RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 14 September to 20 September 2008, CDC Week 38

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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.

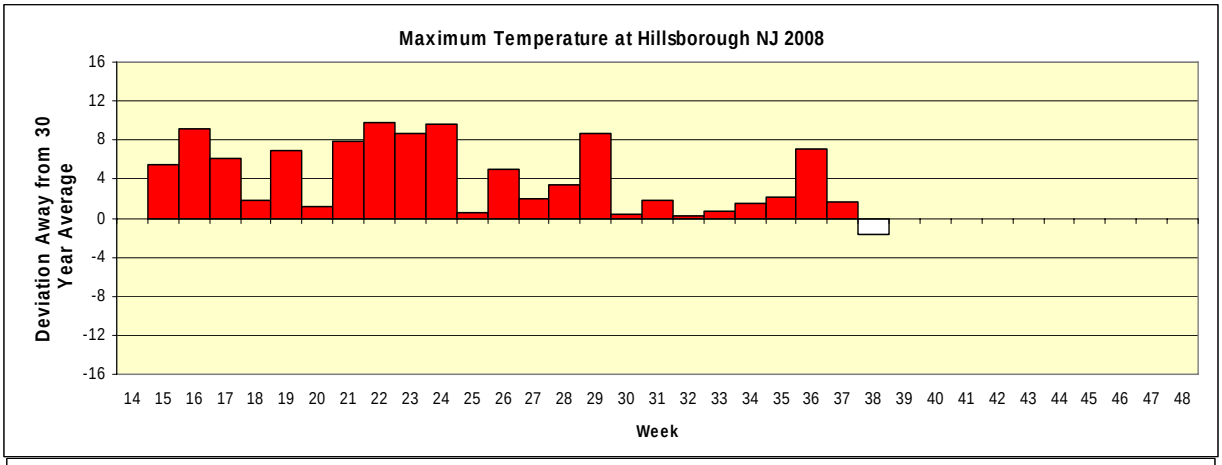
Summary table – Week 38

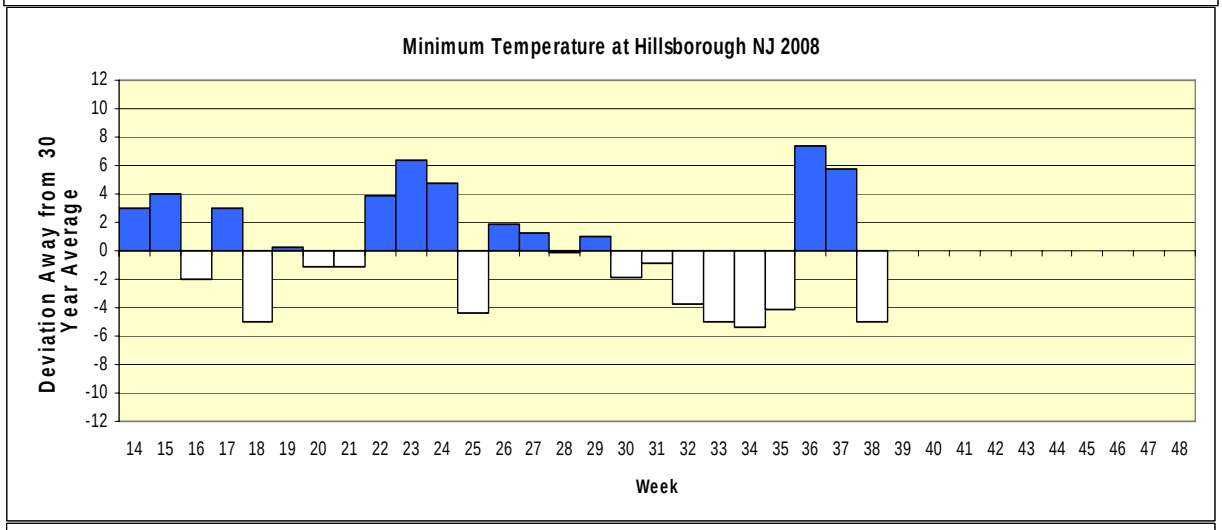
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.14**	**2.80**	**0**	**0.02**	**6.04**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.50**	**0**
Coastal	**2.33**	**5.18**	**0**	**4.13**	**2.01**	**3**	**0.00**	**0.02**	**0**	**11.73**	**8.36**	**1**
Delaware Bayshore	**0.48**	**0.76**	**0**	**2.64**	**6.00**	**0**	**0.00**	**0.01**	**0**	**1.71**	**4.78**	**0**
Delaware River Basin	**0.00**	**5.64**	**0**	**0.00**	**13.69**	**0**	**0.00**	**0.17**	**0**	**0.00**	**0.05**	**0**
New York Metro	**1.06**	**1.29**	**0**	**3.49**	**3.39**	**1**	**0.00**	**0.01**	**0**	**0.03**	**0.06**	**0**
North Central Rural	**0.14**	**0.42**	**0**	**0.22**	**0.23**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.57**	**18.12**	**0**	**0.34**	**2.33**	**0**	**0.00**	**0.02**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**1.19**	**9.69**	**0**	**1.17**	**2.71**	**0**	**0.00**	**0.07**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.34**	**1.32**	**0**	**0.65**	**1.88**	**0**	**0.03**	**0.05**	**0**	**0.18**	**0.05**	**4**
Suburban Corridor	**2.26**	**5.34**	**0**	**1.18**	**3.20**	**0**	**0.02**	**0.08**	**0**	**0.00**	**0.01**	**0**

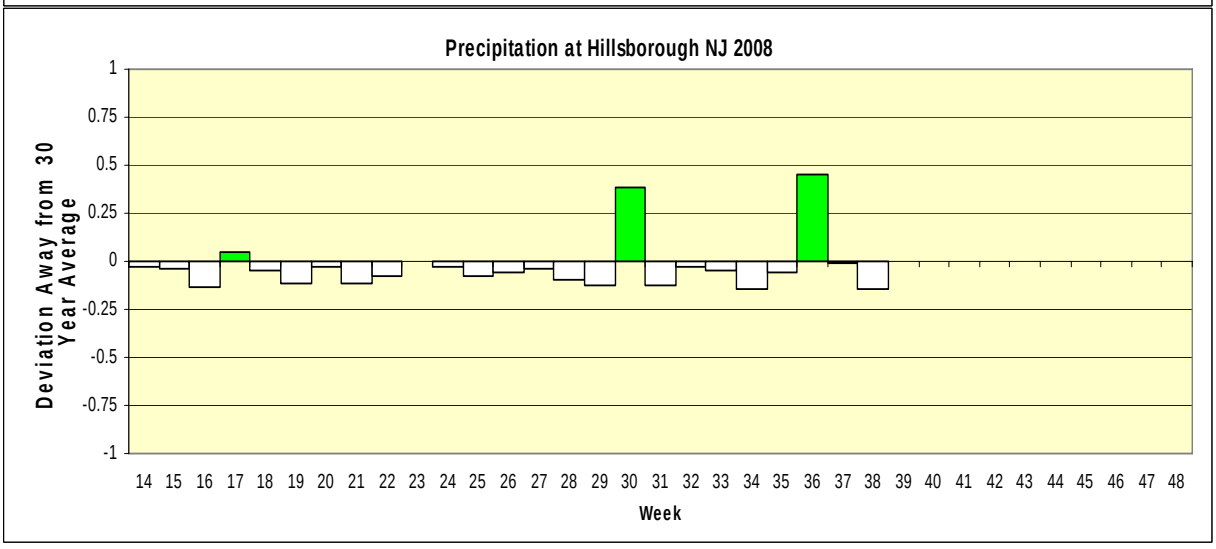
*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference 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: *Culex* populations continue to show higher than historical activities along the populated Coastal and New York Metropolitan regions. *Aedes sollicitans* populations are higher than historical in the Coastal region as well as in the Pinelands.

Climate Deviations

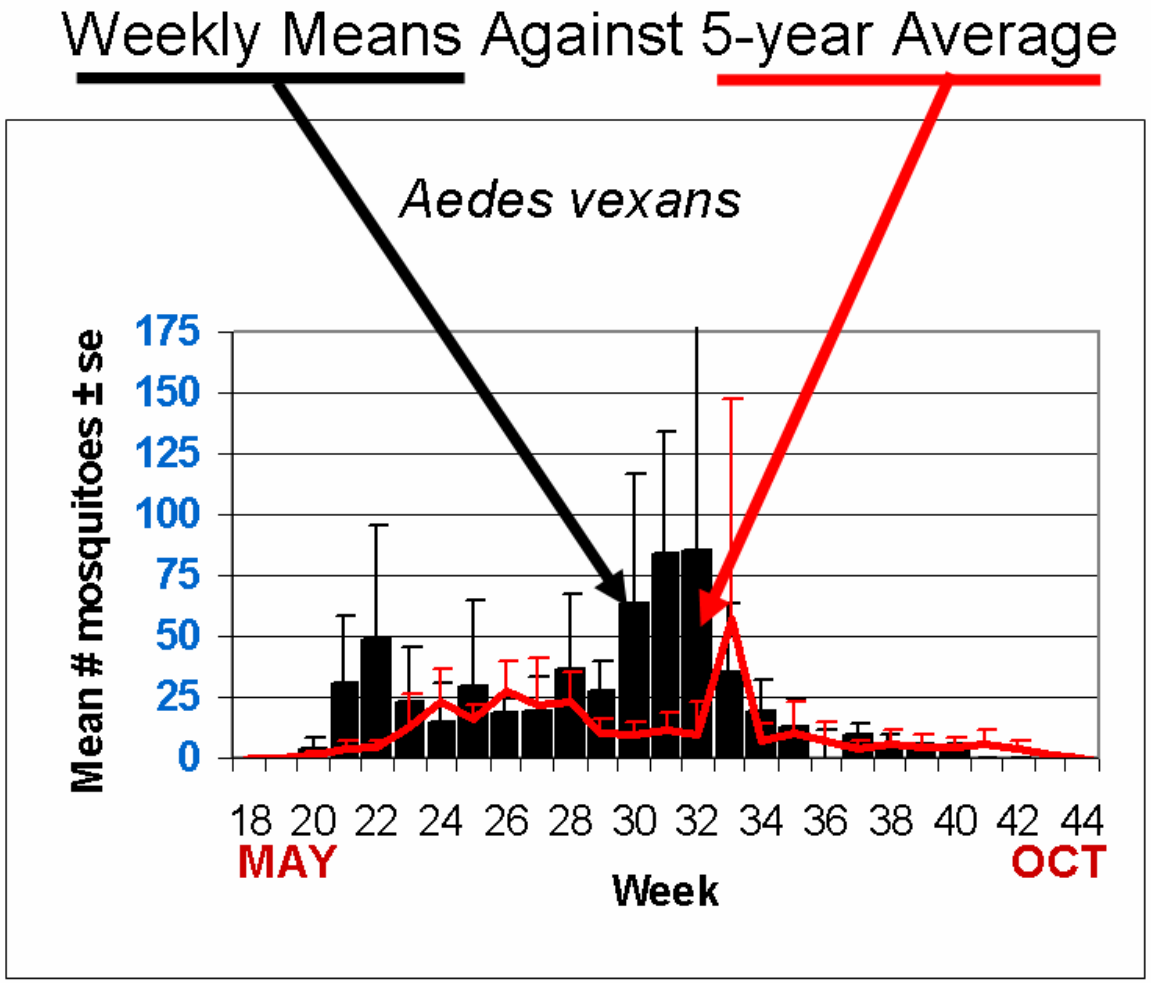






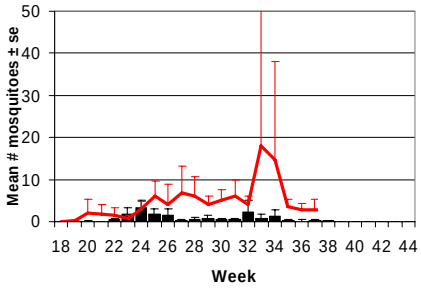
The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data are from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) while historical data was from the New Brunswick weather station. Color bars above the zero line indicate warmer maximum or minimum temperatures and wetter conditions while white bars indicate cooler temperatures and dryer conditions.

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, Hudson, Hunterdon, Mercer, Ocean, Somerset, Sussex and Warren counties. Note: County data is sent in at a variety of times during the week.

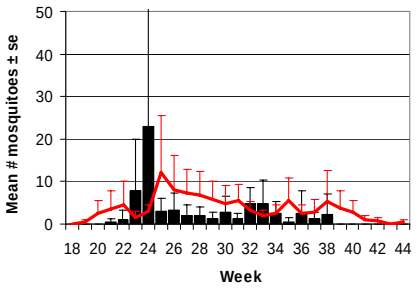


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

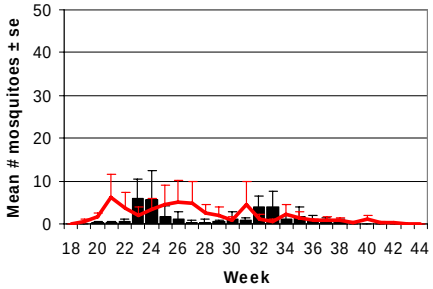
Agricultural



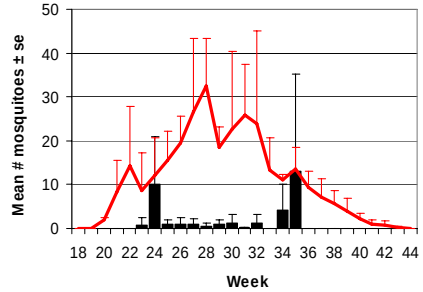
Coastal



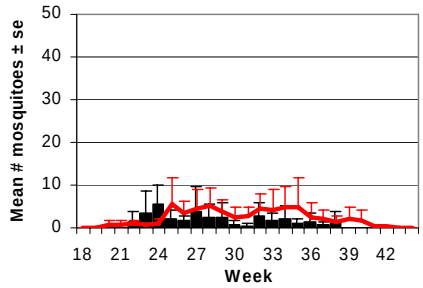
Delaware Bayshore



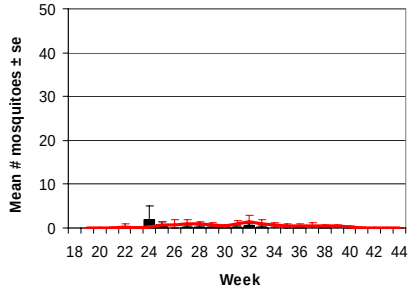
Delaware River Basin



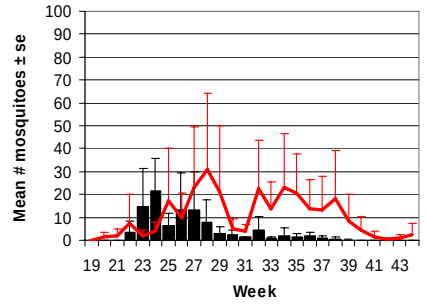
New York Metro



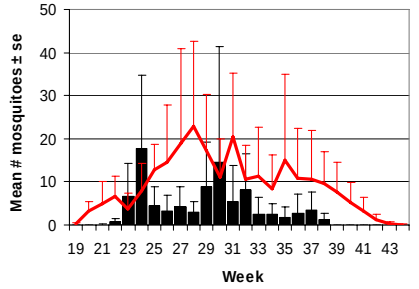
North Central Rural



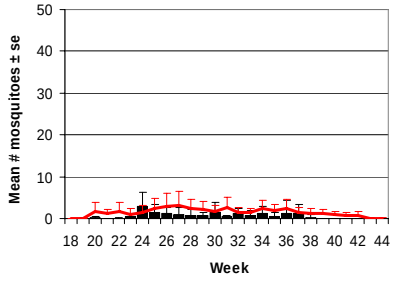
Northwestern Rural



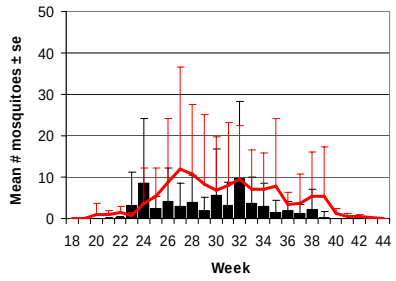
Philadelphia Metro



Pinelands



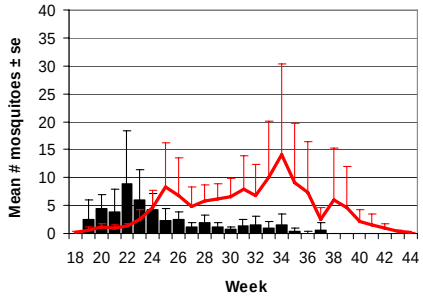
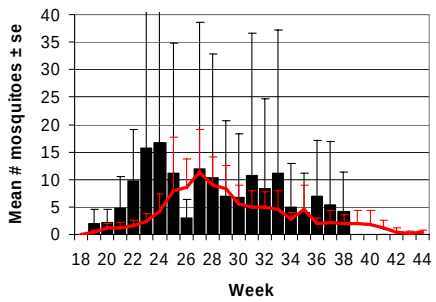
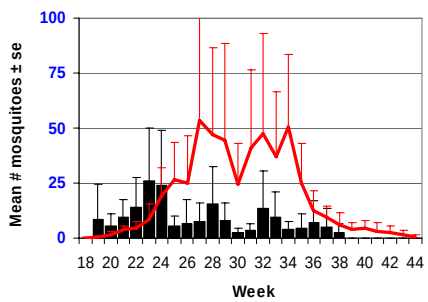
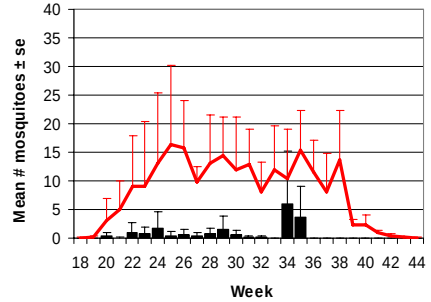
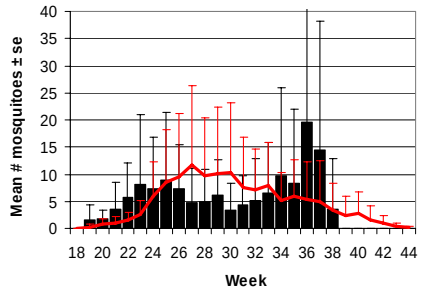
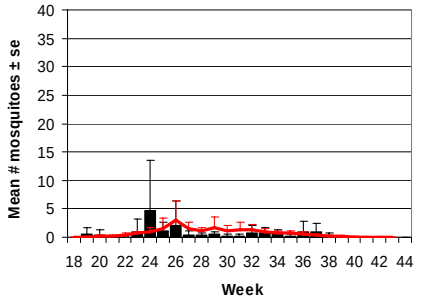
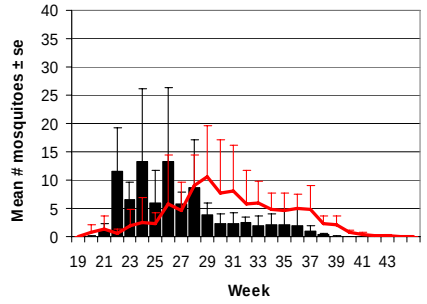
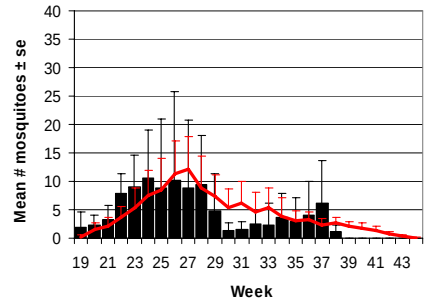
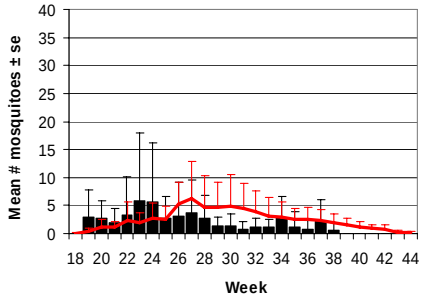
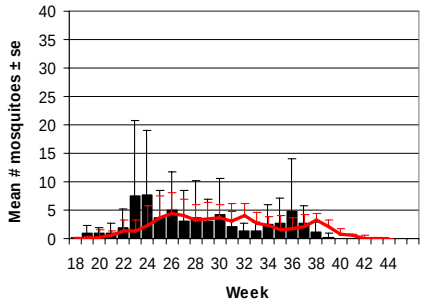
Suburban Corridor



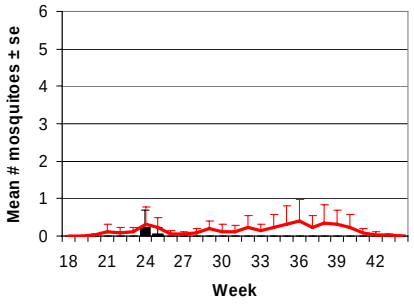
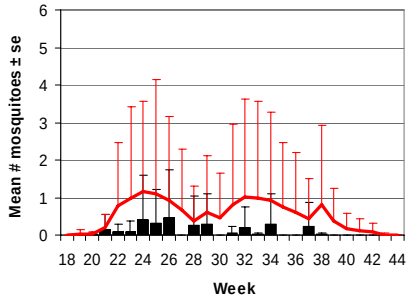
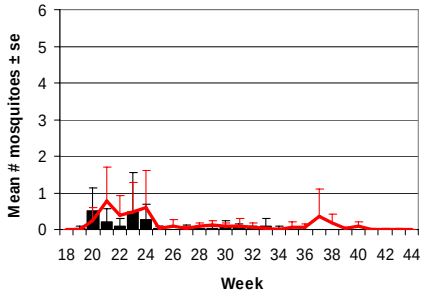
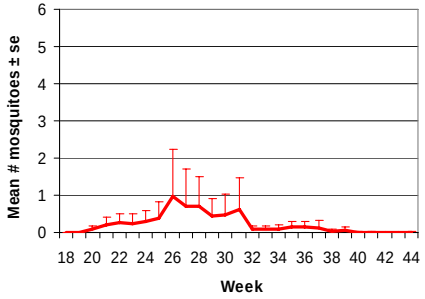
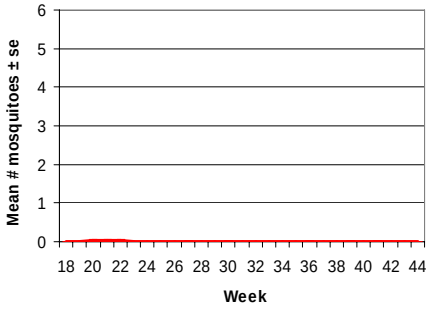
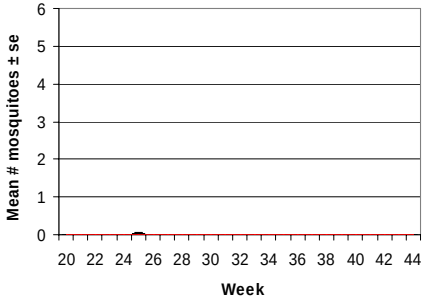
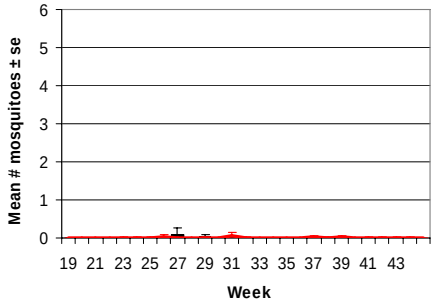
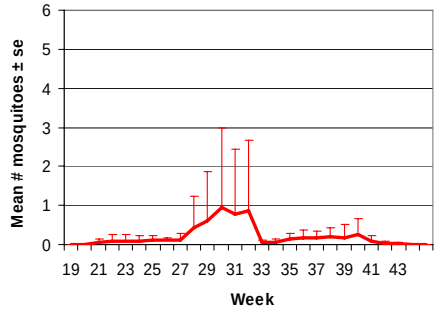
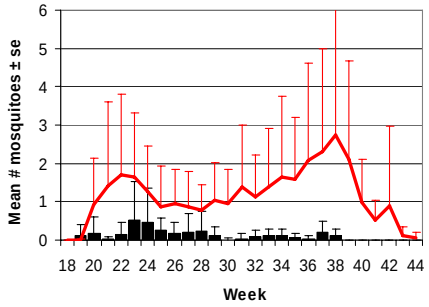
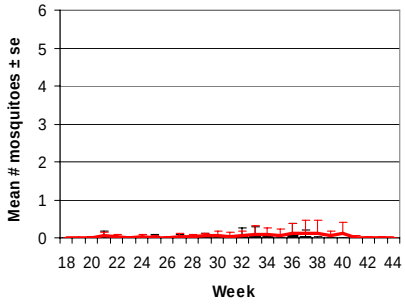
Comments

Aedes vexans populations are expected to decline as nighttime temperatures fall. This species is a moderately competent WN vector but no positive pools appeared this year in New Jersey to date.

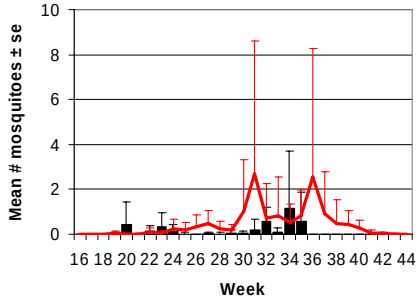
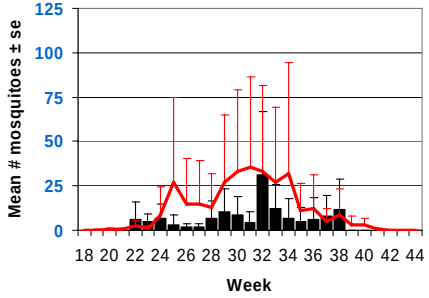
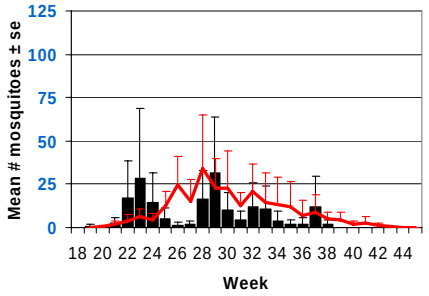
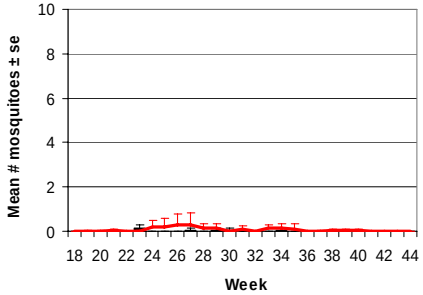
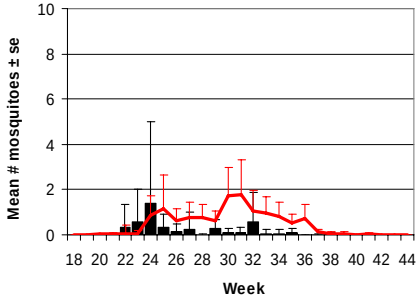
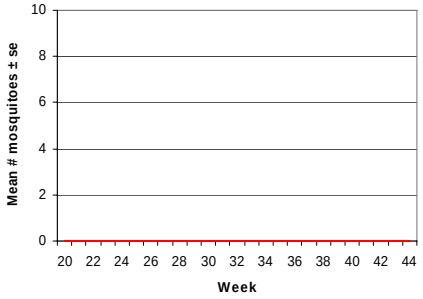
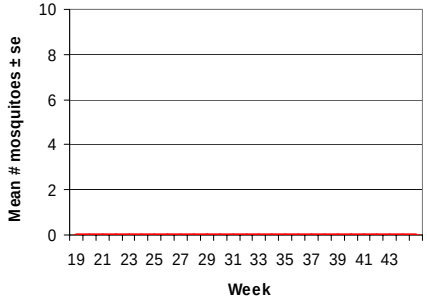
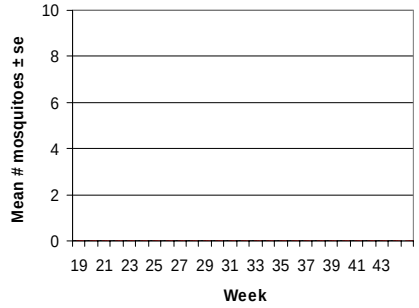
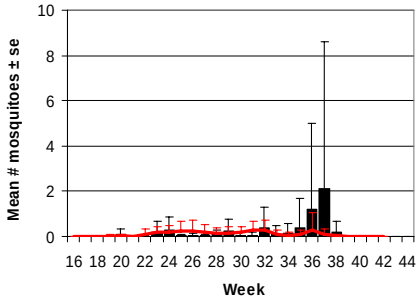
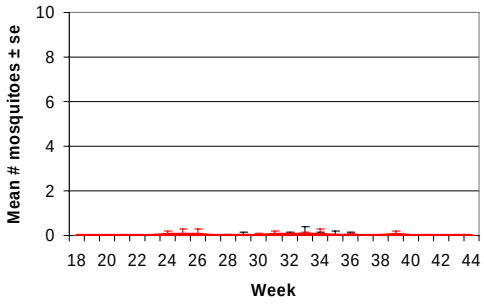
Culex Mix – Permanent Water Species
Multivoltine *Culex*/*Anopheles* (*Cx. pipiens* Type)

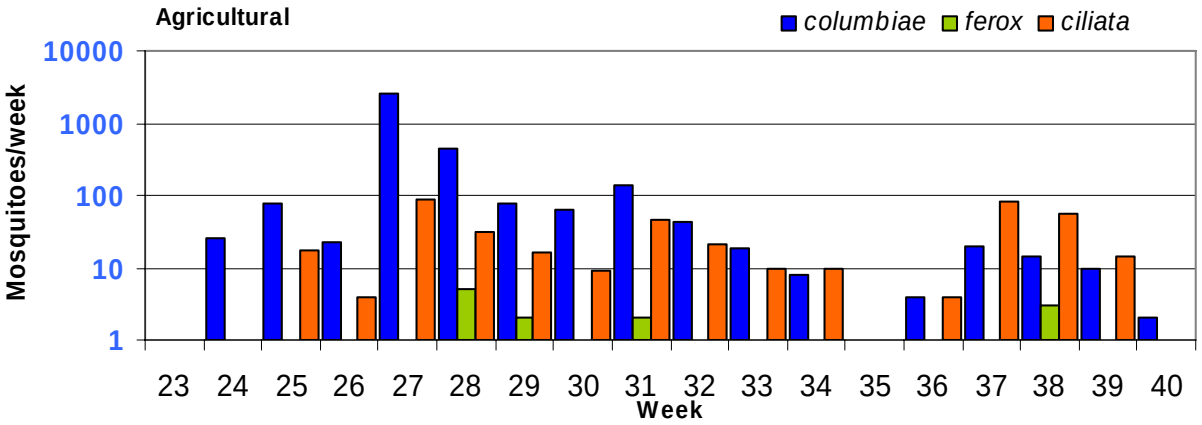
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* populations continue their slow decline as adult females seek out places in which to overwinter. *Culex populations* throughout the state have been found positive for West Nile virus, not surprising as this group contains species such as *Cx. pipiens* and *Cx. restuans* that feed heavily on birds, the main vertebrate hosts of this virus.	

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

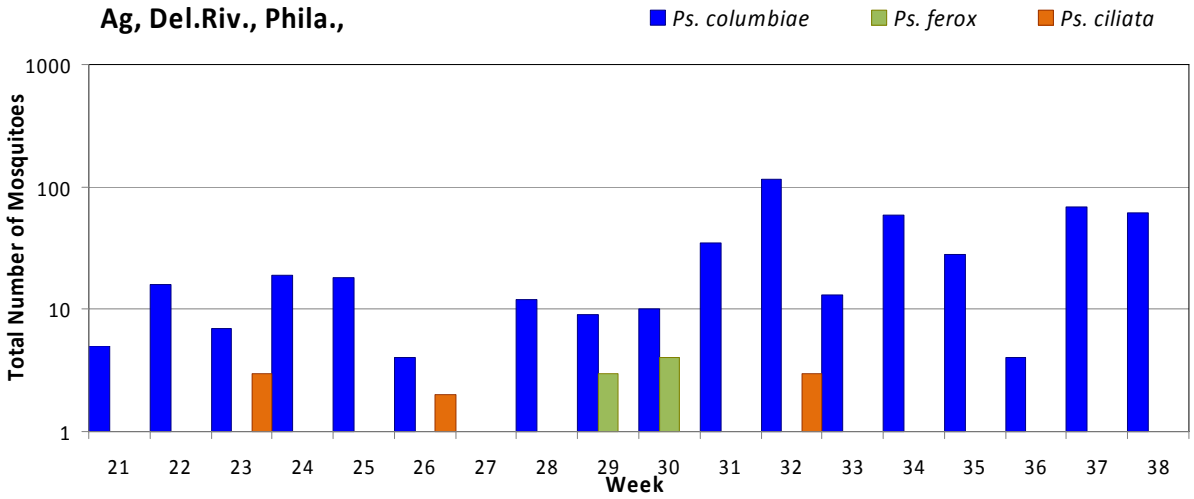
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* populations remain very low in comparison to historical data. Despite this, eastern equine encephalitis virus is circulating in at least two separate populations in southern New Jersey. Populations are expected to decline from their low levels over the next several weeks as the season draws to a close. This species overwinters as larvae, with the larger instars forming the first emergence in the spring. That cohort will produce the late summer emergence that is the classic feature of a bivoltine (two generation) species.	

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* along the Coastal and Delaware Bayshore region did have a minor emergence in time to produce adult females that can bring on complaints as they begin to hostseek earlier in the day than they did mid-season.	



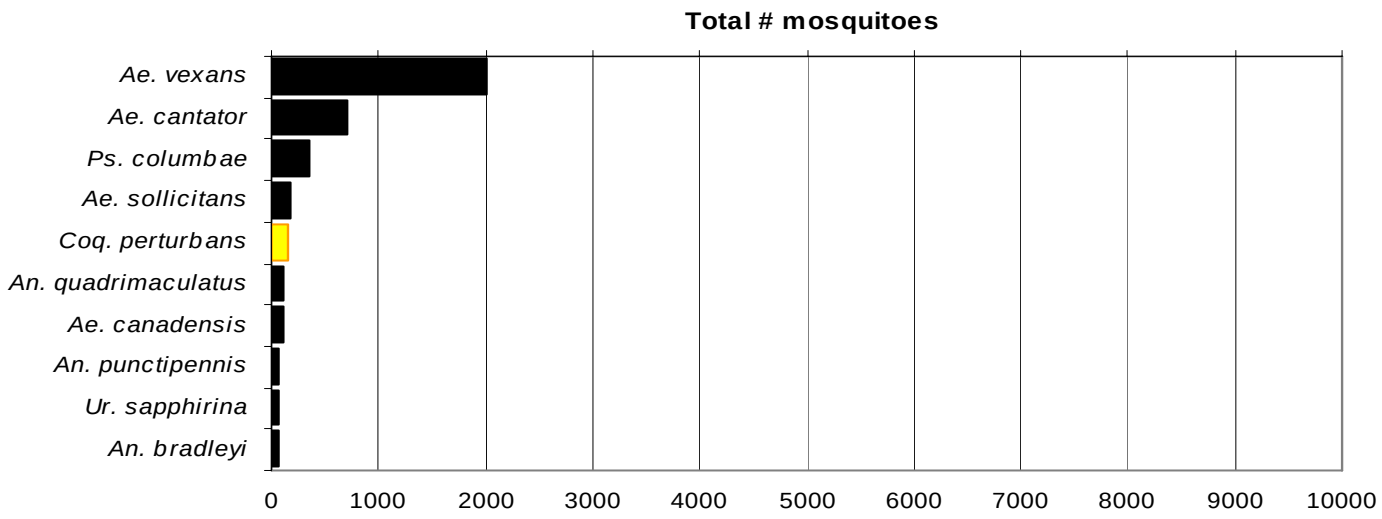
Predator-Prey relationships: *Psorophora* larvae can exhibit predator-prey dynamics similar to the lynx-snowshoe hare relationship. *Psorophora ciliata* (in orange) is the predator that preys upon *Ps. columbiae* (in blue). *Ps. ciliata* populations lag behind their food. Weather may be a mediating factor in the abundance of both, with the predator being hit particularly hard during unfavorable circumstances. The top graph show both species (with *Ps. ferox,* another predatory mosquito in green) in the Agricultural region during 2006 when *Psorophora* were abundant. The bottom graph is the pattern for this year in Agricultural, Delaware River Basin, Philadelphia Metro and the Pinelands Region (i.e., in 3 additional regions). Note the difference in the y-axis. From this relationship, one should be able to find *Ps. ciliata* in areas of abundant *Ps. columbiae*.



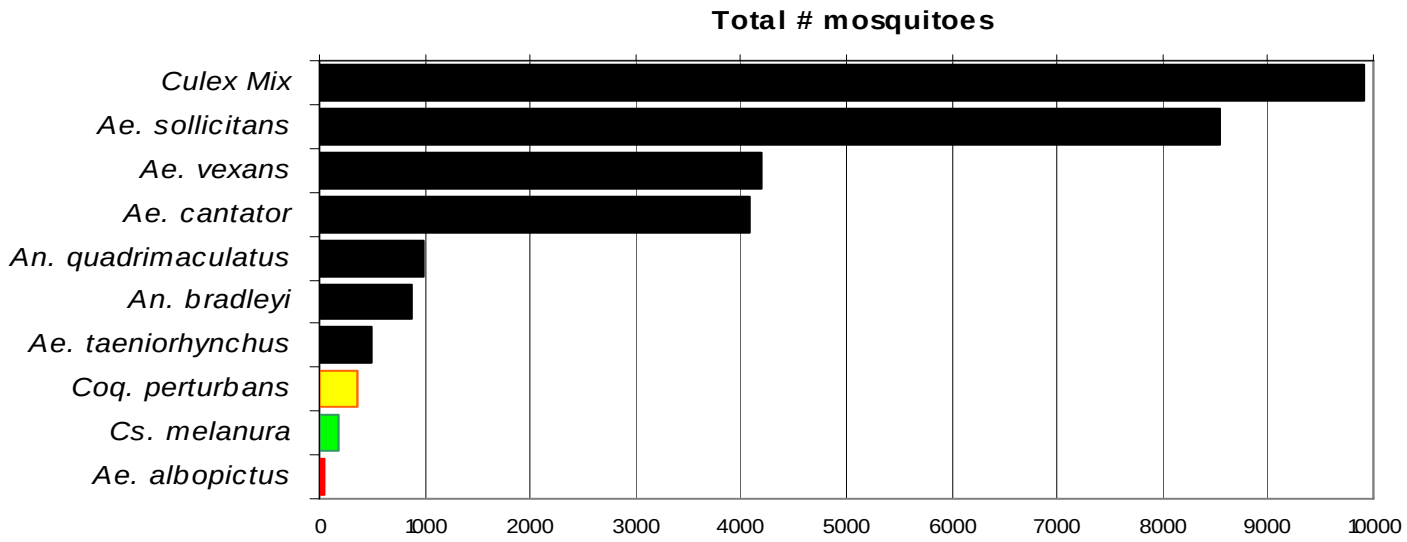
WNV **EEE**

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

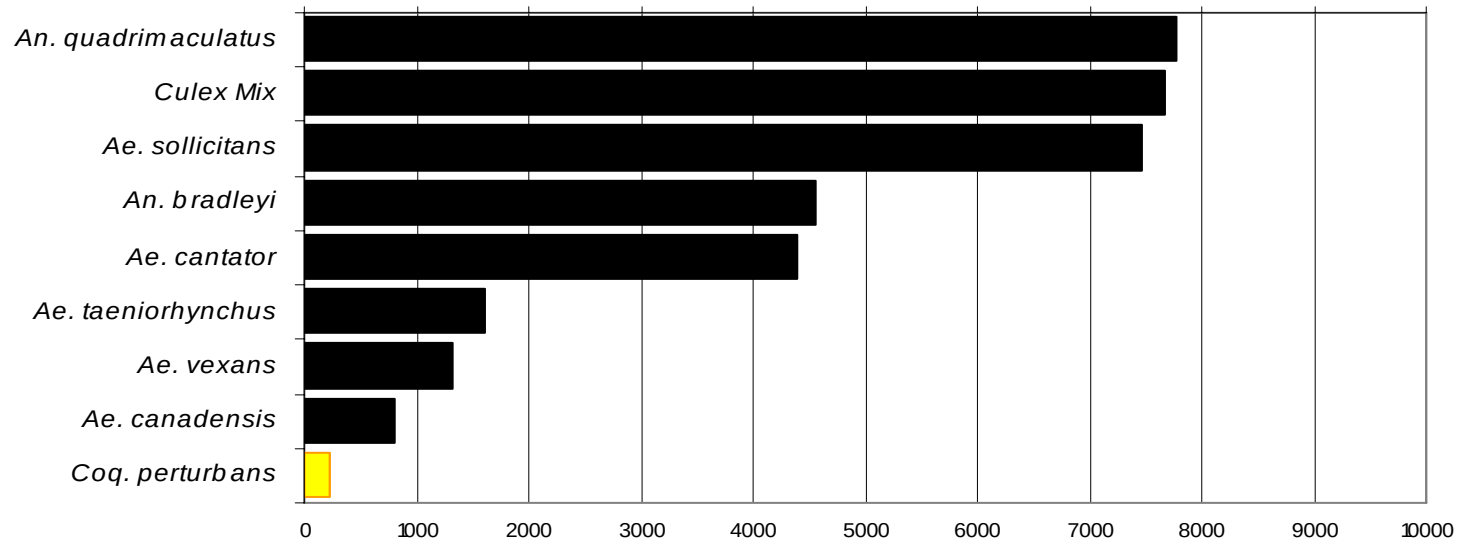
Agricultural



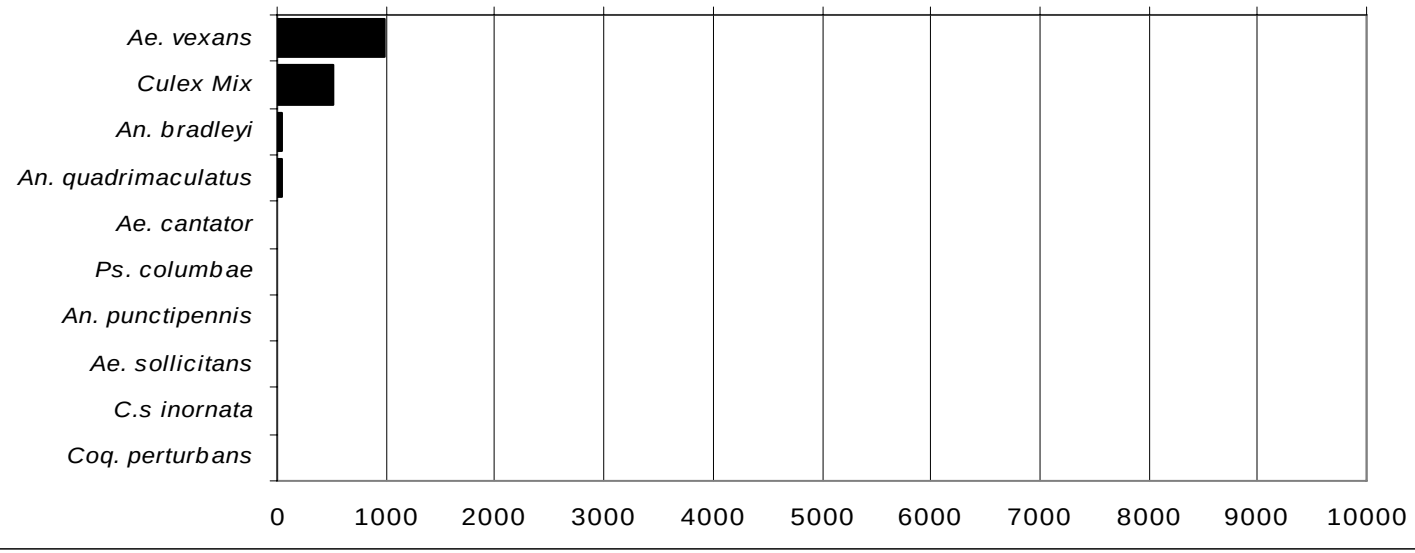
Coastal

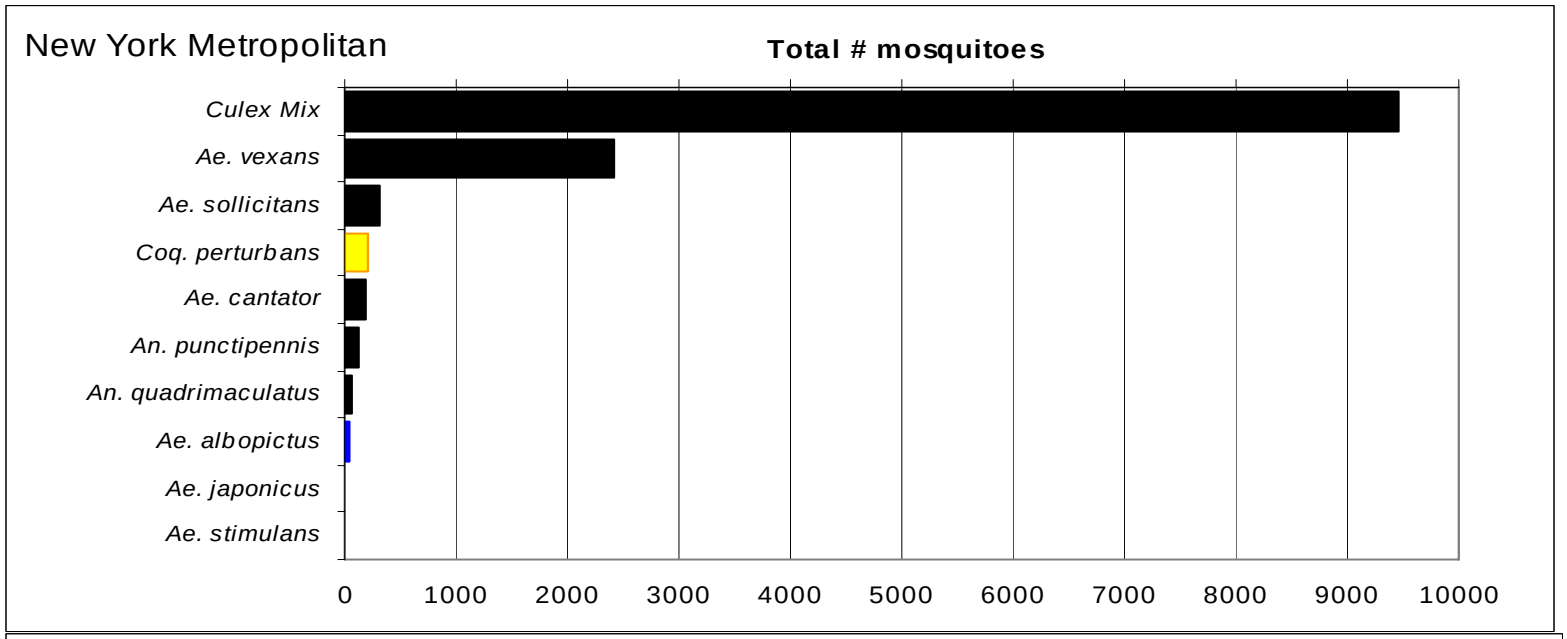


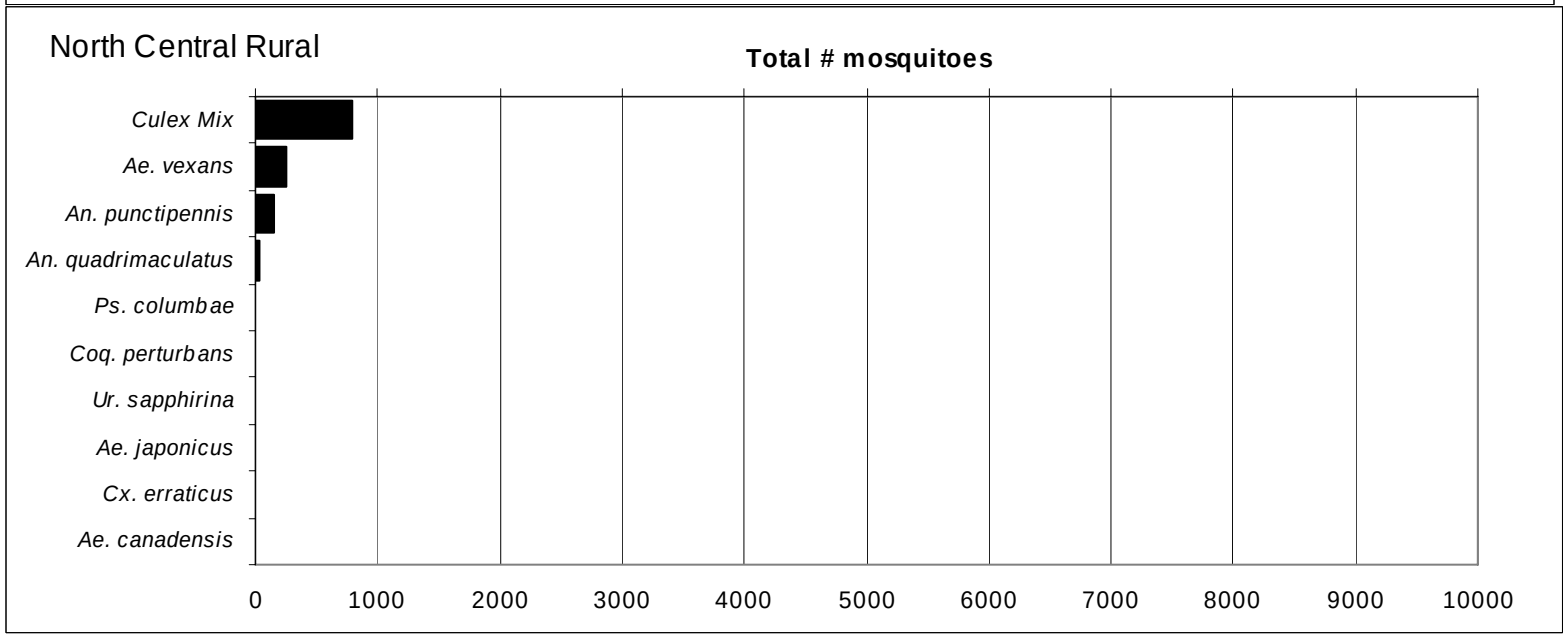
Delaware Bayshore

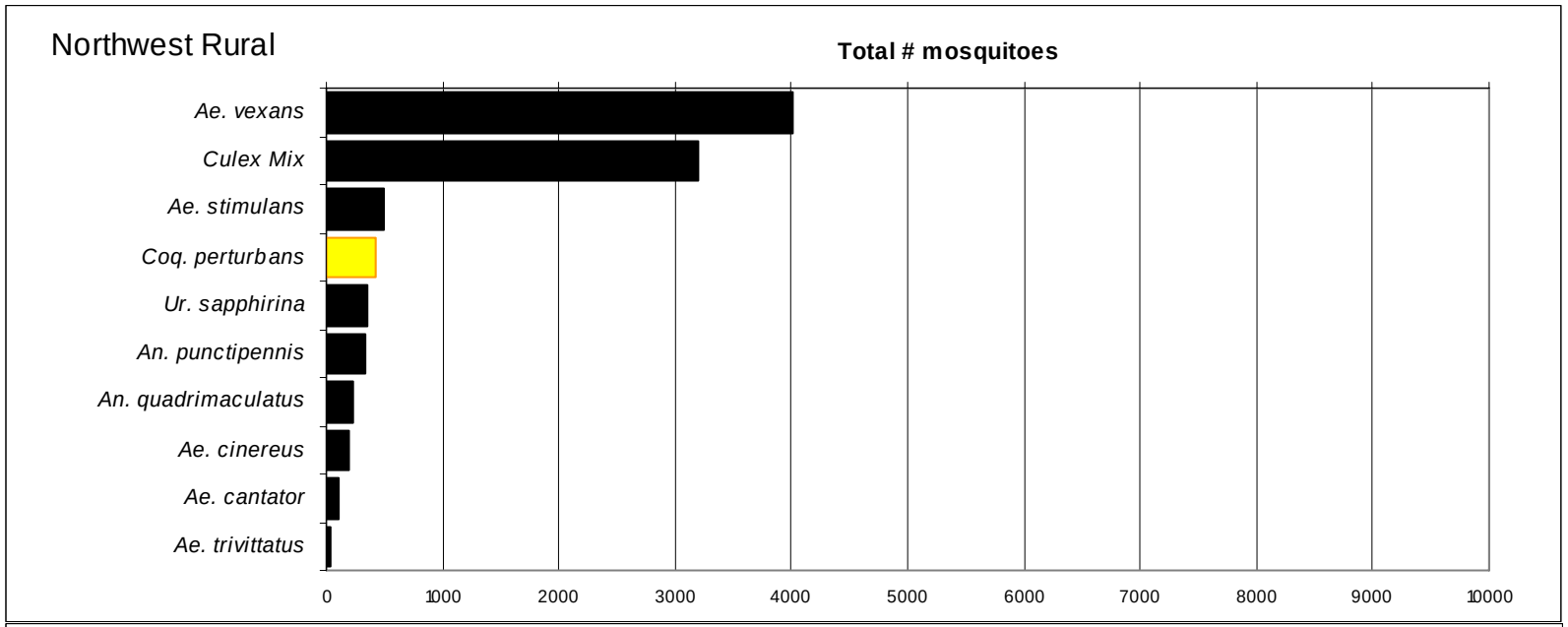


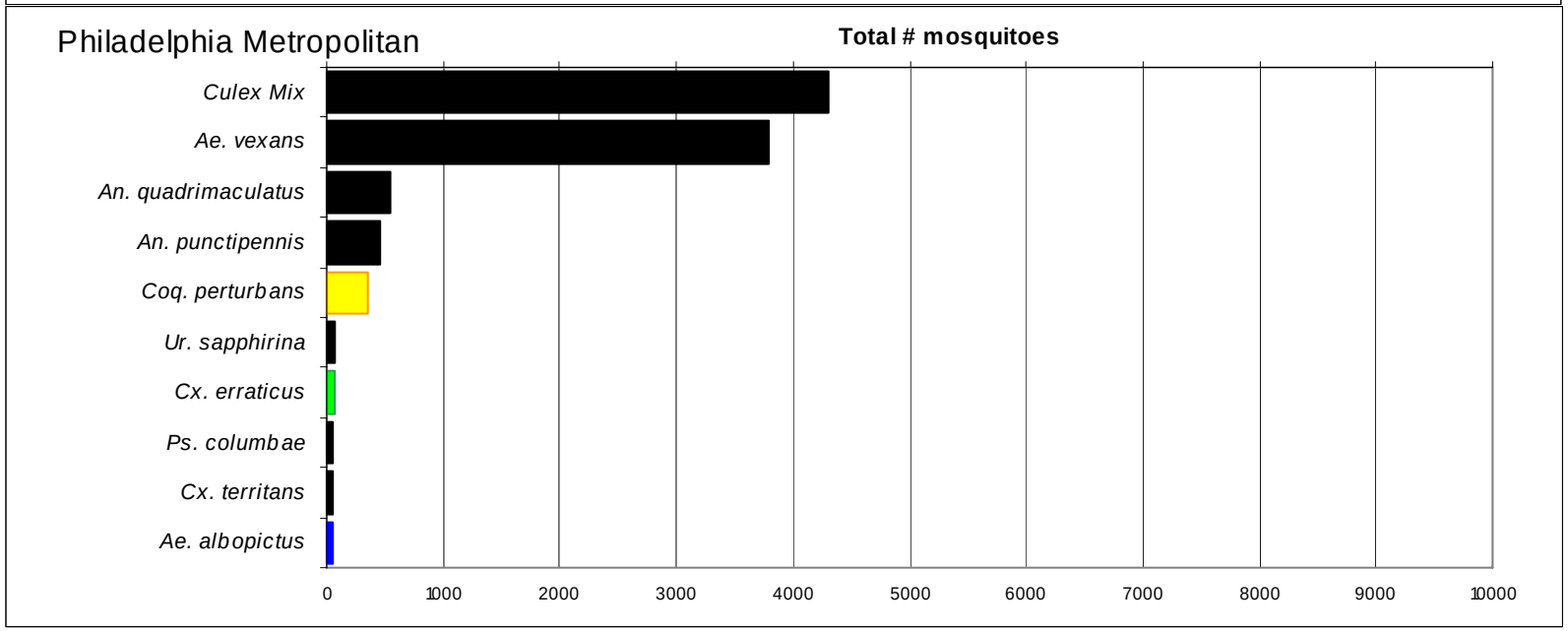
Delaware River Basin



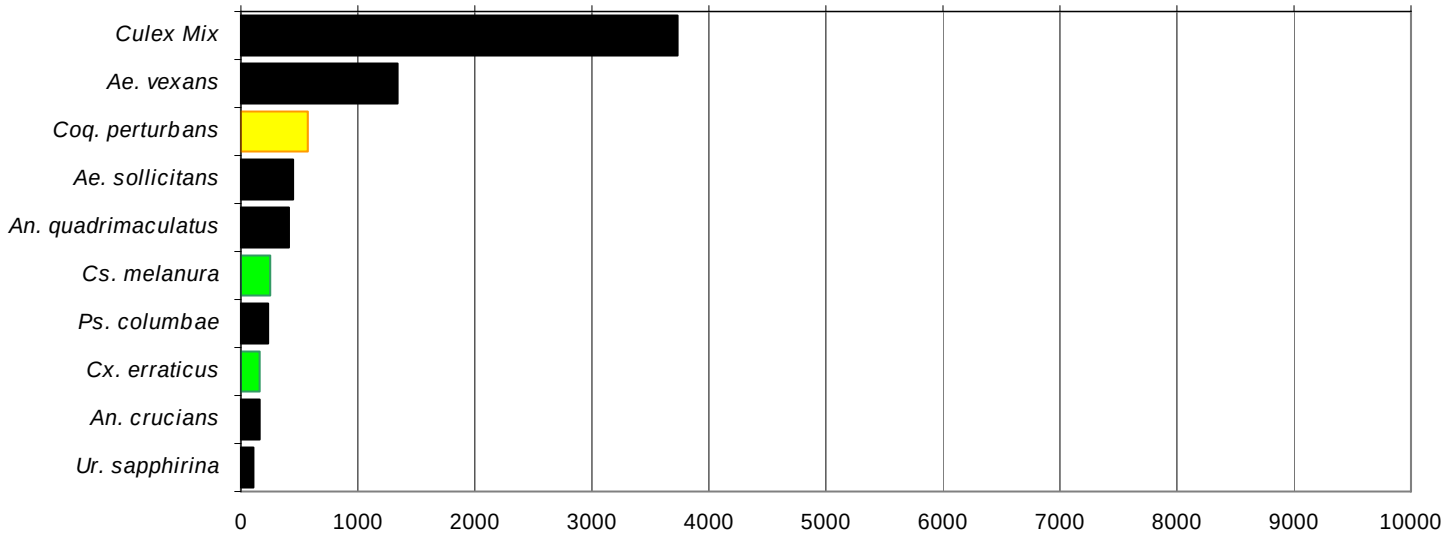

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. sollicitans
Coq. perturbans
Ae. cantator
An. punctipennis
An. quadrimaculatus
Ae. albopictus
Ae. japonicus
Ae. stimulans
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


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


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. stimulans
Coq. perturbans
Ur. sapphirina
An. punctipennis
An. quadrimaculatus
Ae. cinereus
Ae. cantator
Ae. trivittatus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


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

Pinelands



Suburban Corridor