RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 4 October to 10 October 2009, CDC Weeks 40

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Center for Vector Biology

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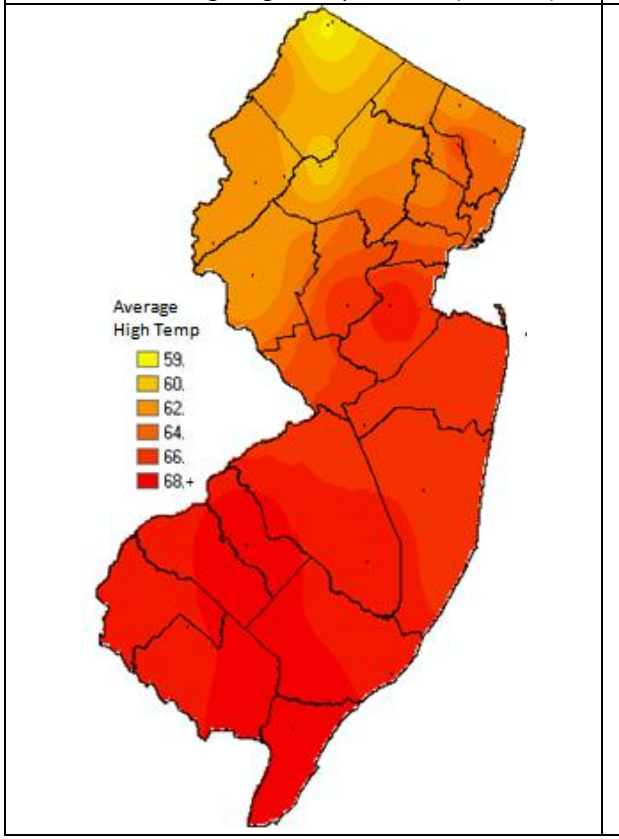
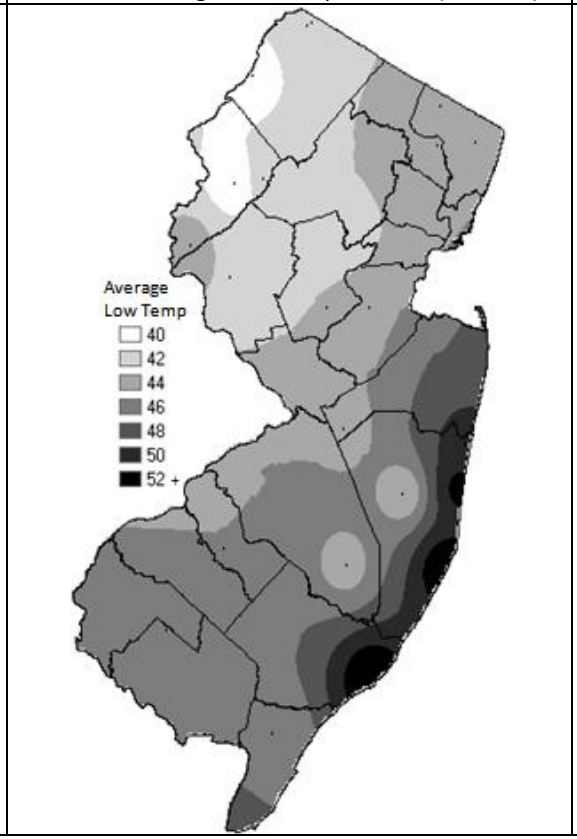
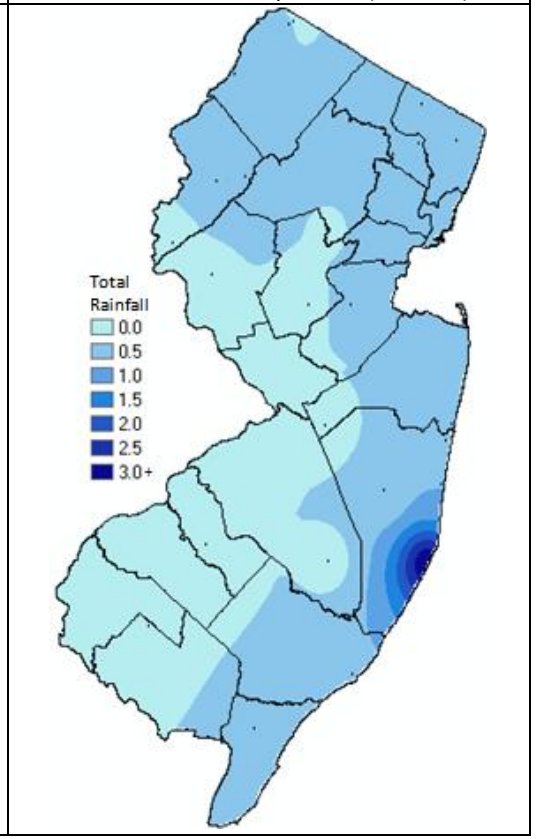
Summary table – Week 40

	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	**0.24**	**2.00**	**0**	**0.10**	**2.01**	**0**	**0.00**	**<0.01**	**0**	**0.00**	**0.34**	**0**
Coastal	**2.59**	**4.61**	**0**	**1.21**	**3.55**	**0**	**0.00**	**0.00**	**0**	**0.92**	**1.90**	**0**
Delaware Bayshore	**0.00**	**1.29**	**0**	**0.00**	**4.71**	**0**	**0.00**	**0.00**	**0**	**0.00**	**2.64**	**0**
Delaware River Basin	**0.14**	**1.88**	**0**	**0.11**	**2.06**	**0**	**0.00**	**<0.01**	**0**	**0.00**	**0.04**	**0**
New York Metro	**0.00**	**2.14**	**0**	**0.00**	**3.37**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.24**	**0**
North Central Rural	**0.04**	**0.36**	**0**	**0.04**	**0.02**	**3**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.17**	**5.35**	**0**	**0.26**	**0.51**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.19**	**5.93**	**0**	**0.26**	**1.73**	**0**	**0.00**	**0.02**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.36**	**1.19**	**0**	**0.23**	**1.00**	**0**	**0.00**	**<0.01**	**0**	**0.00**	**0.23**	**0**
Suburban Corridor	**0.03**	**3.53**	**0**	**0.08**	**1.46**	**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: The only activity above historical trends is seen in the North Central Rural region of the state. However, the population level is small and near the end of the season. Some counties in the northern part of the state have or will soon stop routine New Jersey light trap collections as mosquito populations crash. Mosquito populations will likely remain variable throughout the remainder of the season as will county participation in the surveillance program.

Climate Factors

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

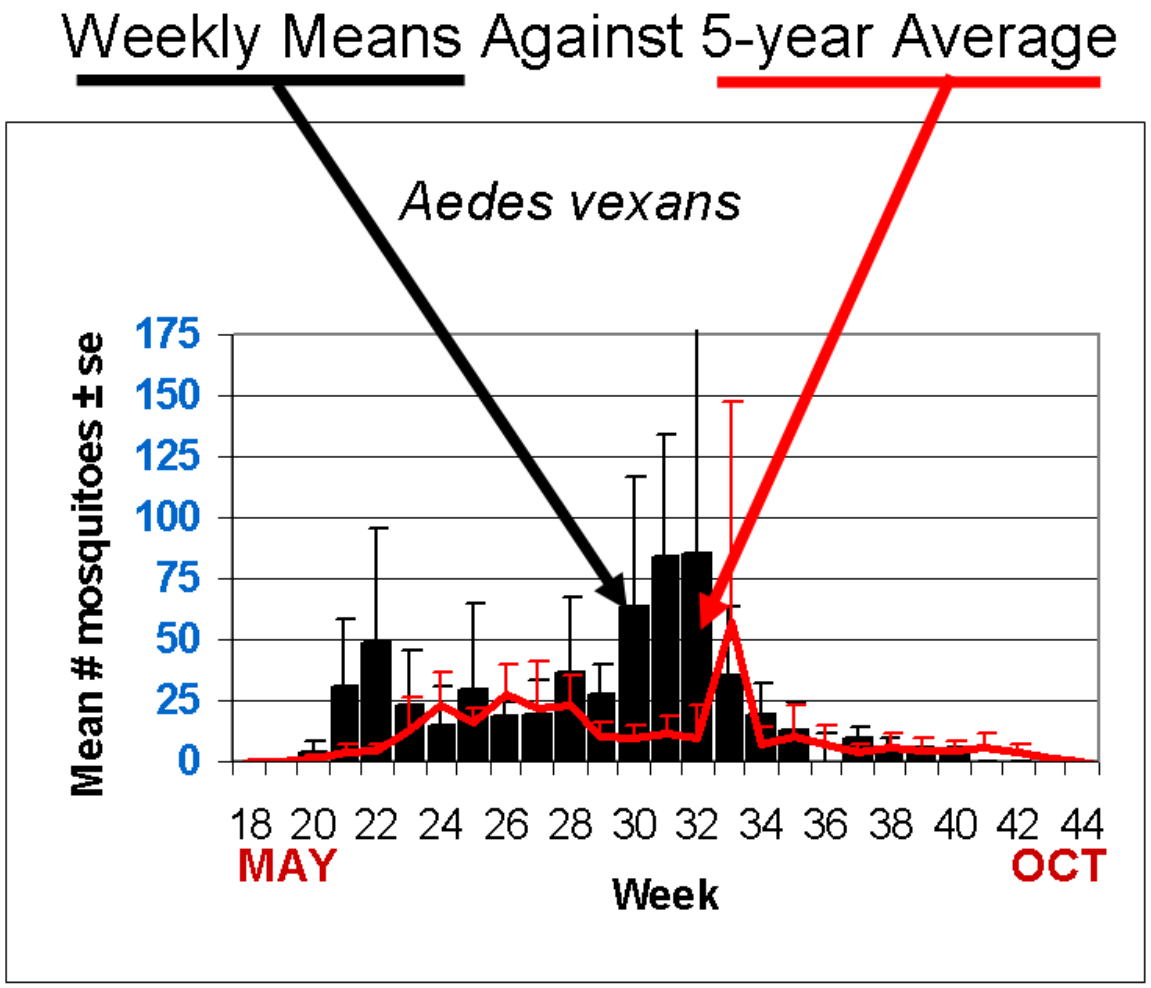
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for the first two weeks of September in New Jersey. Data points are from 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation 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, Camden, Cumberland, Monmouth, Morris, Salem, Sussex and Warren counties. Note: County data is sent in at a variety of times during the week.



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

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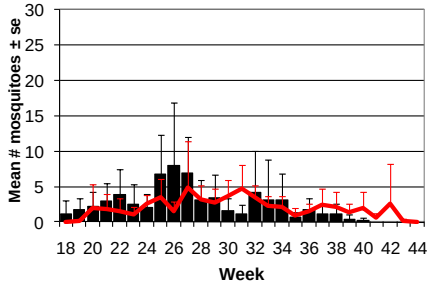
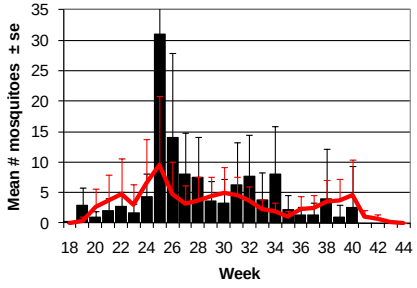
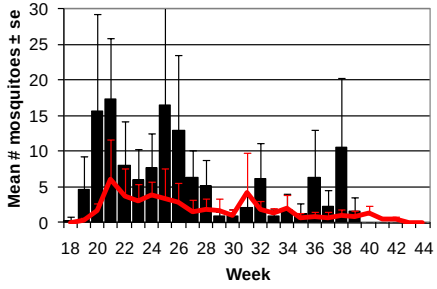
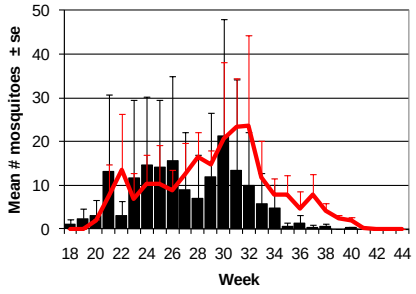
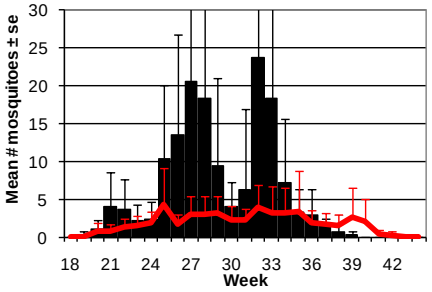
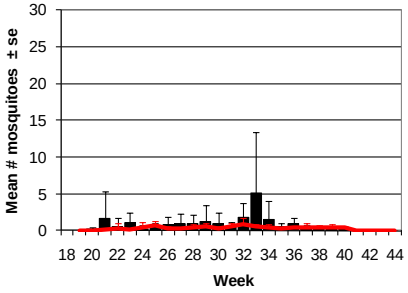
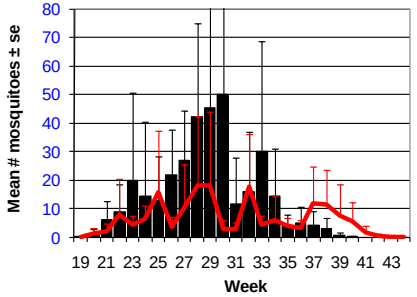
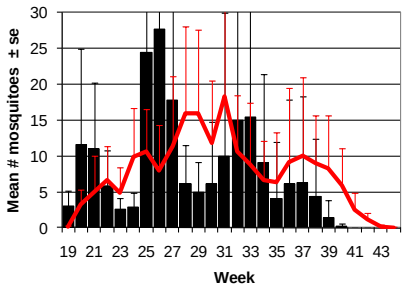
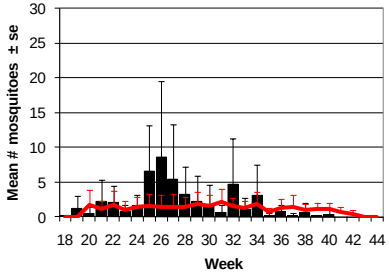
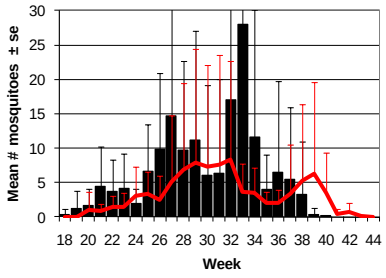
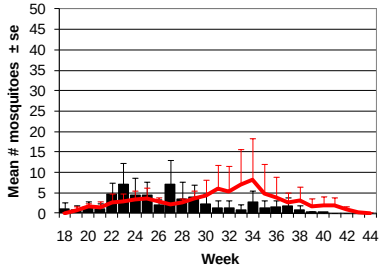
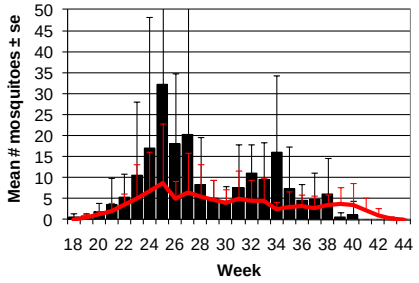
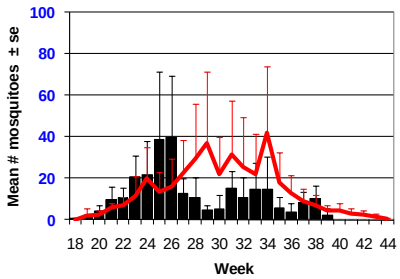
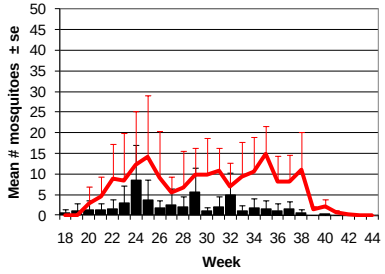
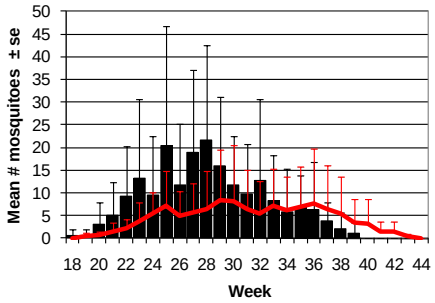
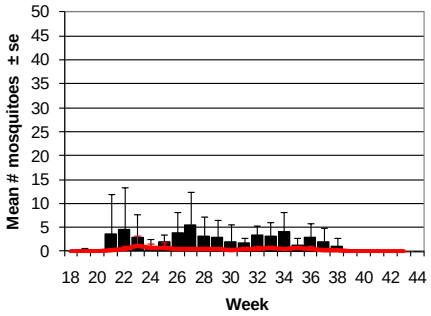
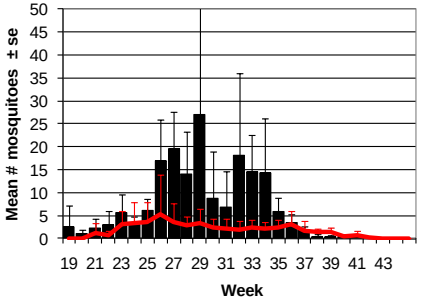
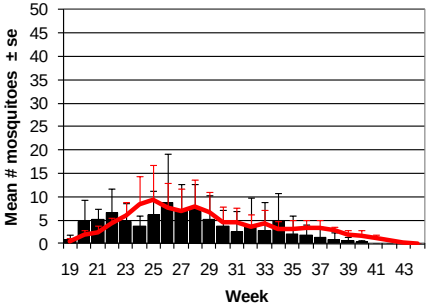
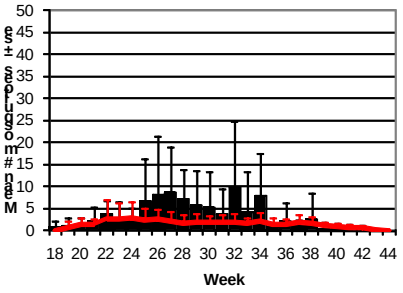
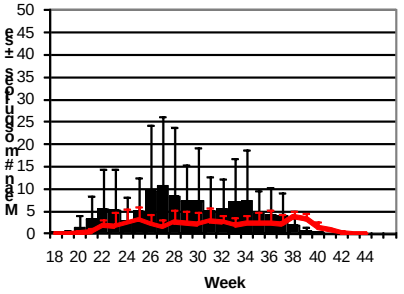
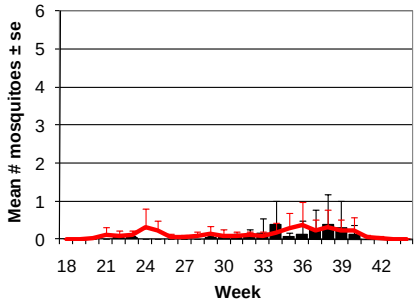
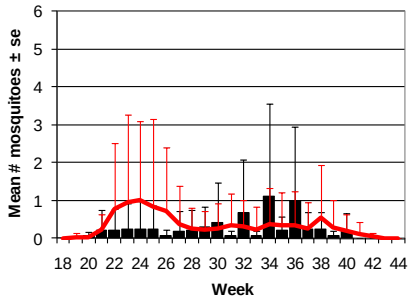
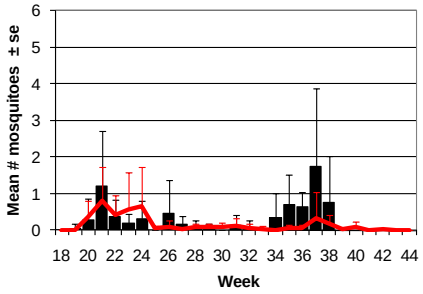
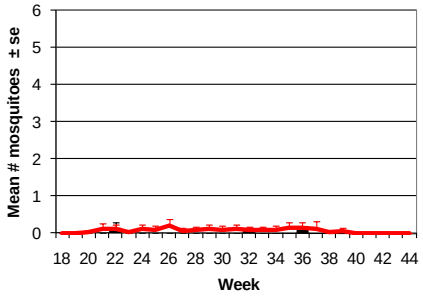
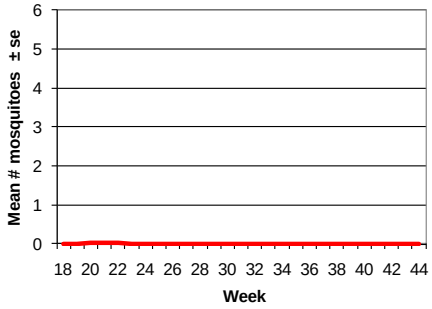
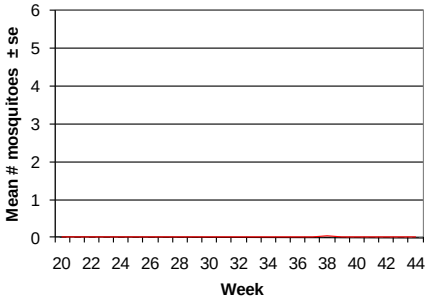
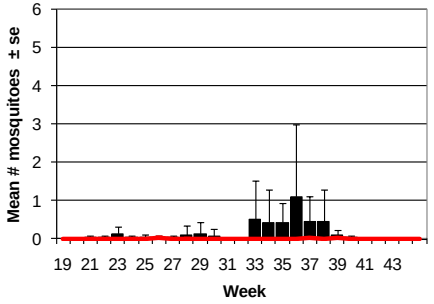
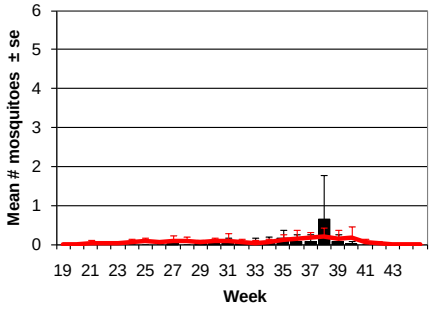
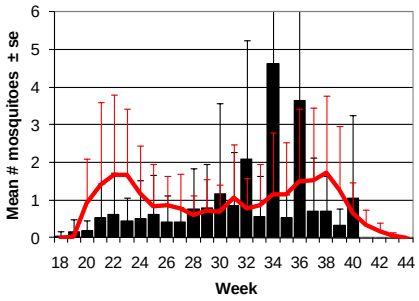
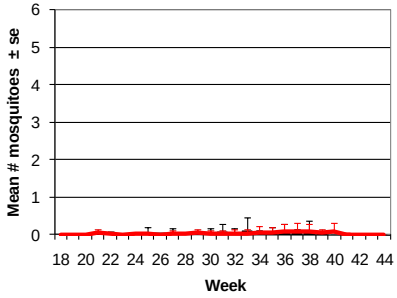
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations are declining throughout the state with populations in the northern portion of the state dropping most rapidly. A forecast of 38◦C in Newark is predicted for the 15th October and for the 17th in Atlantic City. This low evening temperature should severely reduce *Aedes vexans* activity through increased mortality.	

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

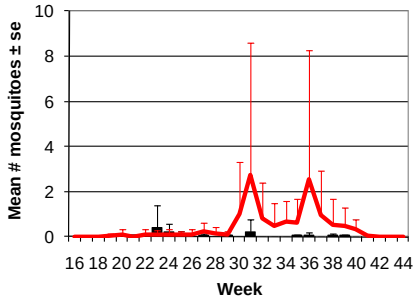
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* mosquitoes have been entering hibernaculae to overwinter for several weeks. Some of the overwintering sites can be inhabited by other species such as bats. With an immediate blood meal source, it would seem reasonable that bats would play a significant role in the overwintering of WNV. However, their role may be minimal (Bunde *et al*.,2006 A survey for West Nile virus in bats from Illinois, Journal of Wildlife Diseases, 42(2: 455-458).	

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

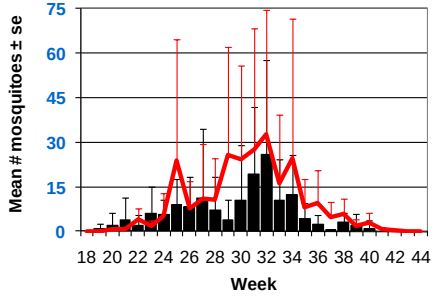
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Populations of *Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, appear be declining rapidly. Water temperatures will decrease in crypts and underground areas that *Cs. melanura* larvae overwinter in and their activity levels will be reduced. Fourth and third stage larvae will be the first to emerge the following spring. Second and first overwintering larvae that survive will contribute to the slowly rising populations until they merge with the second generation produced by the spring cohorts.	

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

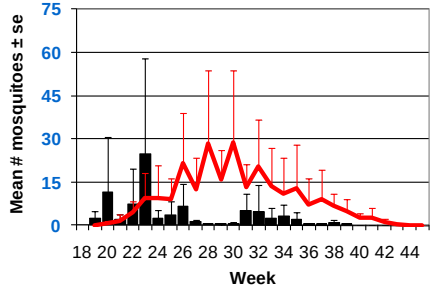
Agricultural



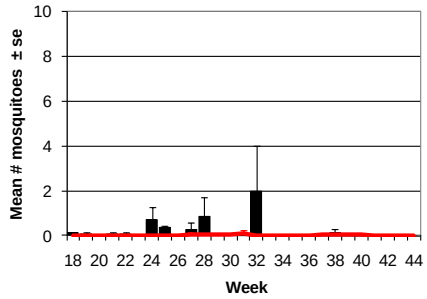
Coastal



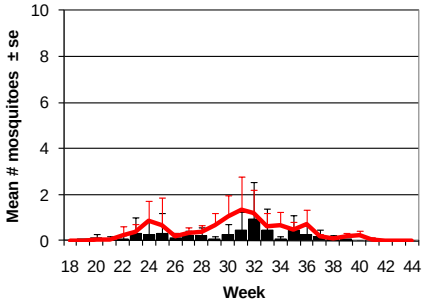
Delaware Bayshore



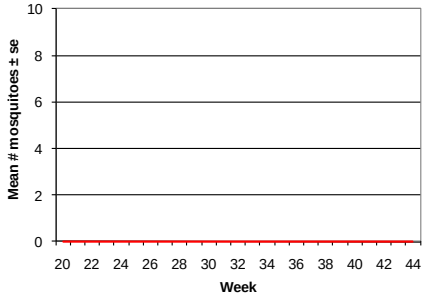
Delaware River Basin



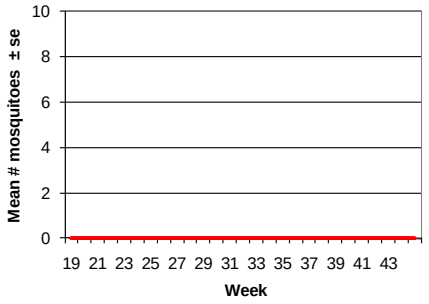
New York Metro



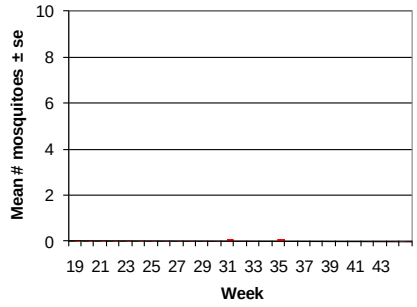
North Central Rural



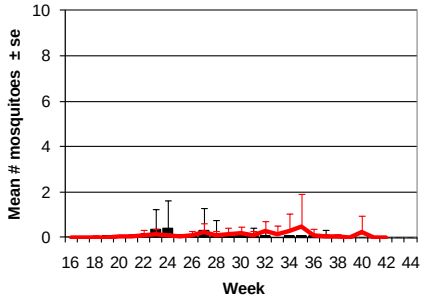
Northwestern Rural



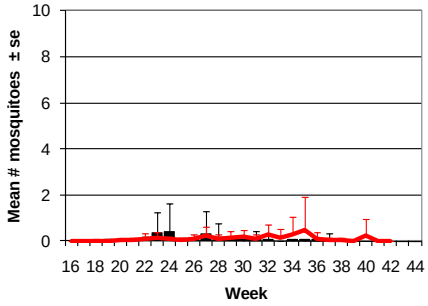
Philadelphia Metro



Pinelands



Suburban Corridor



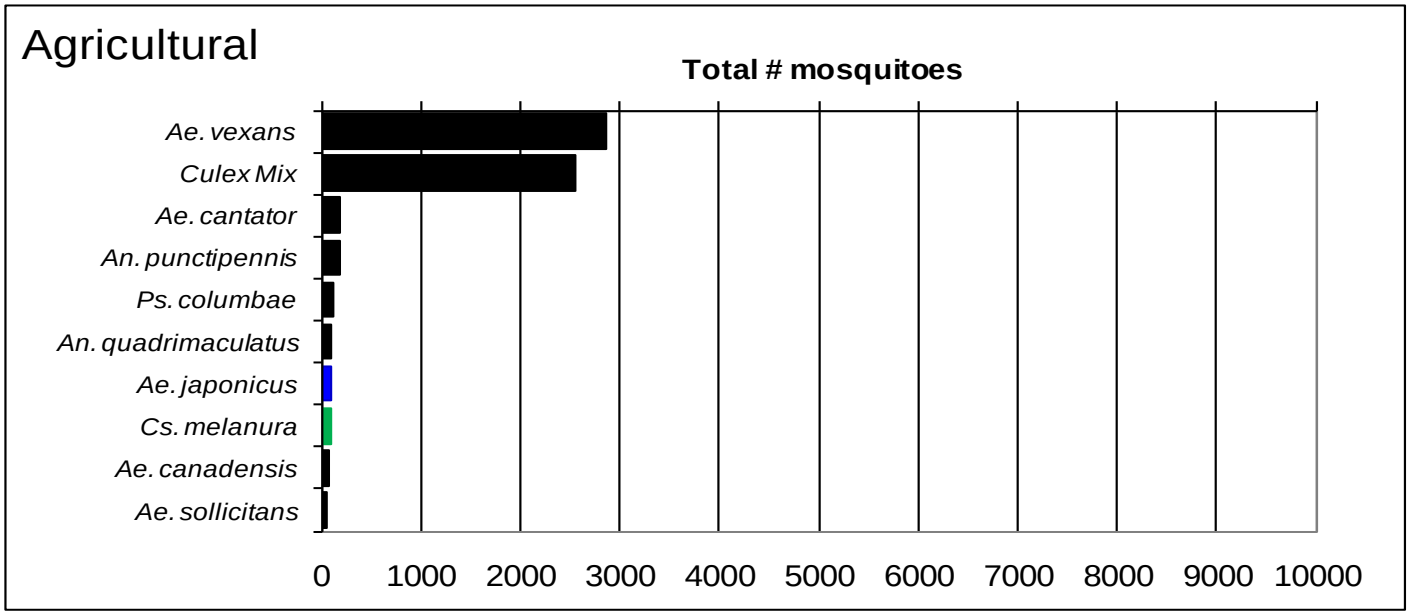
Comments

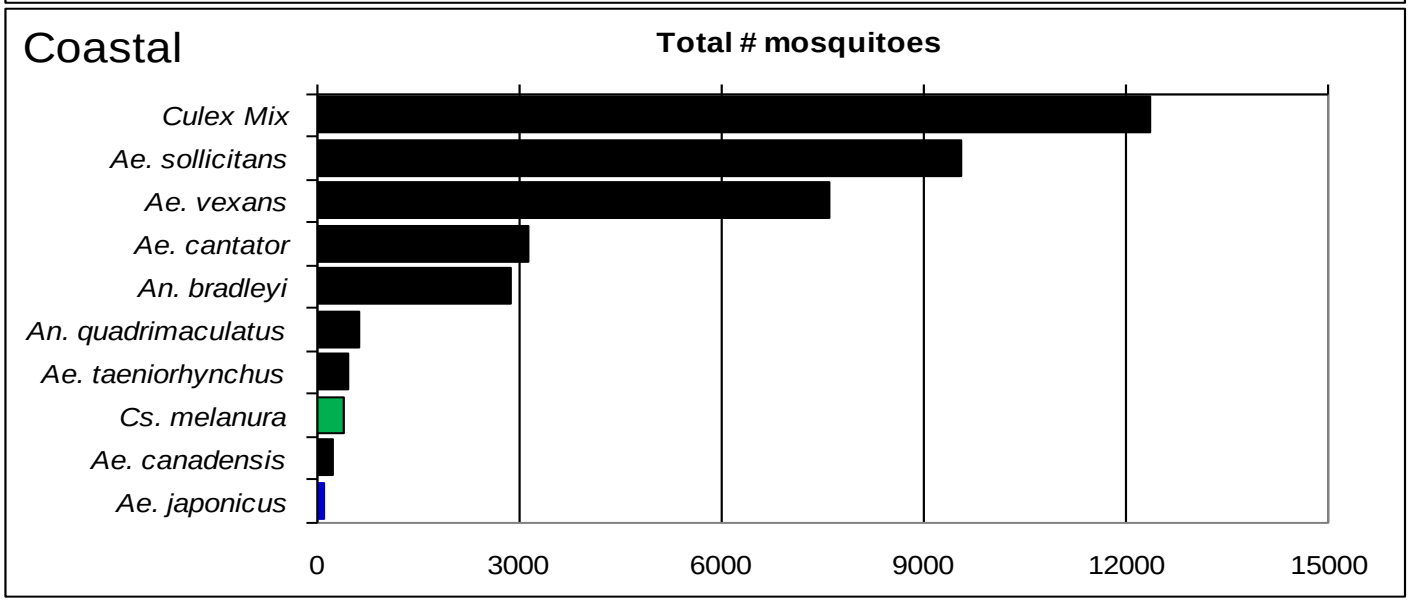
Aedes sollicitans populations appeared to have made the final emergence for the season. As populations wane, complaints from residents may continue due to the shift in opportunistic host seeking to a time when and where humans and mosquitoes occupy the same space.

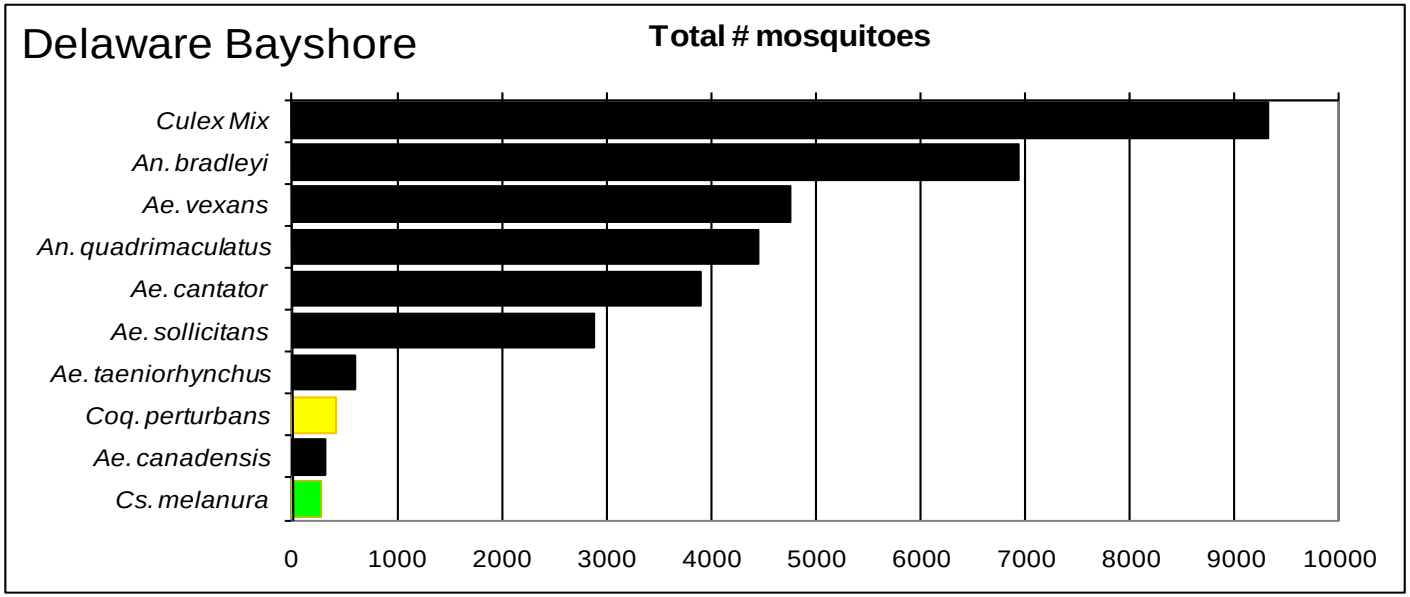
WNV *EEE*

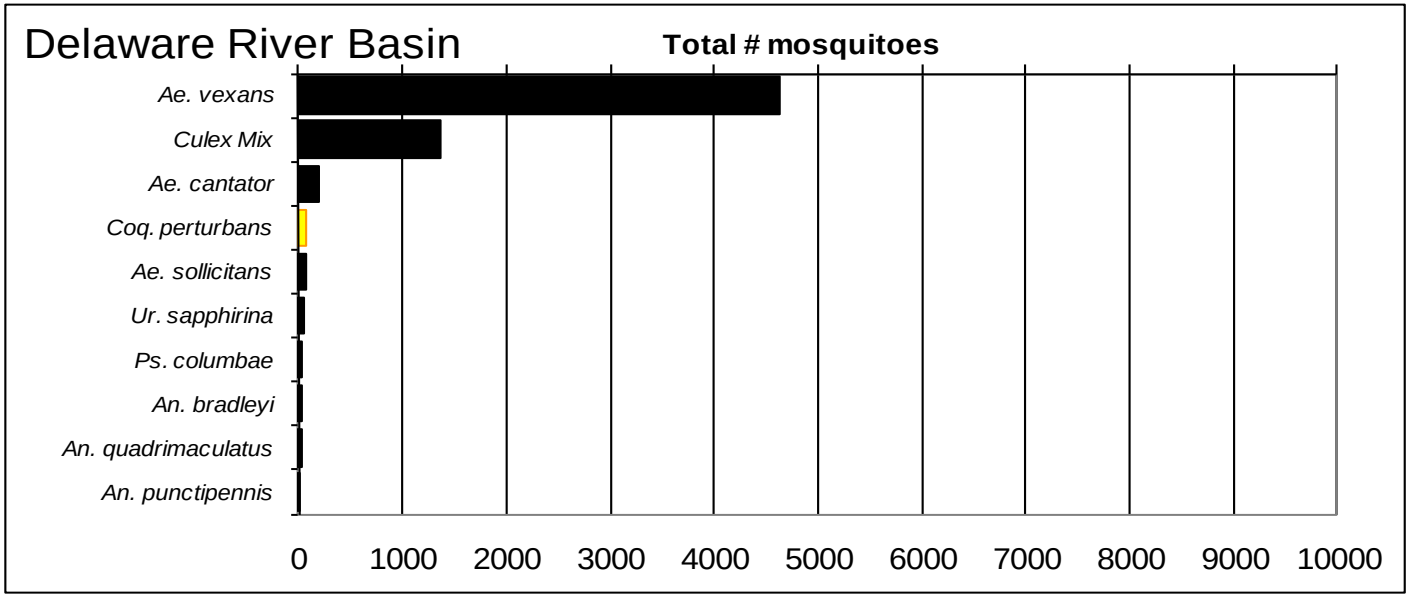
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

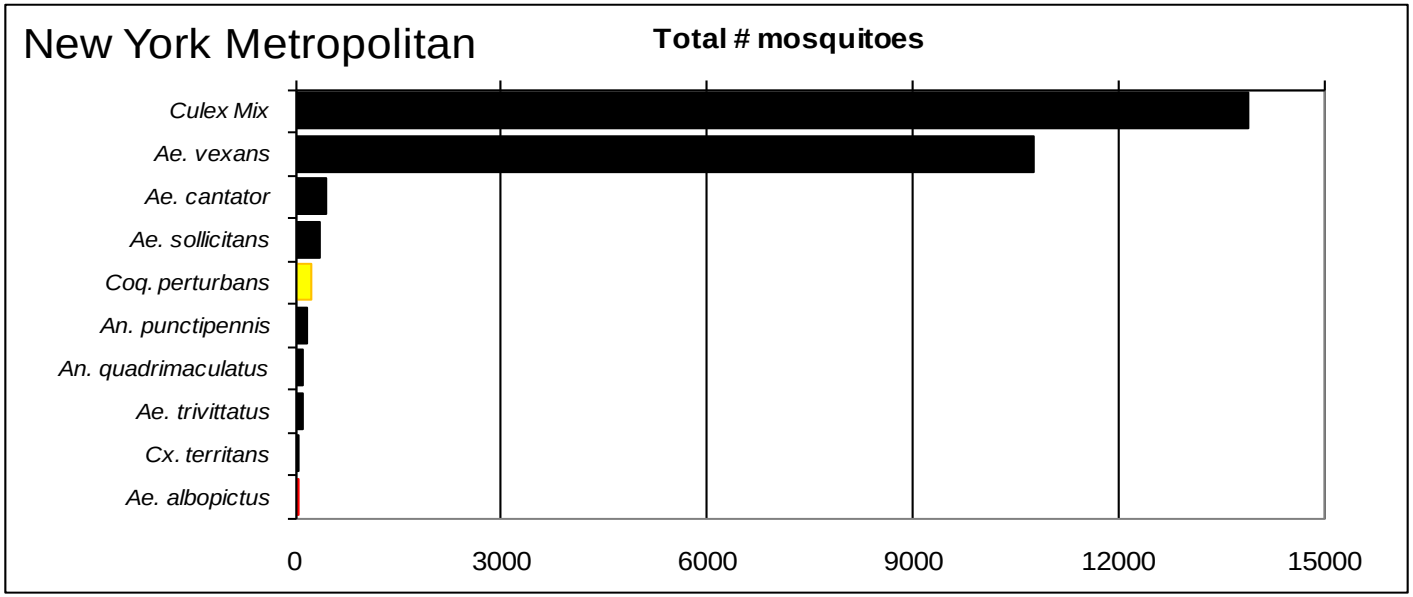
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

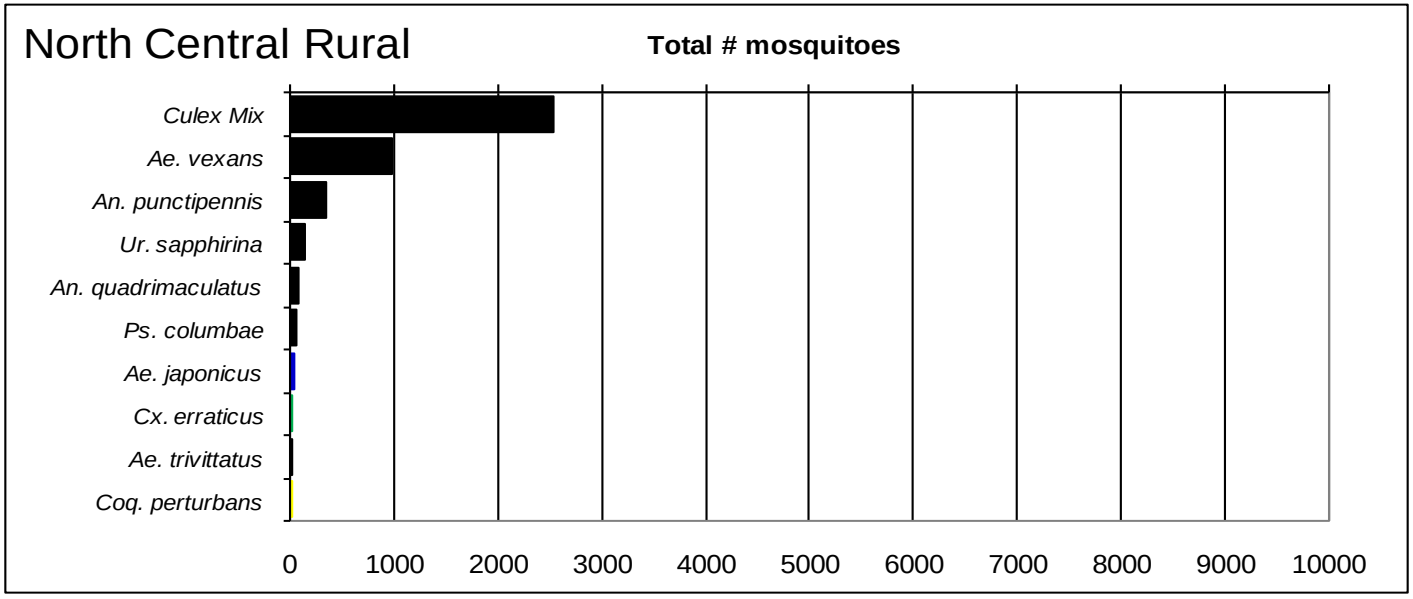


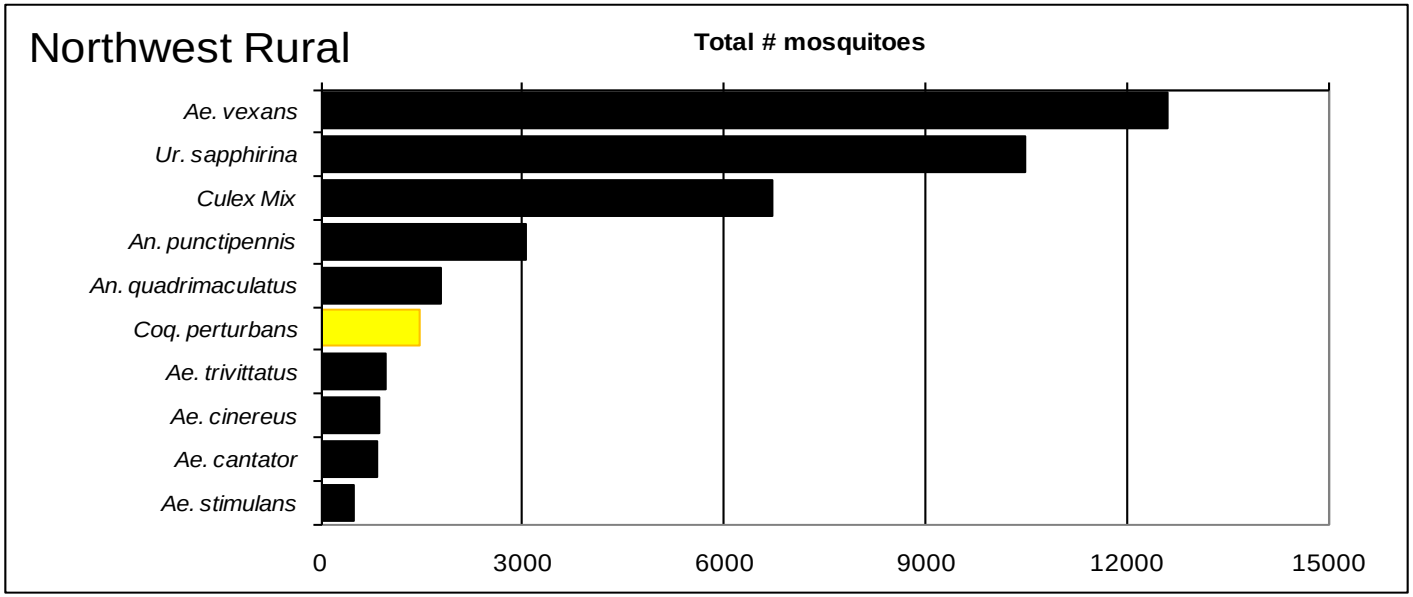


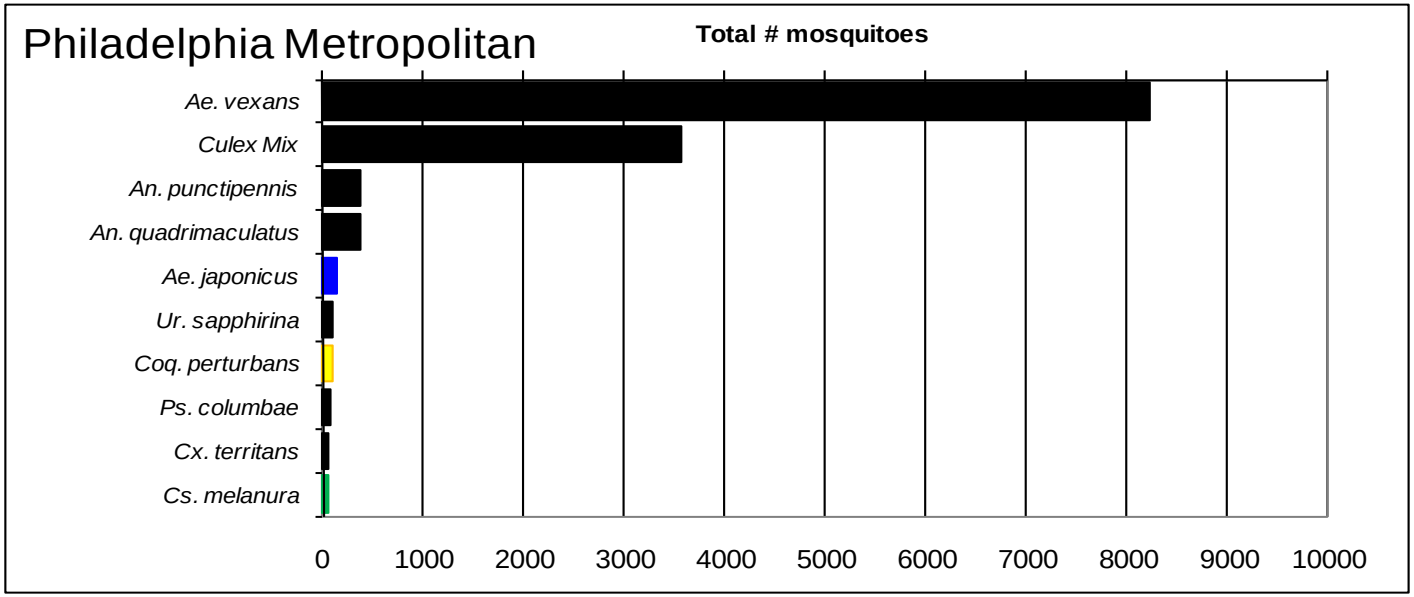

Delaware Bayshore
Total # mosquitoes
Culex Mix
An. bradleyi
Ae. vexans
An. quadrimaculatus
Ae. cantator
Ae. sollicitans
Ae. taeniorhynchus
Coq. perturbans
Ae. canadensis
Cs. melanura
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

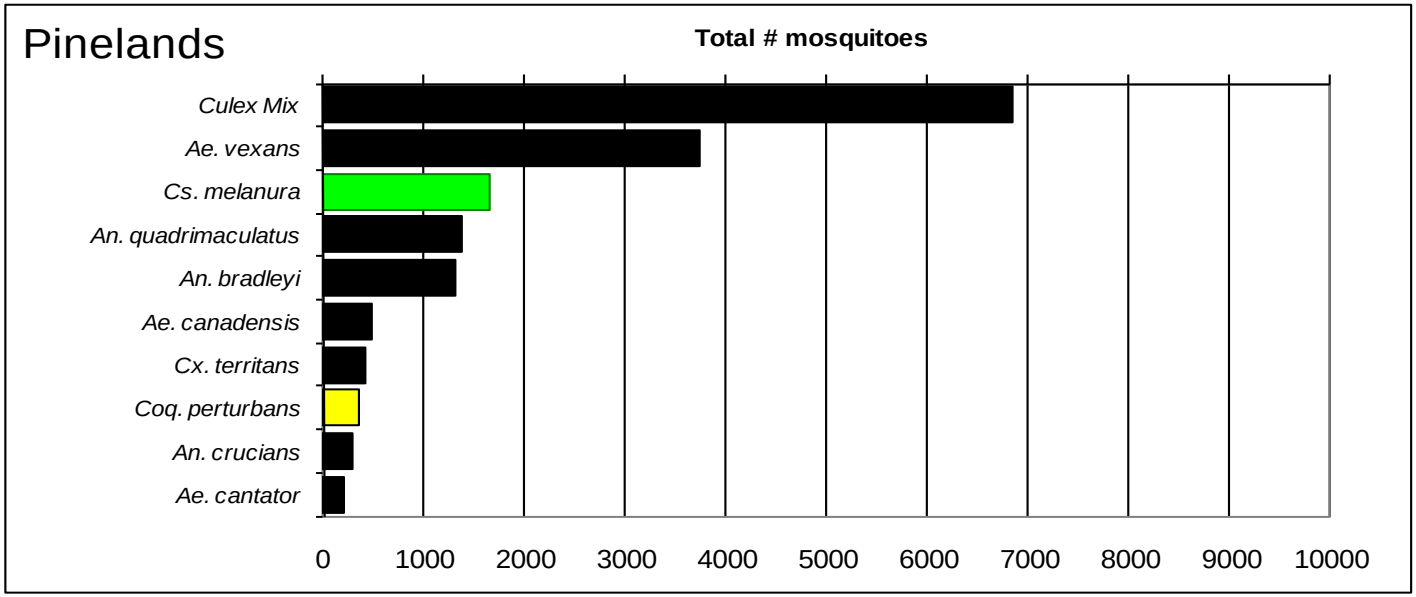

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ur. sapphirina
Ps. columbae
An. bradleyi
An. quadrimaculatus
An. punctipennis
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

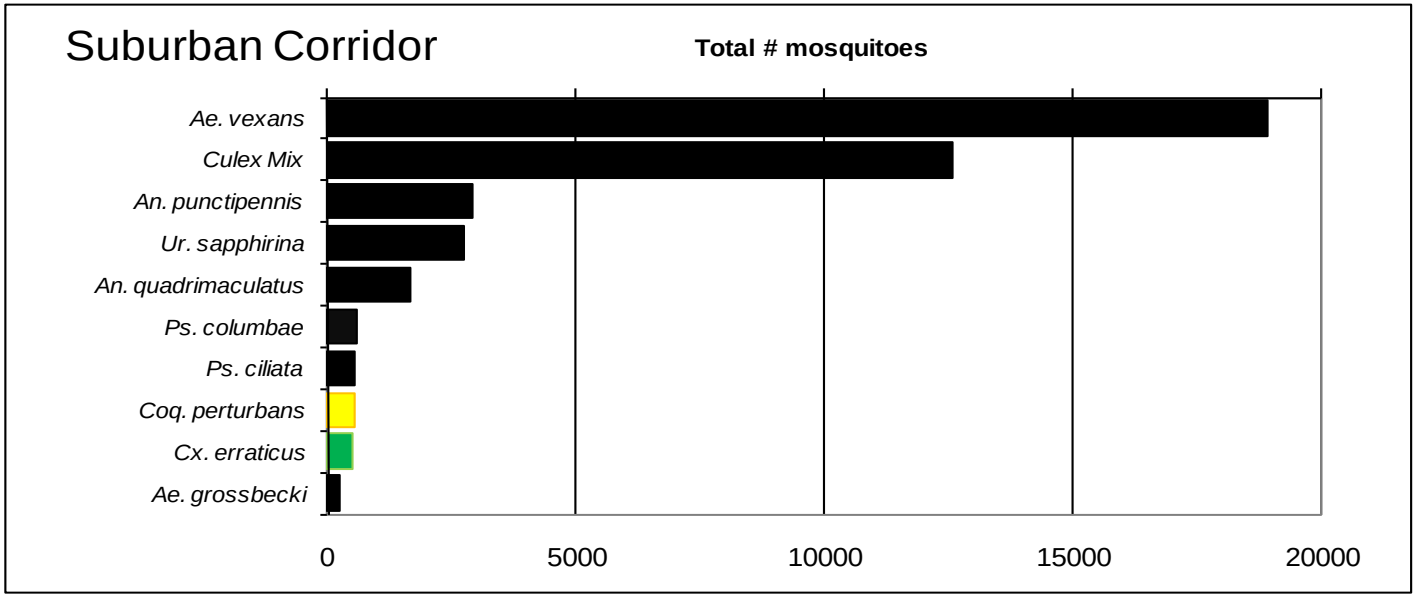

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ae. trivittatus
Cx. territans
Ae. albopictus
0
3000
6000
9000
12000
15000


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