RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 22 August to 28 August 2010, CDC Week 34

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Center for Vector Biology

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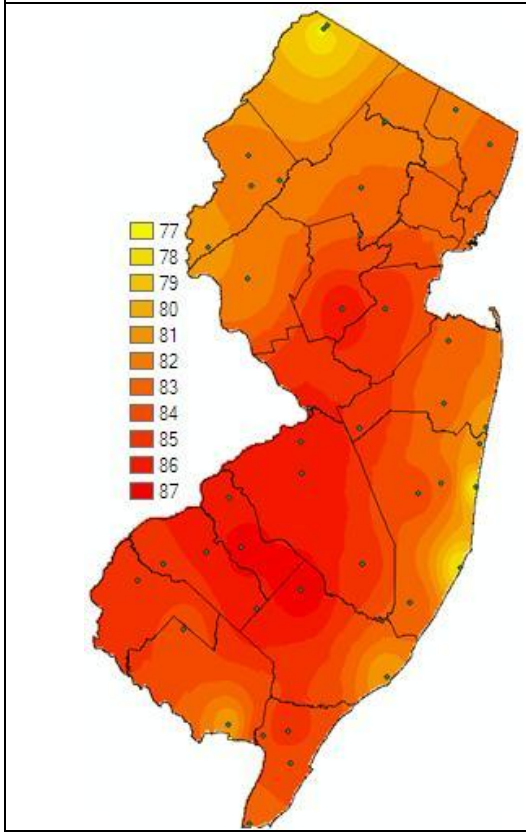
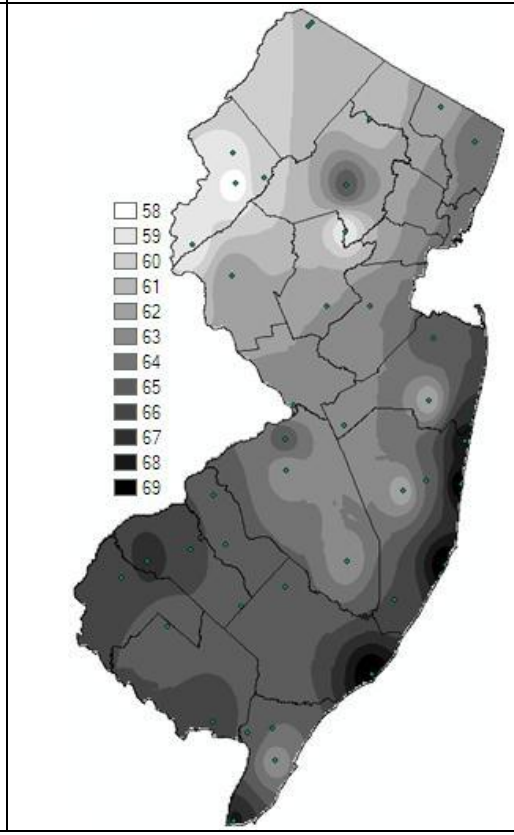
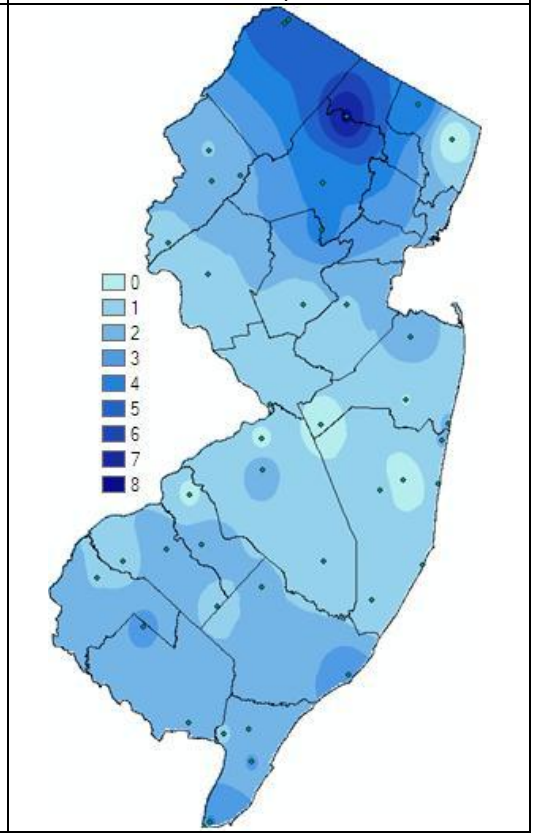
Summary table – Week 34

	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**	**1.56**	**0**	**0.83**	**3.76**	**0**	**0.00**	**0.10**	**0**	**0.00**	**0.59**	**0**
Coastal	**0.02**	**2.62**	**0**	**0.32**	**6.19**	**0**	**0.00**	**0.85**	**0**	**16.08**	**8.50**	**2**
Delaware Bayshore	**0.09**	**0.57**	**0**	**9.83**	**18.13**	**0**	**0.00**	**0.26**	**0**	**0.89**	**8.79**	**0**
Delaware River Basin	**1.36**	**4.67**	**0**	**1.14**	**6.49**	**0**	**0.36**	**0.17**	**3**	**0.00**	**0.01**	**0**
New York Metro	**0.16**	**2.75**	**0**	**2.80**	**5.66**	**0**	**0.06**	**0.10**	**0**	**0.10**	**0.10**	**0**
North Central Rural	**0.06**	**0.38**	**0**	**0.14**	**0.42**	**0**	**0.02**	**0.00**		**0.00**	**0.00**	**0**
Northwest Rural	**2.51**	**5.18**	**0**	**3.09**	**3.39**	**0**	**0.05**	**0.26**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.14**	**6.39**	**0**	**0.12**	**3.20**	**0**	**0.00**	**0.15**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.05**	**1.29**	**0**	**0.84**	**3.16**	**0**	**0.31**	**0.21**	**1**	**0.08**	**0.25**	**0**
Suburban Corridor	**0.08**	**4.31**	**0**	**0.49**	**2.20**	**0**	**0.03**	**0.32**	**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 be given.

State Summary: While other pestiferous species show declining activity, *Coquillettidia perturbans* continues to show higher than average trends in the Delaware River Basin and Pinelands regions (as well as in the North Central, although populations are small, in comparison). There was a burst of activity in the Coastal region from *Aedes sollicitans*.

Climate Factors

Average High Temperatures	Average Low Temperatures	Total Precipitation
		

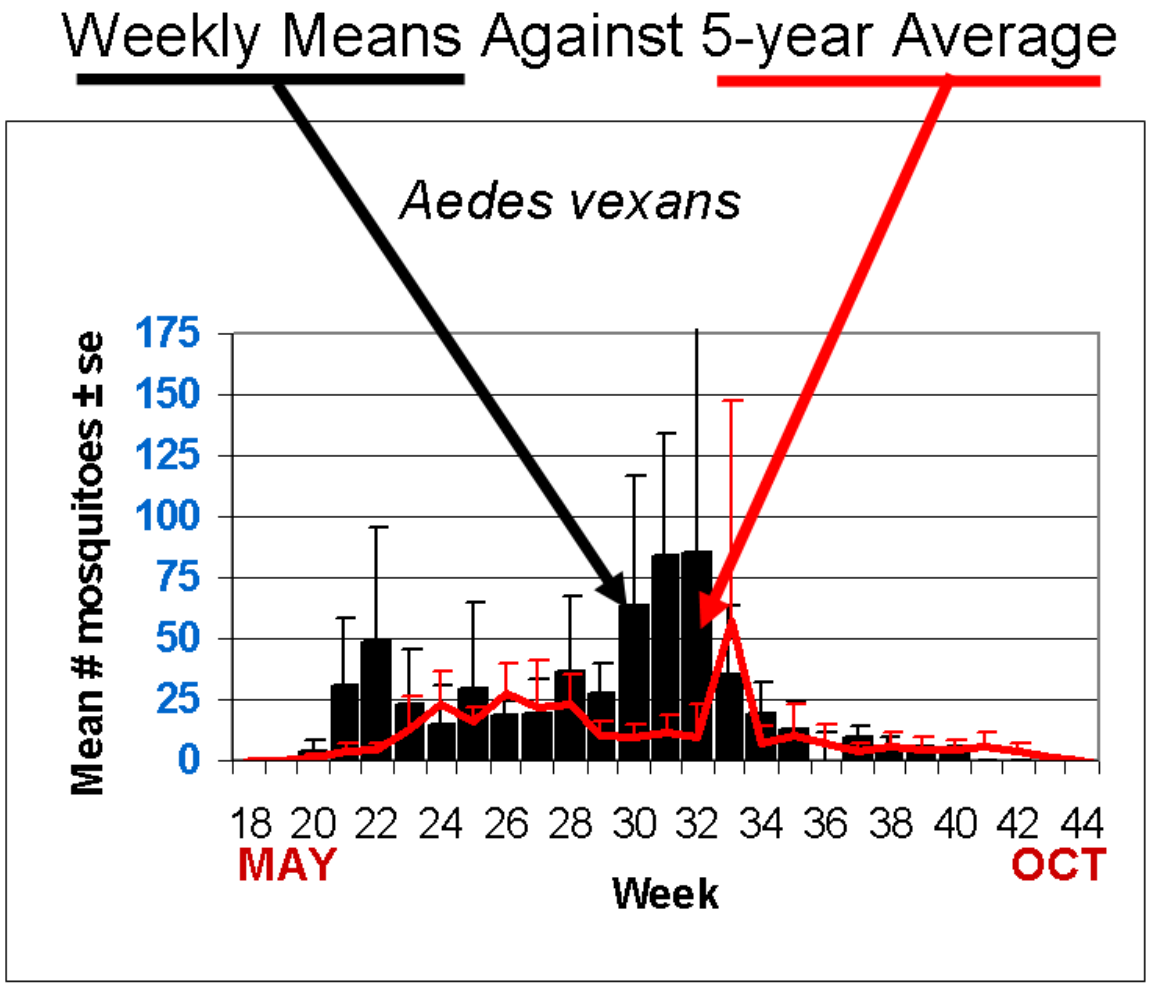
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for August 1-31, 2010 in New Jersey. Data points are from 40 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

This past week had minor changes for highs and lows from the previous week, with patterns typical for August. The previous month of July was the second warmest on record, and this summer may end up the warmest (and driest?) on record. As with last week, coastal and higher elevation areas are cooler during the day, but the coastal areas retain heat during the night. Precipitation only changed minimally at two stations, likely adjustment to the data points.

NJ Weather & Climate NETWORK

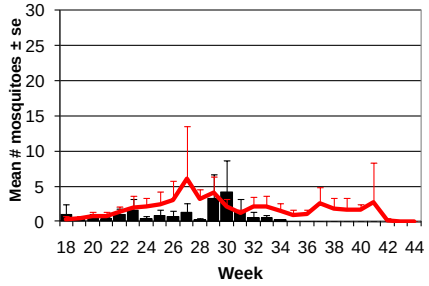
ONJSC at Rutgers University

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, 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, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties.

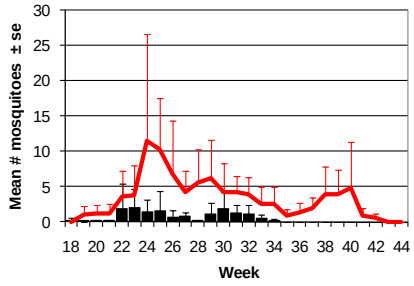


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

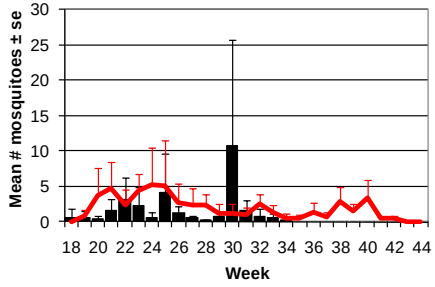
Agricultural



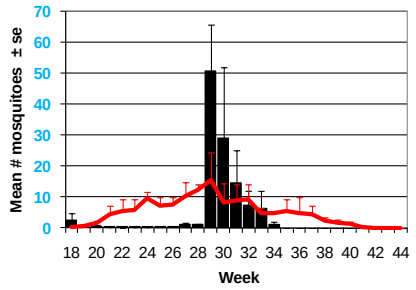
Coastal



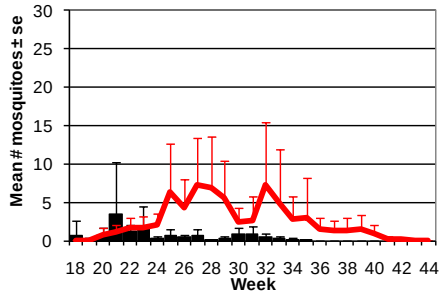
Delaware Bayshore



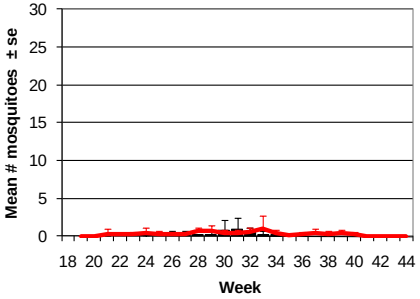
Delaware River Basin



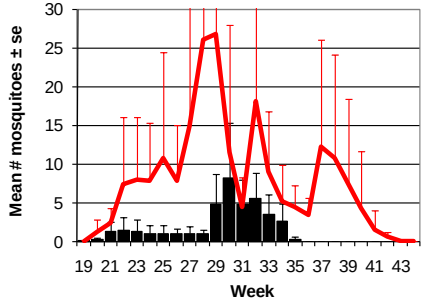
New York Metro



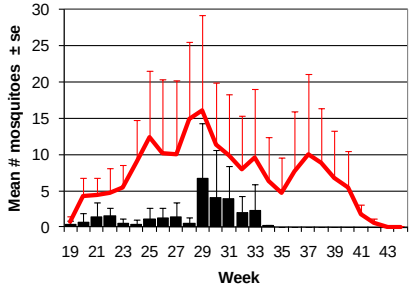
North Central Rural



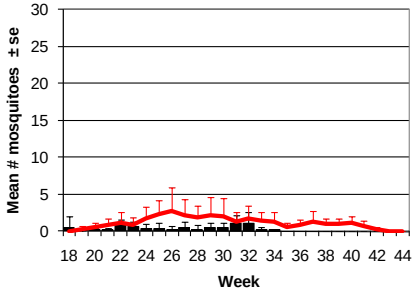
Northwestern Rural



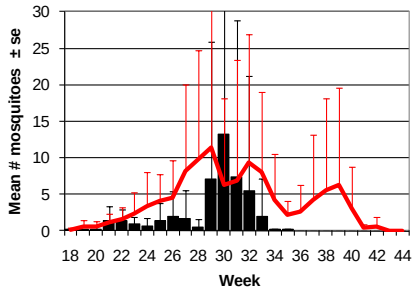
Philadelphia Metro



Pinelands



Suburban Corridor

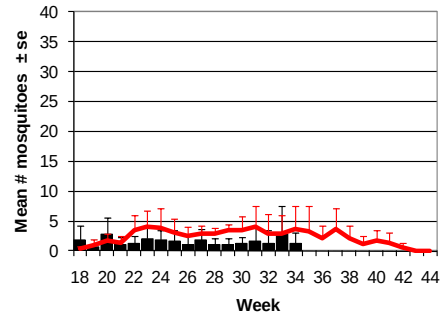


Comments

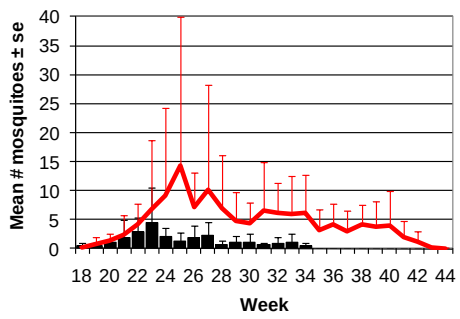
Aedes vexans populations continued to show the impact of drought conditions, with populations throughout the state at levels below the average historical trends. Despite the passage of (now) Tropical Storm Earl, it is unlikely that enough rainfall will occur to offset the parchment of the soil.

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

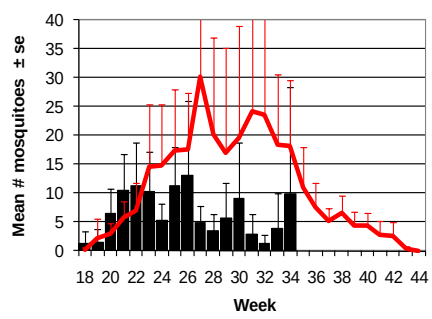
Agricultural



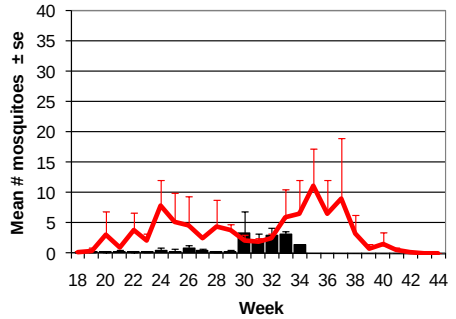
Coastal



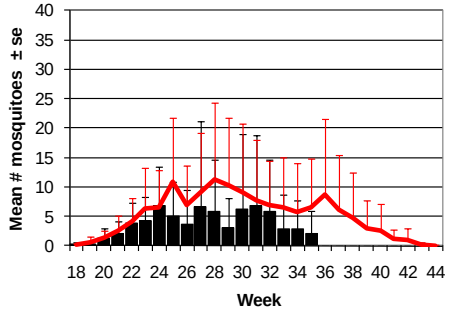
Delaware Bayshore



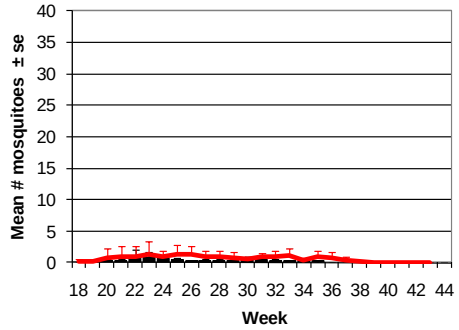
Delaware River Basin



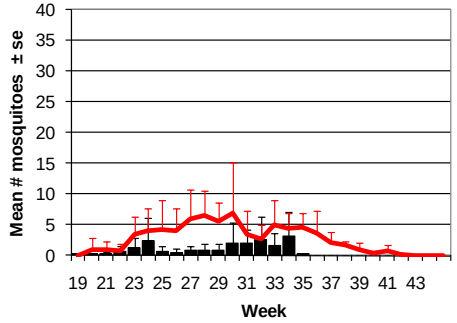
New York Metro



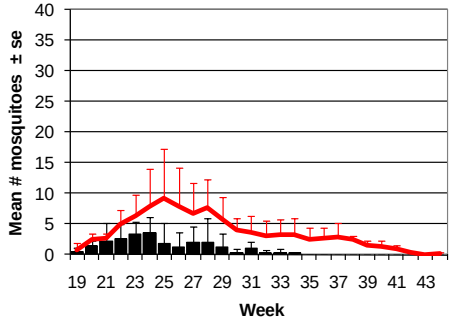
North Central Rural



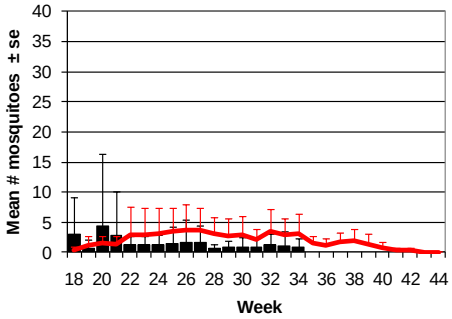
Northwestern Rural



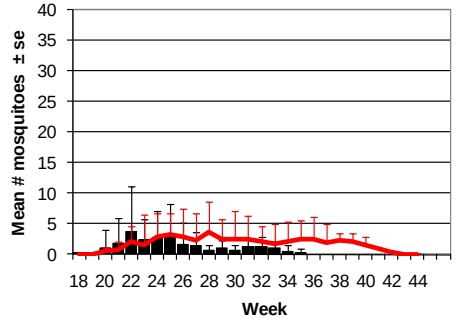
Philadelphia Metro



Pinelands



Suburban Corridor

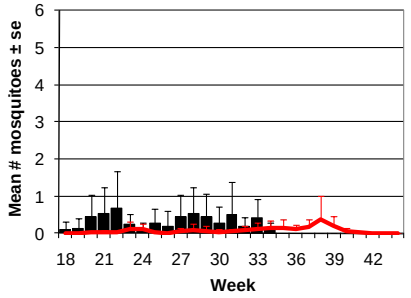
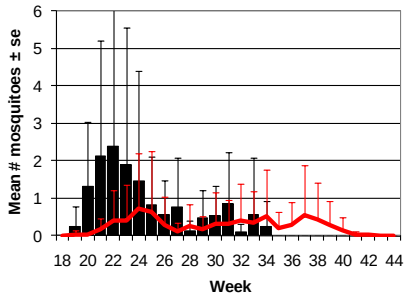
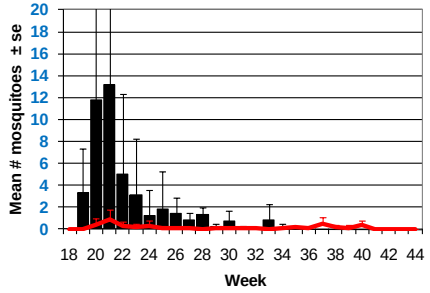
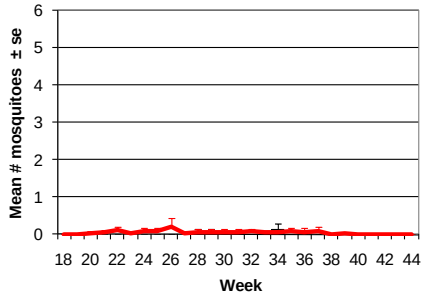
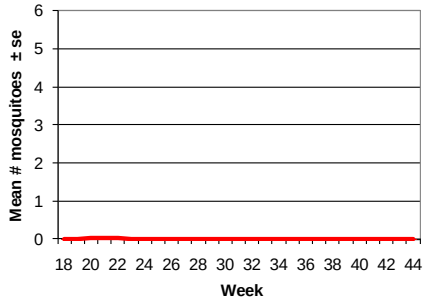
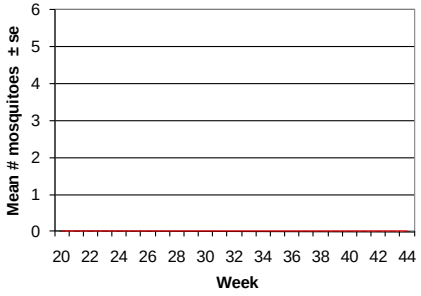
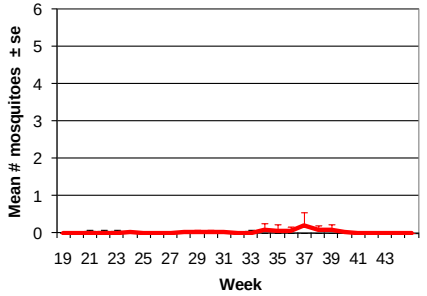
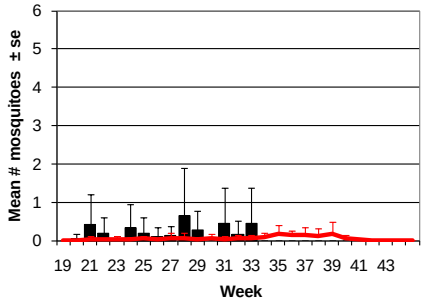
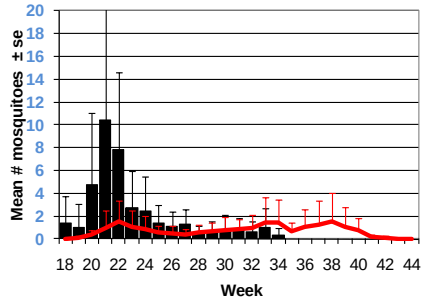
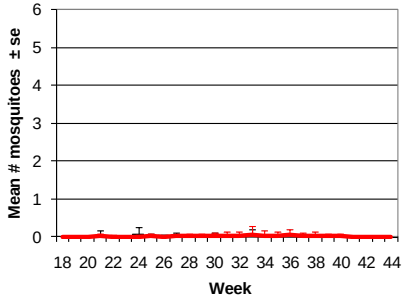


Comments

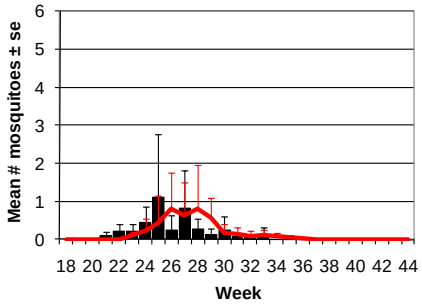
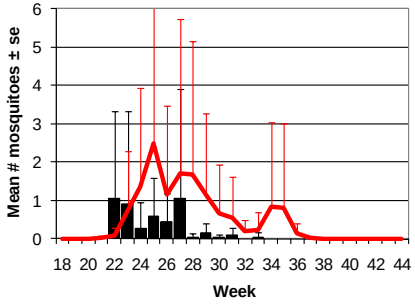
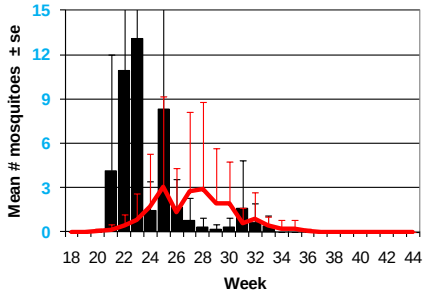
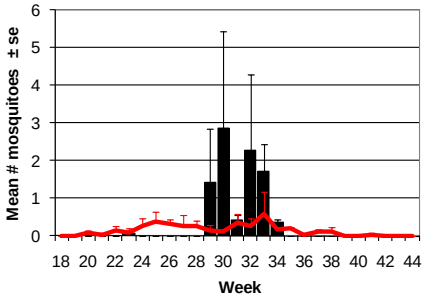
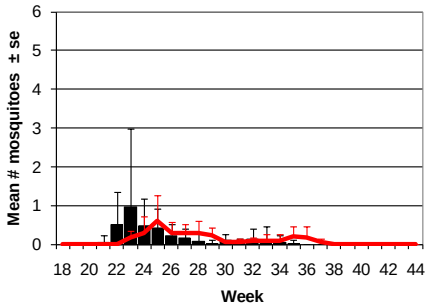
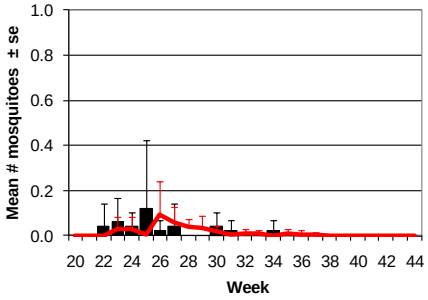
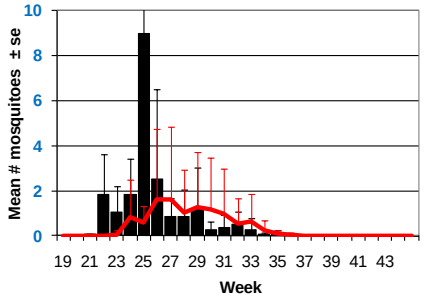
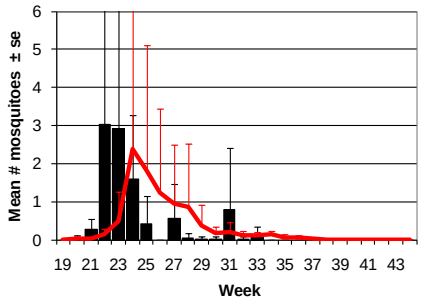
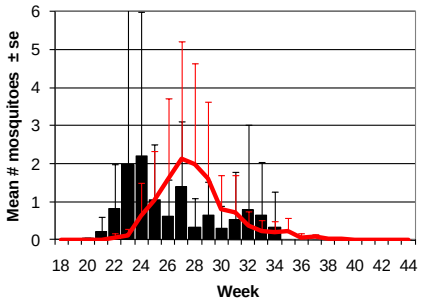
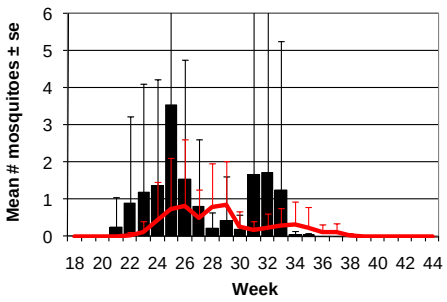
Culex Mix is represented by three species of *Culex* mosquitoes: *Cx. pipiens, Cx. restuans* and *Cx. salinarius*. These mosquitoes are usually grouped together as there is considerable difficulty in separating them to species easily after travelling through the grind of the light trap, often in the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

Culex Mix species continue to show the drought effects with reduced populations. Despite this population reduction (or, more accurately, most likely because of the drought conditions), New Jersey is on track to producing the highest number of WNV positive pools for the vector surveillance program for this year.

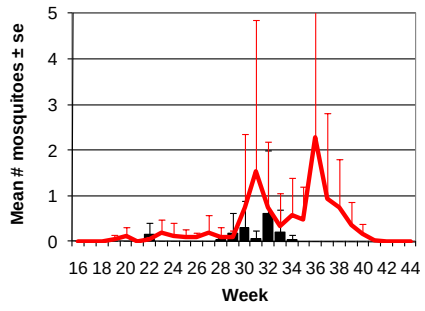
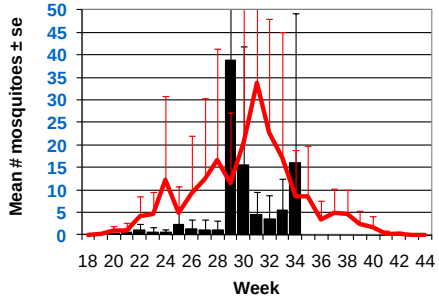
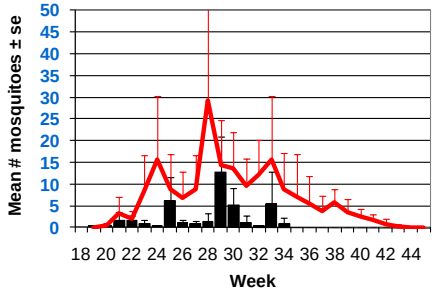
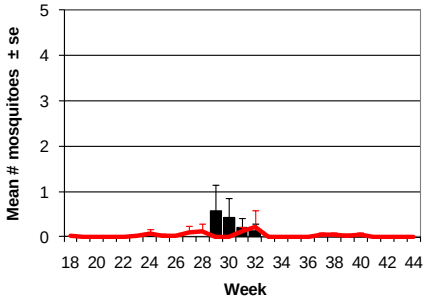
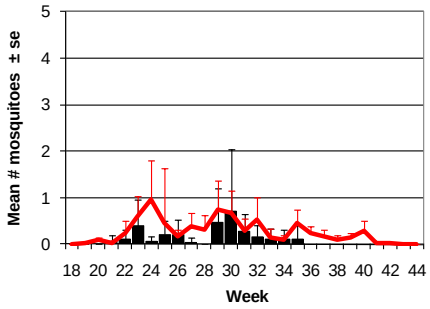
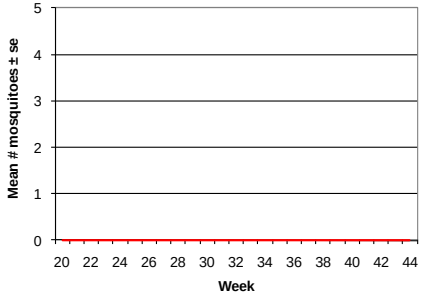
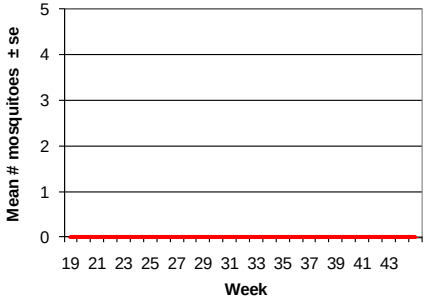
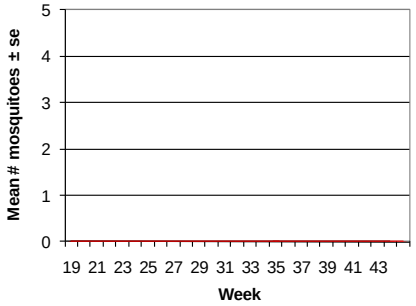
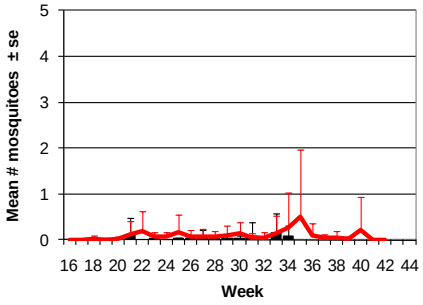
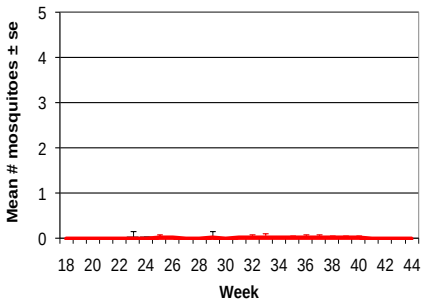
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

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, continues to remain around historic trends in areas that they are normally found. Eastern equine activity continues, but is currently at lower levels than last year at this time (15 versus 44 positive pools). Activity is primarily in *Cs. melanura*.	

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

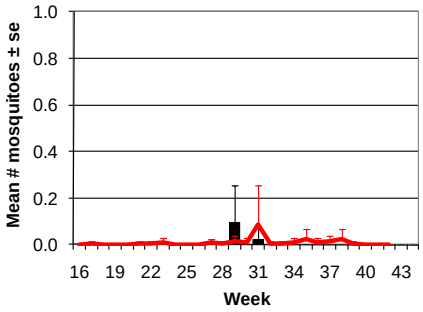
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations continue to show higher than historical trends in some regions such as the Delaware River Basin and the Pinelands. The populations in the North Central Rural region are also higher than historical trends, although values for this population are considerably lower than for the previous two. Life history (attachment to emergent vegetation in permanent waters) likely aided this species to survive drought conditions as larvae better than others.	

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

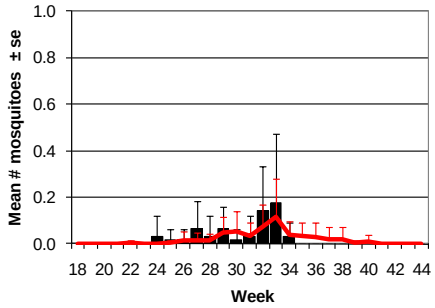
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* population numbers continue to be low, except for the Coastal region, which experienced a significant emergence as a result of high lunar tide and precipitation. September 23rd is the next full moon.	

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

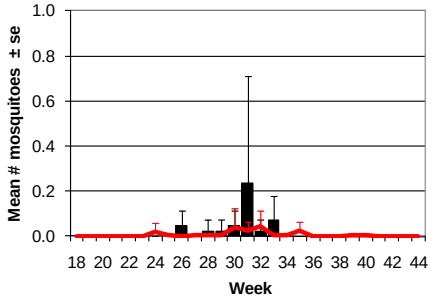
Agricultural



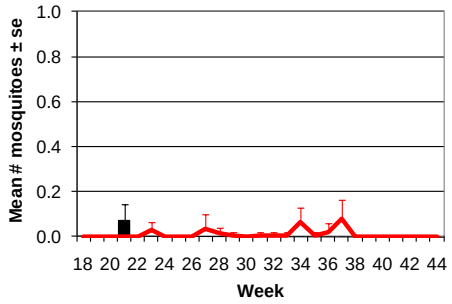
Coastal



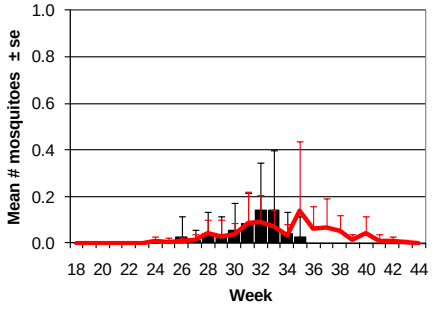
Delaware Bayshore



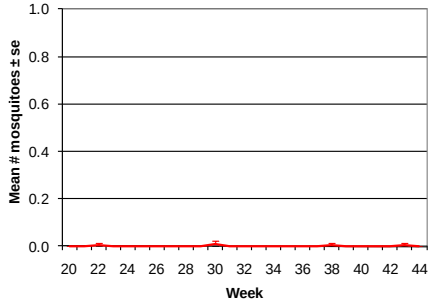
Delaware River Basin



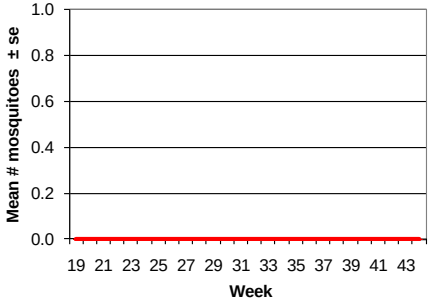
New York Metro



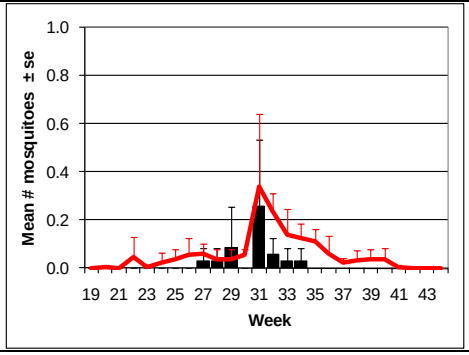
North Central Rural



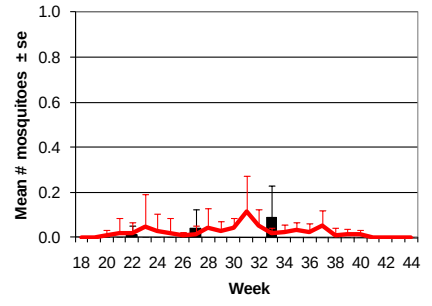
Northwestern Rural



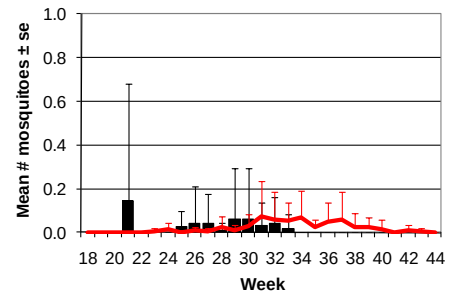
Philadelphia Metro



Pinelands



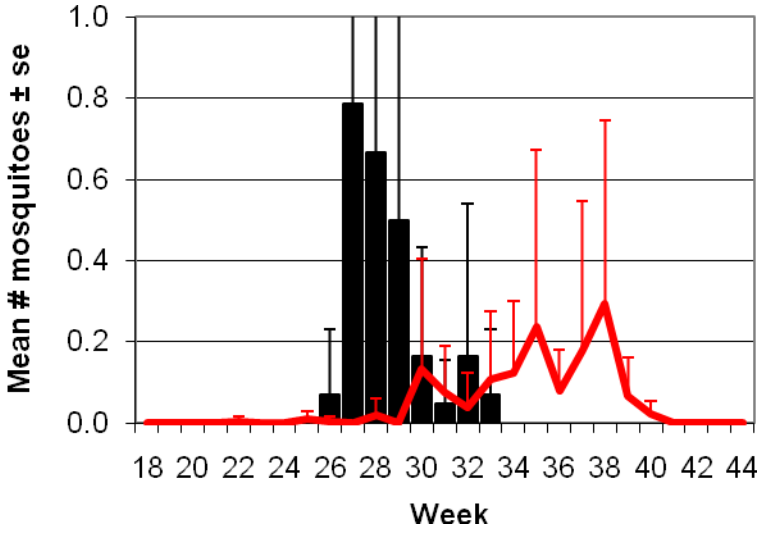
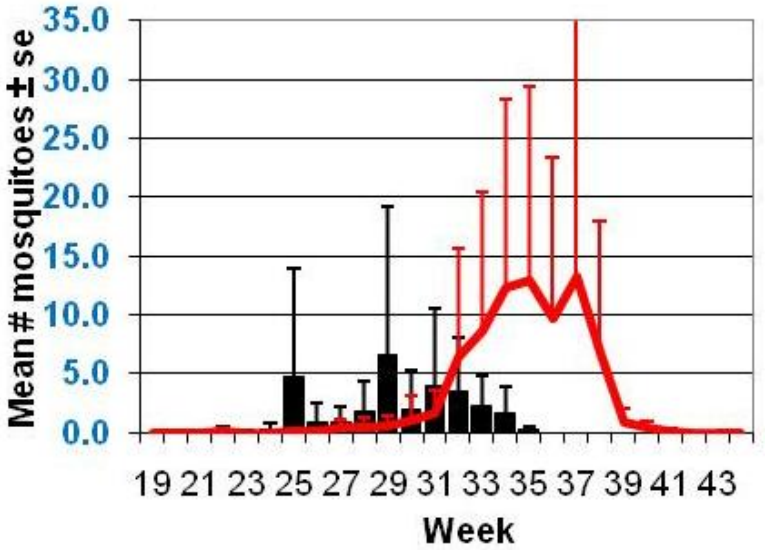
Suburban Corridor



Comments

Aedes albopictus, the Asian Tiger Mosquito, has decreased activity throughout the state from the previous week. West Nile virus activity has shown up in this species, with seven positive pools, as of last week.

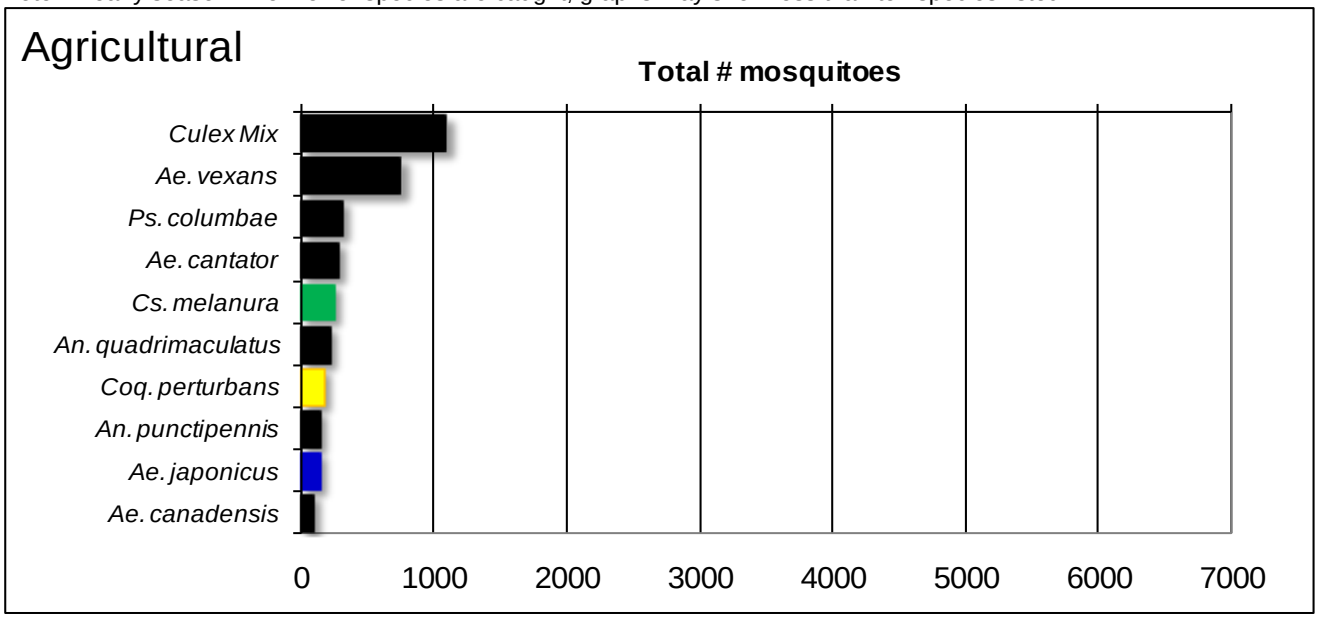
Uranotaenia sapphirina: This multivoltine species that inhabit (mostly) permanent water habitats shows the effect of a warm, wet spring and subsequent drought conditions. This species overwinters as inseminated females, which emerged early in response to the warm (http://climate.rutgers.edu/stateclim/images/nj_12month_temp_dep.JPG), wet (http://climate.rutgers.edu/stateclim/images/nj_12month_pcp_dep.JPG) spring New Jersey experienced. As with other permanent water species, drought conditions may have taken longer to have an effect on population levels. This species is not known to play a role in arboviral epidemiologies (although they have been found positive for WNV and EEE), and, as their name implies, have blue scales that are iridescent.

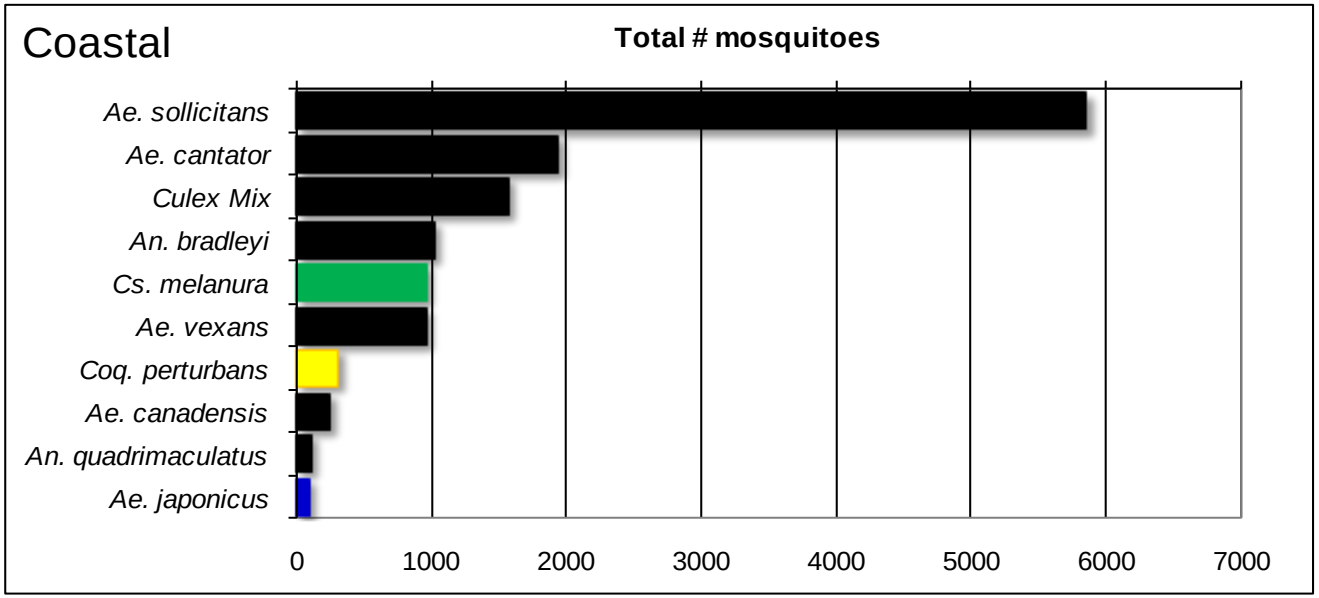
Delaware Bayshore	Northwestern Rural
	

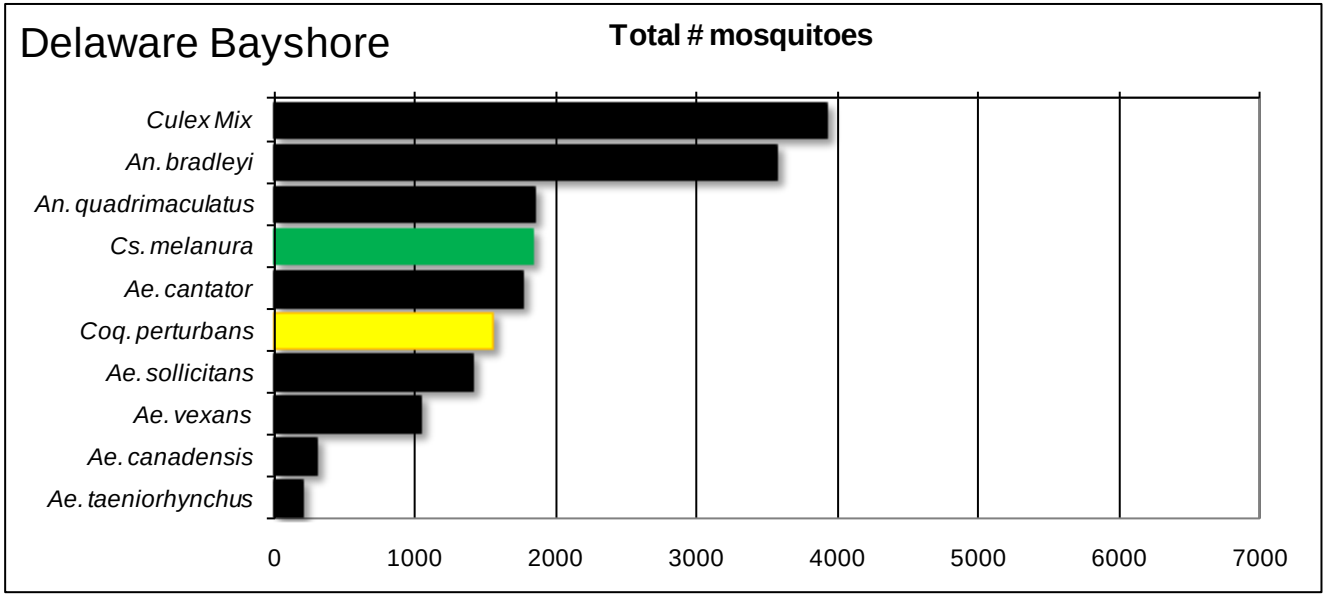
WNV *EEE*

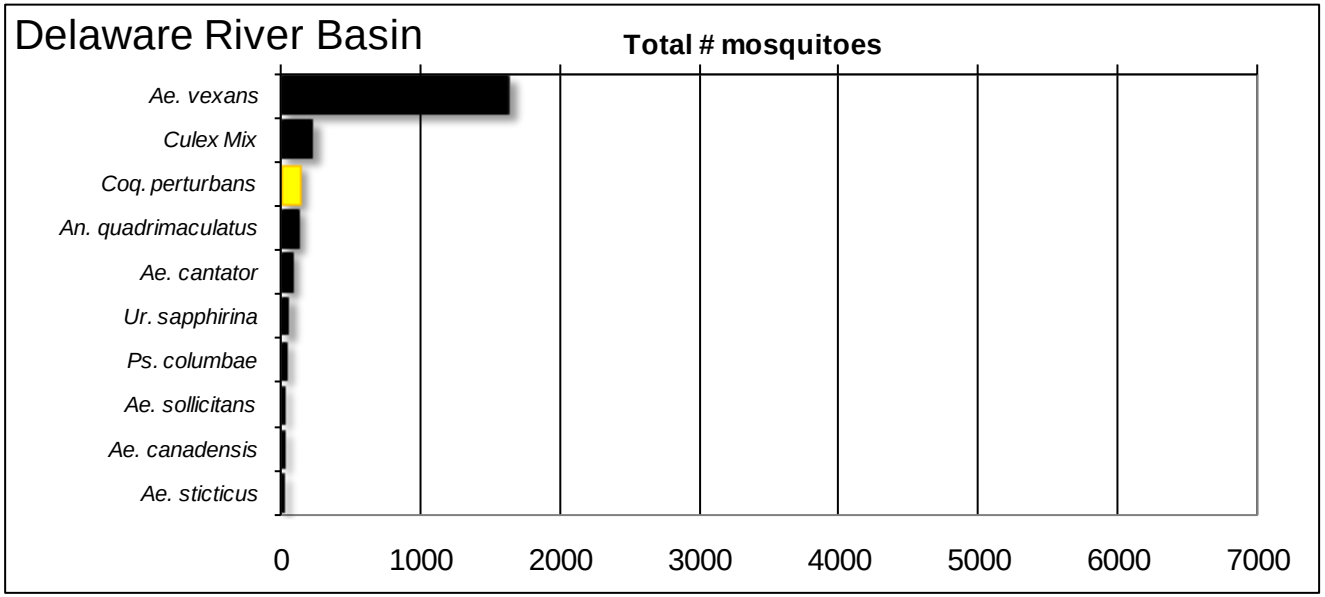
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

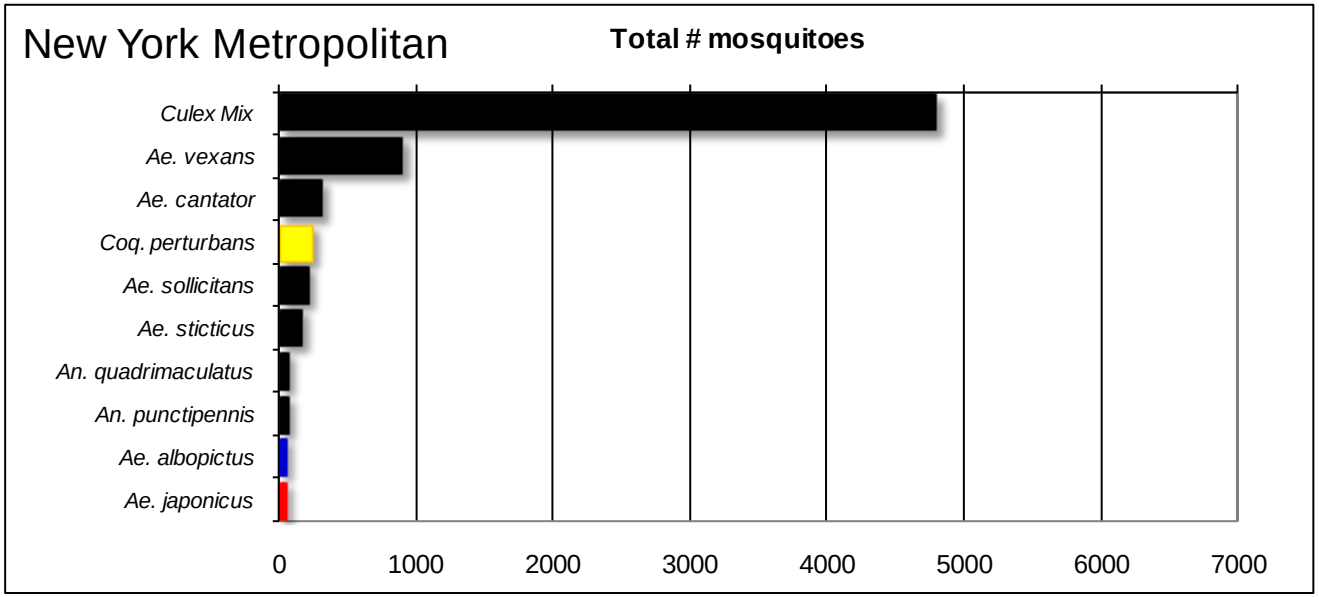
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

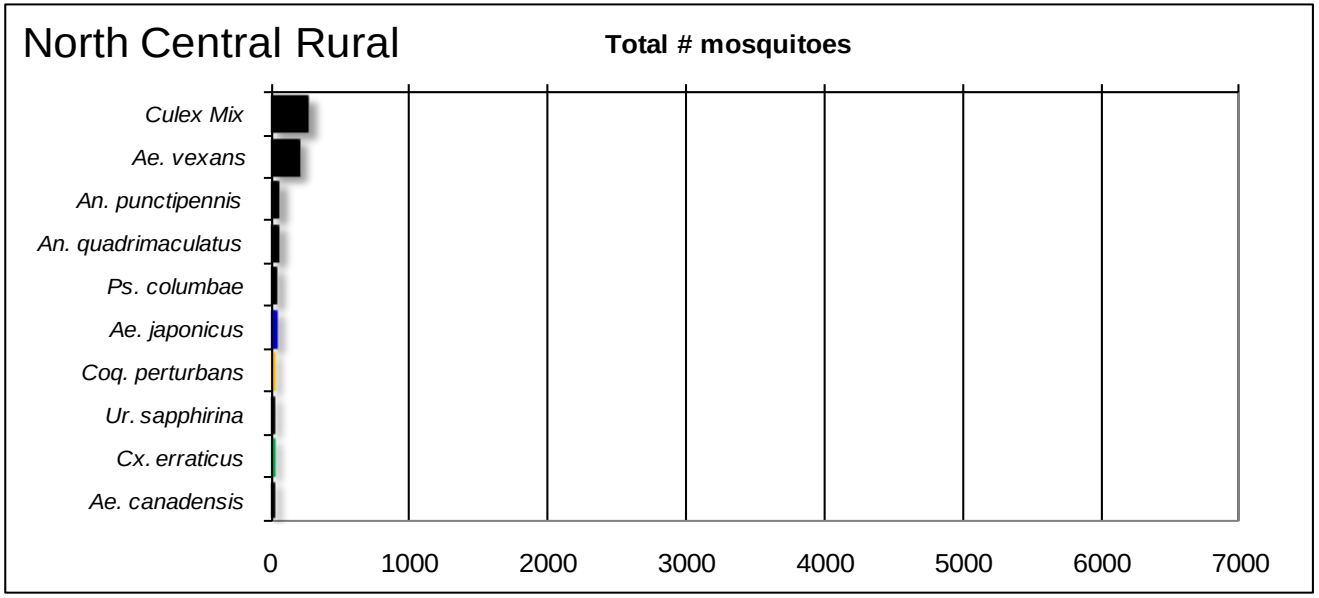


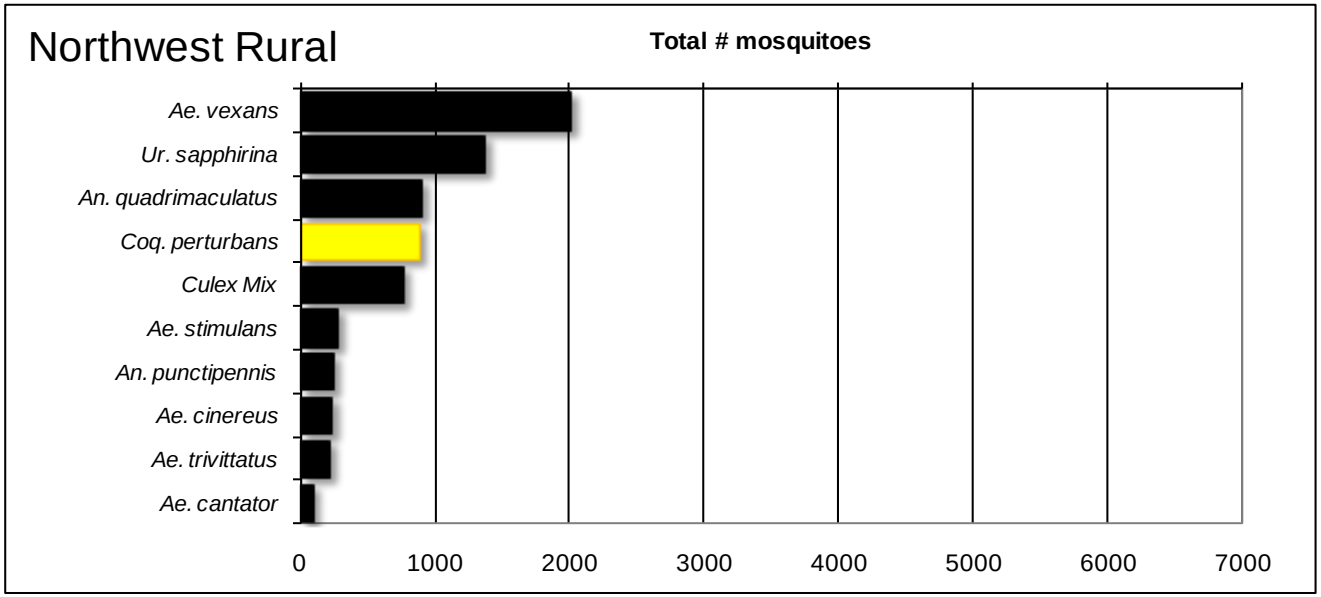


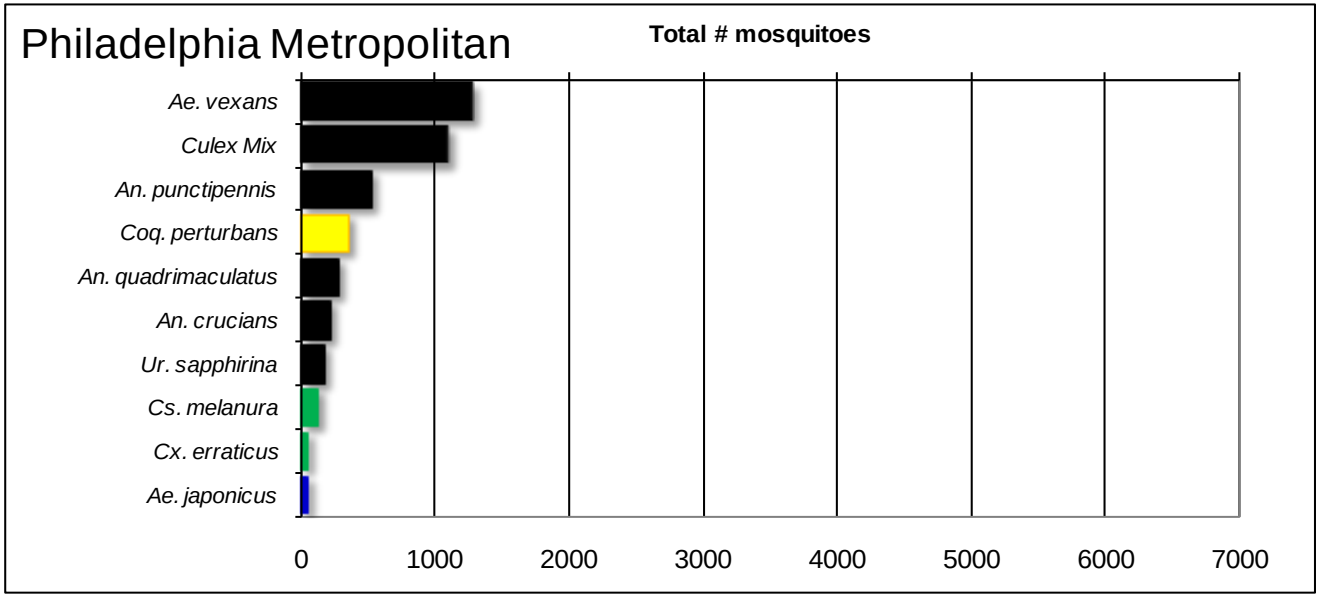

Delaware Bayshore
Total # mosquitoes
Culex Mix
An. bradleyi
An. quadrimaculatus
Cs. melanura
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. vexans
Ae. canadensis
Ae. taeniorhynchus
0
1000
2000
3000
4000
5000
6000
7000

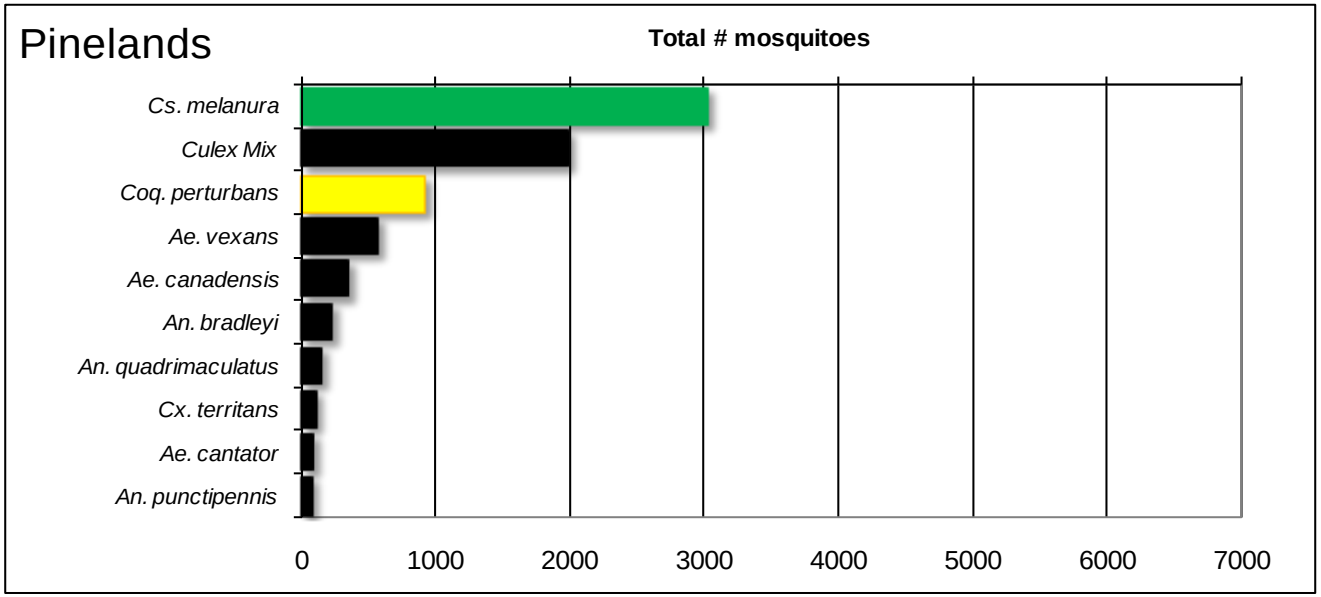

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
Ae. cantator
Ur. sapphirina
Ps. columbae
Ae. sollicitans
Ae. canadensis
Ae. sticticus
0
1000
2000
3000
4000
5000
6000
7000

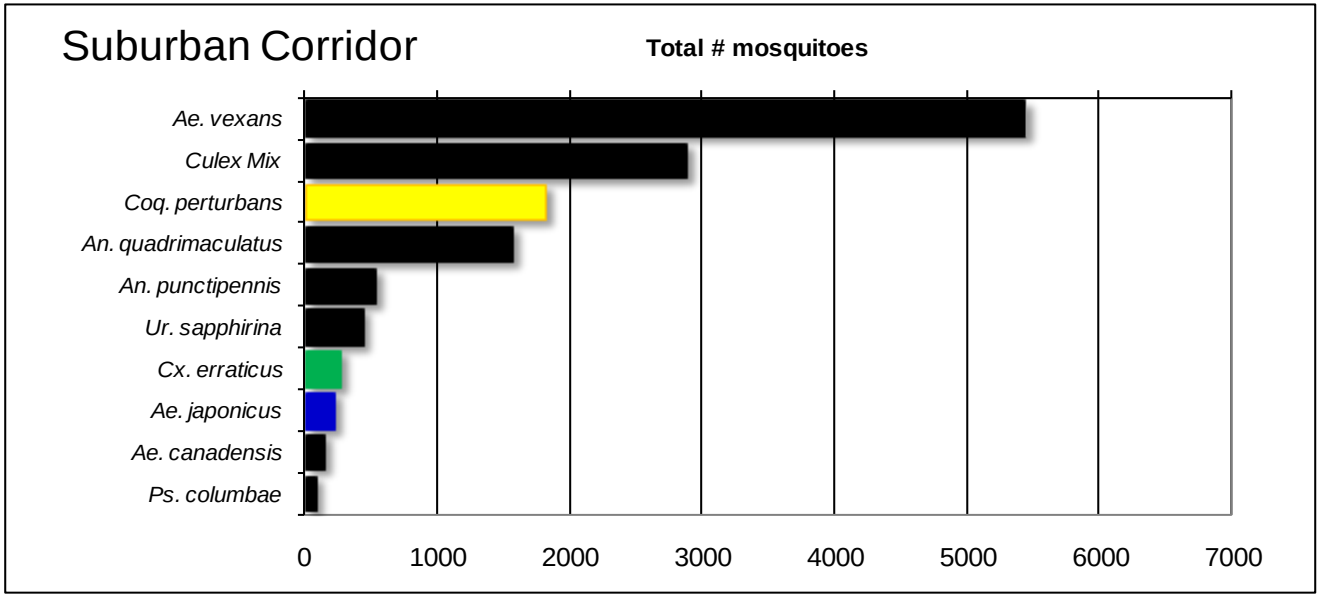

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. sticticus
An. quadrimaculatus
An. punctipennis
Ae. albopictus
Ae. japonicus
0
1000
2000
3000
4000
5000
6000
7000


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
Ae. stimulans
An. punctipennis
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
Ae. canadensis
An. bradleyi
An. quadrimaculatus
Cx. territans
Ae. cantator
An. punctipennis
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