RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 5 September to 11 September 2010, CDC Week 36

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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.

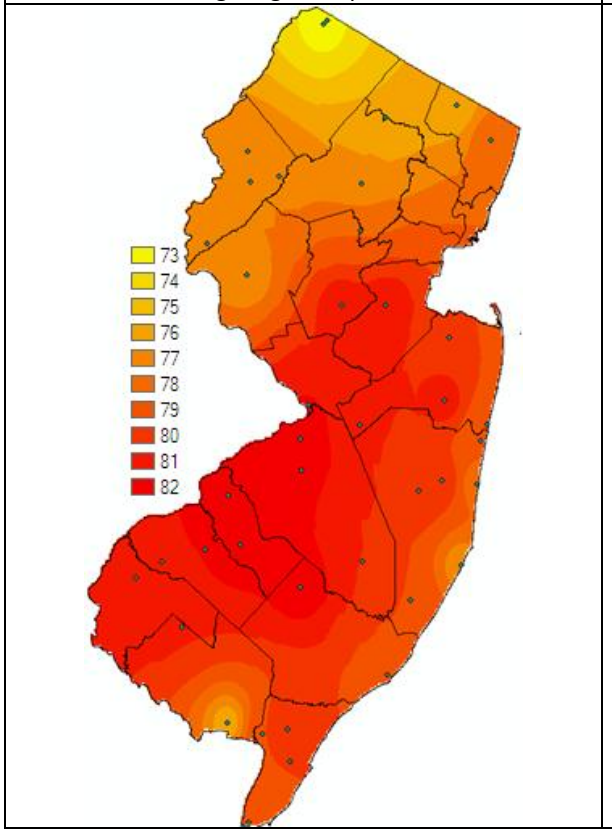
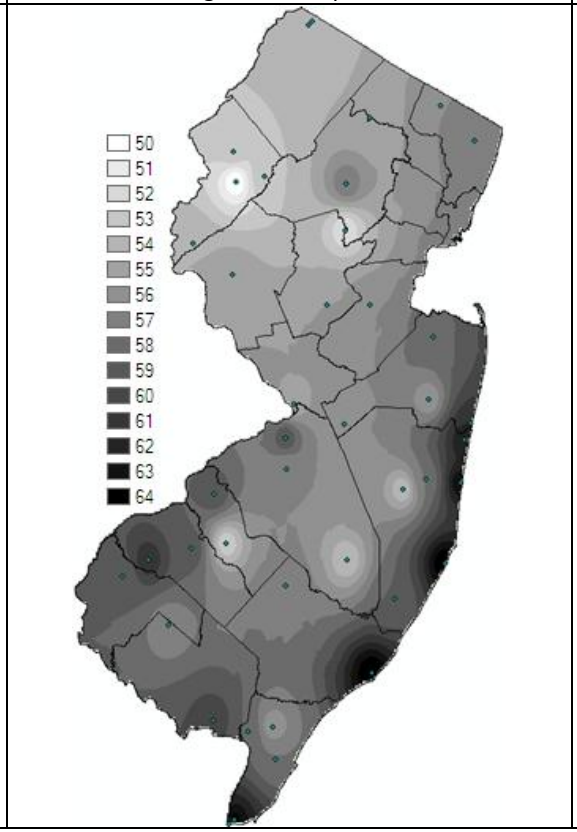
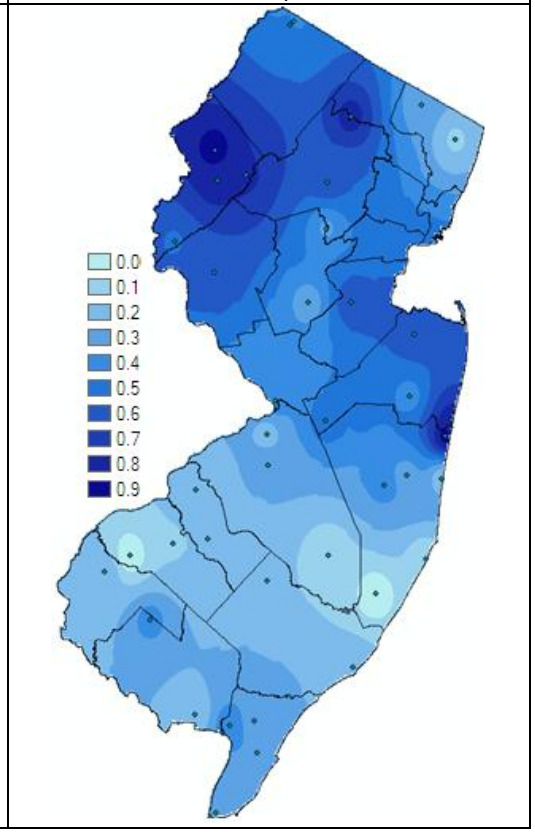
Summary table – Week 36

	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	**0.83**	**1.00**	**0**	**0.76**	**2.09**	**0**	**0.00**	**0.02**	**0**	**0.00**	**2.30**	**0**
Coastal	**1.54**	**1.37**	**1**	**0.60**	**4.15**	**0**	**0.00**	**0.14**	**0**	**0.48**	**3.50**	**0**
Delaware Bayshore	**1.69**	**1.35**	**1**	**3.77**	**7.62**	**0**	**0.00**	**0.07**	**0**	**0.26**	**5.67**	**0**
Delaware River Basin	**4.86**	**4.84**	**1**	**0.29**	**6.47**	**0**	**0.07**	**0.03**	**3**	**0.00**	**0.00**	**0**
New York Metro	**2.61**	**1.55**	**2**	**3.29**	**8.73**	**0**	**0.01**	**0.18**	**0**	**0.09**	**0.23**	**0**
North Central Rural	**0.18**	**0.32**	**0**	**0.12**	**0.75**	**0**	**0.02**	**<0.01**	**4**	**0.00**	**0.00**	**0**
Northwest Rural	**3.77**	**3.32**	**1**	**0.80**	**3.63**	**0**	**0.26**	**0.05**	**4**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.14**	**7.62**	**0**	**0.29**	**2.62**	**0**	**0.00**	**0.06**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.49**	**0.81**	**0**	**0.42**	**1.22**	**0**	**0.00**	**0.06**	**0**	**0.08**	**0.10**	**0**
Suburban Corridor	**0.87**	**2.63**	**0**	**0.27**	**2.43**	**0**	**0.00**	**0.11**	**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: Two pestiferous species are showing increased activity. *Aedes vexans* is above historical trends in the Coastal, Delaware Bayshore and River Basin, New York Metropolitan and the Northwestern Rural regions. *Coquillettidia perturbans* is at higher than average trends in the Delaware River Basin, North Central Rural and the Northwestern Rural regions.

Climate Factors

Average High Temperatures	Average Low Temperatures	Total Precipitation
		

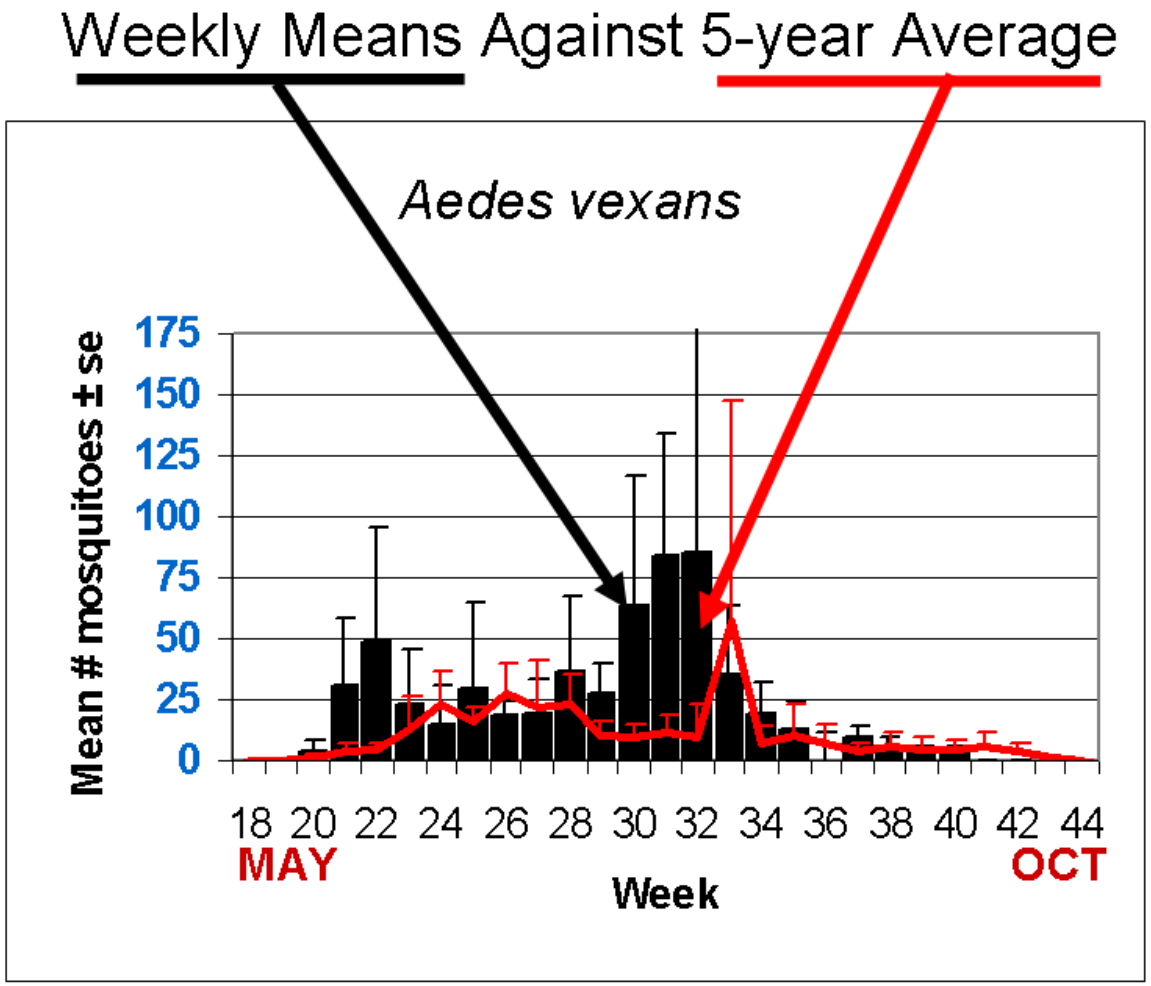
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for September 1-16, 2010 in New Jersey. Data points are from 43 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

Cooling trends continued as both daytime and nighttime temperatures dropped significantly. As usual, coastal and higher elevation areas are cooler during the day, but the coastal areas retain heat during the night. Precipitation was minor (total for September < 1 inch), but more consistent than the previous week, covering a larger 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, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties. Note: Previous week's data are from Atlantic, Bergen, Burlington, 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)

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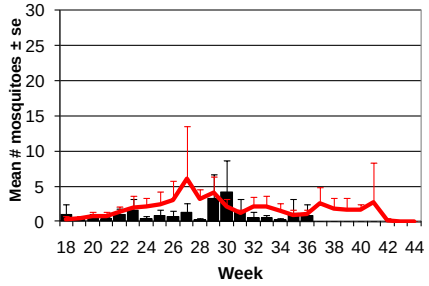
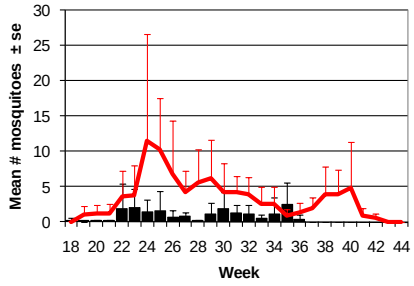
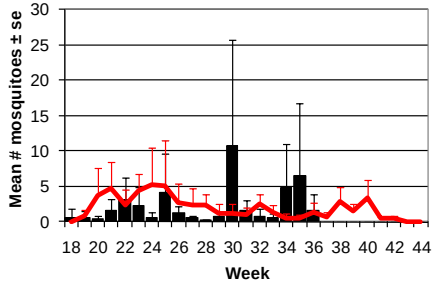
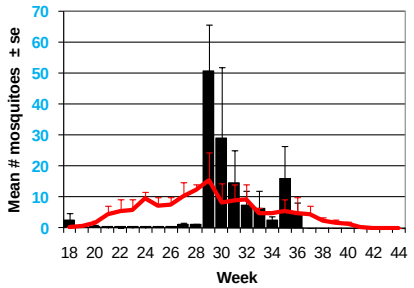
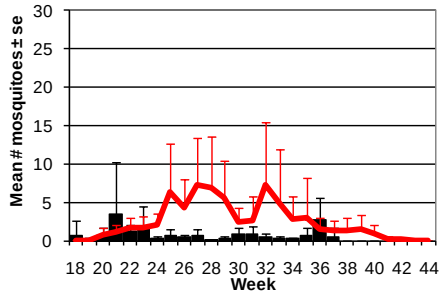
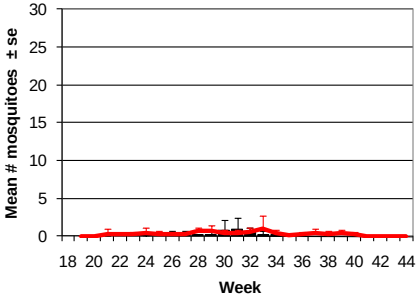
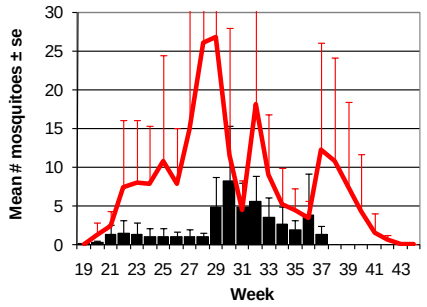
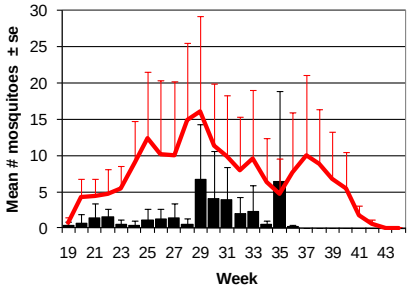
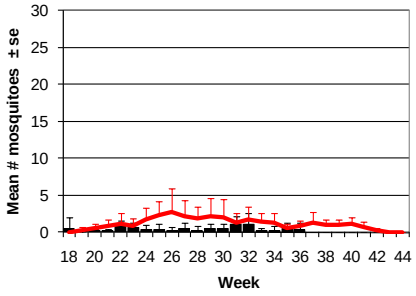
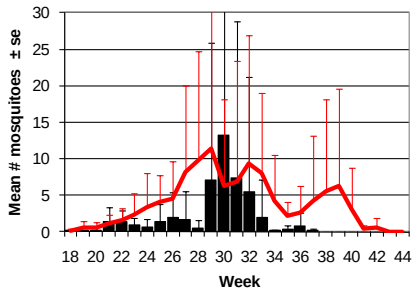
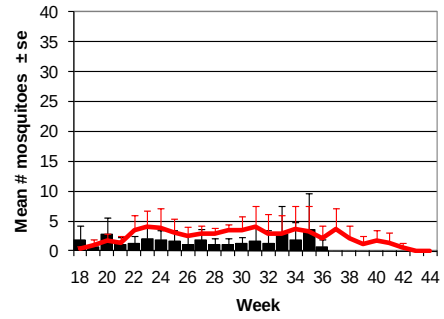
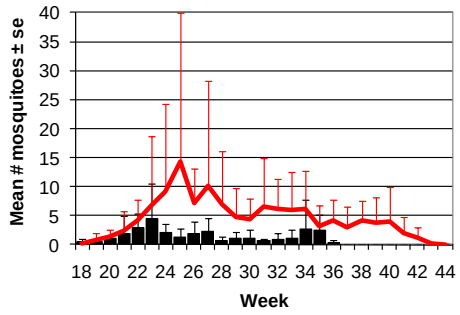
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations continue to show the prolonged effects of the drought, with some regions showing lower than historical trends. The exceptions are the Coastal, Delaware Bayshore, Delaware River Basin, New York Metropolitan and the Northwestern Rural regions, mostly with values barely over historical trends. The state has experienced some precipitation this past week but it may be too little and too late for *Ae. vexans* populations to respond with any vigor.	

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

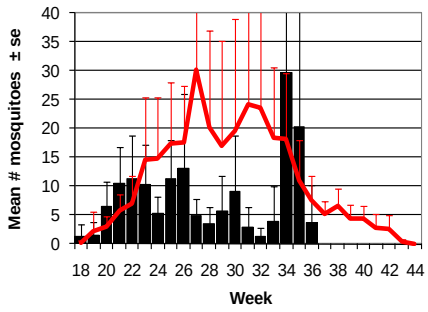
Agricultural



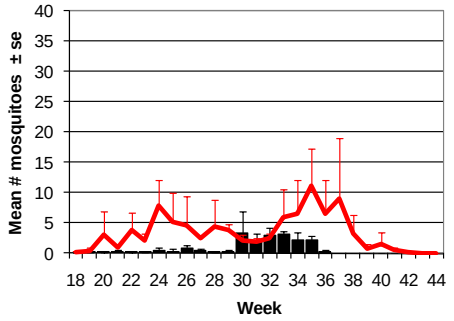
Coastal



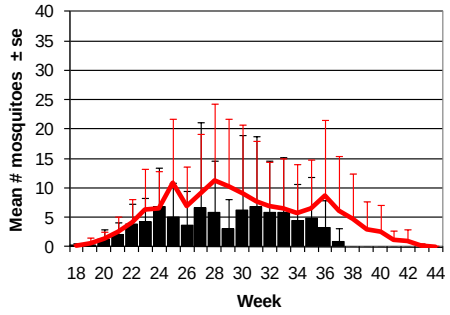
Delaware Bayshore



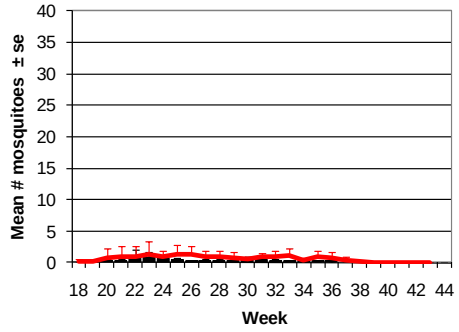
Delaware River Basin



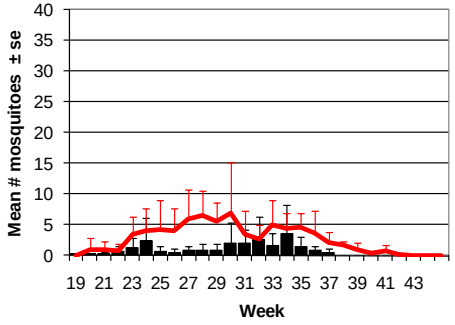
New York Metro



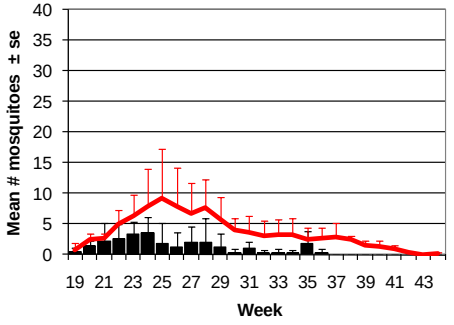
North Central Rural



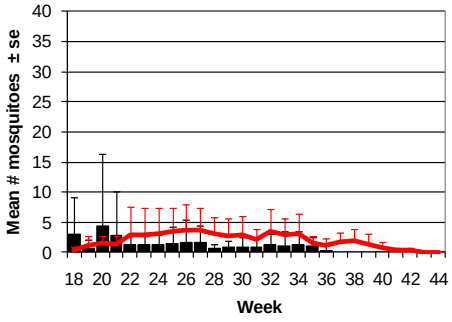
Northwestern Rural



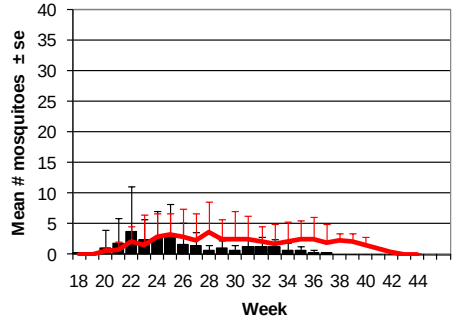
Philadelphia Metro



Pinelands



Suburban Corridor

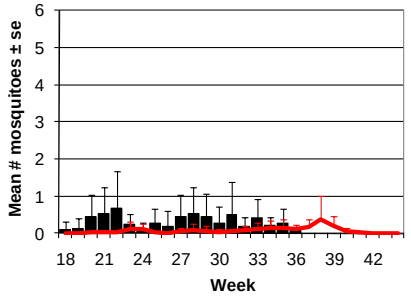
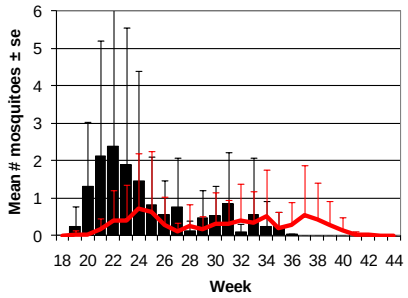
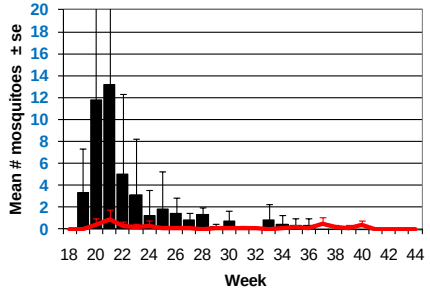
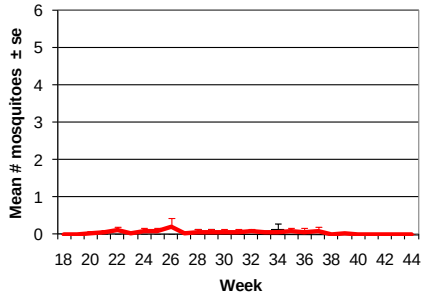
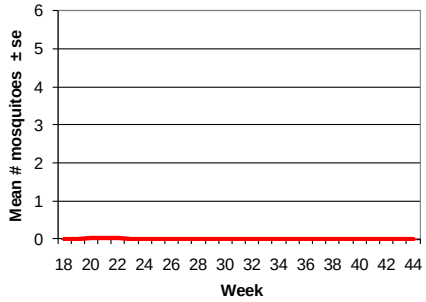
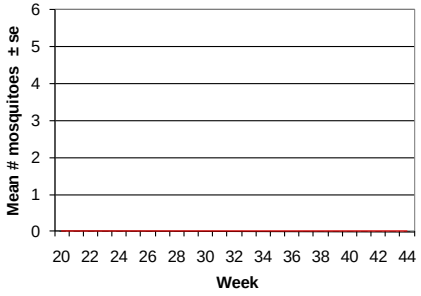
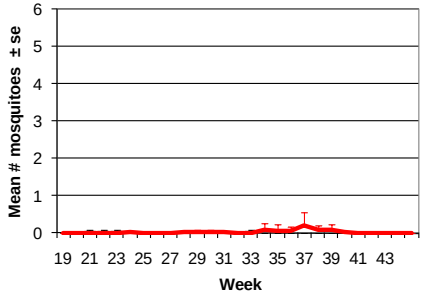
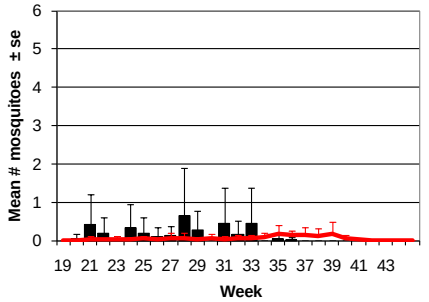
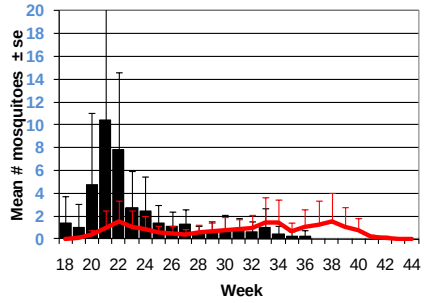
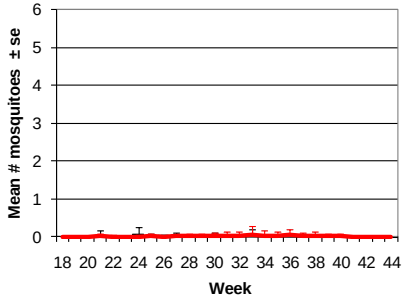


Comments

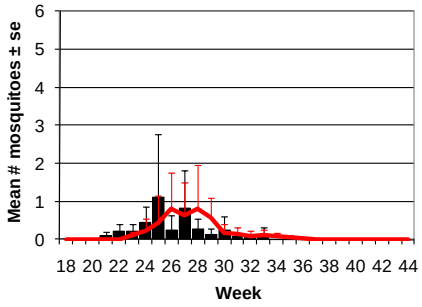
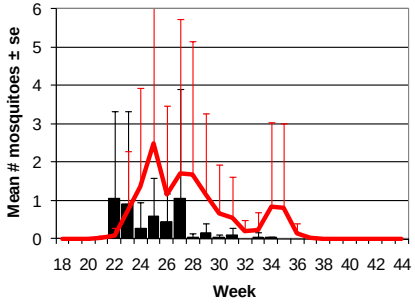
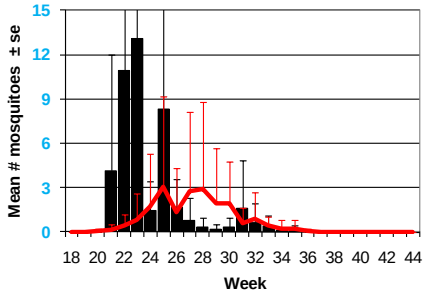
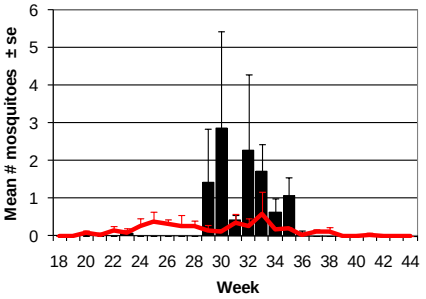
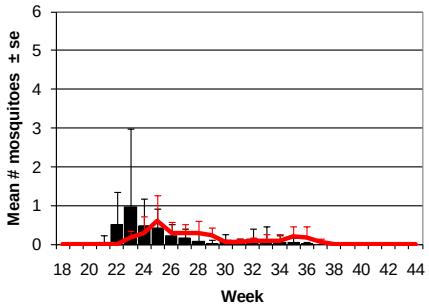
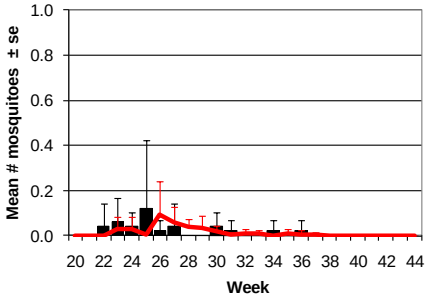
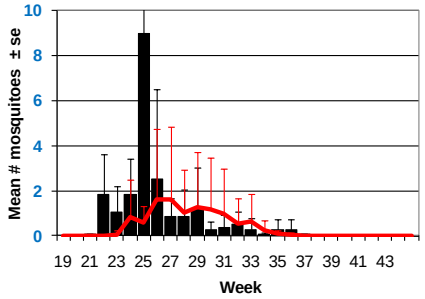
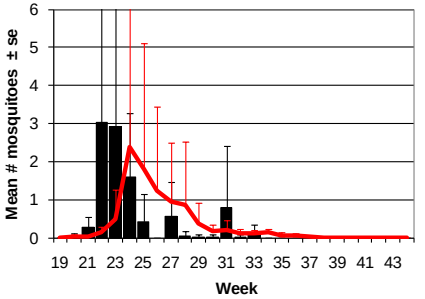
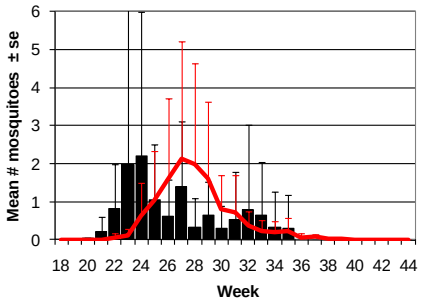
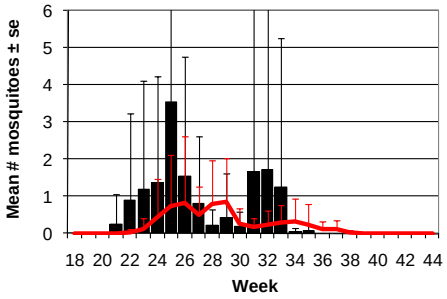
Culex Mix is represented by three species of *Culex* mosquitoes: *Cx. pipiens, Cx. restuans* and *Cx. salinarius*. These mosquitoes are usually grouped together as there is considerable difficulty in separating them to species easily after travelling through the grind of the light trap, often in the company of protesting moths and beetles.

Culex Mix population numbers continue to decline as females enter hibernaculae. Even so, as an aging mosquito population is on the wing and with the high WNV activity in the *Culex* population, due caution should be employed. Females may change their host preference and go from biting primarily birds to including mammals in their search for a bloodmeal.

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

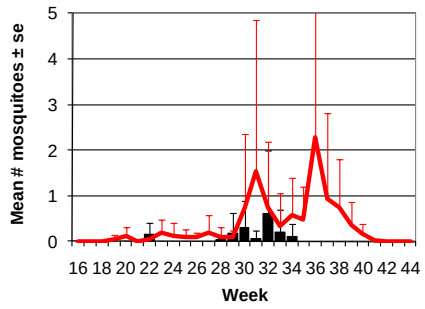
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, appear to be dropping, similar to trends seen in the resting box monitoring sites for EEE surveillance.	

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

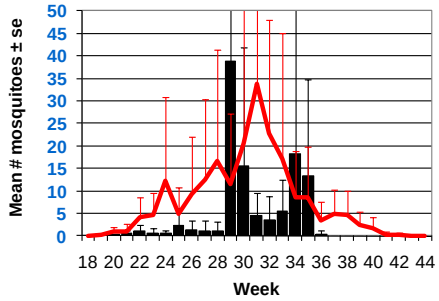
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations continue to make their presence known in the Delaware River Basin, North Central Rural and Northwestern Rural regions, albeit with small numbers.	

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

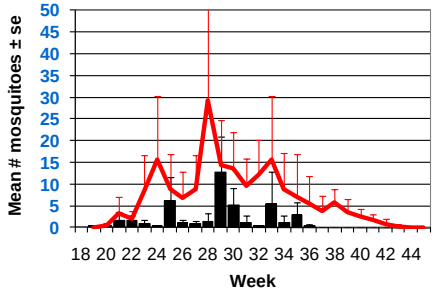
Agricultural



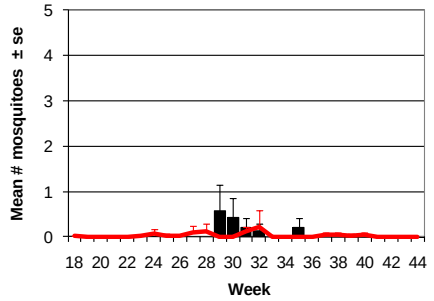
Coastal



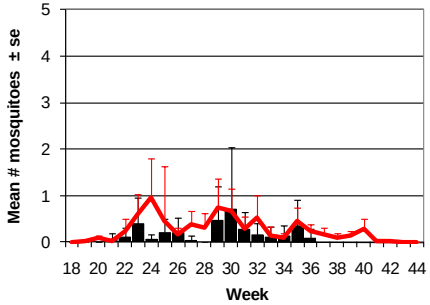
Delaware Bayshore



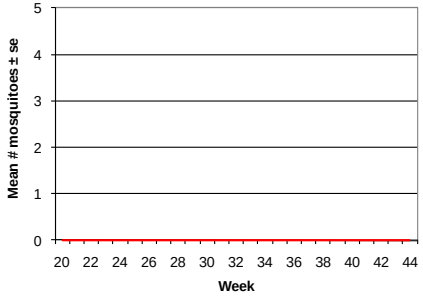
Delaware River Basin



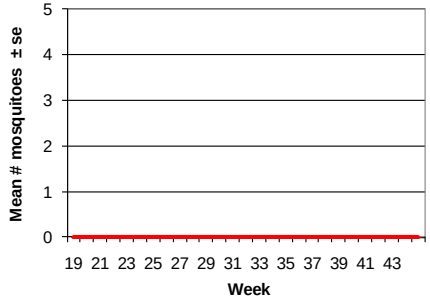
New York Metro



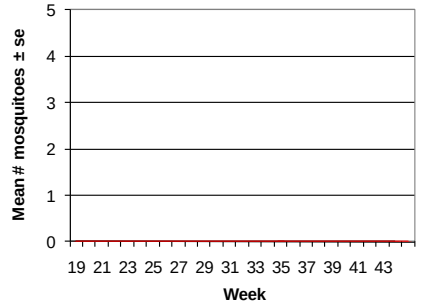
North Central Rural



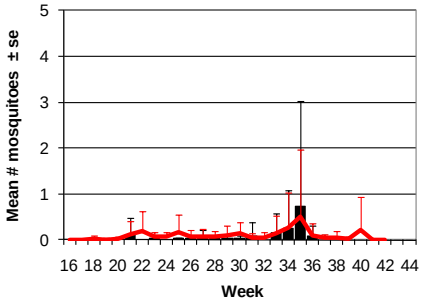
Northwestern Rural



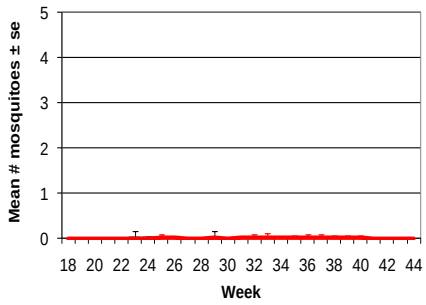
Philadelphia Metro



Pinelands



Suburban Corridor

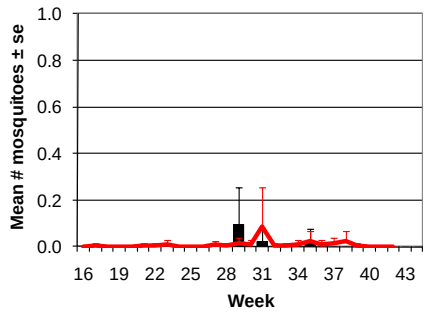
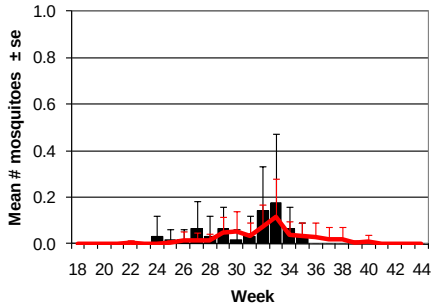
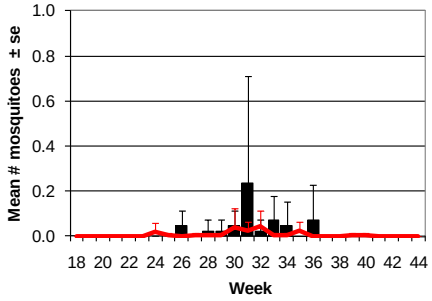
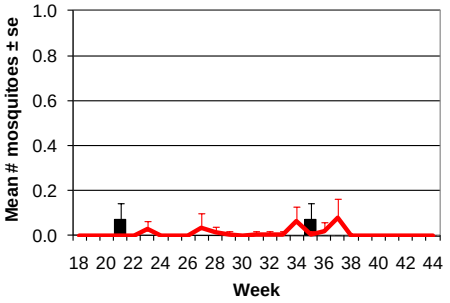
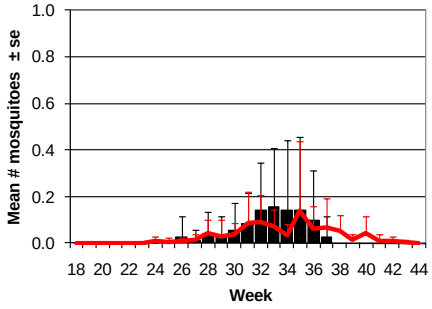
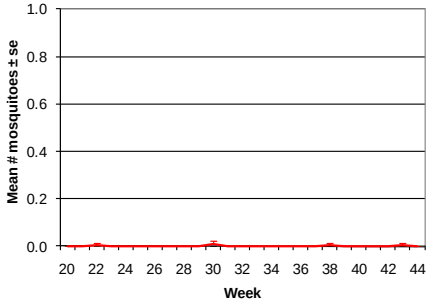
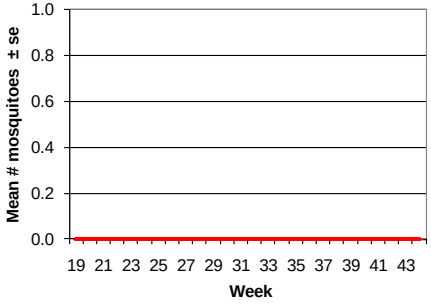
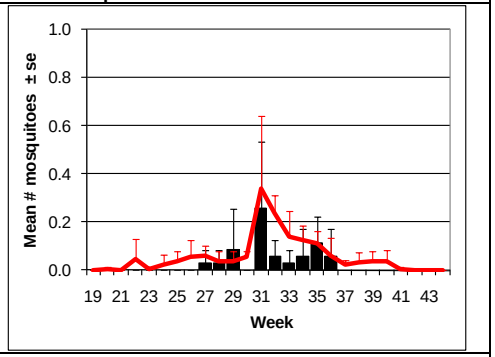
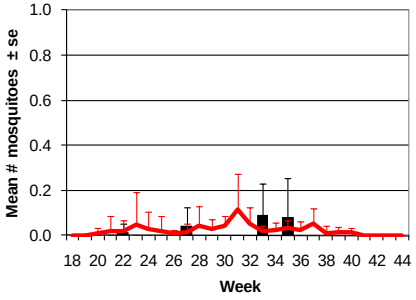
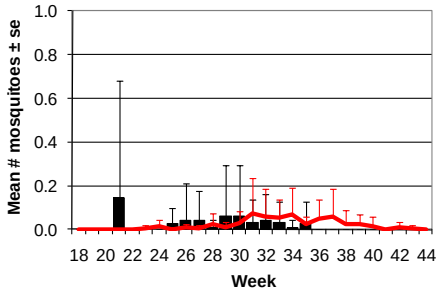


Comments

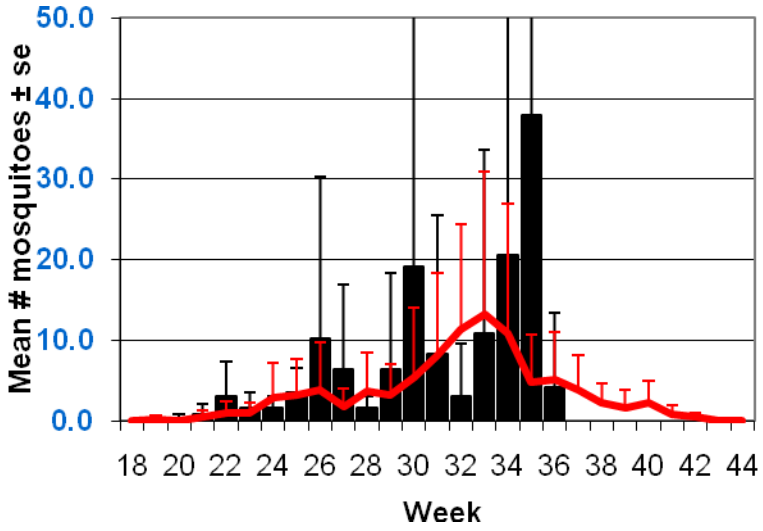
Aedes sollicitans populations are lower than historical trends and continue to decline as the season progresses into the fall.

September 23rd is the next 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, increased activity over historical trends in the Delaware Bayshore and the Philadelphia Metropolitan regions (barely). This species is not cold tolerant and is expected to decline rapidly as cooler temperatures set in.	

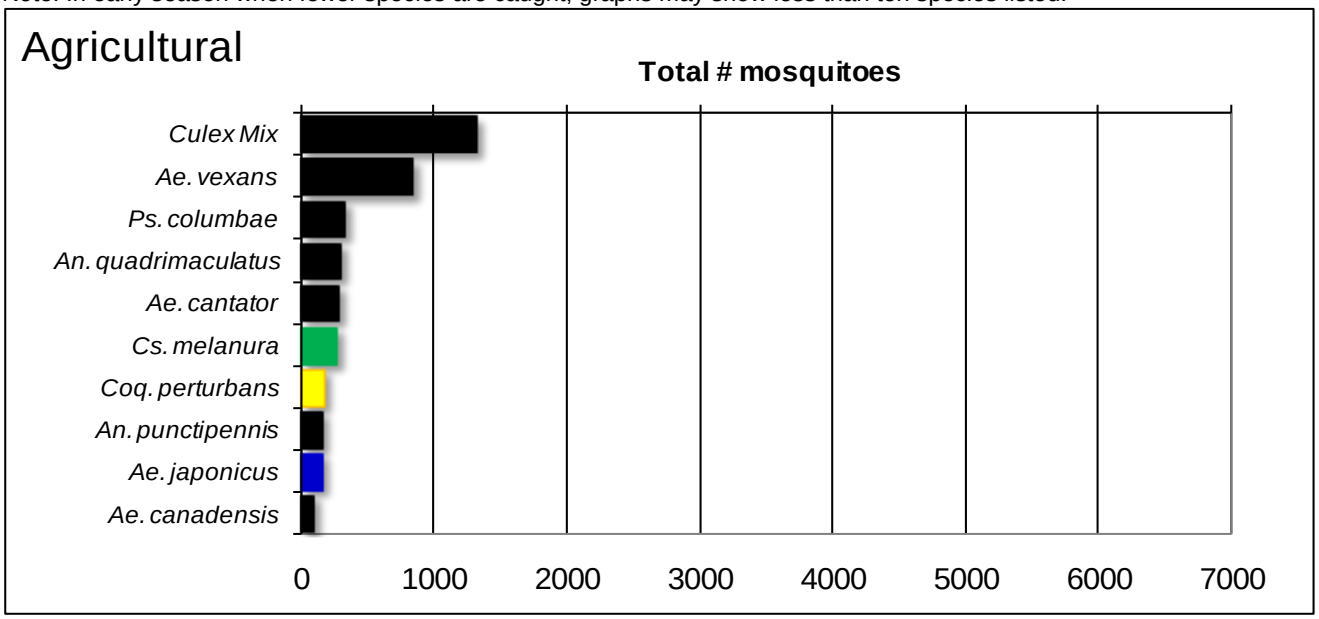
Anopheles bradleyi – Culex/Anopheline Life Cycle, *Cx. salinarius* type. This year has been one of abundance for *An. bradleyi* in the Delaware Bayshore and elsewhere locally. Its numbers have been high enough to push it to the front of the Top Ten list in light trap captures (see below) for the Delaware Bayshore region. This brackish water species has a wide range of salt tolerance. This is a multivoltine species as evident by the multiple population peaks. Very similar to *An. crucians*, early studies may have mislabeled *An. bradleyi* as the former when collected in coastal habitat. Although crepuscular, it comes out early enough to have been nicknamed "The Daylight Anopheles" by J. B. Smith and T. Headlee (T. Floore et al 1976 The Anopheles (Anopheles) crucians subgroup in the United States (Diptera: Culicidae). Mosquito Systematics 8(1)).

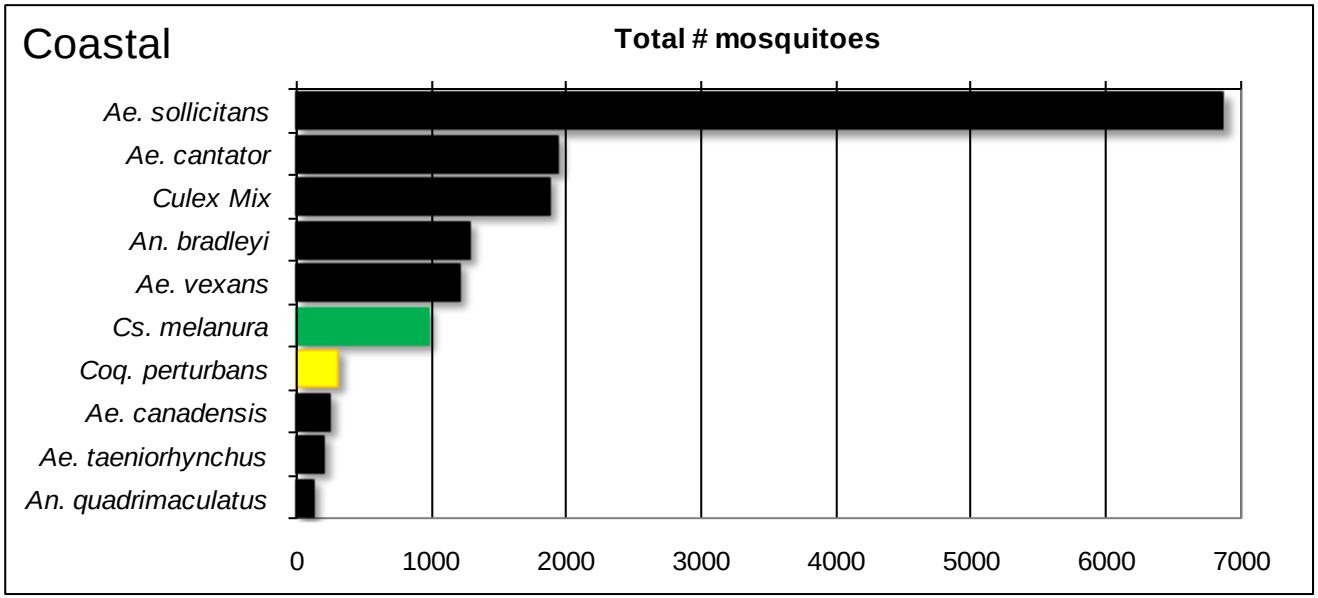


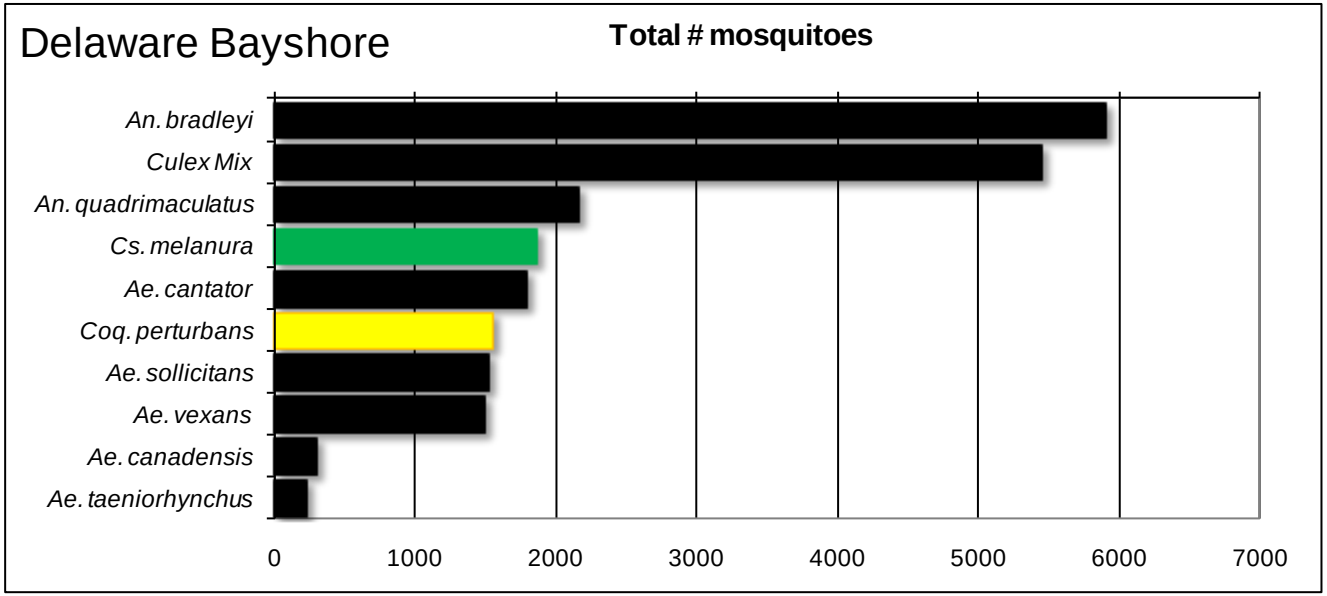
WNV *EEE*

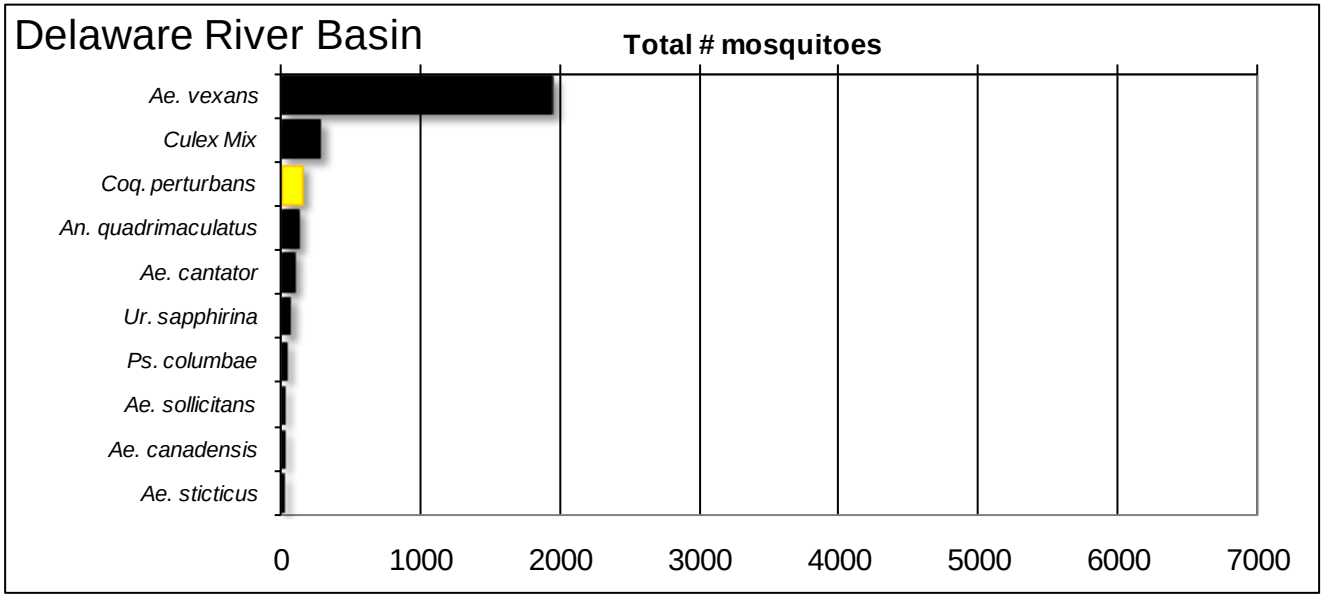
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

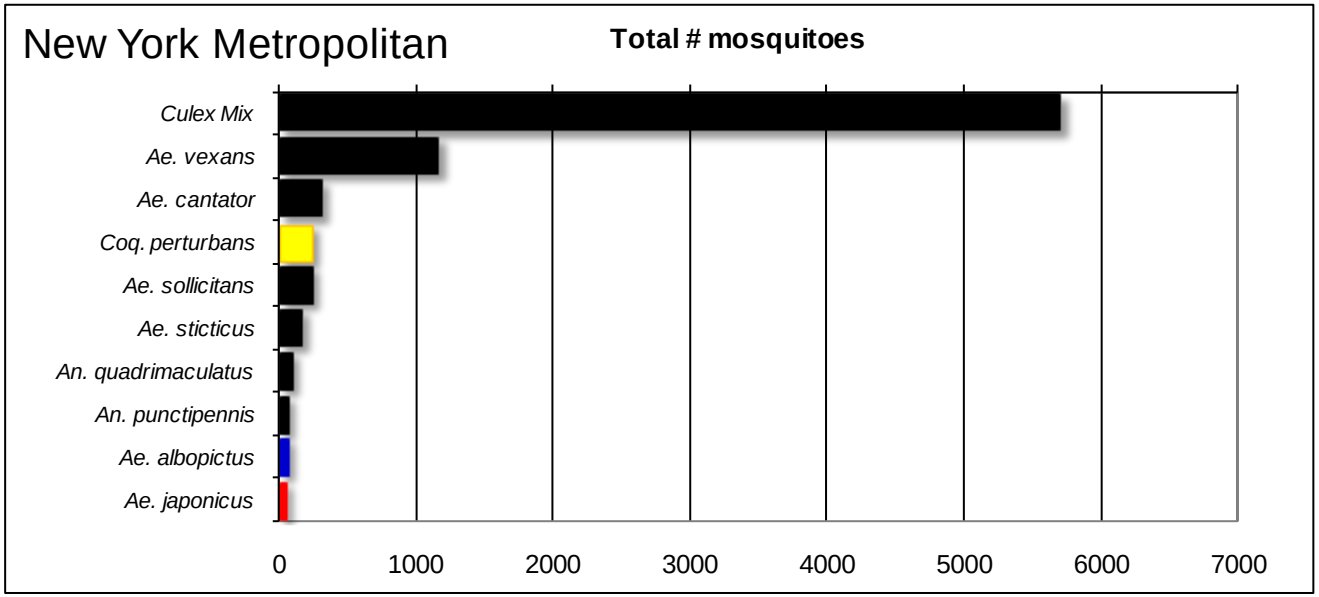
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

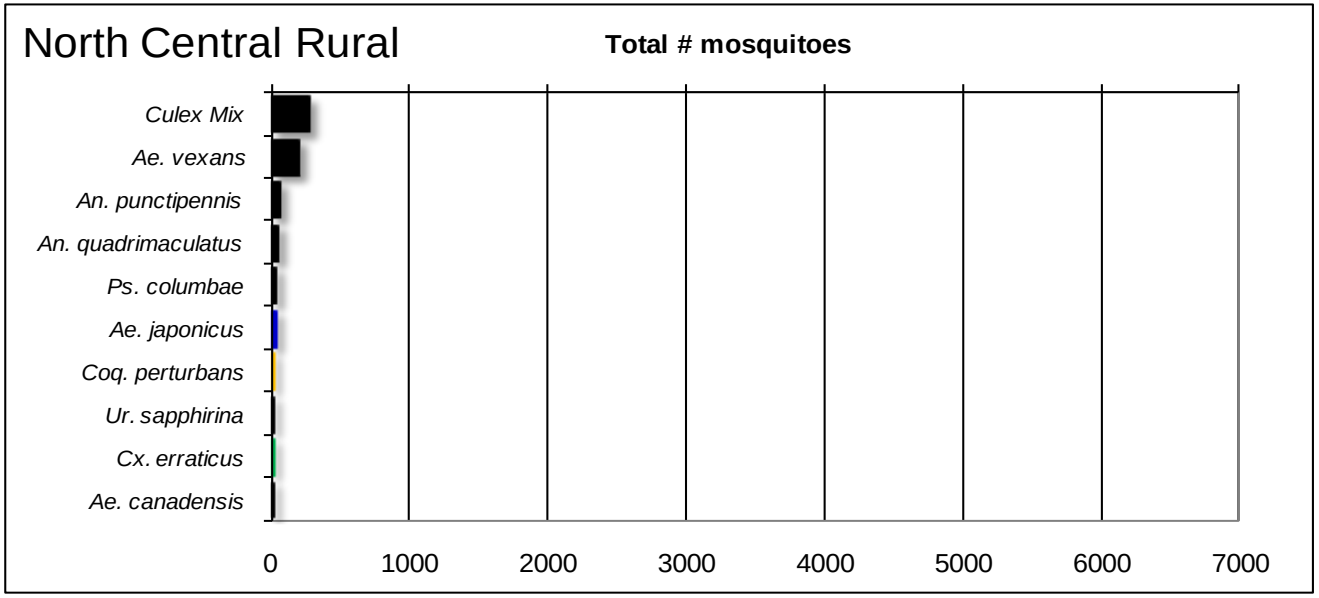


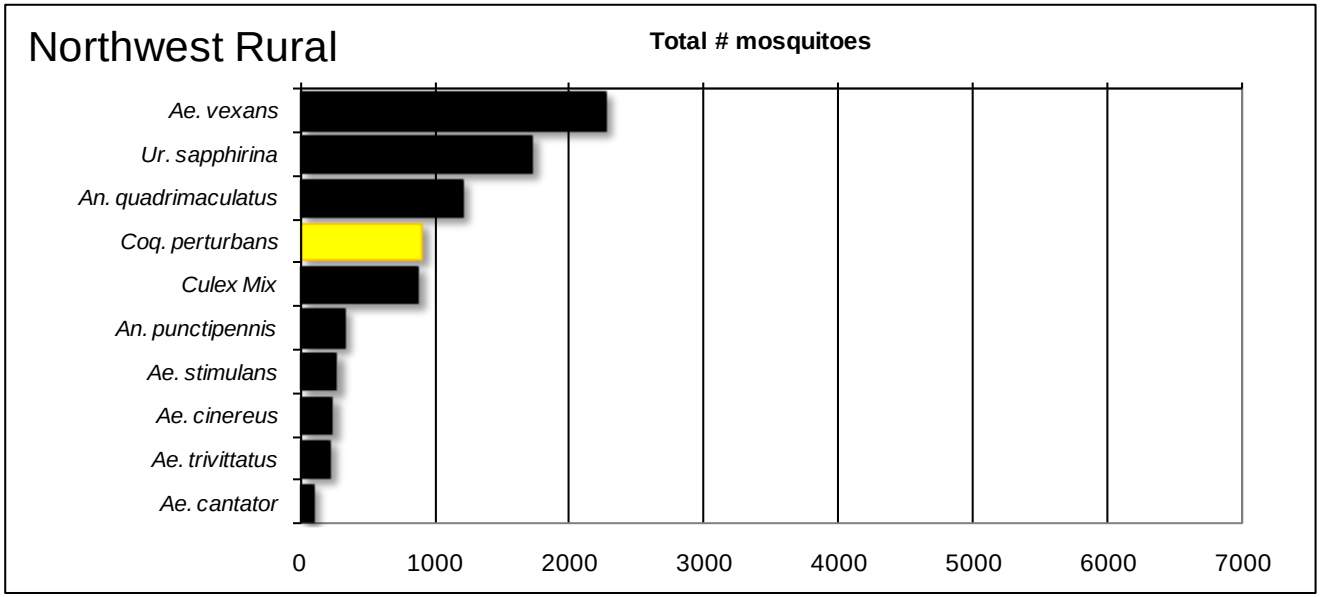

Coastal
Total # mosquitoes
Ae. sollicitans
Ae. cantator
Culex Mix
An. bradleyi
Ae. vexans
Cs. melanura
Coq. perturbans
Ae. canadensis
Ae. taeniorhynchus
An. quadrimaculatus
0
1000
2000
3000
4000
5000
6000
7000

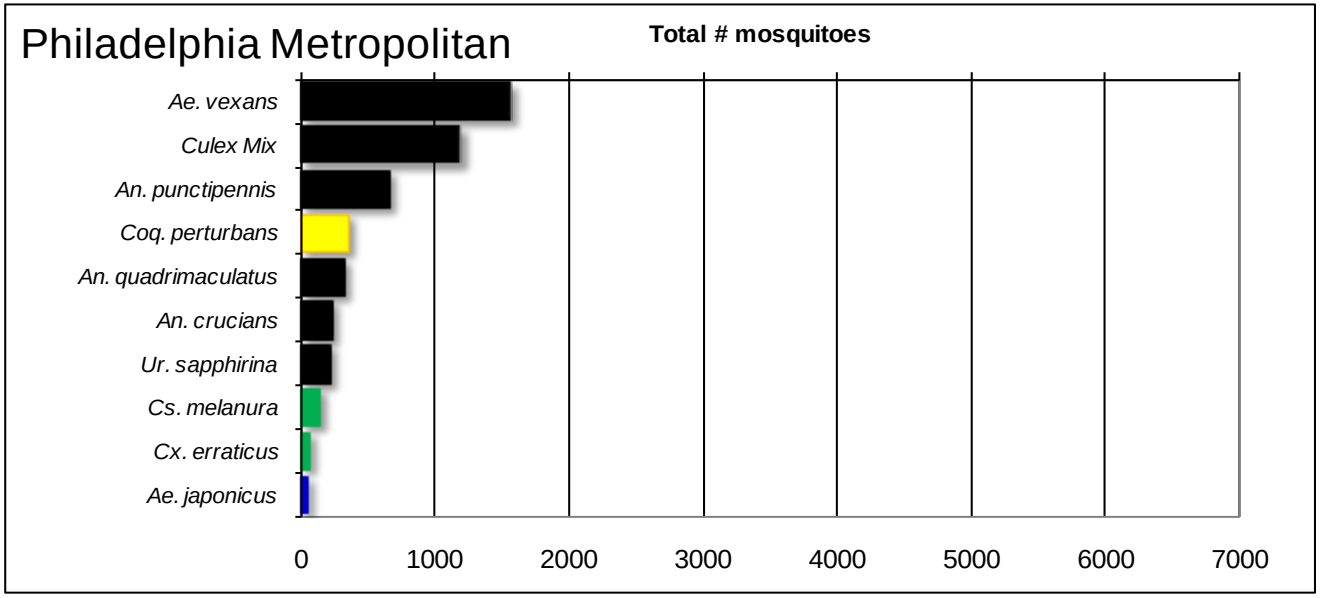

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
An. quadrimaculatus
Cs. melanura
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. vexans
Ae. canadensis
Ae. taeniorhynchus
0
1000
2000
3000
4000
5000
6000
7000

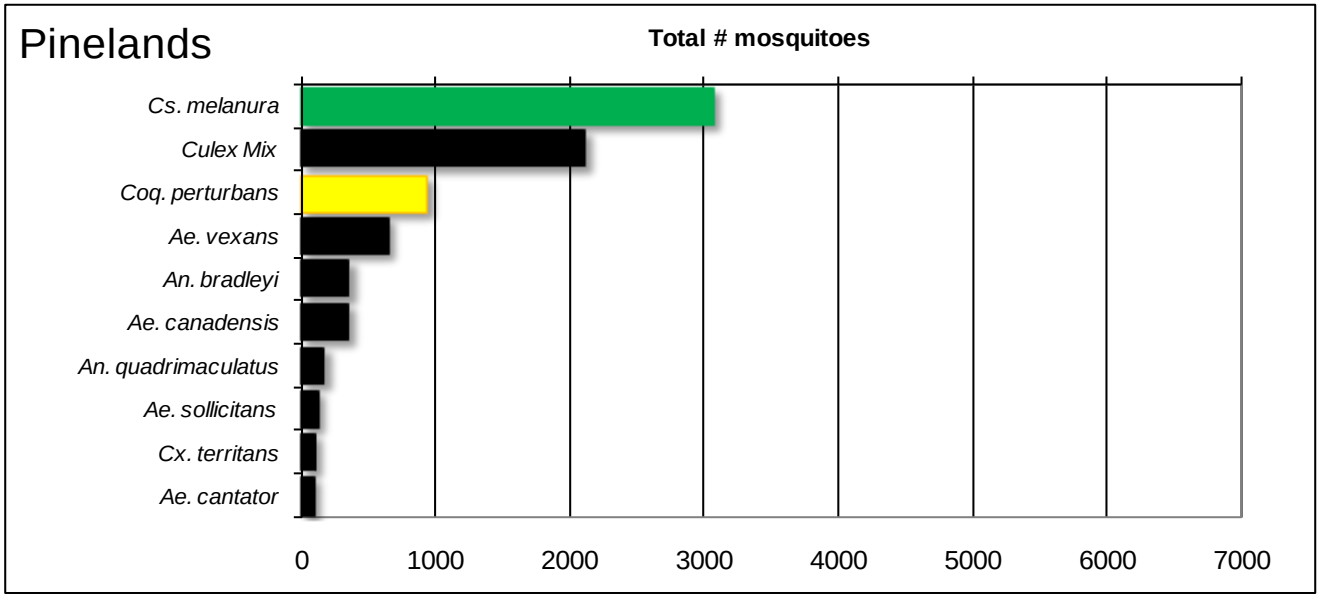

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
Ae. cantator
Ur. sapphirina
Ps. columbae
Ae. sollicitans
Ae. canadensis
Ae. sticticus
0
1000
2000
3000
4000
5000
6000
7000

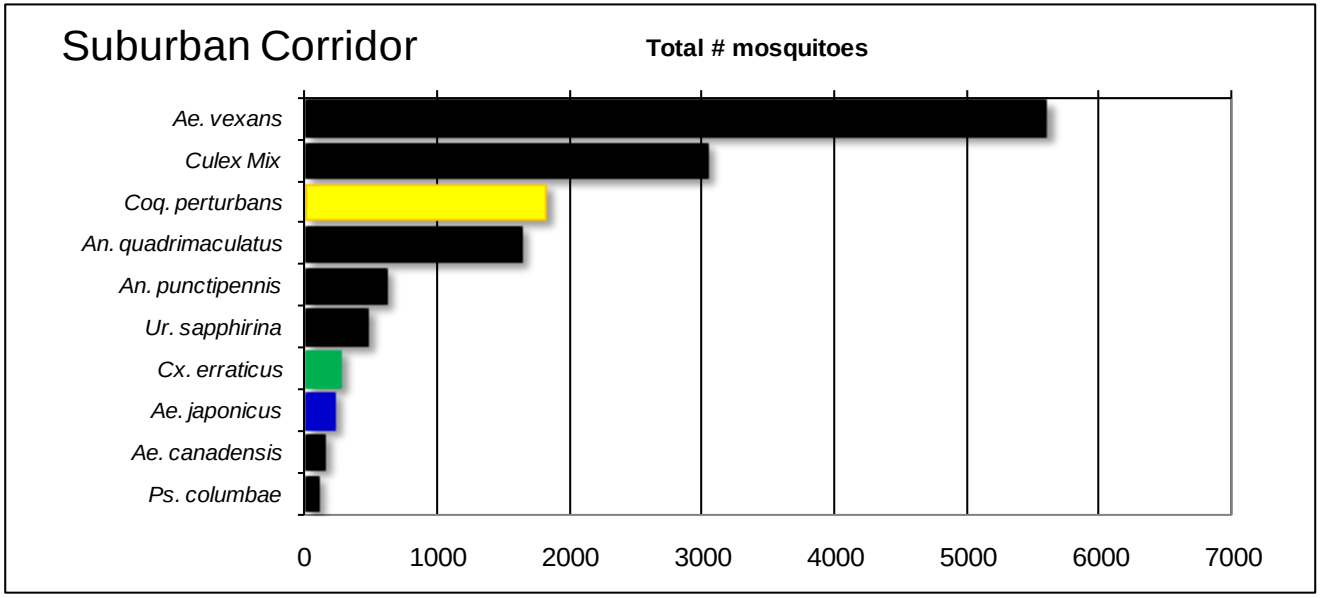

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. sticticus
An. quadrimaculatus
An. punctipennis
Ae. albopictus
Ae. japonicus
0
1000
2000
3000
4000
5000
6000
7000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Ps. columbae
Ae. japonicus
Coq. perturbans
Ur. sapphirina
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
Ae. japonicus
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