RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 15 August to 21 August 2010, CDC Week 33

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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.

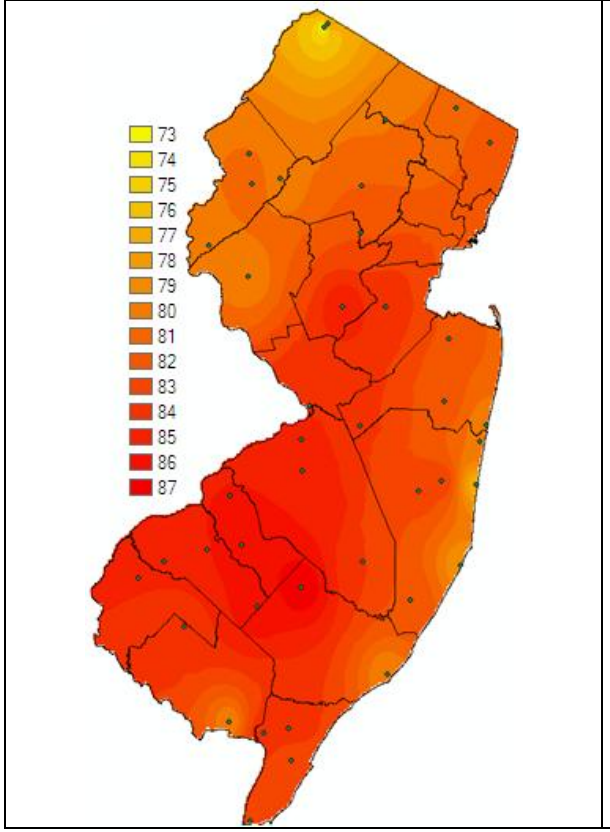
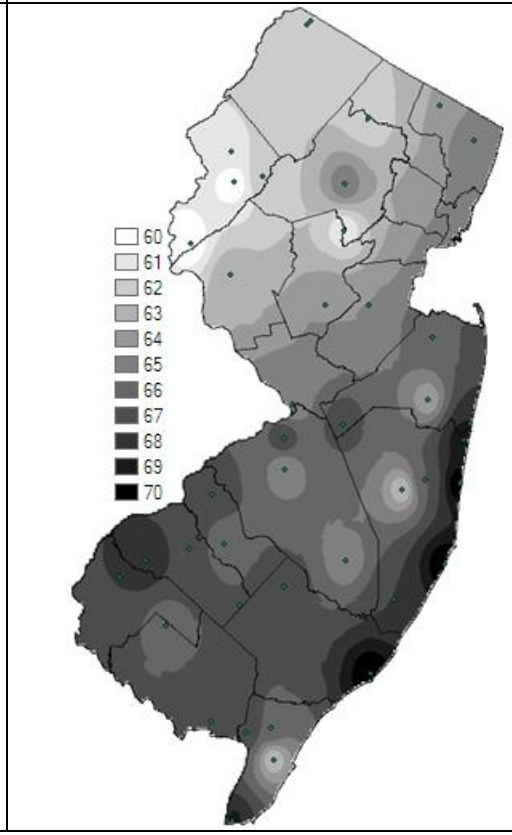
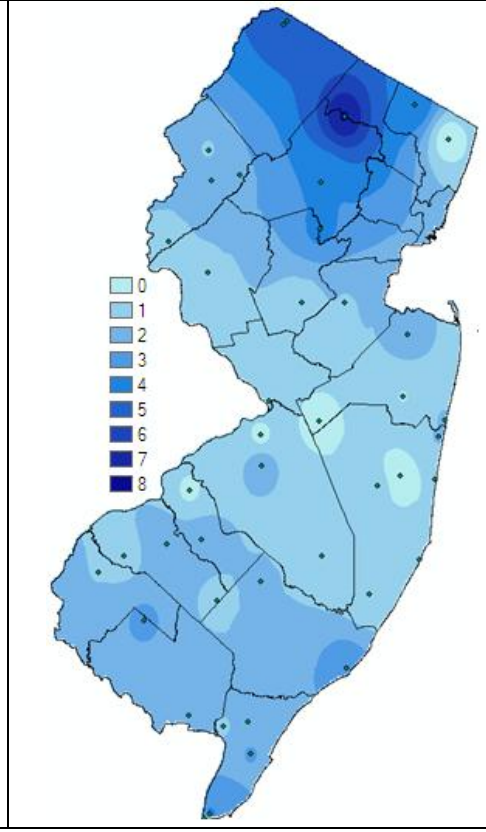
Summary table – Week 33

	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	**0.45**	**2.10**	**0**	**2.79**	**2.83**	**0**	**0.14**	**0.11**	**1**	**0.21**	**0.35**	**0**
Coastal	**0.40**	**2.61**	**0**	**0.41**	**6.25**	**0**	**0.05**	**0.23**	**0**	**2.92**	**17.10**	**0**
Delaware Bayshore	**0.26**	**1.30**	**0**	**0.74**	**18.34**	**0**	**0.17**	**0.45**	**0**	**0.63**	**15.77**	**0**
Delaware River Basin	**6.50**	**4.70**	**1**	**3.21**	**5.90**	**0**	**1.71**	**0.58**	**4**	**0.00**	**0.00**	**0**
New York Metro	**0.13**	**4.91**	**0**	**2.89**	**6.63**	**0**	**0.11**	**0.10**	**1**	**0.11**	**0.14**	**0**
North Central Rural	**0.22**	**1.03**	**0**	**0.18**	**1.14**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**3.31**	**8.96**	**0**	**1.54**	**4.92**	**0**	**0.29**	**0.63**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**2.24**	**9.54**	**0**	**0.36**	**3.28**	**0**	**0.11**	**0.12**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.14**	**1.39**	**0**	**0.53**	**2.86**	**0**	**0.47**	**0.24**	**2**	**0.04**	**0.15**	**0**
Suburban Corridor	**2.01**	**8.11**	**0**	**0.97**	**1.71**	**0**	**1.26**	**0.30**	**4**	**0.00**	**0.03**	**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: *Coquillettidia perturbans* continue to show increased activity in the Agricultural, Delaware River Basin, New York Metro, the Pinelands and the Suburban Corridor regions. *Aedes vexans* only had increased activity in the Delaware River Basin.

Climate Factors

Average High Temperatures	Average Low Temperatures	Total Precipitation
		

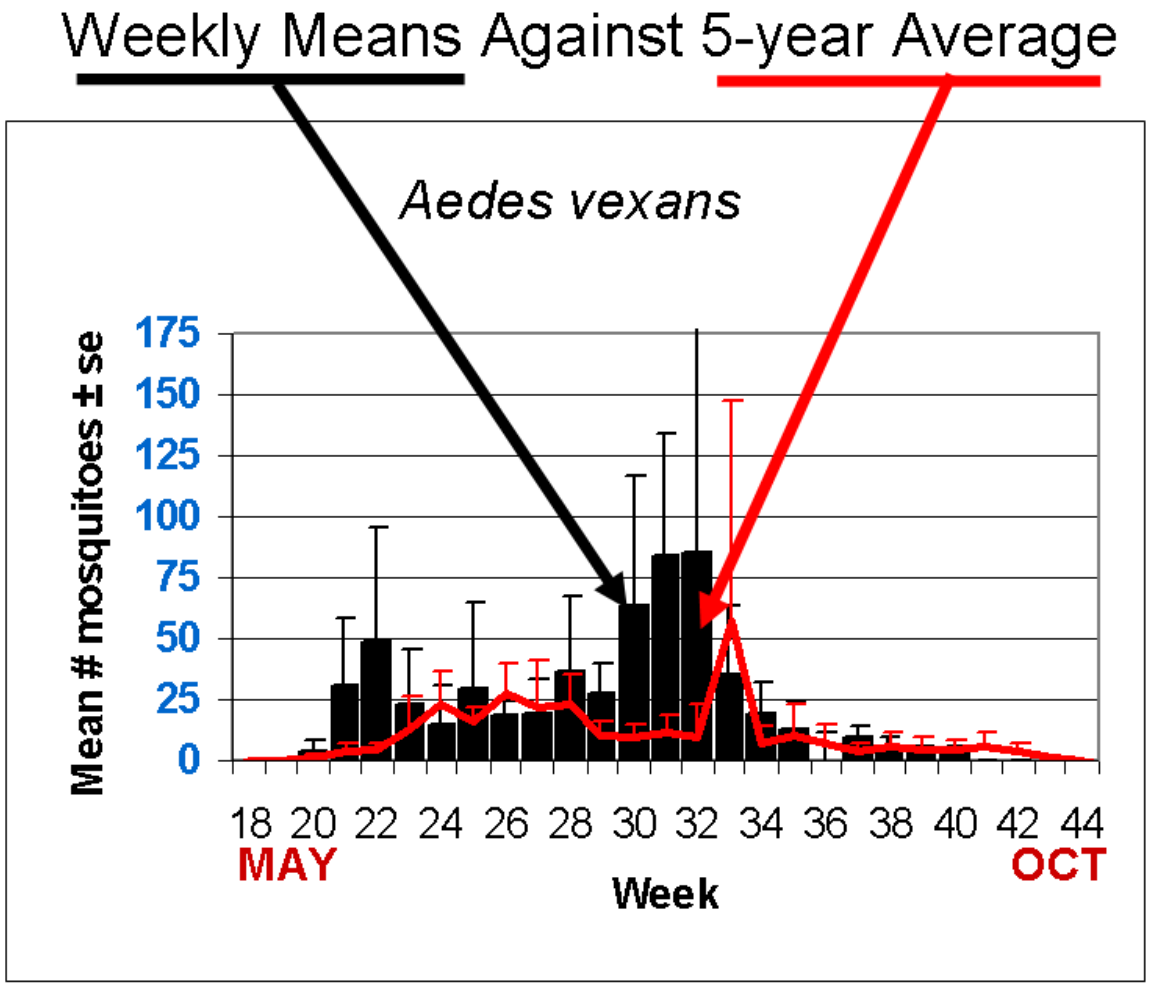
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for August 1-26, 2010 in New Jersey. Data points are from 40 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

This past week saw a substantial cooling effect as both day and nighttime temperatures decreased with the advent of rain. As with last week, coastal and higher elevation areas are cooler during the day, but the coastal areas retain heat during the night. Highest precipitation came to the northern portions of the state. Most of the state saw an increase from half an inch to several inches of sustained rainfall.

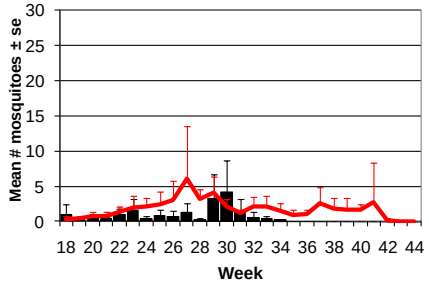
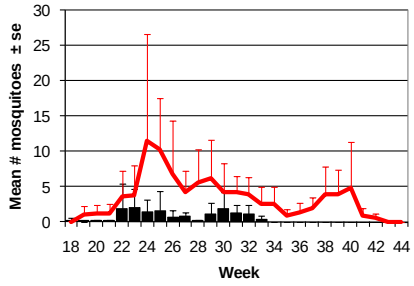
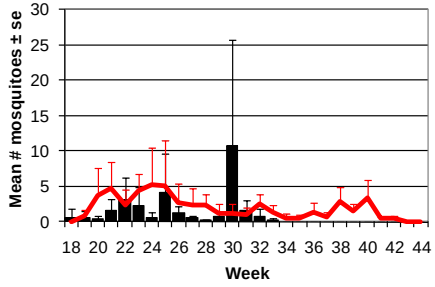
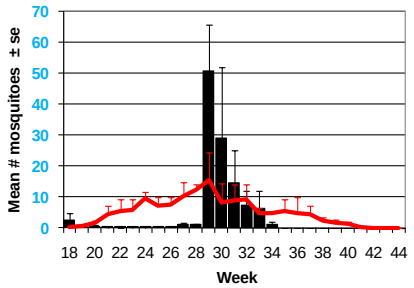
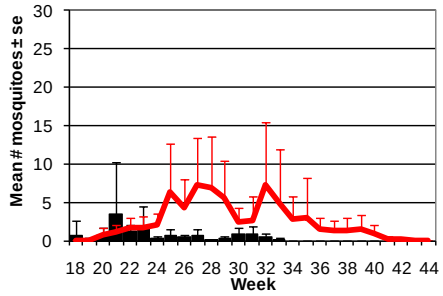
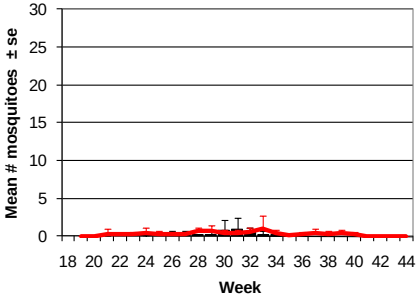
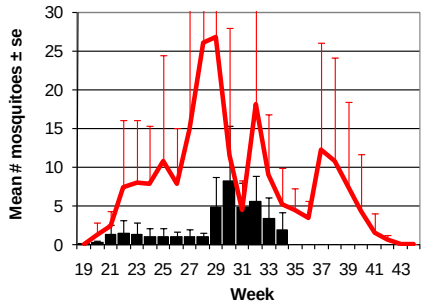
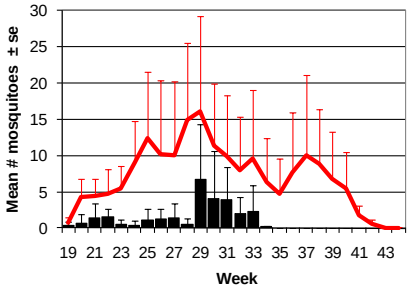
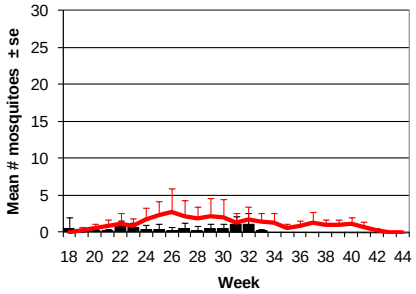
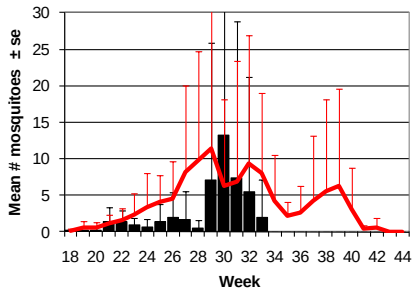
NJ Weather & Climate NETWORK

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, Burlington, Camden, Cape May, Essex, Hunterdon, Mercer, Middlesex, 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, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties.

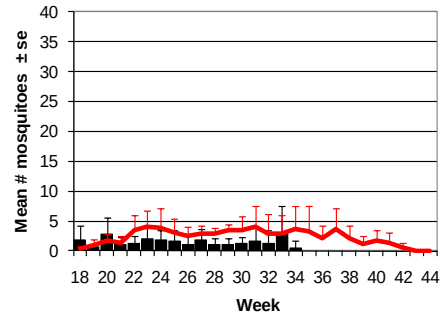


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

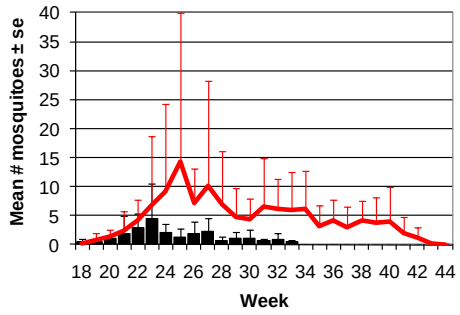
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations remained at low values throughout much of the state. The Delaware River Basin region did show higher populations as a result of dredge spoil activity. Rainfall for this week has been substantial in the northern areas of the state. Most of the state received precipitation and so local populations of *Ae. vexans* could become very active next week.	

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

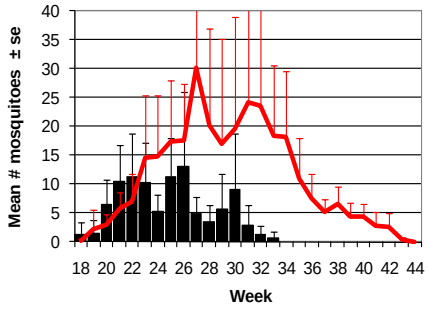
Agricultural



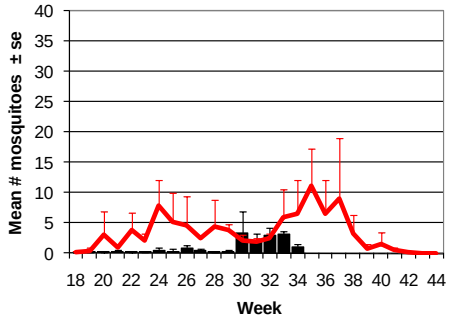
Coastal



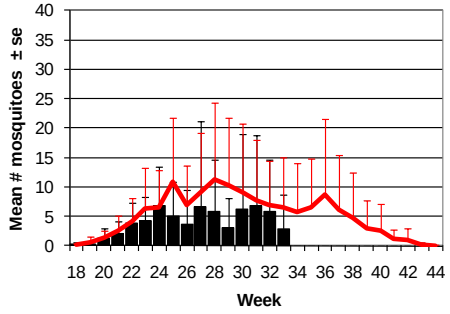
Delaware Bayshore



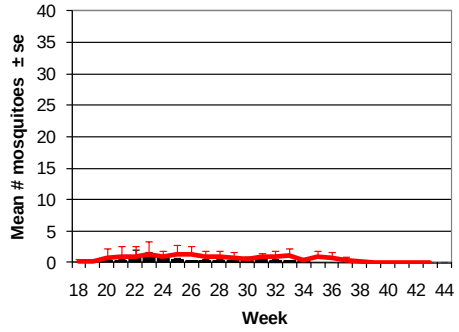
Delaware River Basin



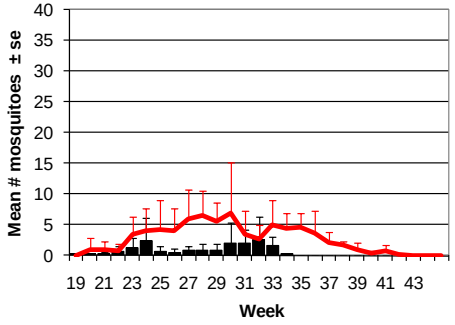
New York Metro



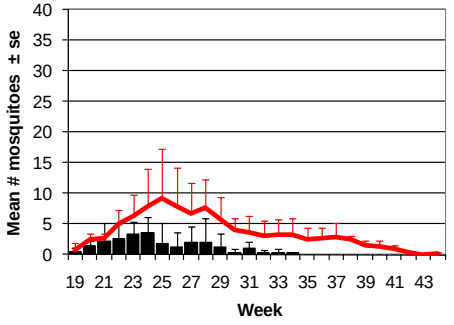
North Central Rural



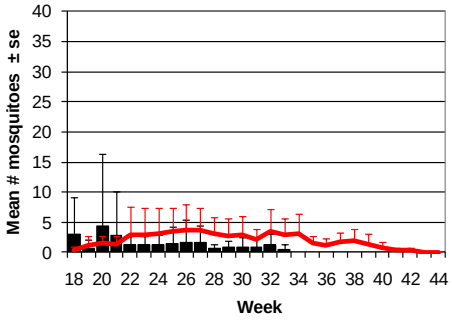
Northwestern Rural



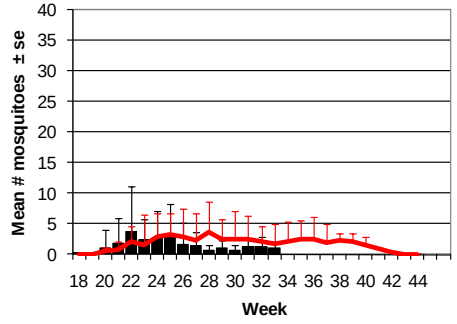
Philadelphia Metro



Pinelands



Suburban Corridor

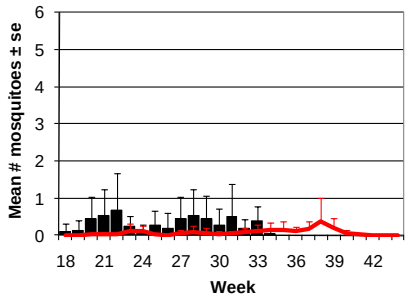
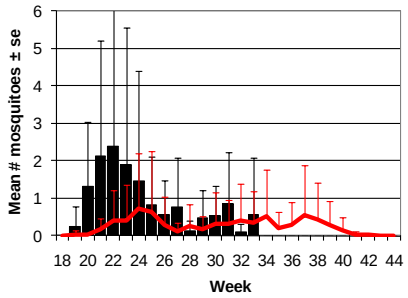
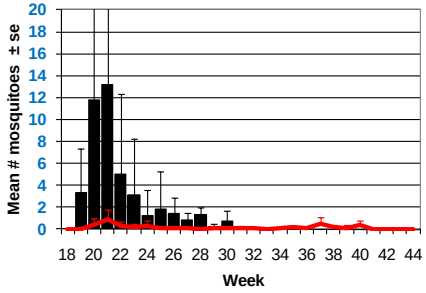
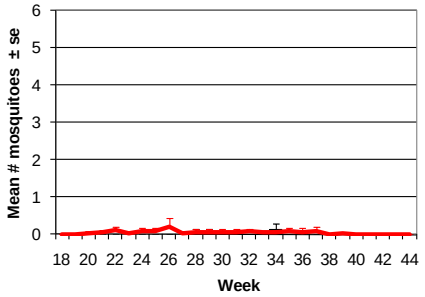
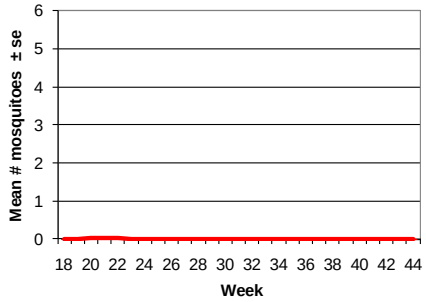
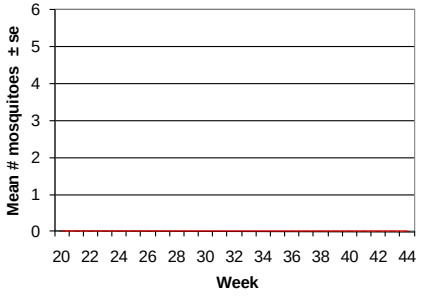
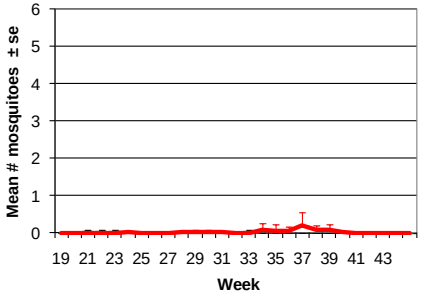
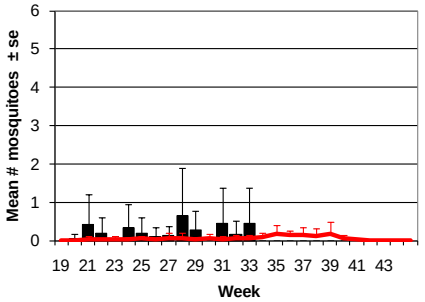
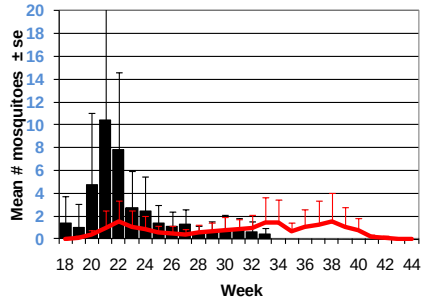
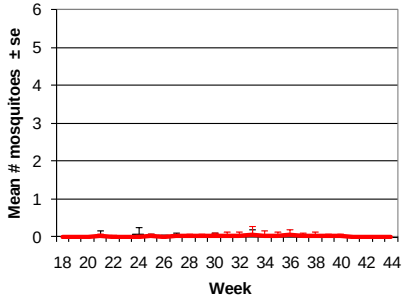


Comments

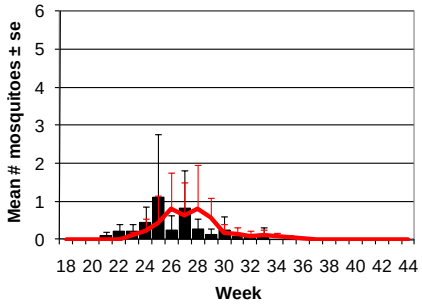
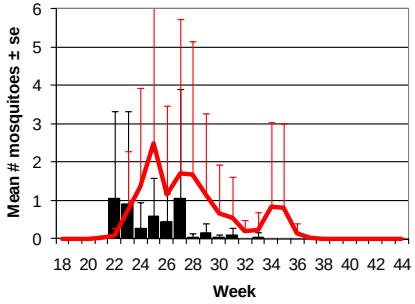
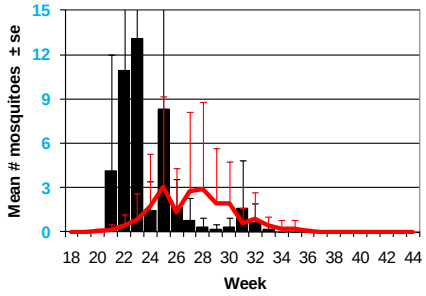
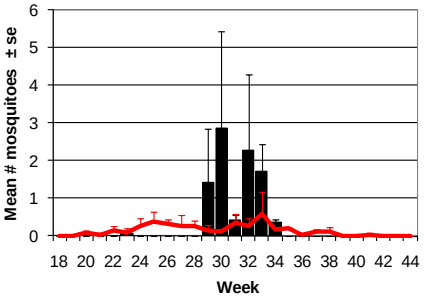
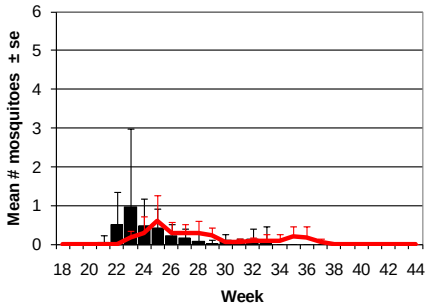
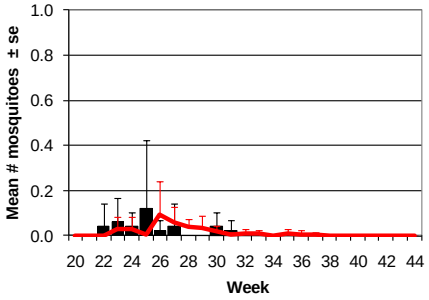
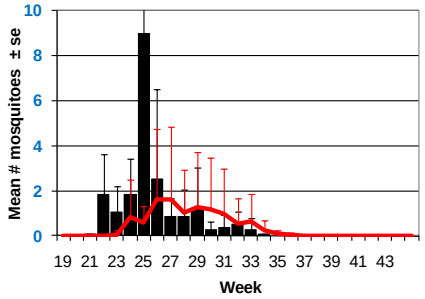
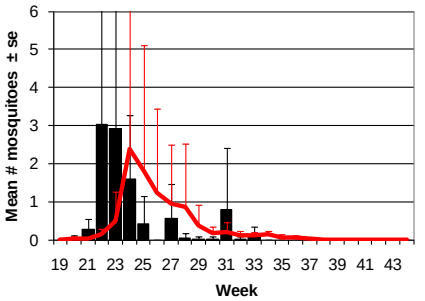
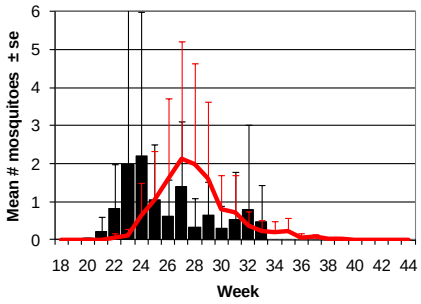
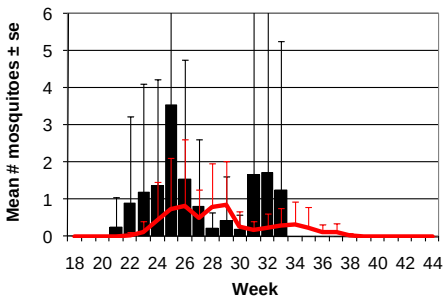
Culex Mix is represented by three species of *Culex* mosquitoes: *Cx. pipiens, Cx. restuans* and *Cx. salinarius*. These mosquitoes are usually grouped together as there is considerable difficulty in separating them to species easily after travelling through the grind of the light trap, often in the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

Every region of the state has shown a decrease in *Culex* Mix populations. Drought effects are particularly noticeable in the Coastal, Delaware Bayshore and Philadelphia Metro regions.

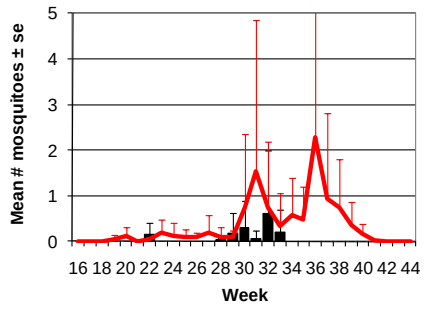
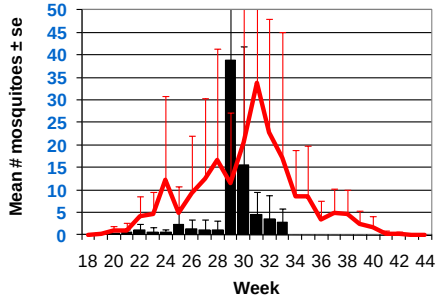
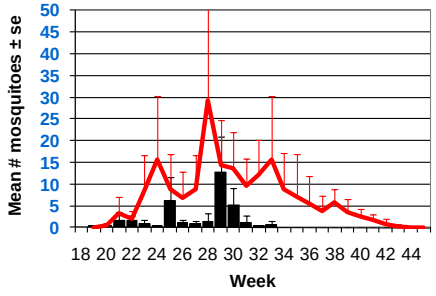
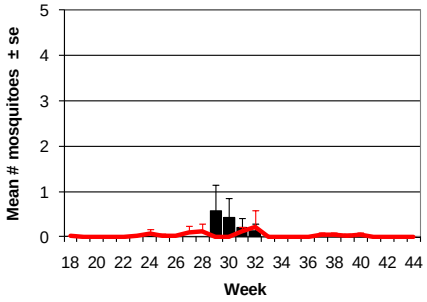
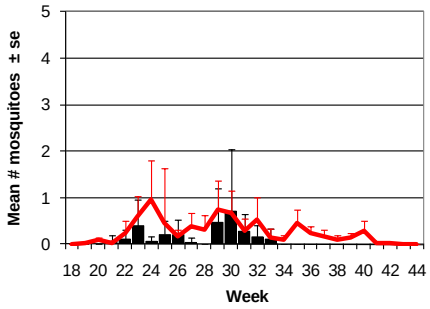
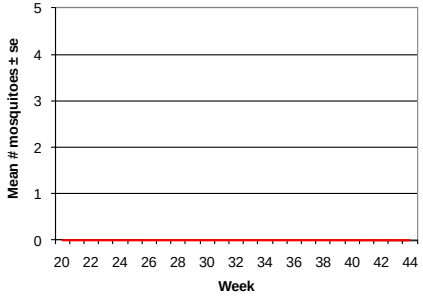
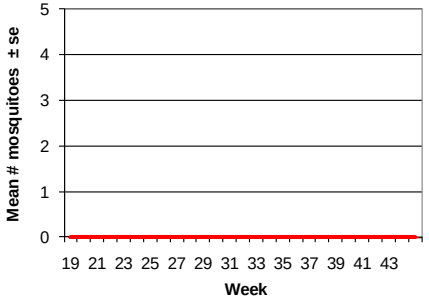
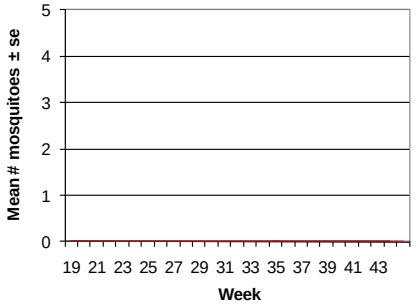
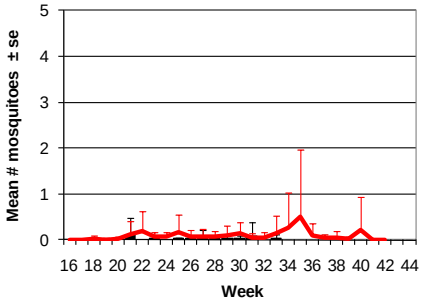
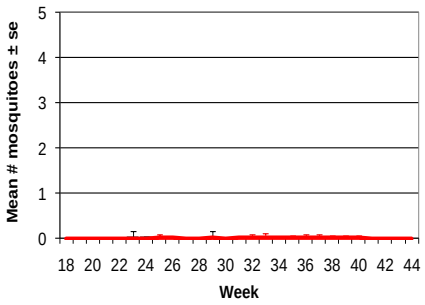
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

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. EEE activity has picked up and this species as well as *Coq. perturbans*, should be given due diligence in surveillance.	

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

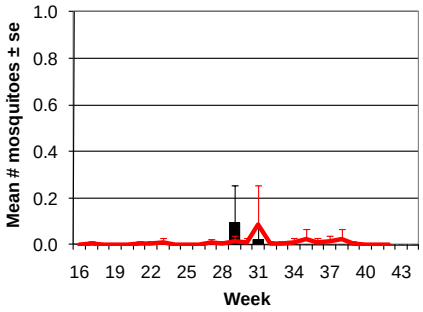
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations have shown localized activity in several regions, including the Agricultural, Delaware River Basin, New York Metro, Pinelands and the Suburban Corridor. Given the EEE activity and the potential for this species to act as a bridge vector for EEE, a close surveillance is warranted.	

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

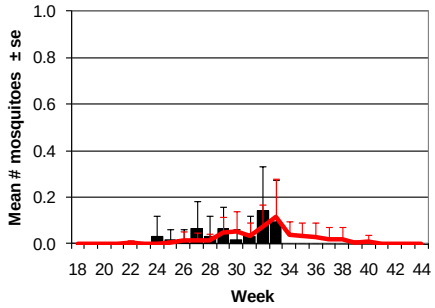
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* population numbers have declined in all regions. Given the full moon this month plus the additional rainfall, the next emergence should produce a noticeable effect. Complaints may begin in earnest as this species will shift toward more daylight feeding as the season turns toward fall. August 24th was a full moon.	

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

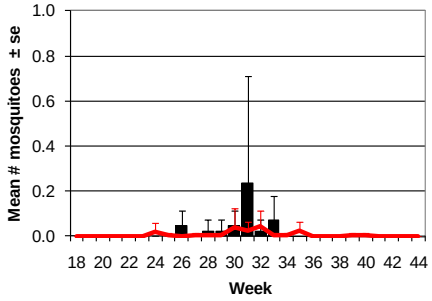
Agricultural



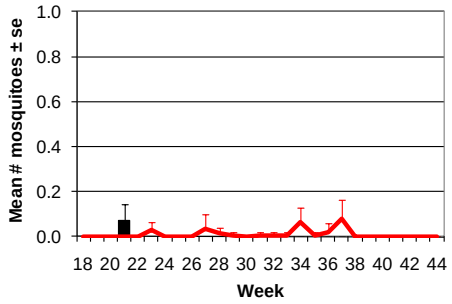
Coastal



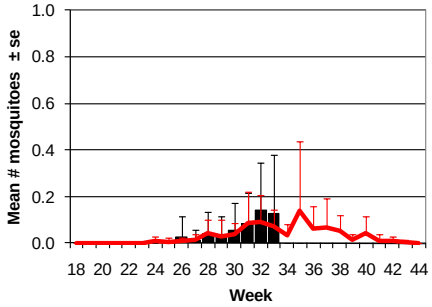
Delaware Bayshore



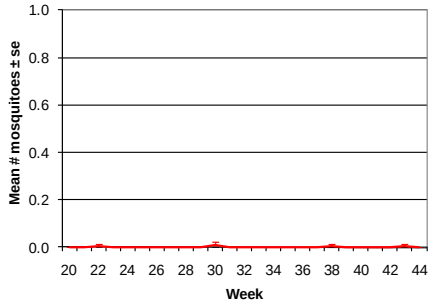
Delaware River Basin



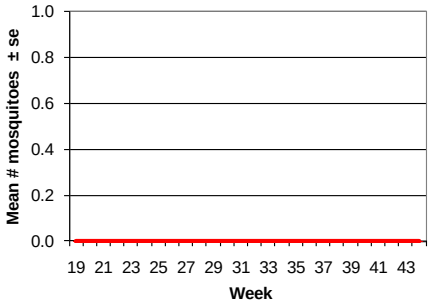
New York Metro



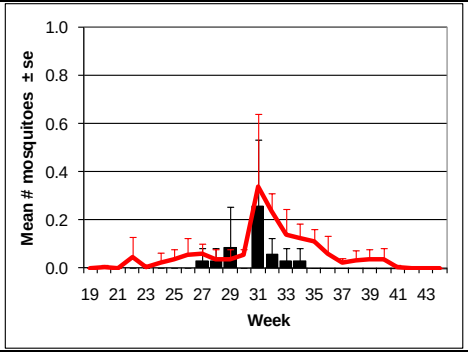
North Central Rural



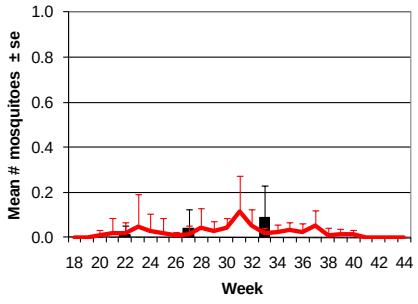
Northwestern Rural



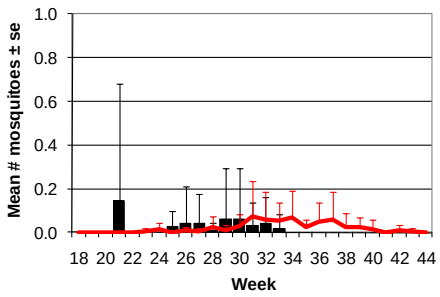
Philadelphia Metro



Pinelands



Suburban Corridor

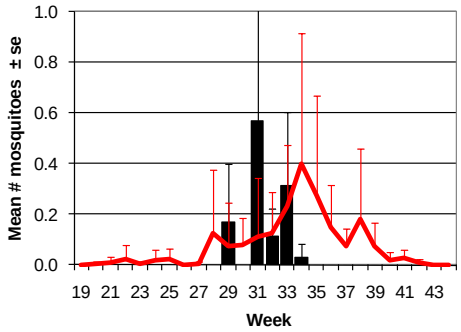
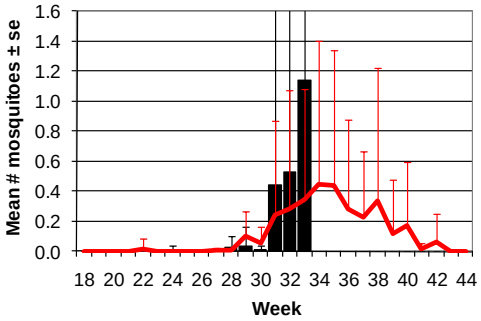


Comments

Aedes albopictus, the Asian Tiger Mosquito, has shown activity in the Coastal, Delaware Bayshore, New York Metropolitan and Pinelands regions. This species is capable of transmitting a variety of arboviruses (Mitchell 1995 The role of *Aedes albopictus* as an arbovirus vector, Parassitologia 37(2/3):109-113) and as a container species, is well-suited to expanding its range.

Culex erraticus

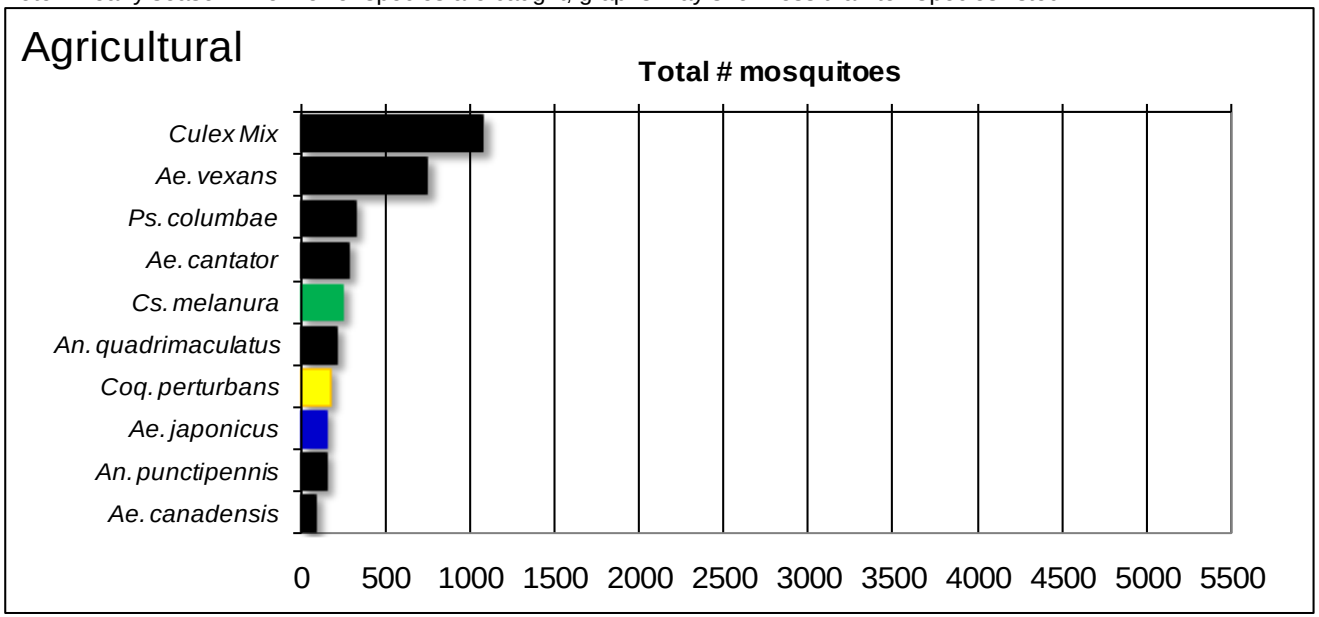
Last year, this species was abundant in the state and provided the second highest number of EEE-positive pools for the state's vector surveillance program. This year, population numbers are far down from the previous year. However, there has been increased activity in two regions (the Philadelphia Metropolitan region and the Suburban Corridor) such that this species has climbed into the Top Ten lists for those regions. This is an opportunistic feeder, taking bloodmeals from both birds and mammals. This year, we currently have a positive EEE pool of *Cx. erraticus*.

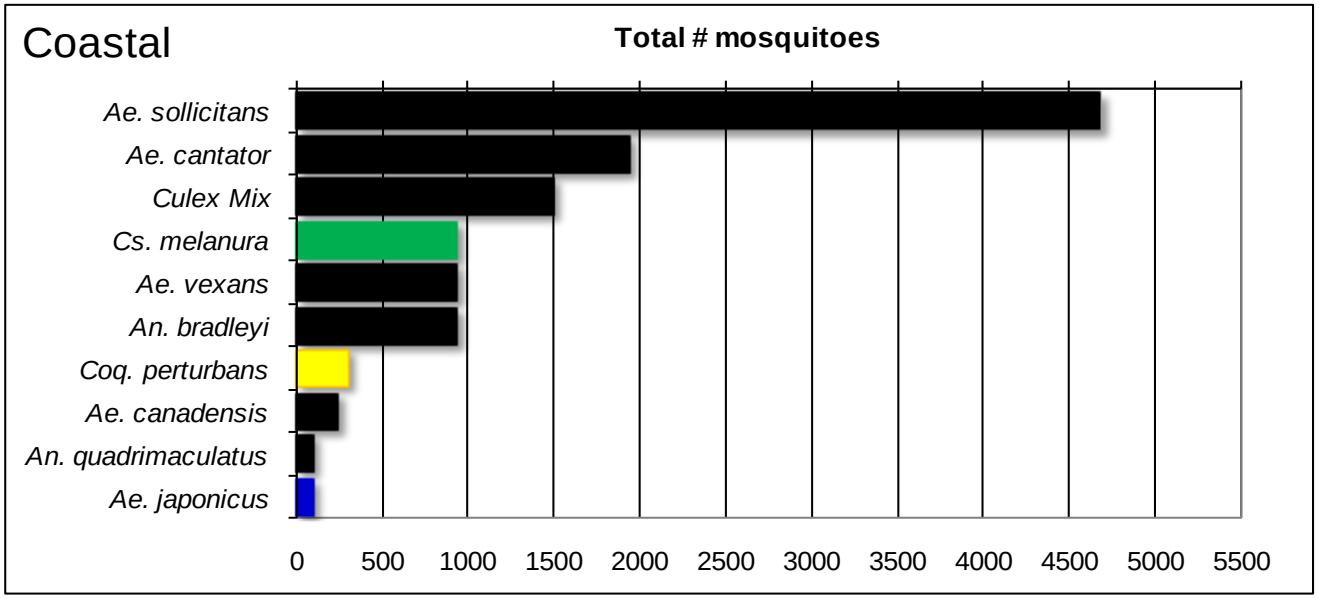
Philadelphia Metropolitan	Suburban Corridor
	

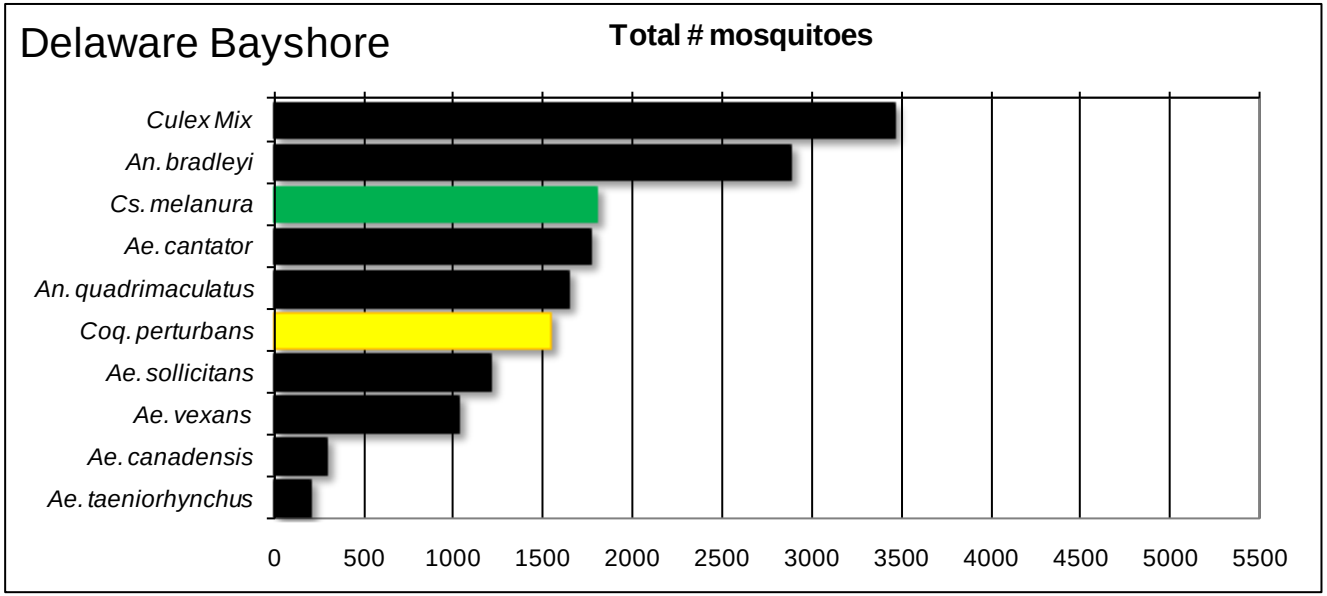
WNV *EEE*

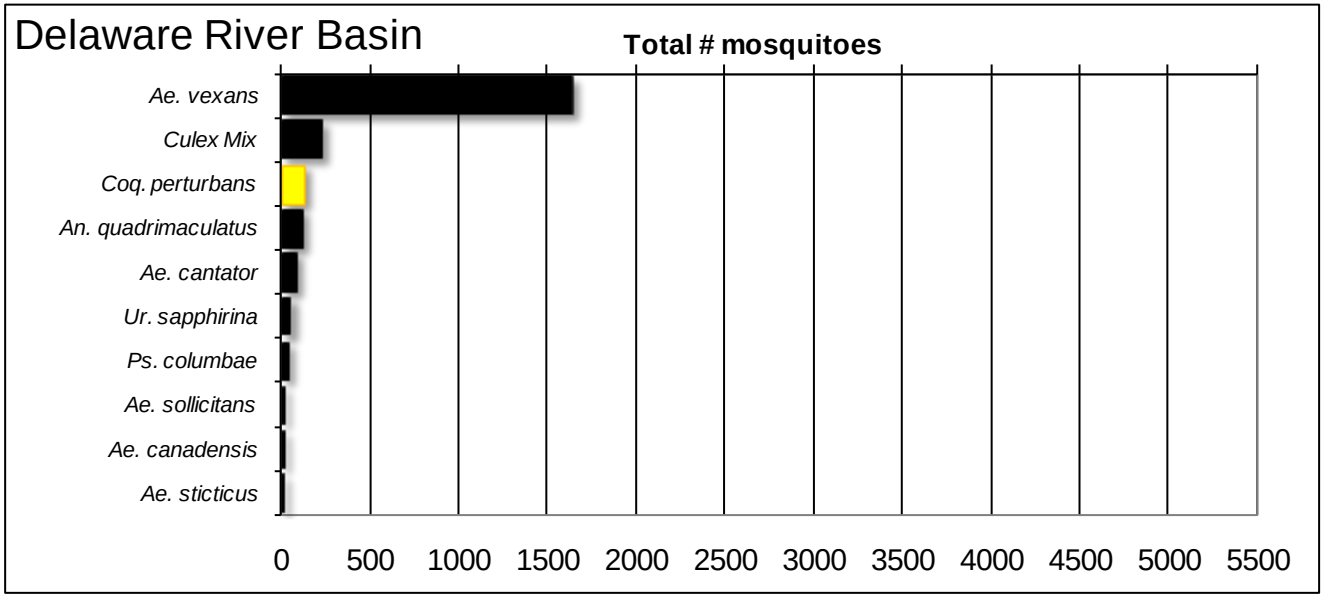
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

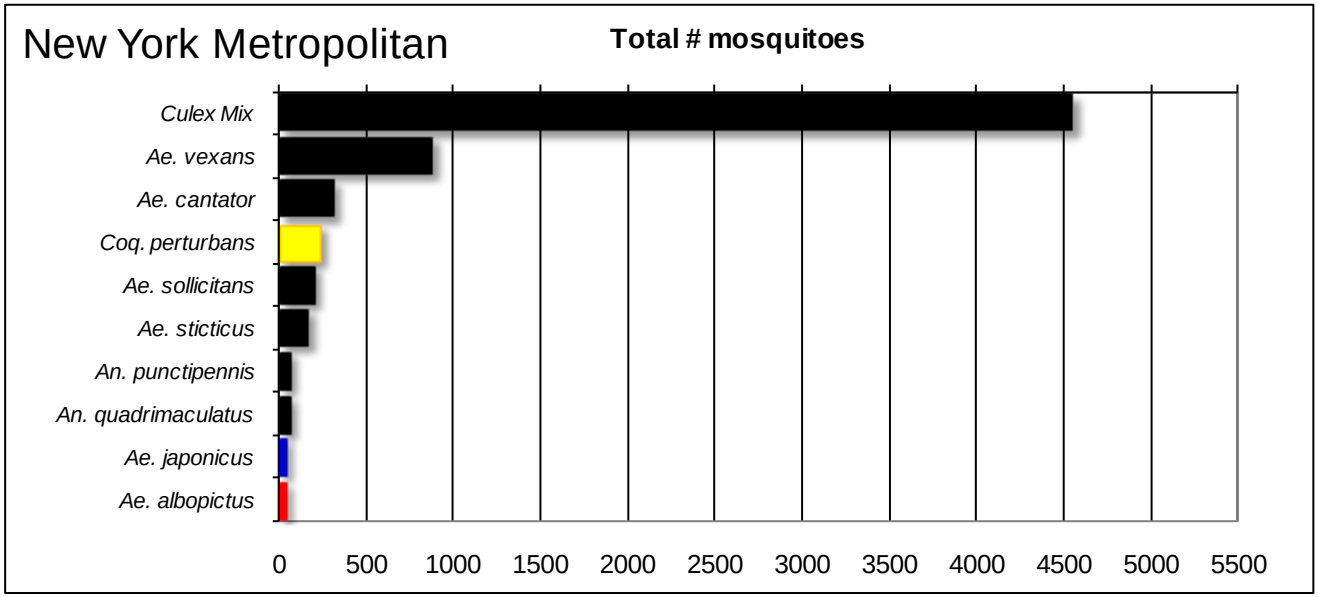
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

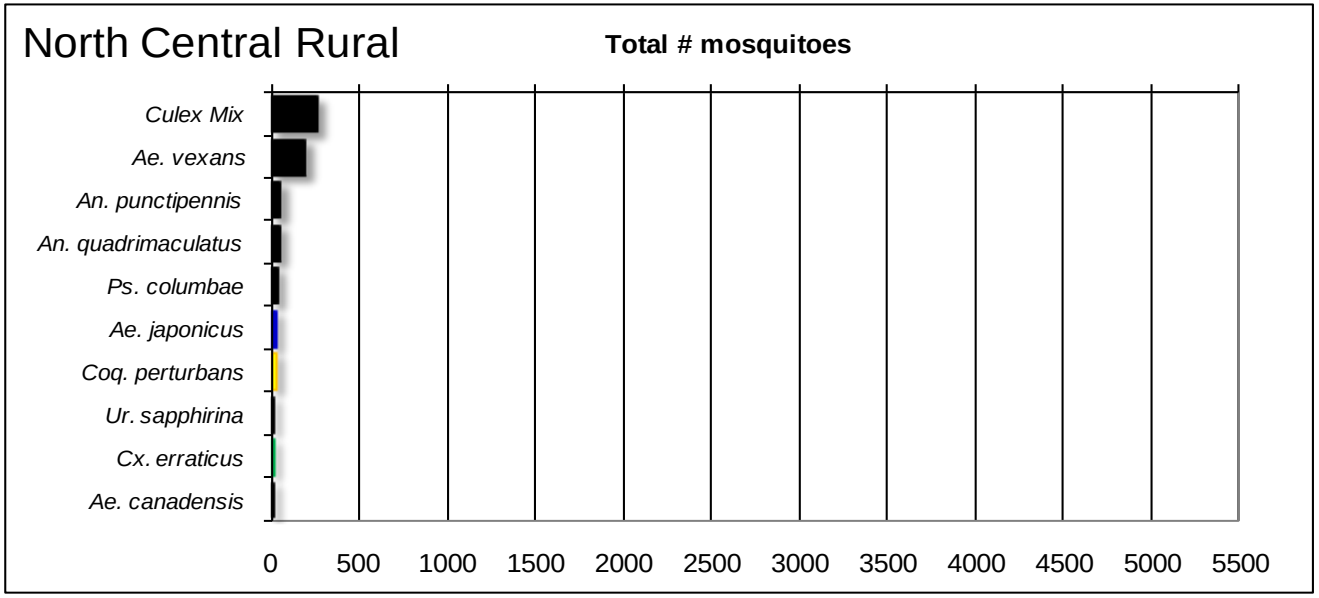


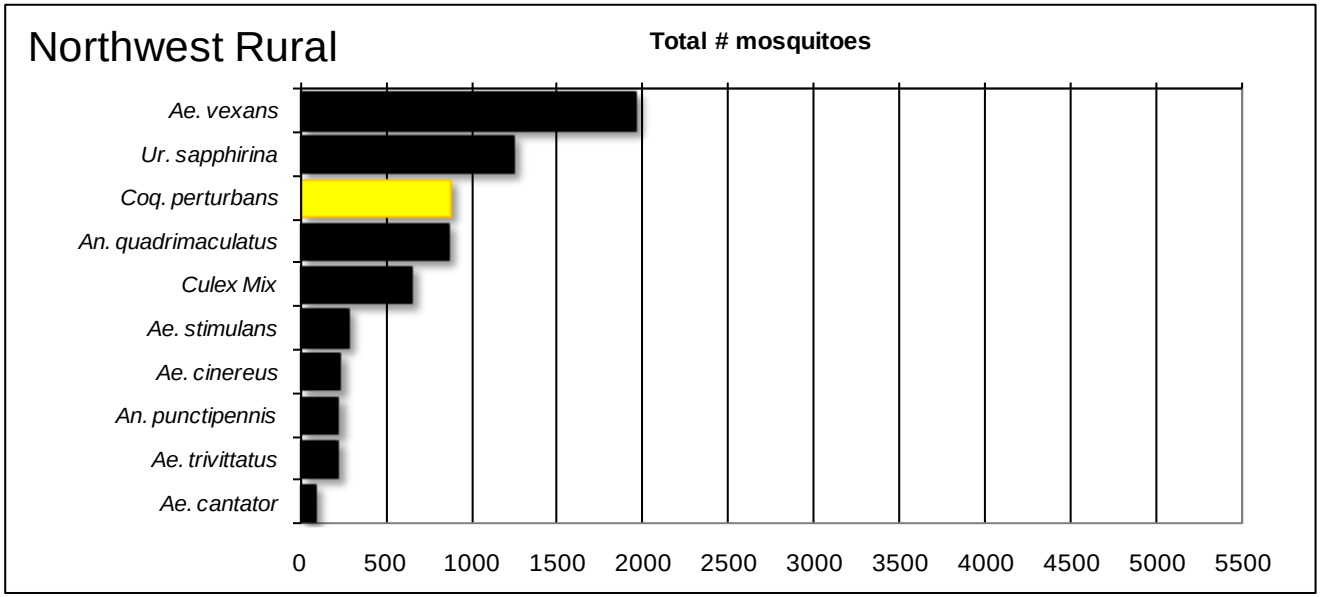


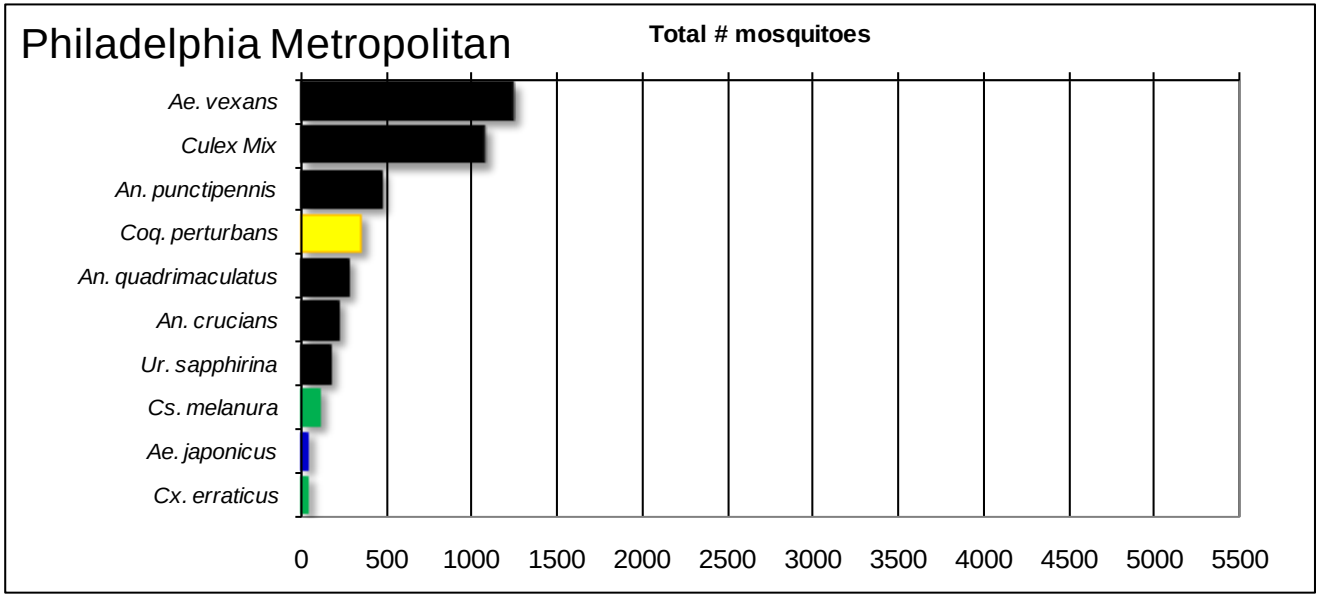

Delaware Bayshore
Total # mosquitoes
Culex Mix
An. bradleyi
Cs. melanura
Ae. cantator
An. quadrimaculatus
Coq. perturbans
Ae. sollicitans
Ae. vexans
Ae. canadensis
Ae. taeniorhynchus
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500

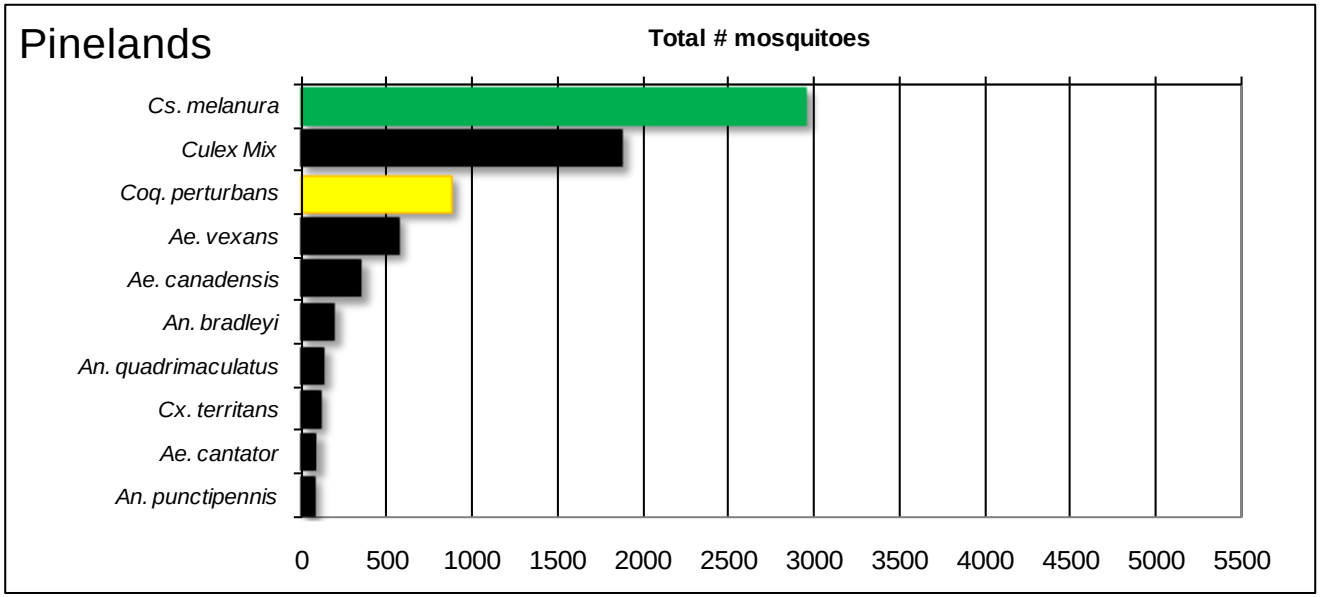

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
Ae. cantator
Ur. sapphirina
Ps. columbae
Ae. sollicitans
Ae. canadensis
Ae. sticticus
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500

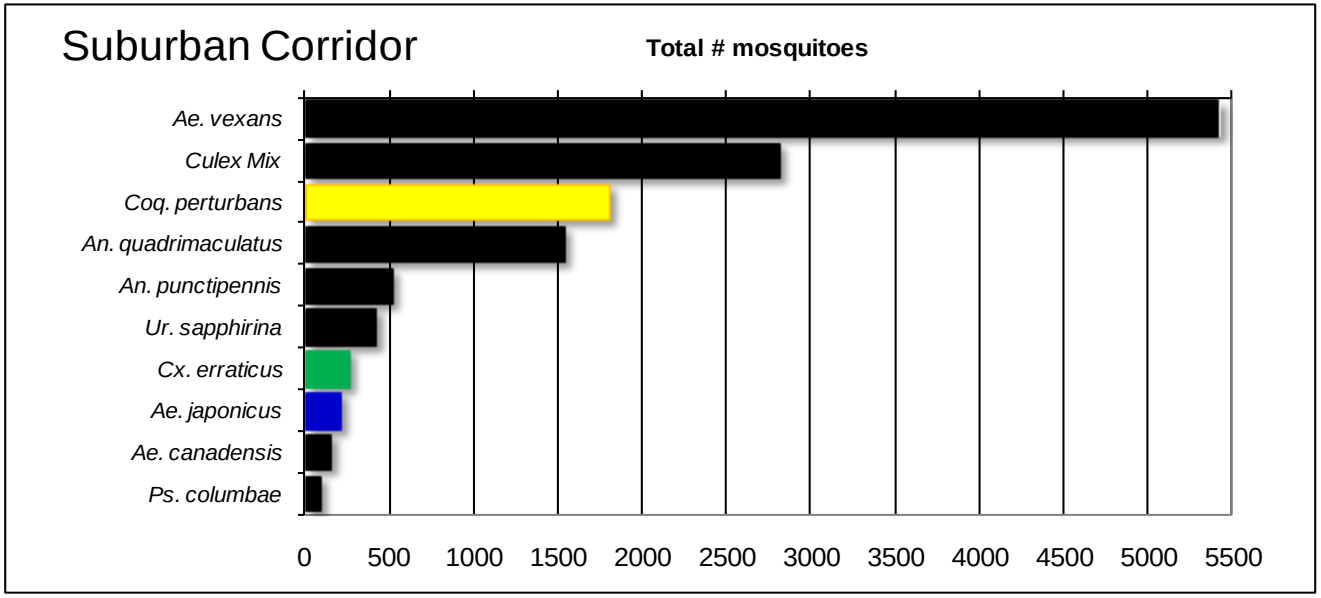

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. sticticus
An. punctipennis
An. quadrimaculatus
Ae. japonicus
Ae. albopictus
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500


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
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500


Northwest Rural
Total # mosquitoes
Ae. vexans
Ur. sapphirina
Coq. perturbans
An. quadrimaculatus
Culex Mix
Ae. stimulans
Ae. cinereus
An. punctipennis
Ae. trivittatus
Ae. cantator
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
Coq. perturbans
An. quadrimaculatus
An. crucians
Ur. sapphirina
Cs. melanura
Ae. japonicus
Cx. erraticus
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Coq. perturbans
Ae. vexans
Ae. canadensis
An. bradleyi
An. quadrimaculatus
Cx. territans
Ae. cantator
An. punctipennis
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500


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
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500