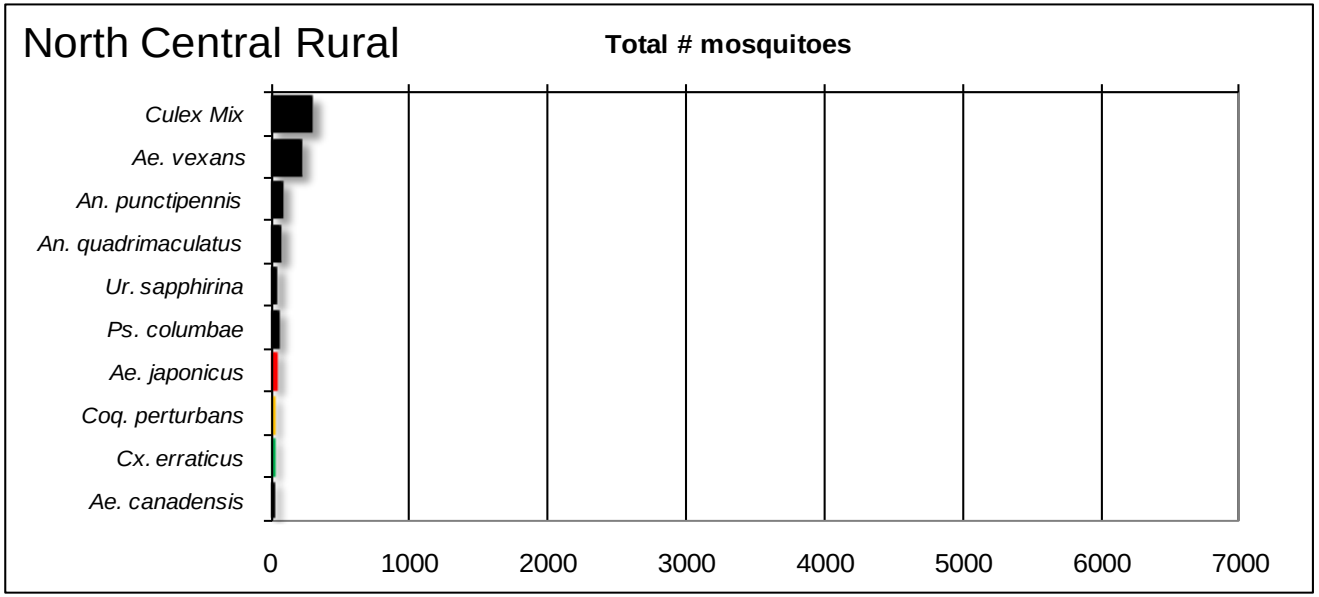


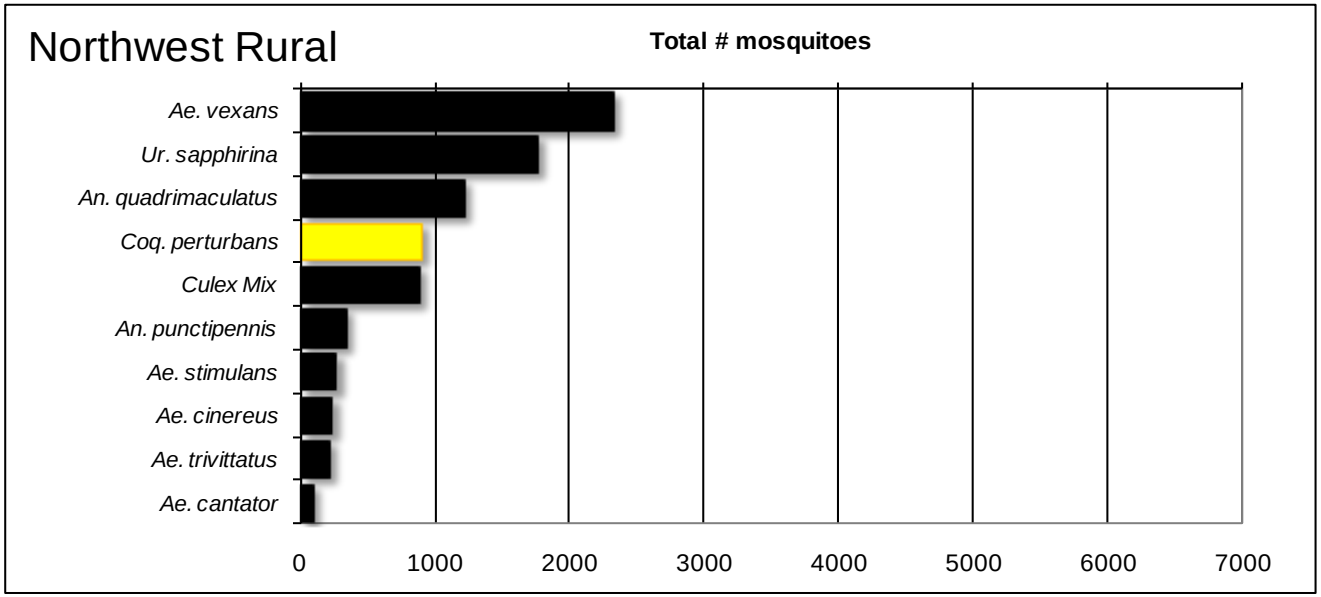


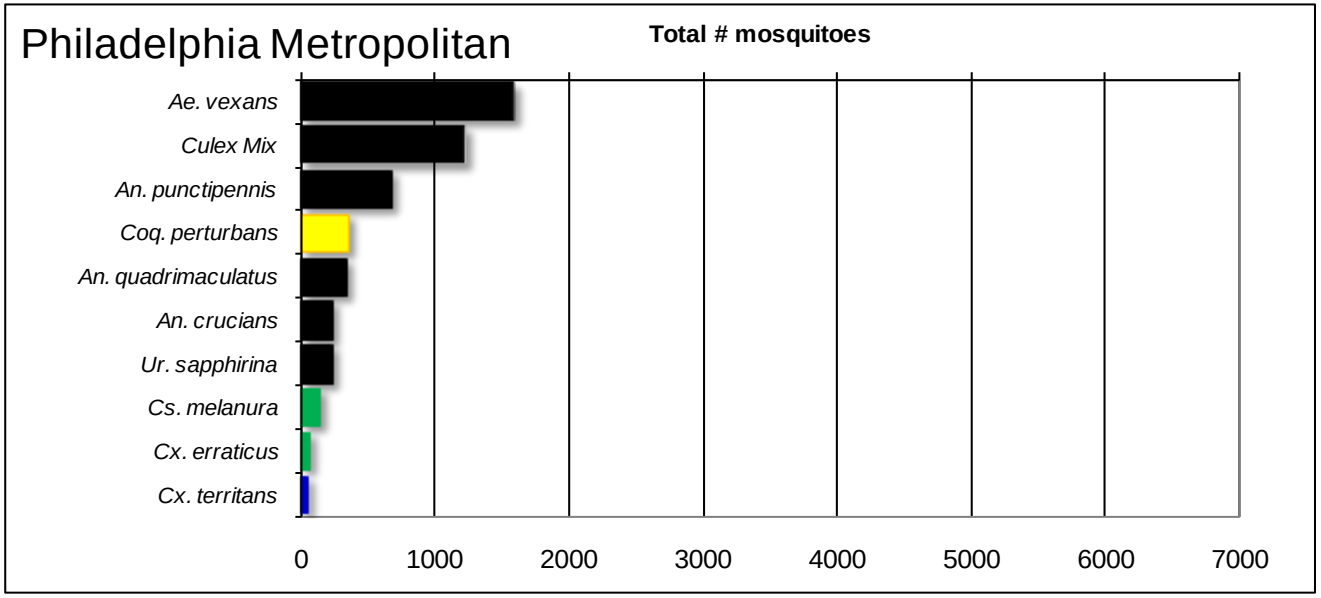

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
An. quadrimaculatus
Cs. melanura
Ae. cantator
Ae. vexans
Coq. perturbans
Ae. sollicitans
Ae. canadensis
Ae. taeniorhynchus
0
1000
2000
3000
4000
5000
6000
7000

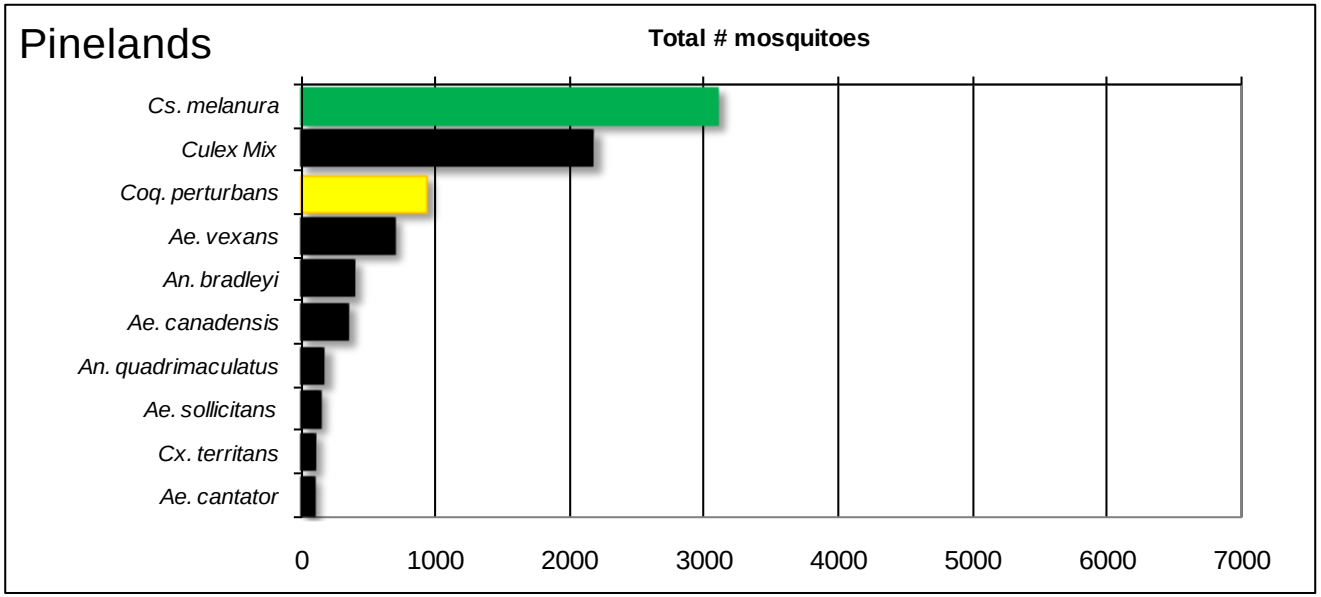

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
Ae. cantator
Ur. sapphirina
Ps. columbae
Ae. sollicitans
Ae. canadensis
Ae. sticticus
0
1000
2000
3000
4000
5000
6000
7000

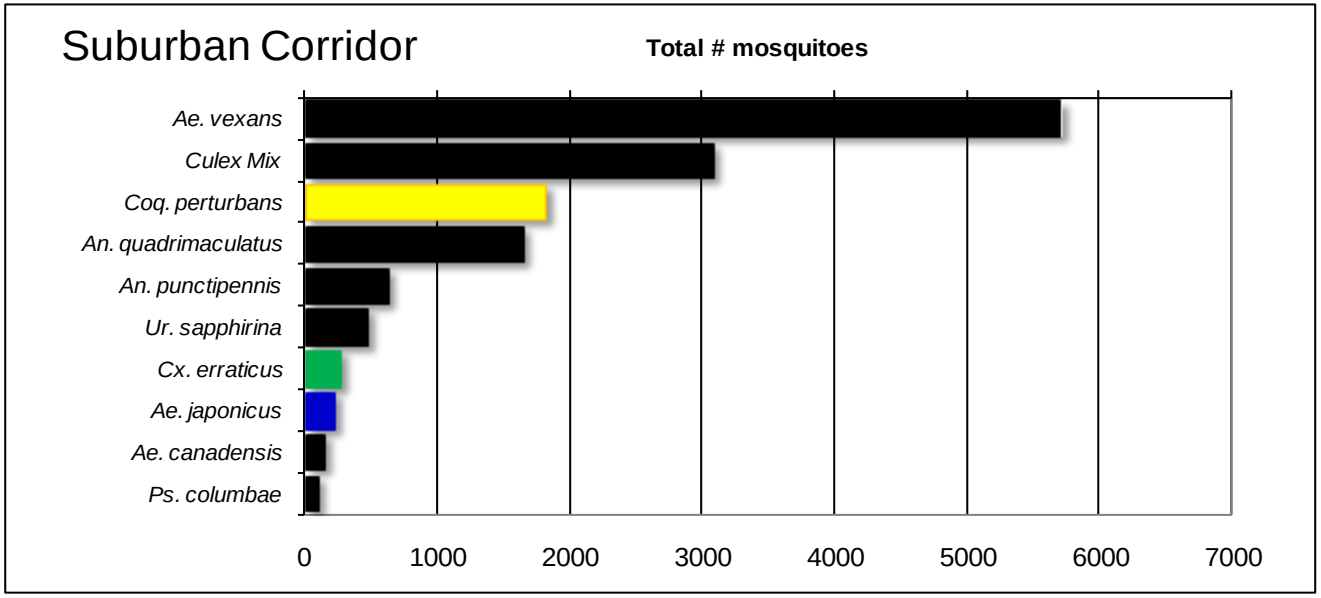

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. sticticus
An. quadrimaculatus
An. punctipennis
Ae. albopictus
Ae. japonicus
0
1000
2000
3000
4000
5000
6000
7000


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
1000
2000
3000
4000
5000
6000
7000


Northwest Rural
Total # mosquitoes
Ae. vexans
Ur. sapphirina
An. quadrimaculatus
Coq. perturbans
Culex Mix
An. punctipennis
Ae. stimulans
Ae. cinereus
Ae. trivittatus
Ae. cantator
0
1000
2000
3000
4000
5000
6000
7000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
Coq. perturbans
An. quadrimaculatus
An. crucians
Ur. sapphirina
Cs. melanura
Cx. erraticus
Cx. territans
0
1000
2000
3000
4000
5000
6000
7000


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


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
1000
2000
3000
4000
5000
6000
7000