RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 11 October to 17 October 2009, CDC Weeks 41

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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.

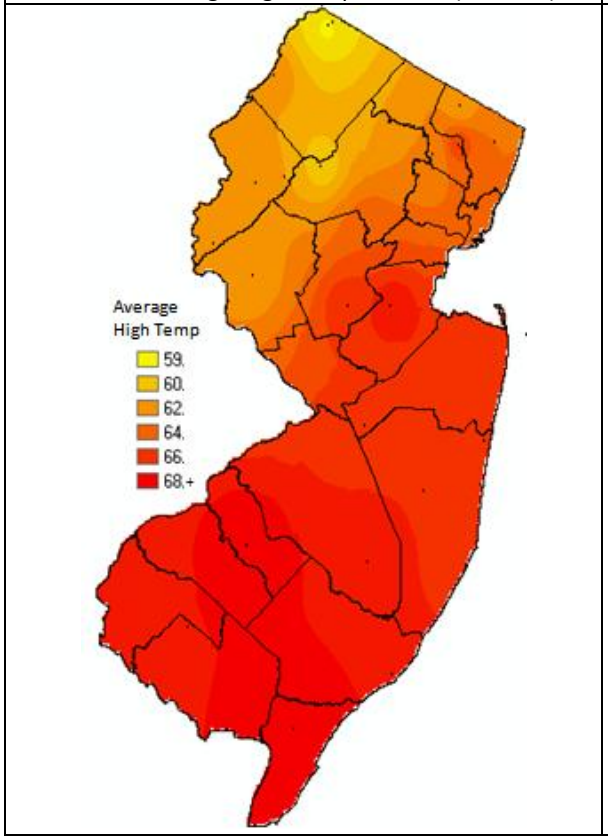
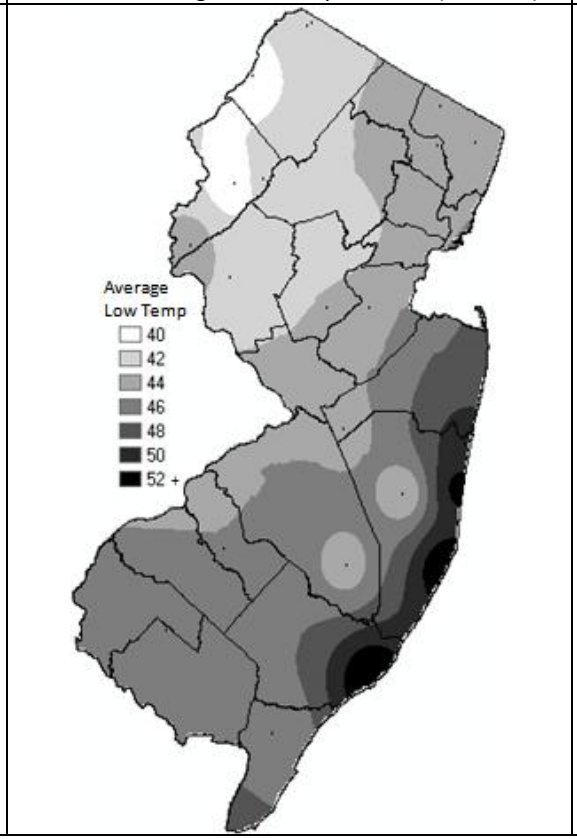
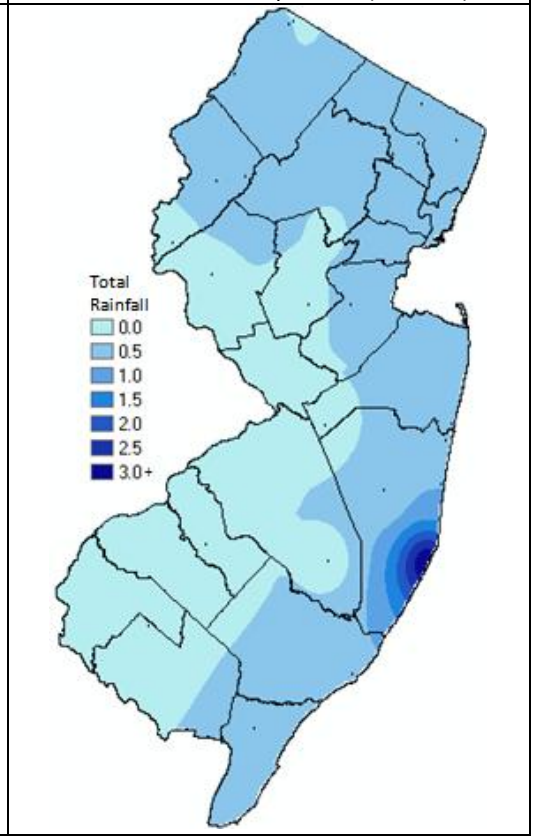
Summary table – Week 41

	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	**0.21**	**0.54**	**0**	**0.05**	**1.84**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.03**	**0**
Coastal	**0.76**	**0.97**	**0**	**0.38**	**2.31**	**0**	**0.00**	**0.00**	**0**	**0.35**	**0.82**	**0**
Delaware Bayshore	**0.37**	**0.46**	**0**	**0.40**	**3.12**	**0**	**0.00**	**0.00**	**0**	**0.03**	**2.56**	**0**
Delaware River Basin	**0.00**	**0.35**	**0**	**0.04**	**0.69**	**0**	**0.00**	**0.03**	**0**	**0.00**	**0.04**	**0**
New York Metro	**0.00**	**0.40**	**0**	**0.36**	**1.51**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.06**	**0**
North Central Rural	**0.00**	**0.07**	**0**	**0.00**	**0.04**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.00**	**1.47**	**0**	**0.23**	**0.79**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.21**	**2.51**	**0**	**0.17**	**1.97**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.27**	**0.70**	**0**	**0.18**	**0.79**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Suburban Corridor	**0.02**	**0.50**	**0**	**0.05**	**0.86**	**0**	**0.00**	**0.00**	**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: Activity has dropped considerably for the pestiferous species above. Some, such as *Coquillettidia perturbans*, have come to the end of their natural cycle. Others, such as *Aedes vexans*, appear to be more affected by the serious drop in temperatures over the past two weeks. Northern counties have stopped collections given the few, if any, individual mosquitoes that may be caught. Unless an unusual amount of activity should occur, this report will end after the last week in October.

Climate Factors

October Average High Temperatures (2 weeks)	October Average Low Temperatures (2 weeks)	October Total Precipitation (2 weeks)
		

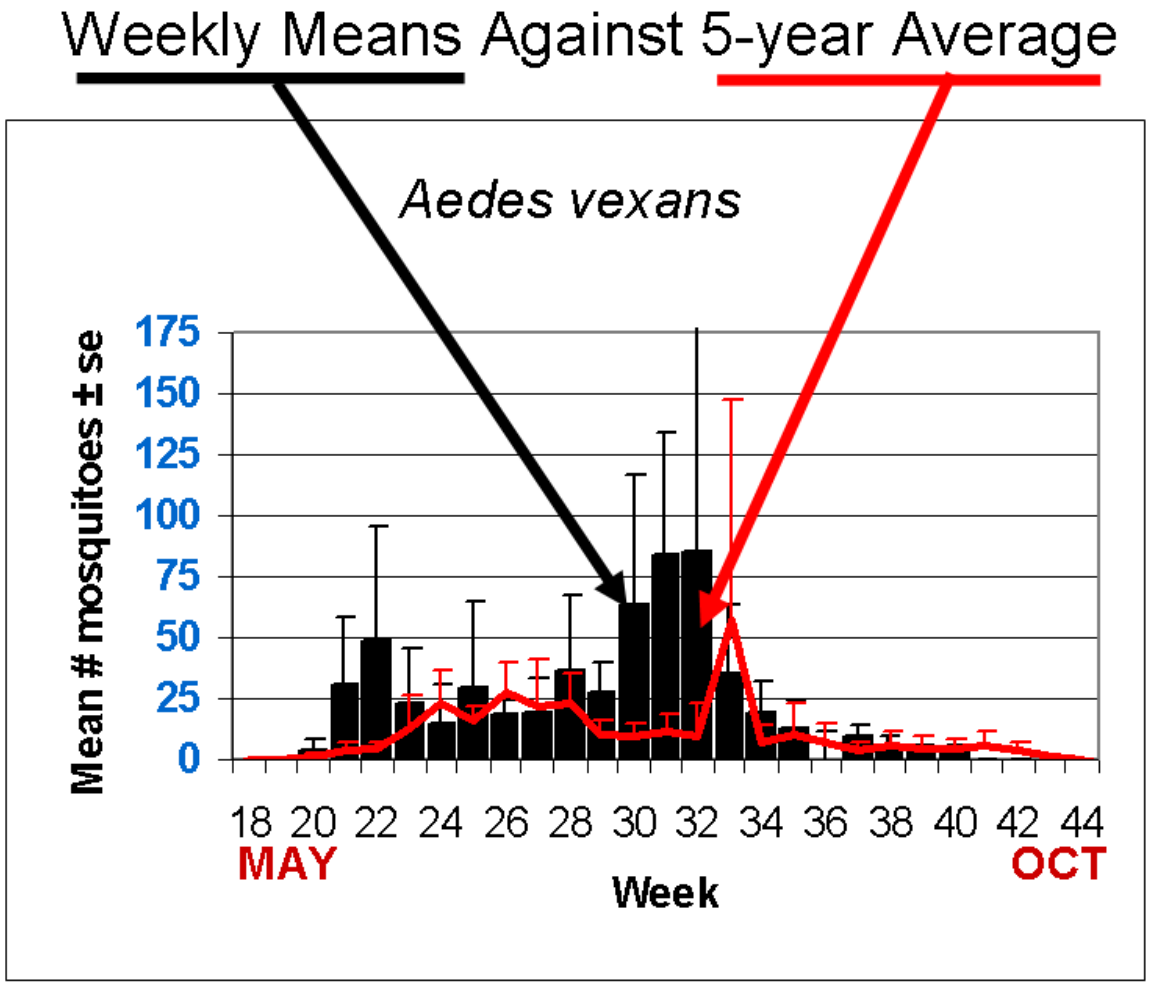
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for the first two weeks of September in New Jersey. Data points are from 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

In the first half of October, average high temperatures were highest the Pinelands. Average low temperatures were again highest along the coastal region and coolest in the northwestern portion of the state, with frost nights. Rainfall was light with the exception of one area on the coast in Ocean County. In general, it was warmest in the Pinelands during the day, warmer along the coast at night and wettest Ocean County.

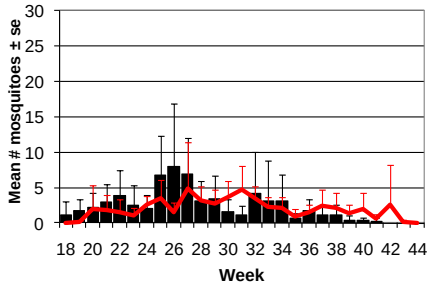
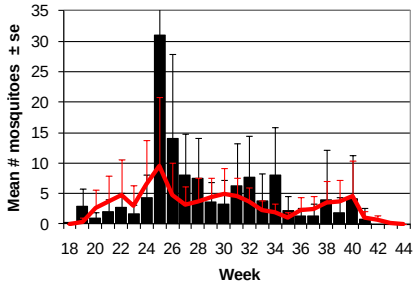
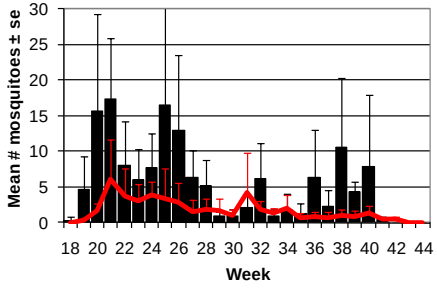
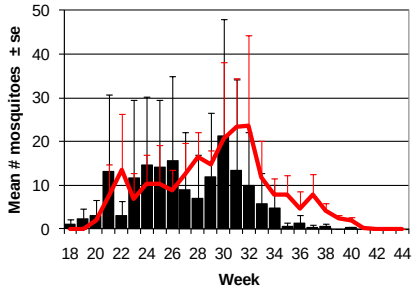
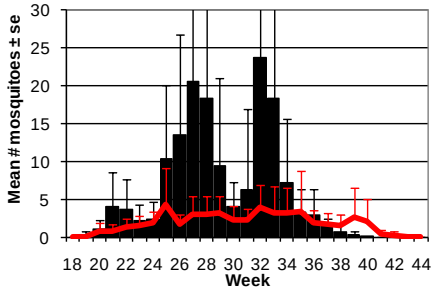
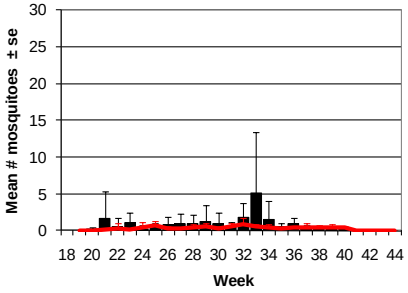
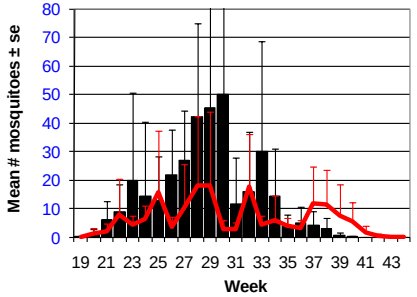
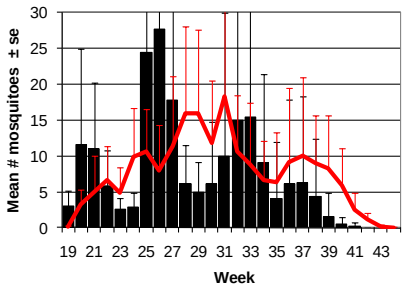
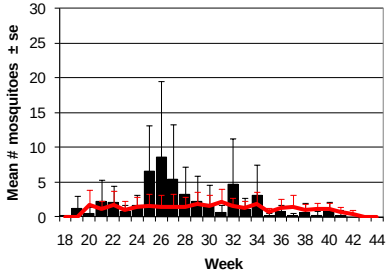
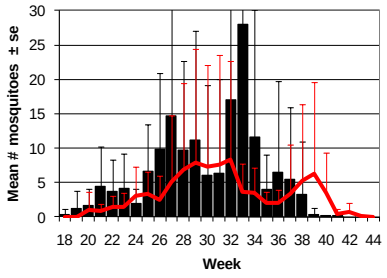
NJ Weather & Climate NETWORK

ONJSC at Rutgers University

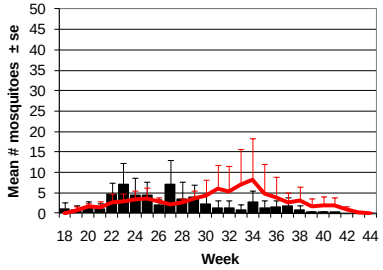
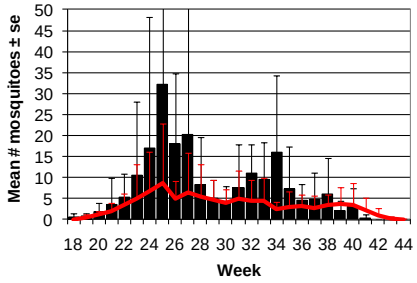
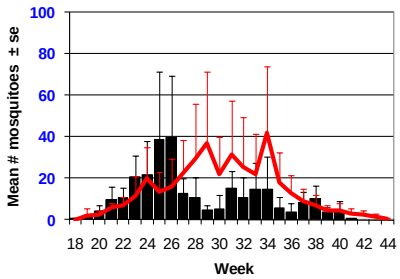
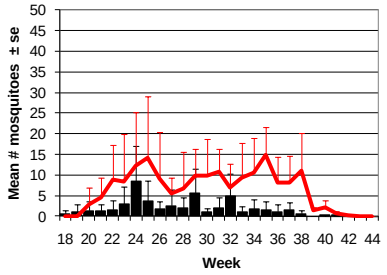
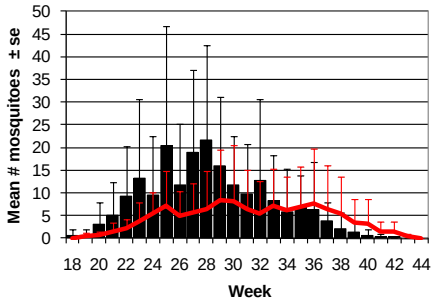
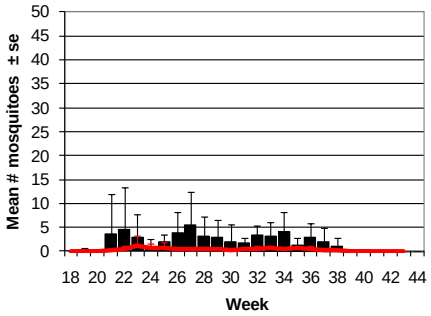
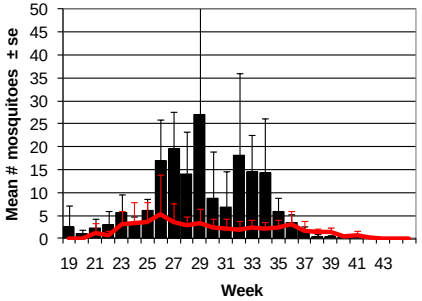
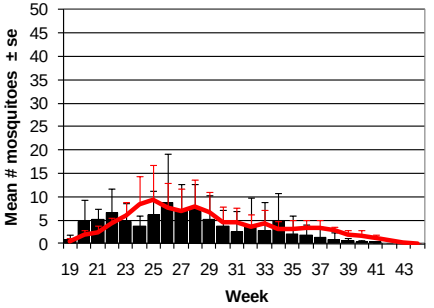
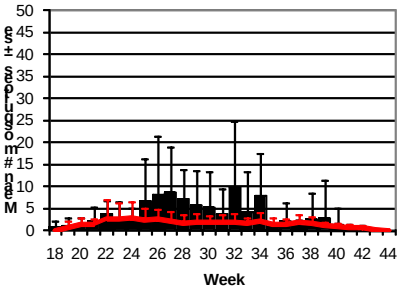
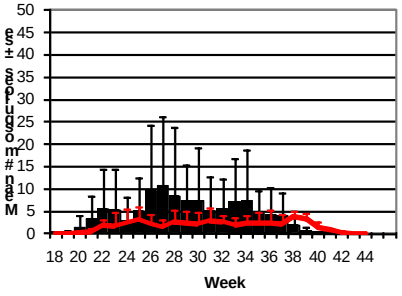
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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, Monmouth, Morris (ended), Salem, Sussex (ended) and Warren (ended) counties. Note: County data is sent in at a variety of times during the week.



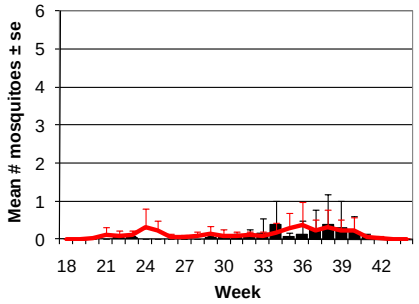
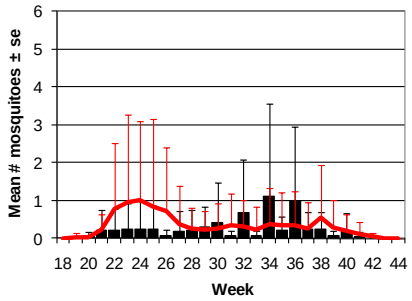
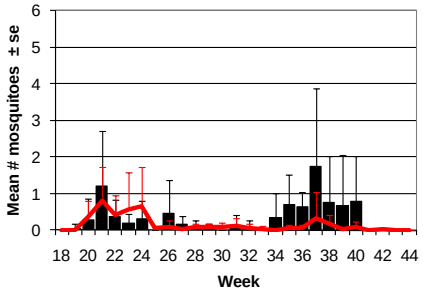
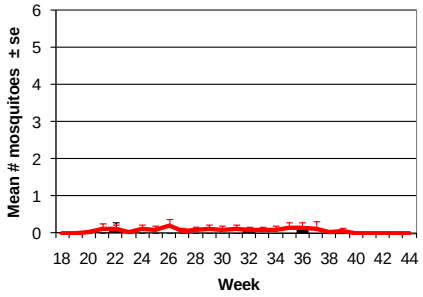
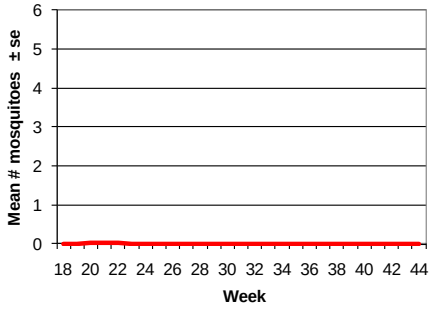
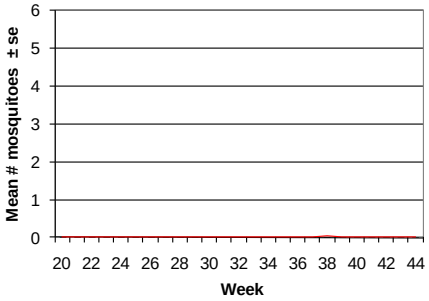
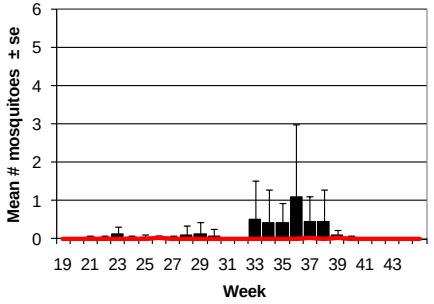
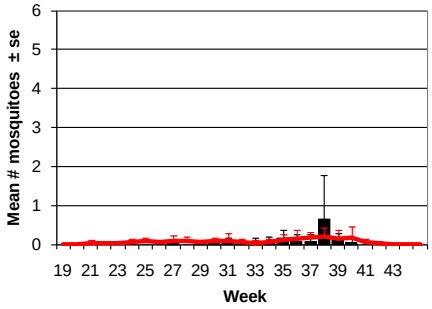
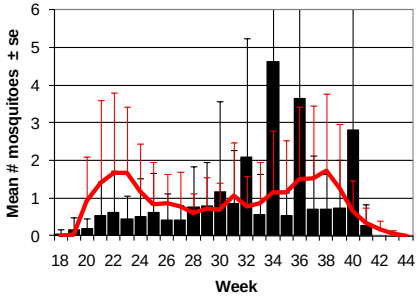
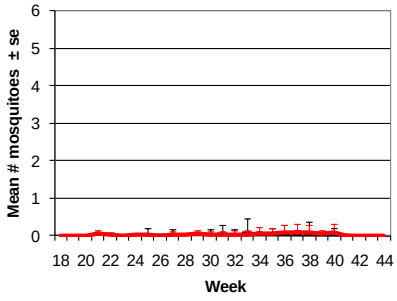
Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations declined significantly in the Northwestern and other northern areas in New Jersey. Recent temperatures should have been low enough to initiate hatching inhibition for eggs lain this year. Although temperatures may fluctuate and rise before the following spring, these changes, along with other factors, should not be enough to break egg diapause and *Ae. vexans* populations should remain low.	

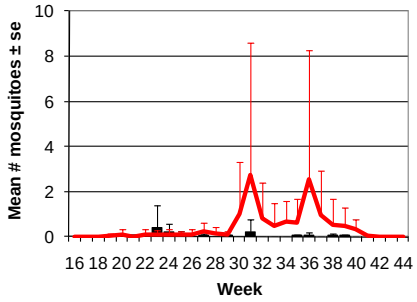
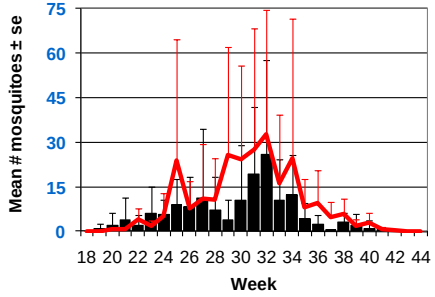
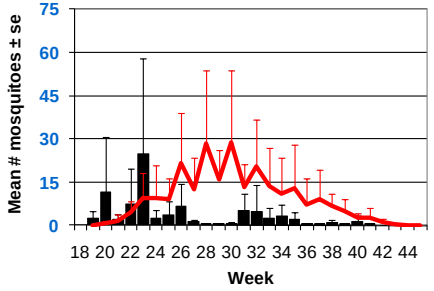
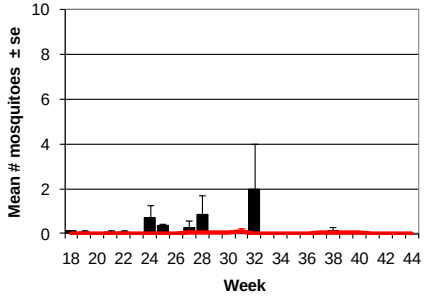
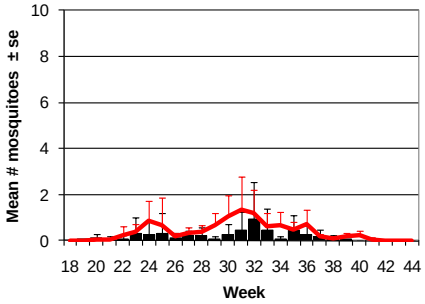
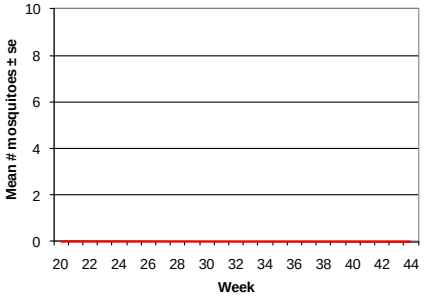
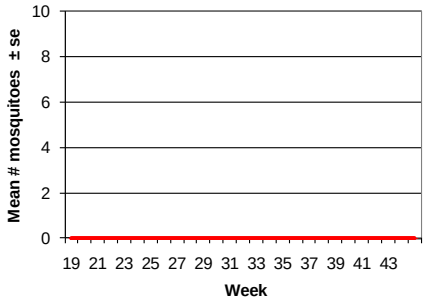
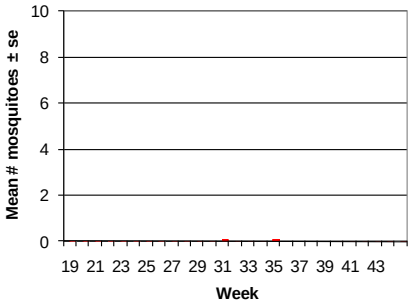
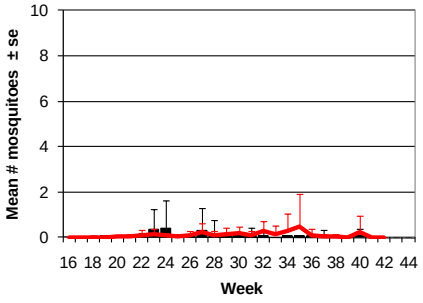
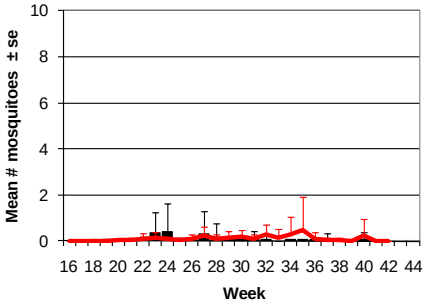
Culex Mix – Permanent Water Species
Multivoltine *Culex*/*Anopheles* (*Cx. pipiens* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* mosquitoes continue to enter hibernaculae.	

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**	
		Populations of *Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, have had a varied population trends this year at several sites. Populations, particularly in the Pinelands, have shown both high and low population levels as compared with historical trends. Although this species can have several different population responses, it tends not to fluctuate as widely as they have done this year. It is probable that the true population levels are represented by higher population values and that gaps represent control activity in response to the increase of eastern equine encephalitis activity.	

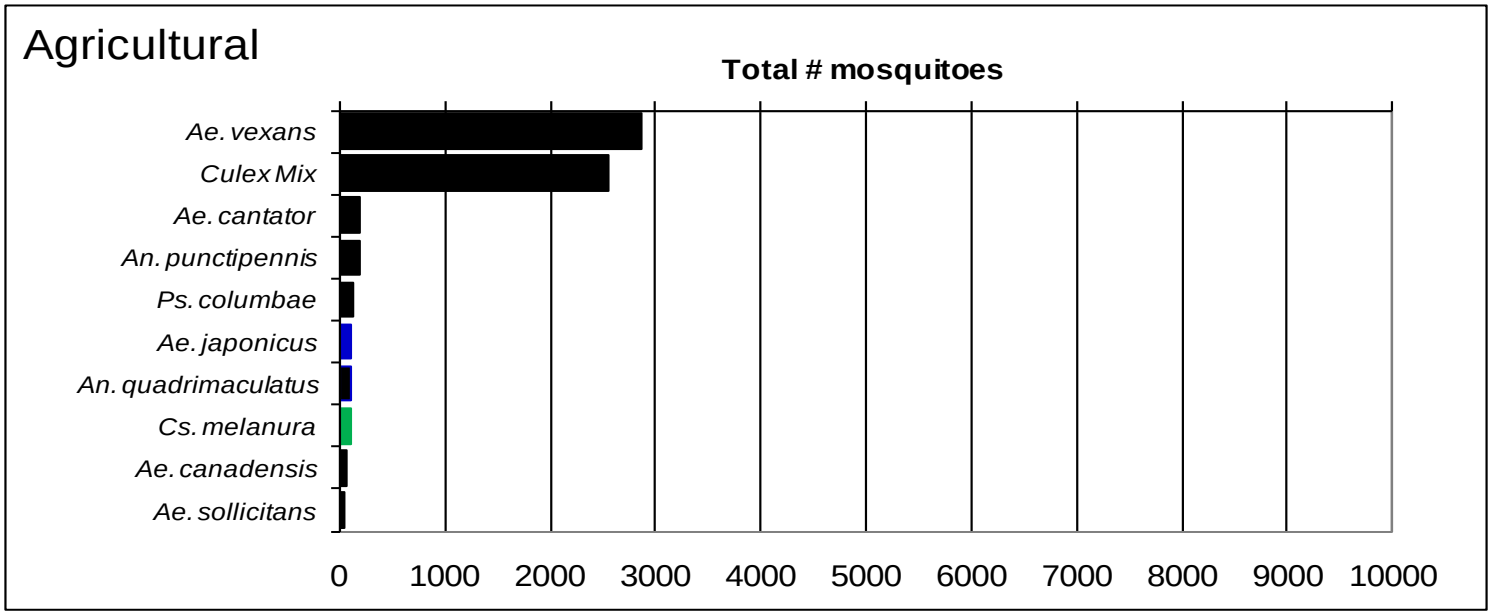
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

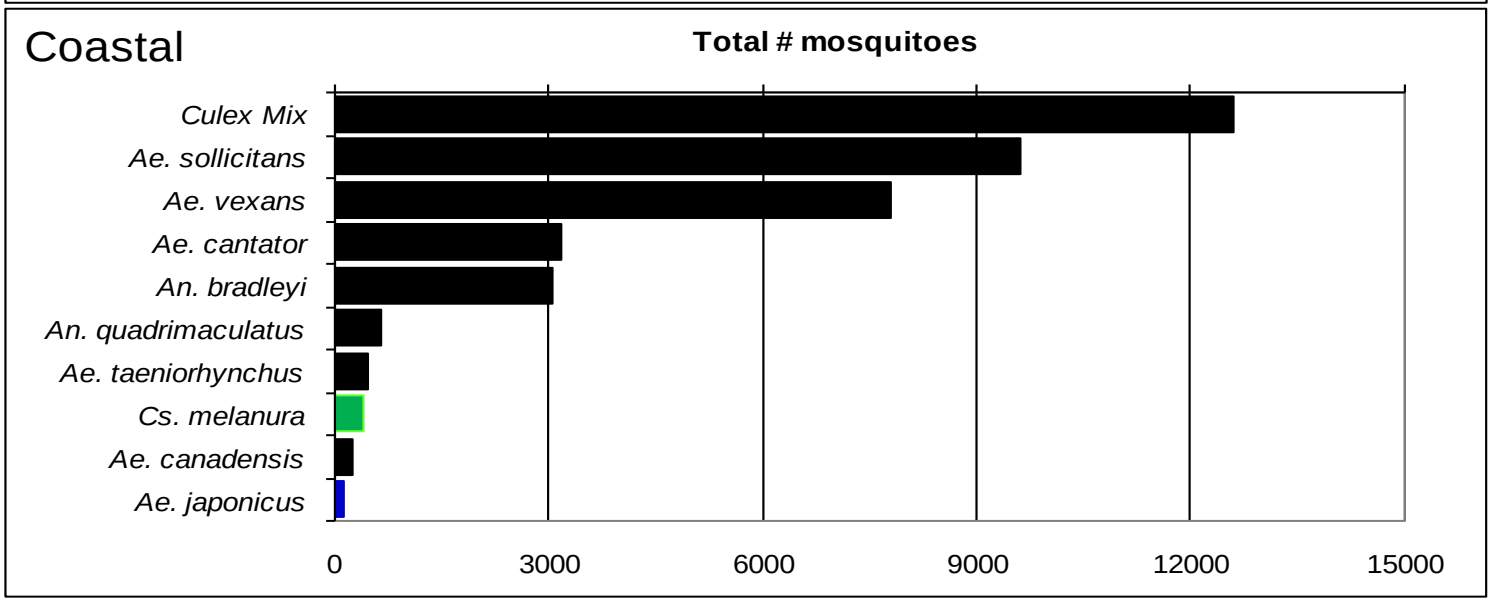
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* populations are on the decrease. As with *Ae. vexans,* the freshwater counterpart, *Ae. sollicitans* has lain diapausing eggs that will overwinter. These eggs are deposited in upland areas of the salt marsh, particularly around *Spartina patens*, the salt meadow grass. Being a floodwater species, the high placement of these egg sites means that they will get flooded with either extraordinary amounts of rain, lunar tidal flooding or both. This contributes to the periodicity of *Ae. sollicitans* emergences.	

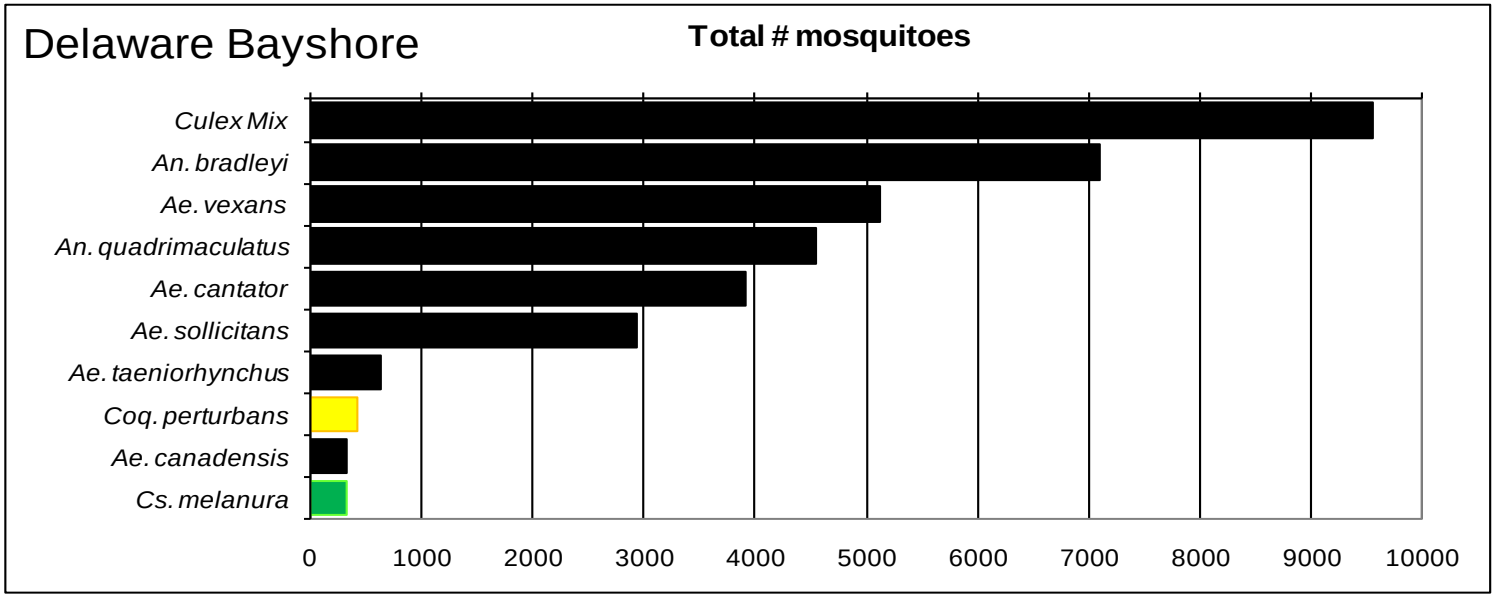
WNV *EEE*

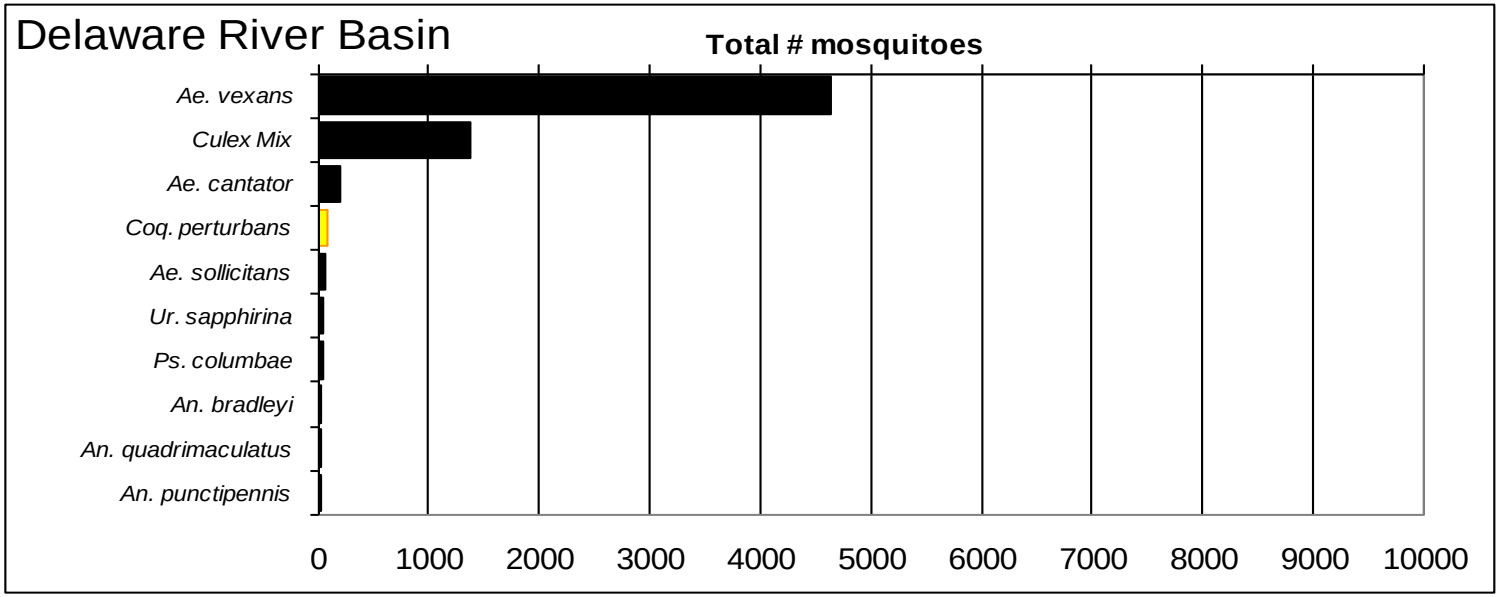
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

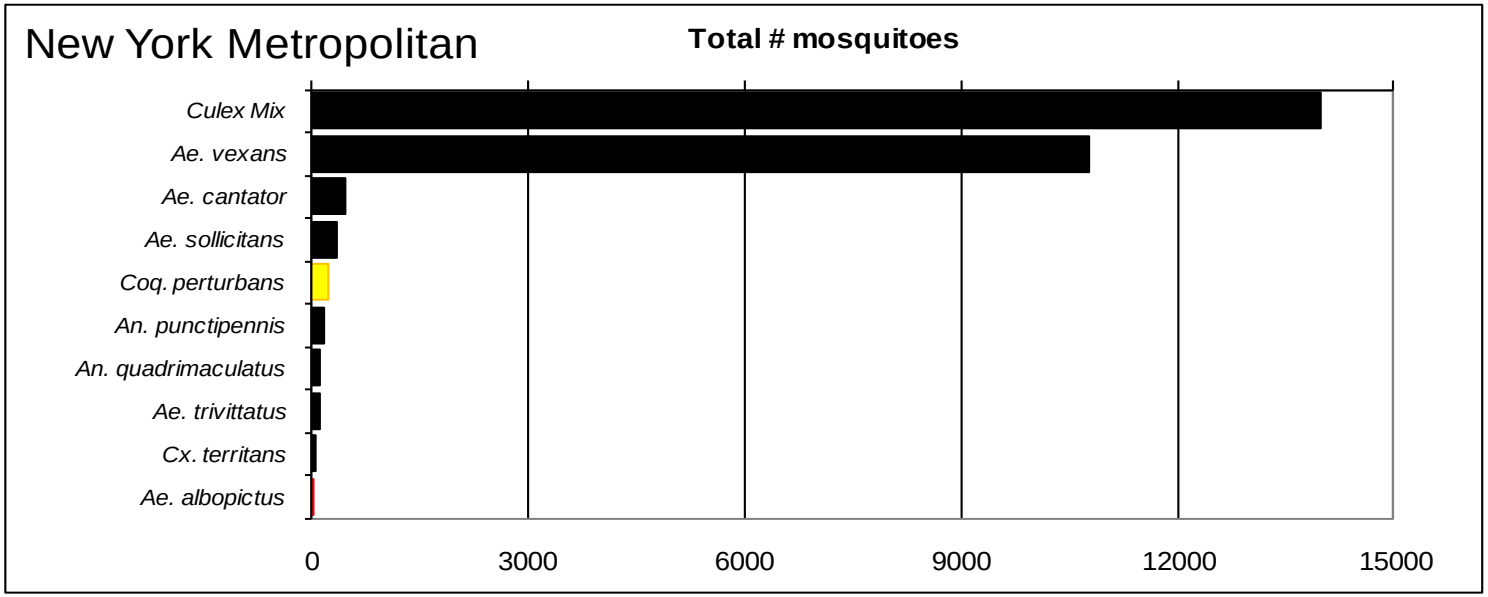
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

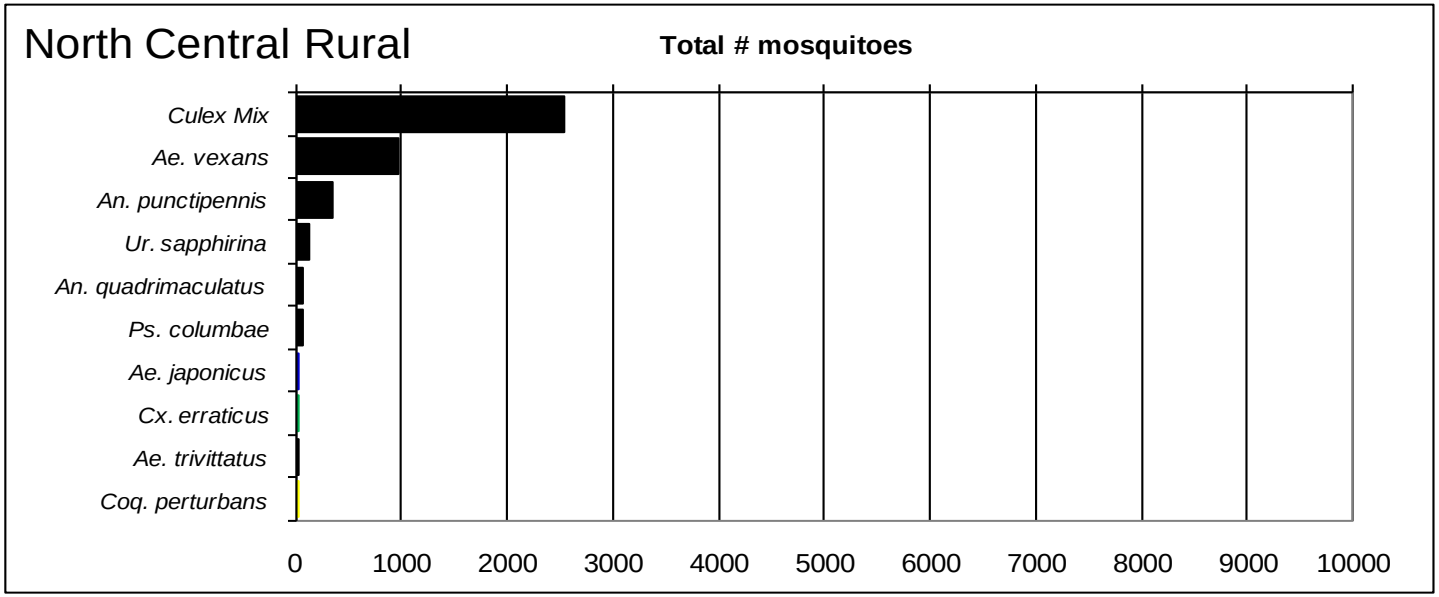


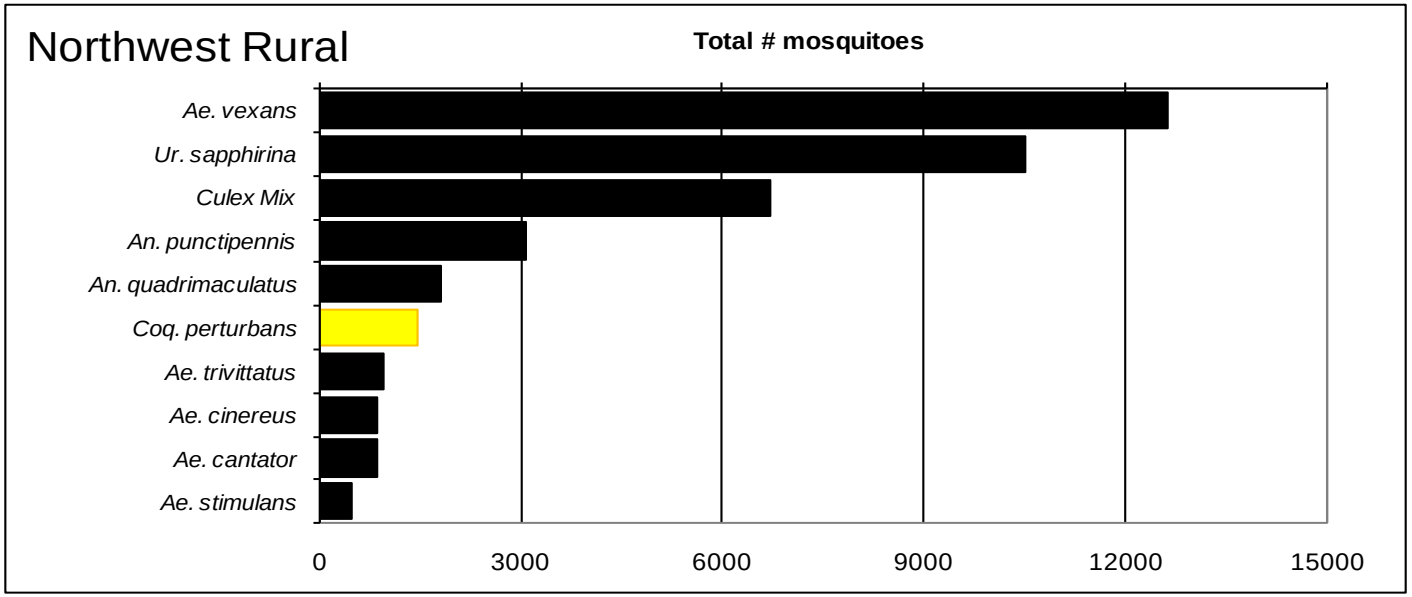


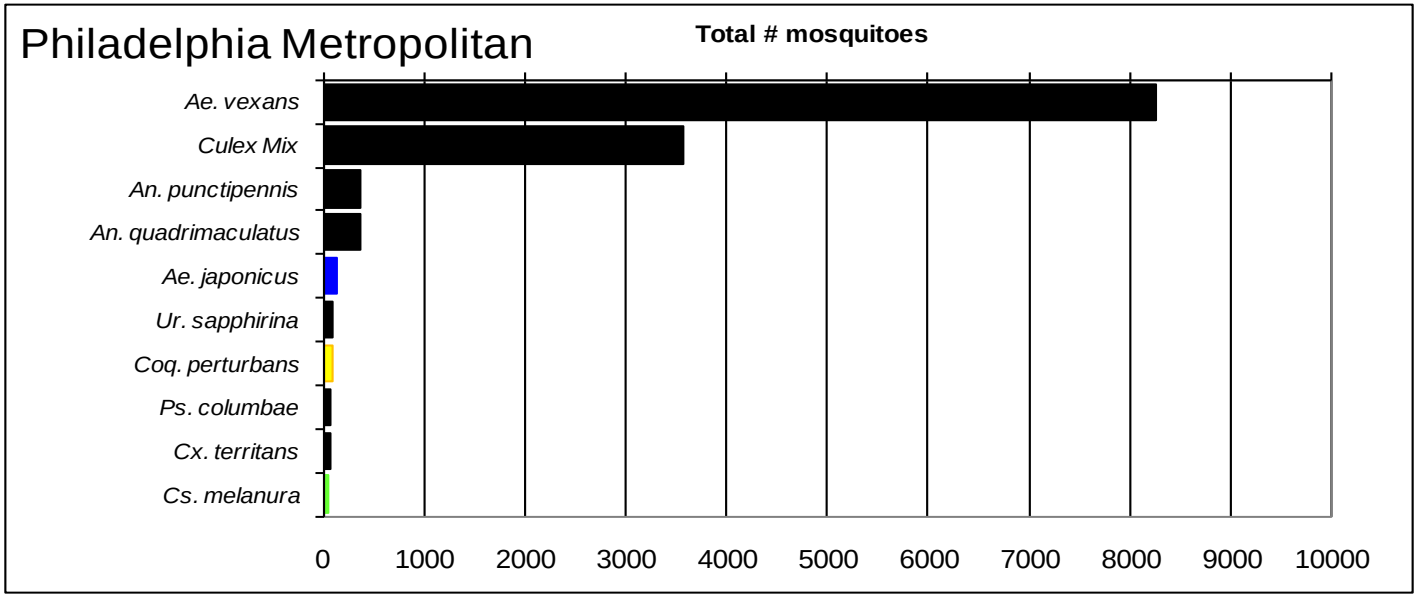

Delaware Bayshore
Total # mosquitoes
Culex Mix
An. bradleyi
Ae. vexans
An. quadrimaculatus
Ae. cantator
Ae. sollicitans
Ae. taeniorhynchus
Coq. perturbans
Ae. canadensis
Cs. melanura
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

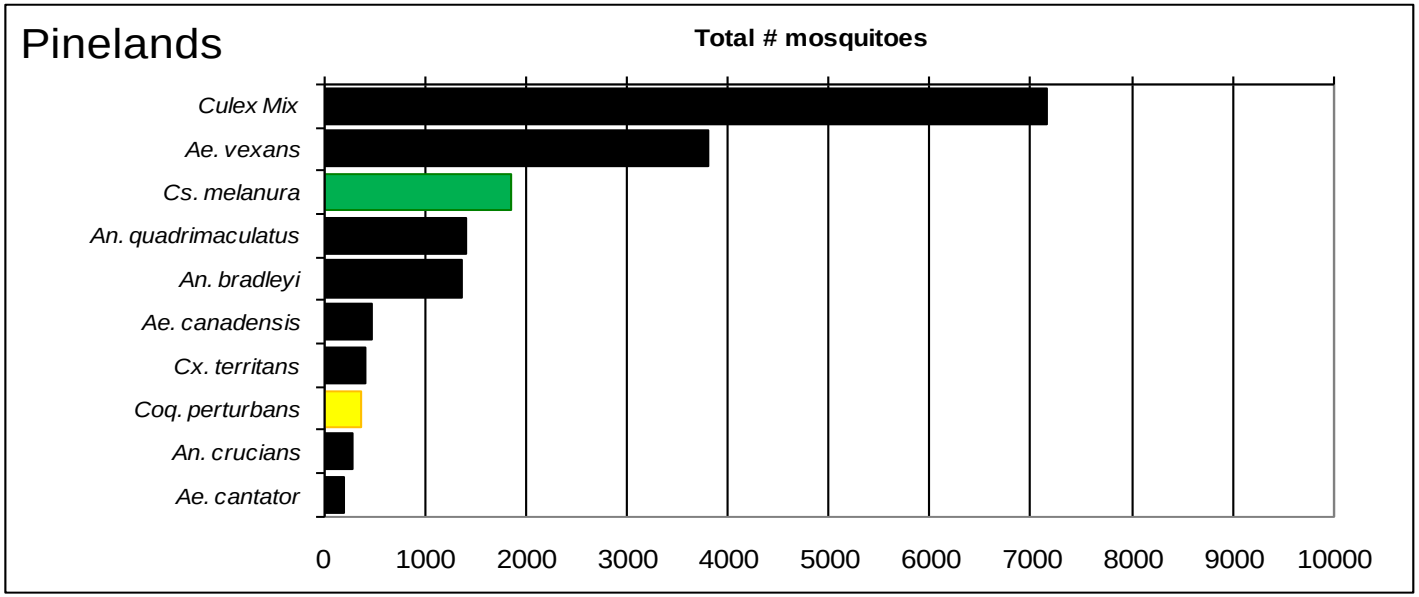

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ur. sapphirina
Ps. columbae
An. bradleyi
An. quadrimaculatus
An. punctipennis
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

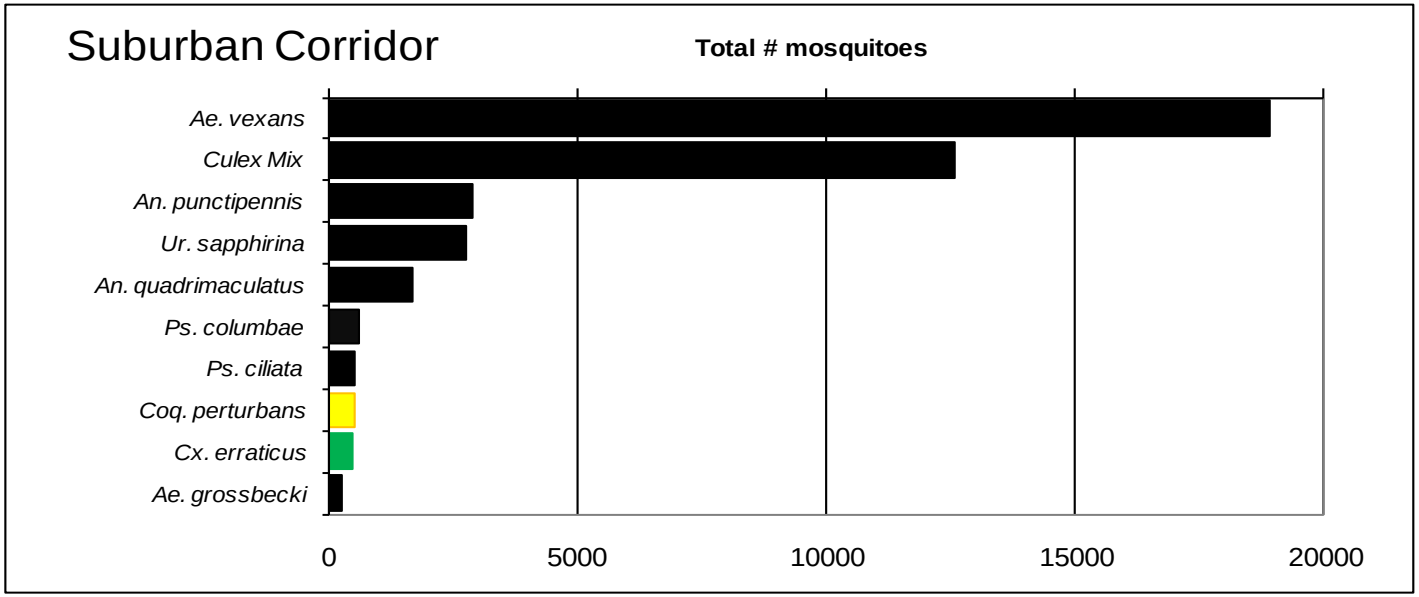

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ae. trivittatus
Cx. territans
Ae. albopictus
0
3000
6000
9000
12000
15000


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


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


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


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


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
Ur. sapphirina
An. quadrimaculatus
Ps. columbae
Ps. ciliata
Coq. perturbans
Cx. erraticus
Ae. grossbecki
0
5000
10000
15000
20000