RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 7 June to 13 June 2009, CDC Weeks 23

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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.

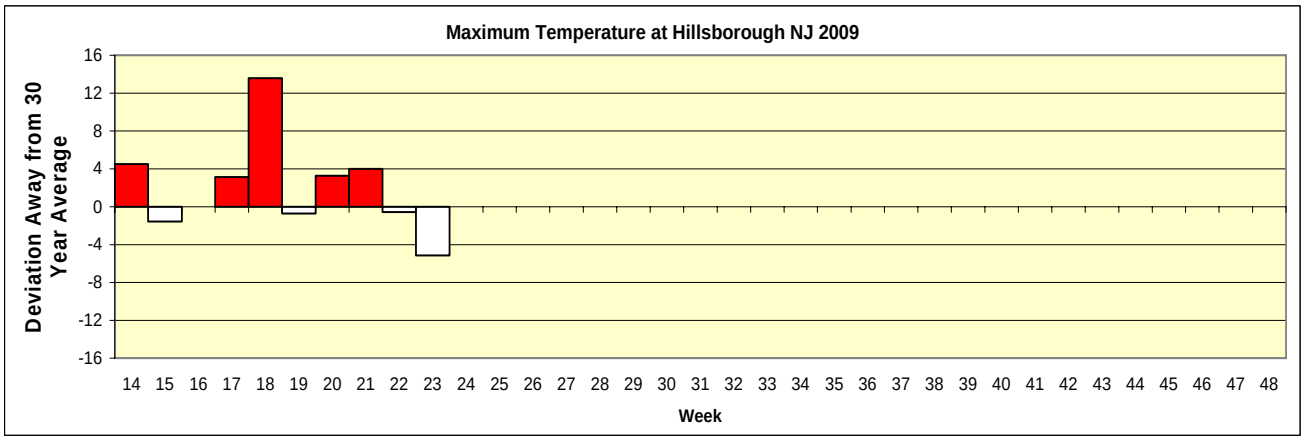
Summary table – Week 23

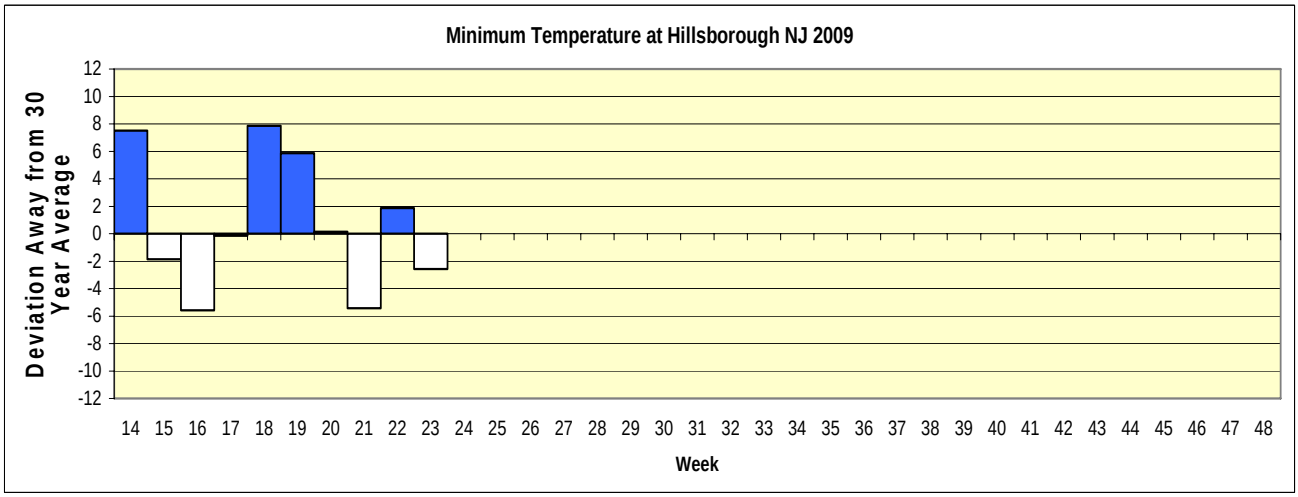
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**1.98**	**1.24**	**2**	**2.64**	**2.81**	**0**	**0.00**	**0.05**	**0**	**0.43**	**0.11**	**4**
Coastal	**0.94**	**3.05**	**0**	**2.63**	**4.96**	**0**	**0.00**	**0.21**	**0**	**3.97**	**1.97**	**3**
Delaware Bayshore	**1.93**	**3.72**	**0**	**4.93**	**11.65**	**0**	**0.10**	**2.11**	**0**	**9.14**	**9.35**	**0**
Delaware River Basin	**0.00**	**6.78**	**0**	**0.00**	**8.43**	**0**	**0.00**	**0.18**	**0**	**0.00**	**0.00**	**0**
New York Metro	**2.00**	**1.42**	**1**	**12.37**	**3.83**	**4**	**0.44**	**0.05**	**4**	**0.26**	**0.36**	**0**
North Central Rural	**0.84**	**0.11**	**4**	**2.27**	**1.26**	**2**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**7.57**	**4.32**	**2**	**2.20**	**3.09**	**0**	**0.37**	**0.01**	**4**	**0.00**	**0.00**	**0**
Philadelphia Metro	**1.29**	**4.89**	**0**	**2.76**	**5.92**	**0**	**0.06**	**0.29**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.52**	**0.98**	**0**	**0.78**	**2.59**	**0**	**0.00**	**0.18**	**0**	**0.22**	**0.15**	**1**
Suburban Corridor	**3.30**	**3.07**	**1**	**3.84**	**1.69**	**3**	**0.02**	**0.24**	**0**	**0.00**	**0.00**	**0**

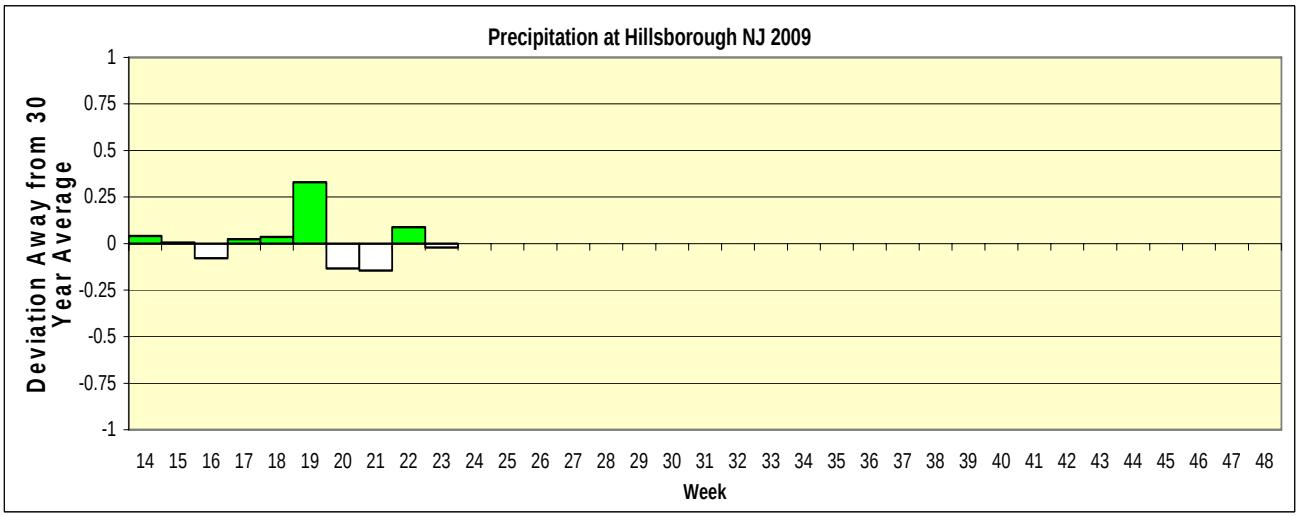
*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference 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: Rainfall approached normal values for the state as a whole, according to the state climatologist, who noted variation throughout the state (http://climate.rutgers.edu/stateclim/) and that those areas experiencing drier conditions received water. Consequently, *Aedes vexans* responded in several regions with higher than average numbers. *Culex* spp. are higher than historical trends again in the New York Metropolitan region and the Suburban Corridor as they were for much of last year. *Coquillettidia perturbans* activity is also noted in the New York Metro as well as the Northwest regions. *Aedes sollicitans* activity is also increasing, with higher than historic values in the Coastal region.

Climate Deviations



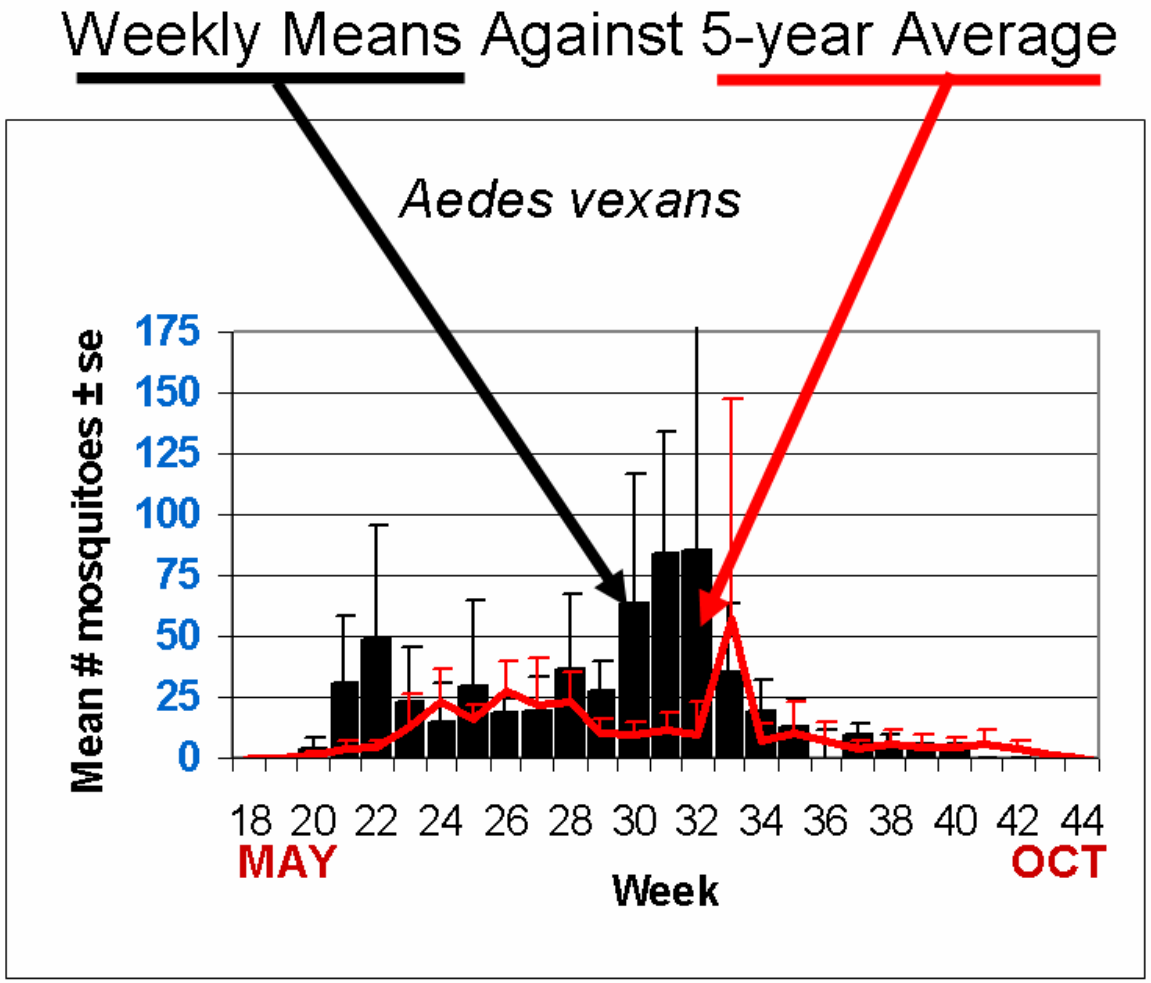




The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data are from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) 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.

Data from: http://climate.rutgers.edu/njwxnet/index.php

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, Cumberland, Hudson, Mercer, Middlesex, Monmouth, Morris, Ocean, Sussex, Union and Warren counties. Note: County data is sent in at a variety of times during the week.



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

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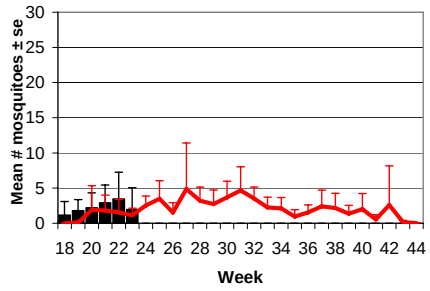
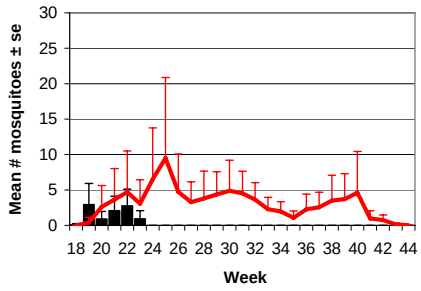
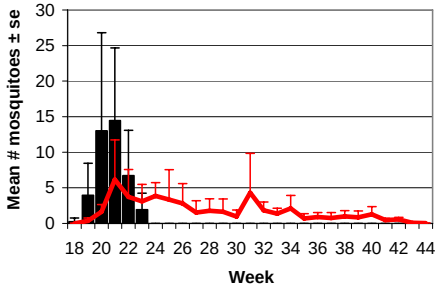
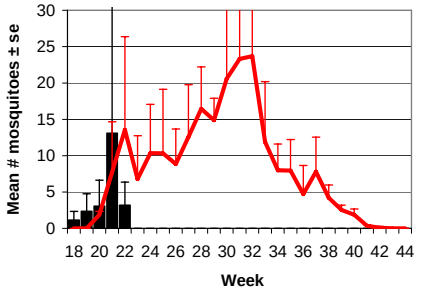
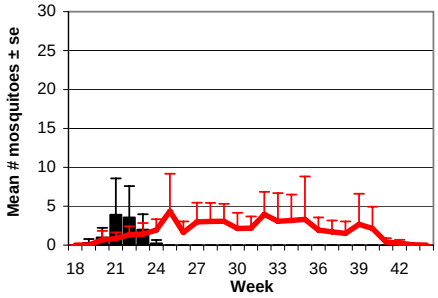
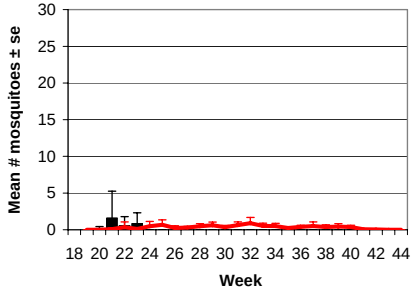
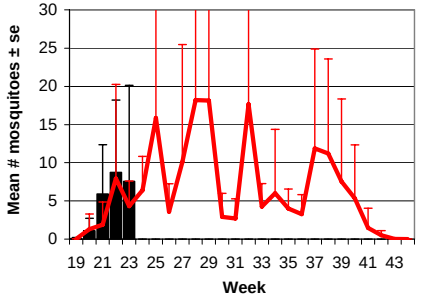
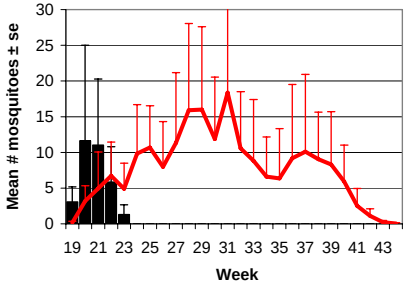
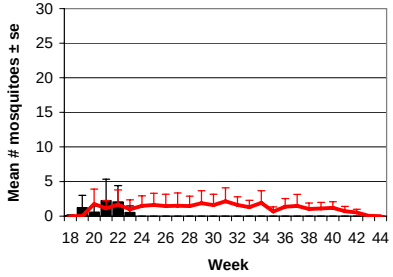
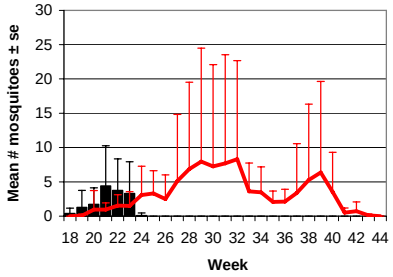
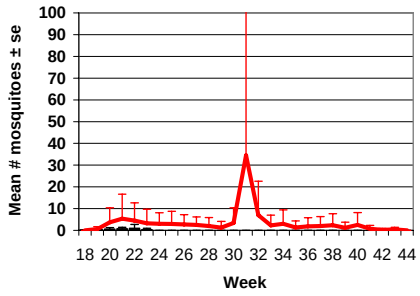
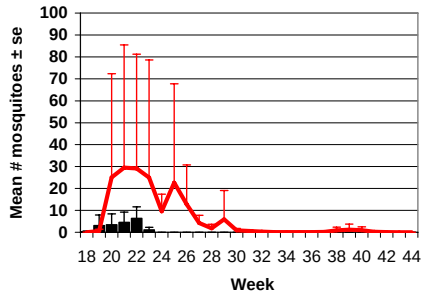
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations have shown early increased activity over historical values in regions such as the metropolitan and suburban areas, as well as the Delaware Bayshore. The large populations associated with habitat that traditionally receive flooding waters appear to be tracking historical values. However, large error bars indicate that traps from a region experience varying emergences and rainfall or other flooding events may be present only locally.	

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

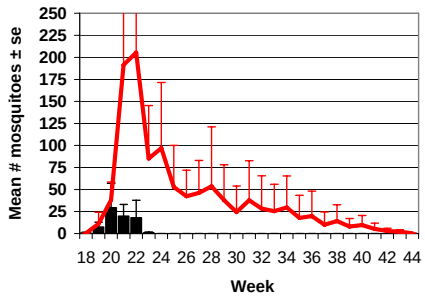
Agricultural



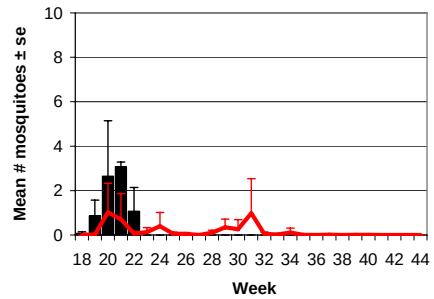
Coastal



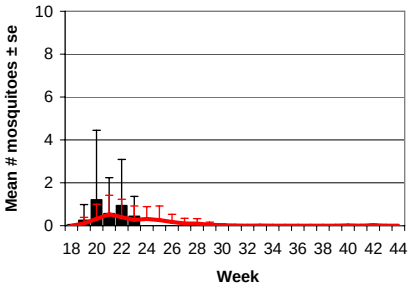
Delaware Bayshore



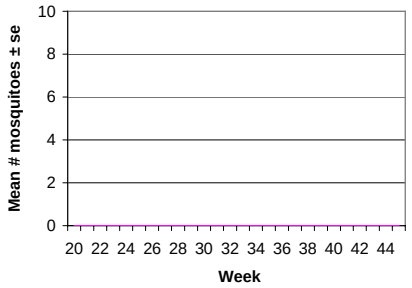
Delaware River Basin



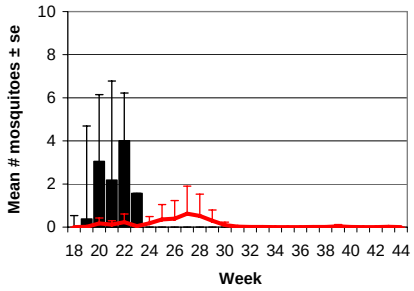
New York Metro



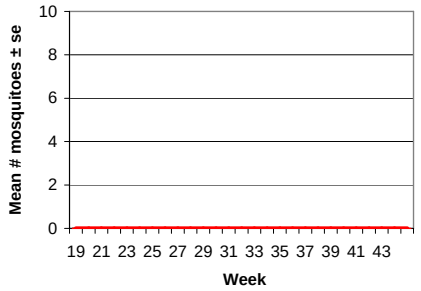
North Central Rural



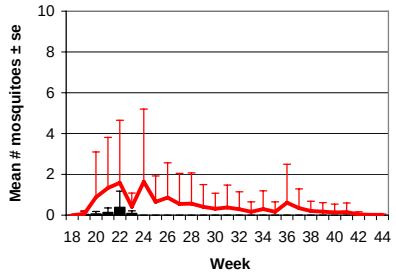
Northwestern Rural



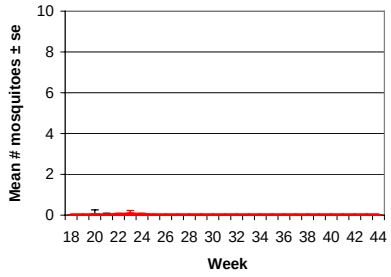
Philadelphia Metro



Pinelands



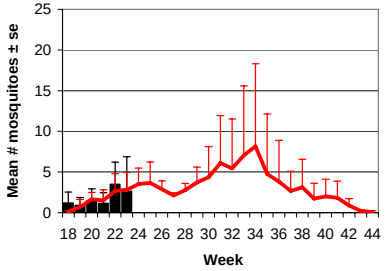
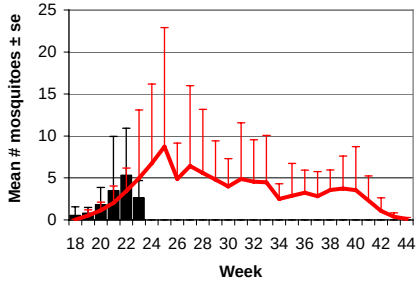
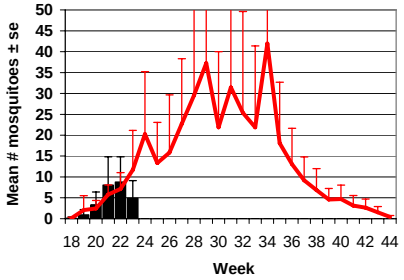
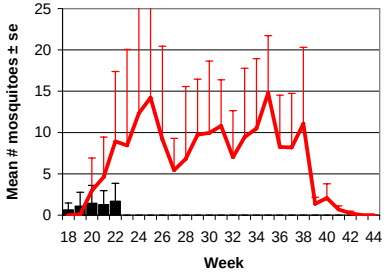
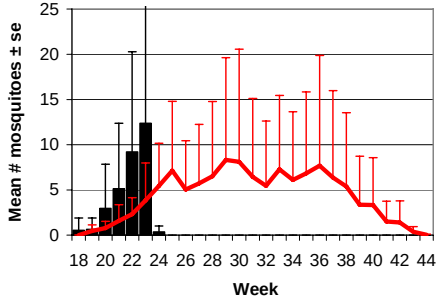
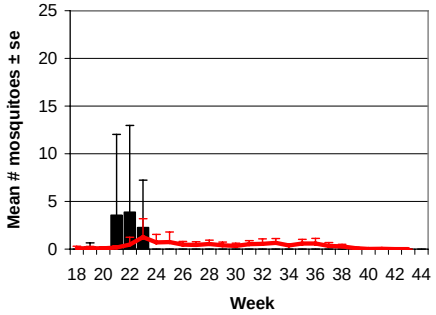
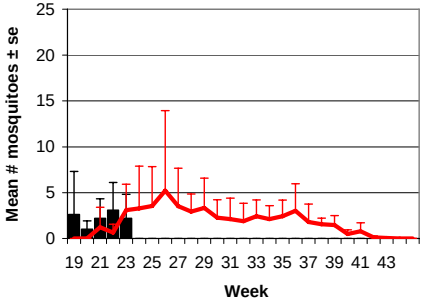
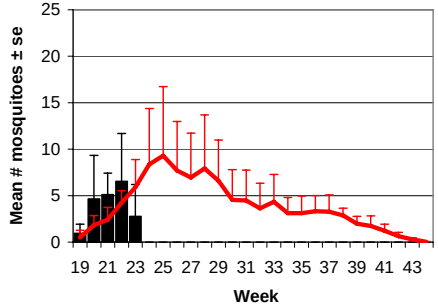
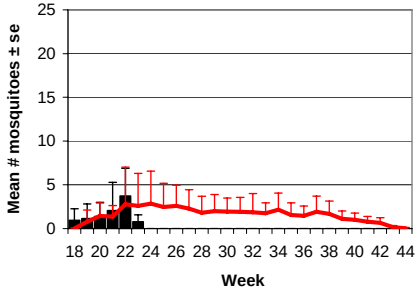
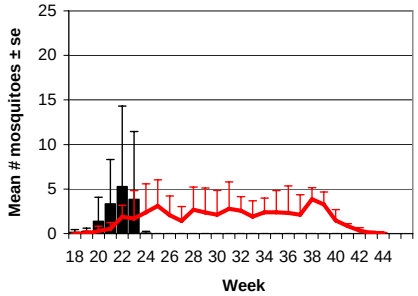
Suburban Corridor



Comments

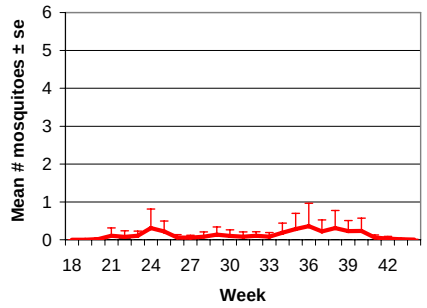
Aedes cantator populations continue to be lower than recent historical trends in the Delaware Bayshore and Coastal regions. Despite this and because these areas normally produce an exorbitant number of this species, *Aedes cantator* is still the predominant species caught in light traps for these two areas (see Top Ten below). The Delaware River Basin and the Northwestern Rural regions appear to be hosting higher than historical levels, but these numbers are far smaller than the former two areas. This is a facultative saltwater species that can exploit anthropogenic sources, such as fertilizer run-off areas. Populations can also re-appear late in the summer, as can be seen in historical values in the Coastal and Northwestern regions.

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

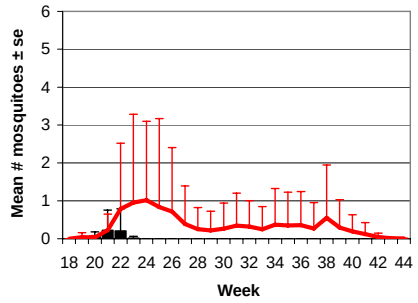
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* populations continue to track historical levels in most regions. *Culex* species exploit a wide range of habitat, with *Culex pipiens* able to use eutrophic permanent pools and *Culex salinarius* with a range of salt tolerance. Bloodmeals differ as well, with *Cx. pipiens* as generally a bird feeder and *Cx. salinarius* as opportunistic, including mammals. Higher than historical numbers appear in the New York Metropolitan region.	

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

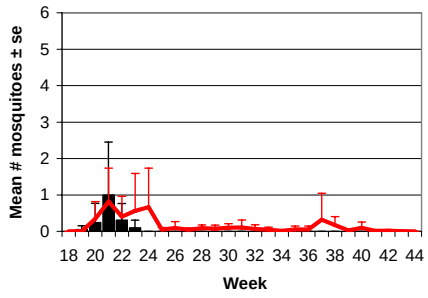
Agricultural



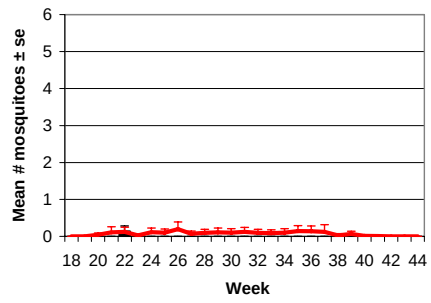
Coastal



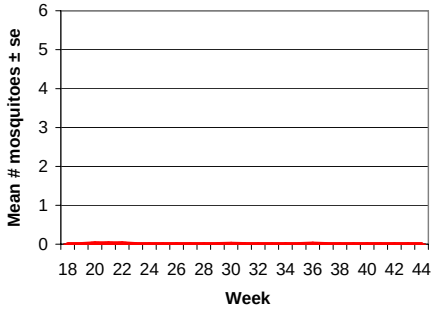
Delaware Bayshore



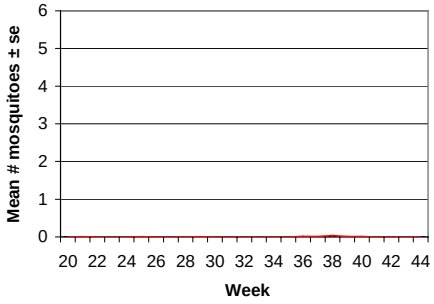
Delaware River Basin



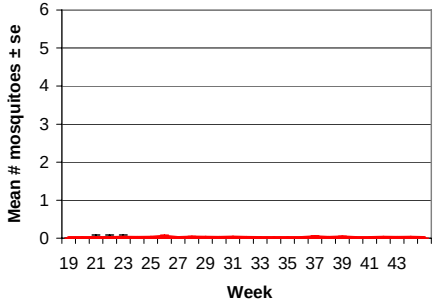
New York Metro



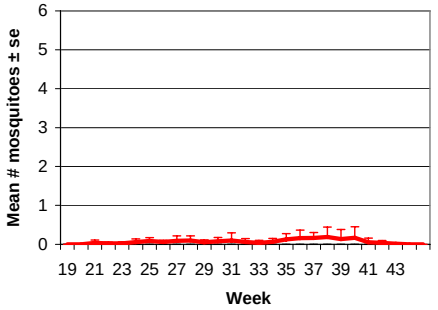
North Central Rural



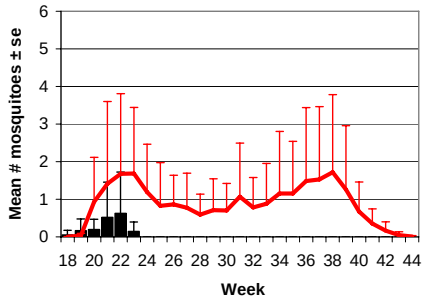
Northwestern Rural



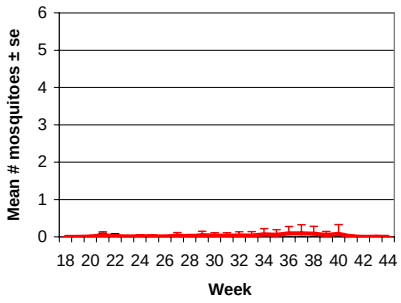
Philadelphia Metro



Pinelands



Suburban Corridor

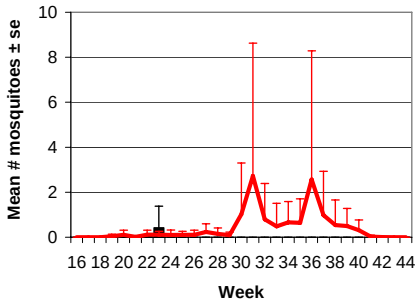


Comments

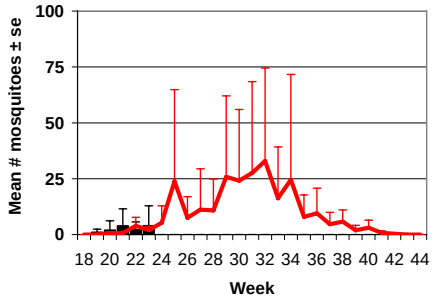
Culiseta melanura, the enzootic ornithophilic vector of eastern equine encephalitis, continues to show somewhat depressed population numbers as compared to recent historical abundances. These patterns do appear to be in agreement with the values seen in the Vector Surveillance program, with resting box numbers also reduced. However, numbers appear to be greater than those from the previous year. As positive EEE pools were found also in years with depressed populations, the smaller numbers seen should not suggest little or no EEE activity.

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

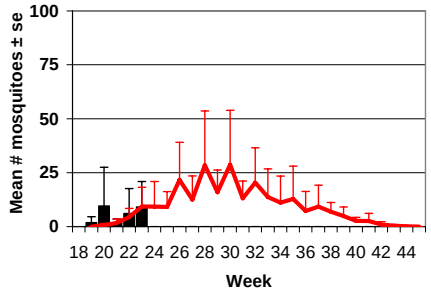
Agricultural



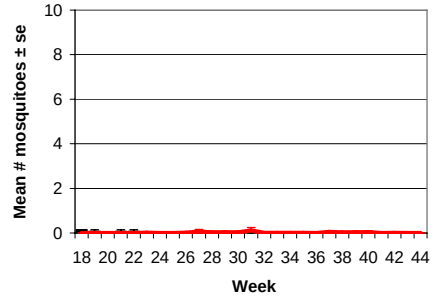
Coastal



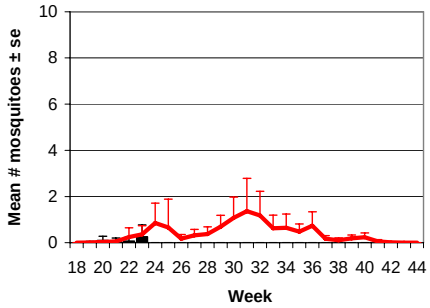
Delaware Bayshore



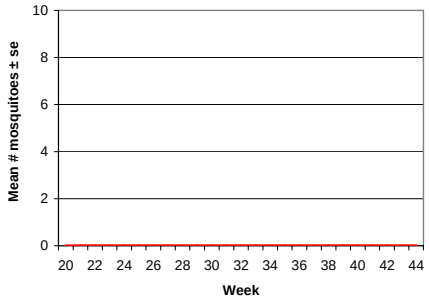
Delaware River Basin



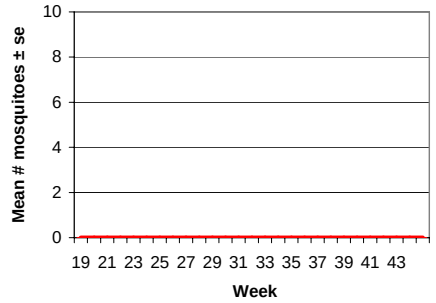
New York Metro



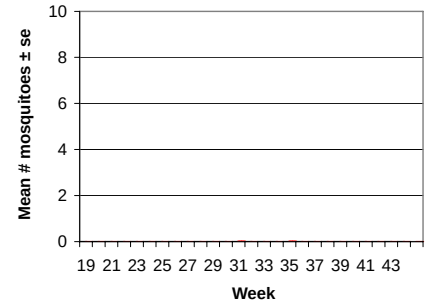
North Central Rural



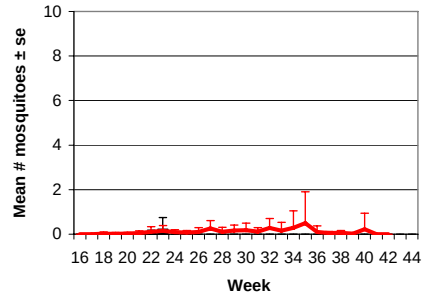
Northwestern Rural



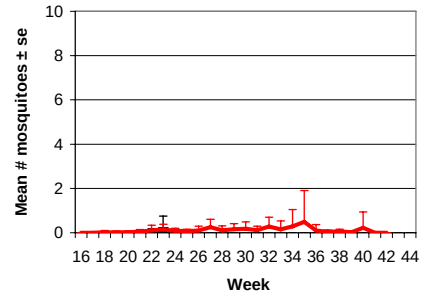
Philadelphia Metro



Pinelands



Suburban Corridor



Comments

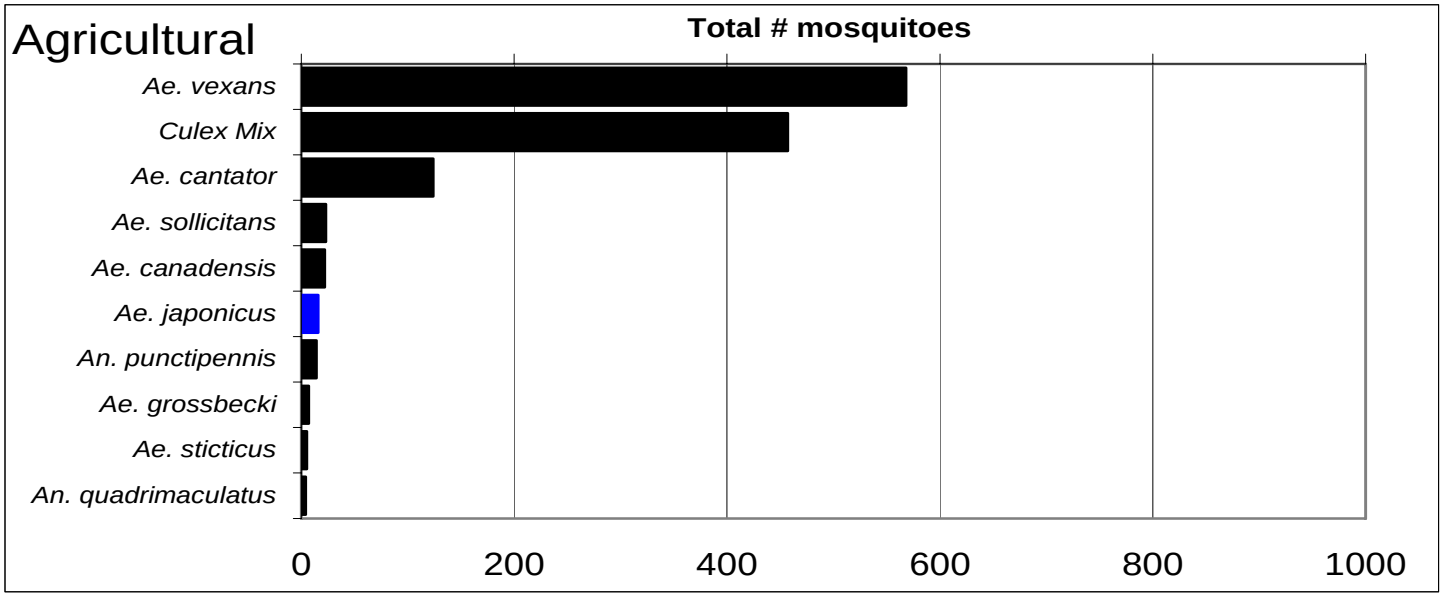
Aedes sollicitans emergences to date reflect the early numbers seen prior to the population build-up of mid summer. Control for this species at this time of year will also include the control of *Aedes cantator*, whose populations are (normally) high at this time.

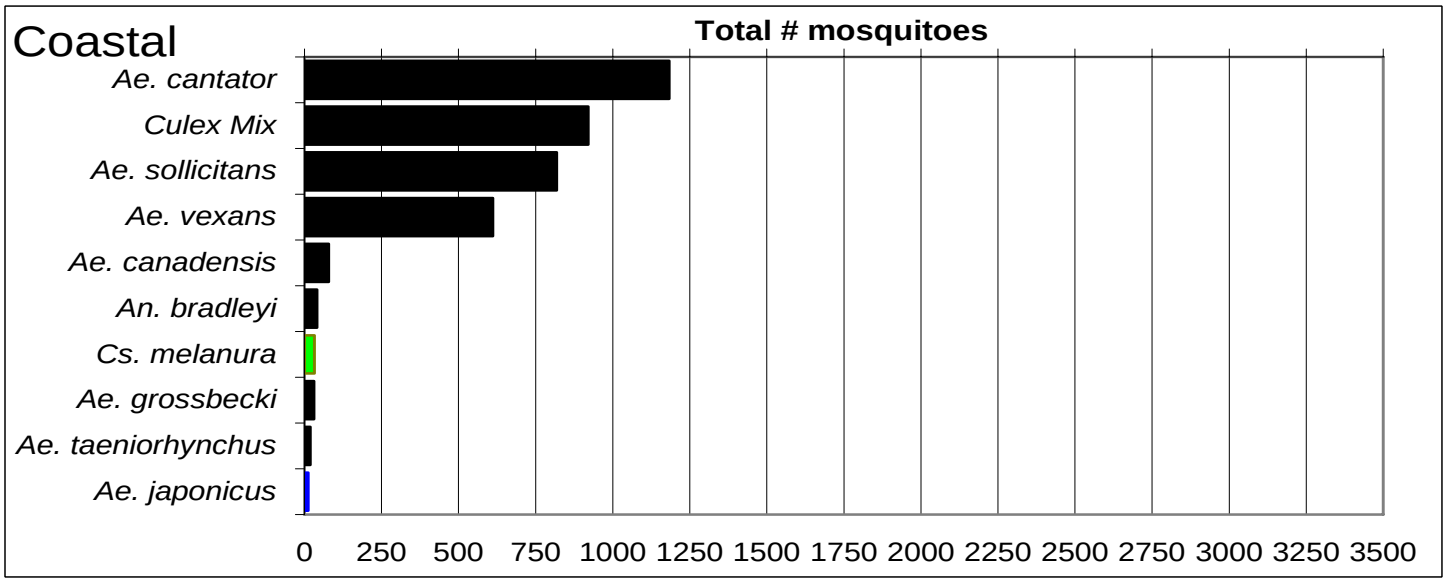
Aedes sollicitans can migrate to inland sites such as the Pinelands and southern portions of the Agricultural regions. It should be noted that the most southerly of the Agricultural sites is close to the Delaware Bayshore region, and may actually be sampling early migrants that have not traveled far.

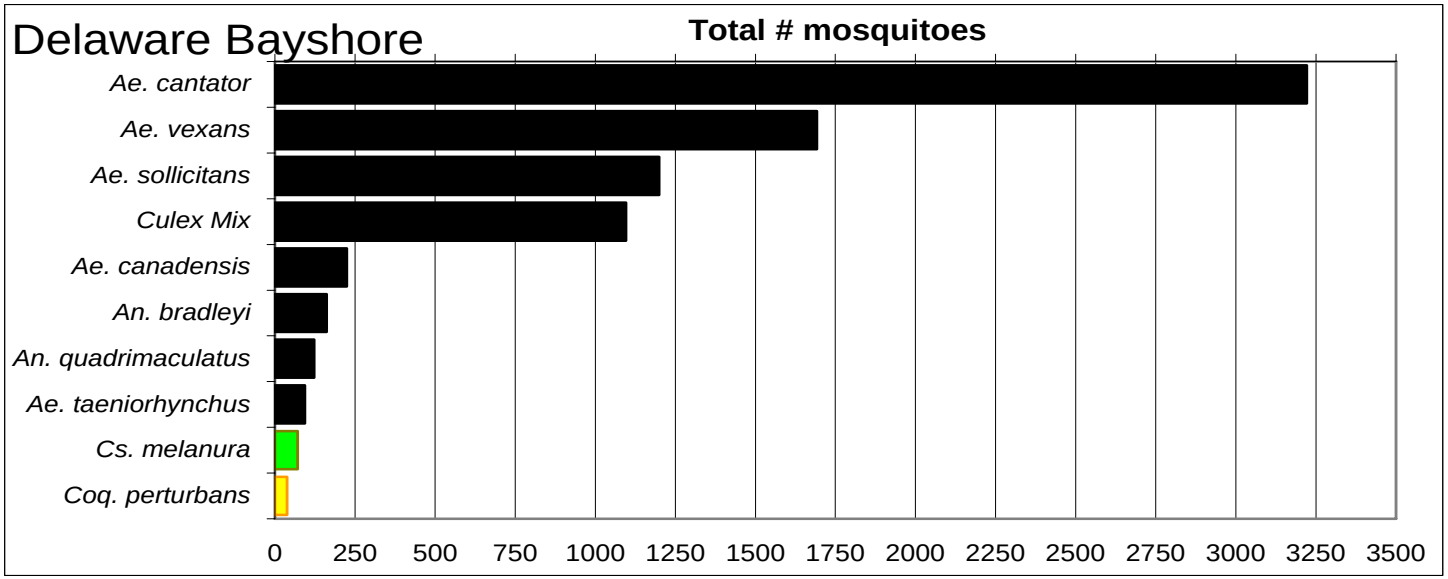
WNV *EEE*

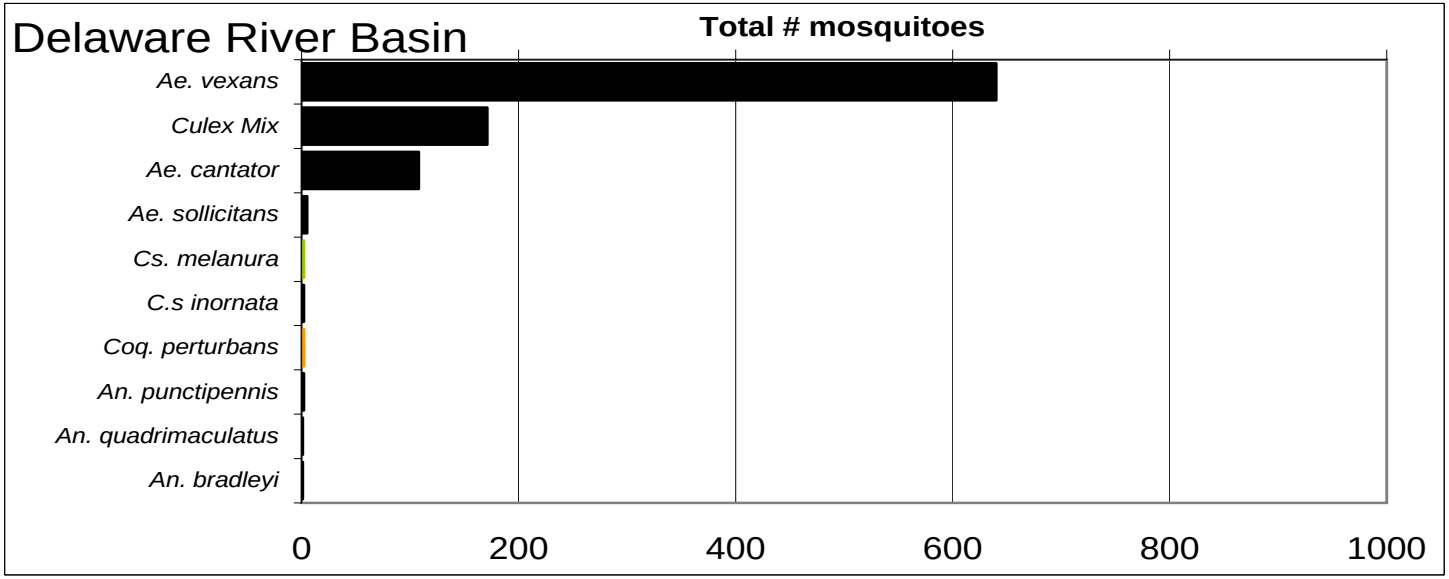
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

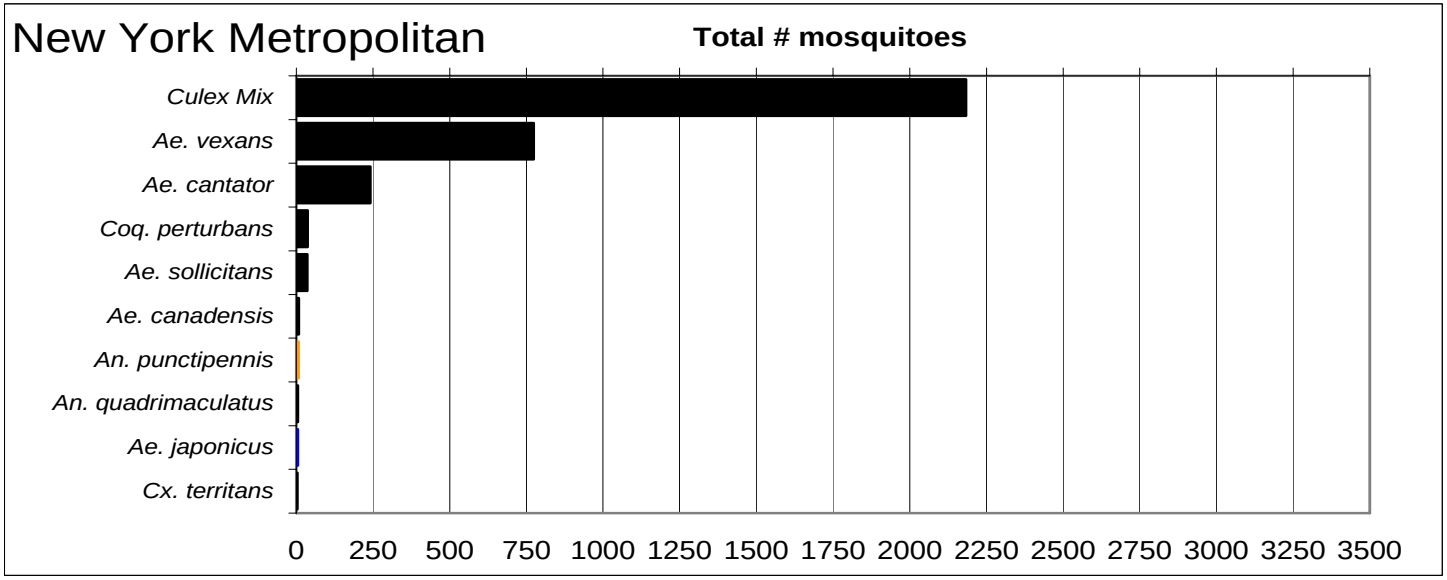
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

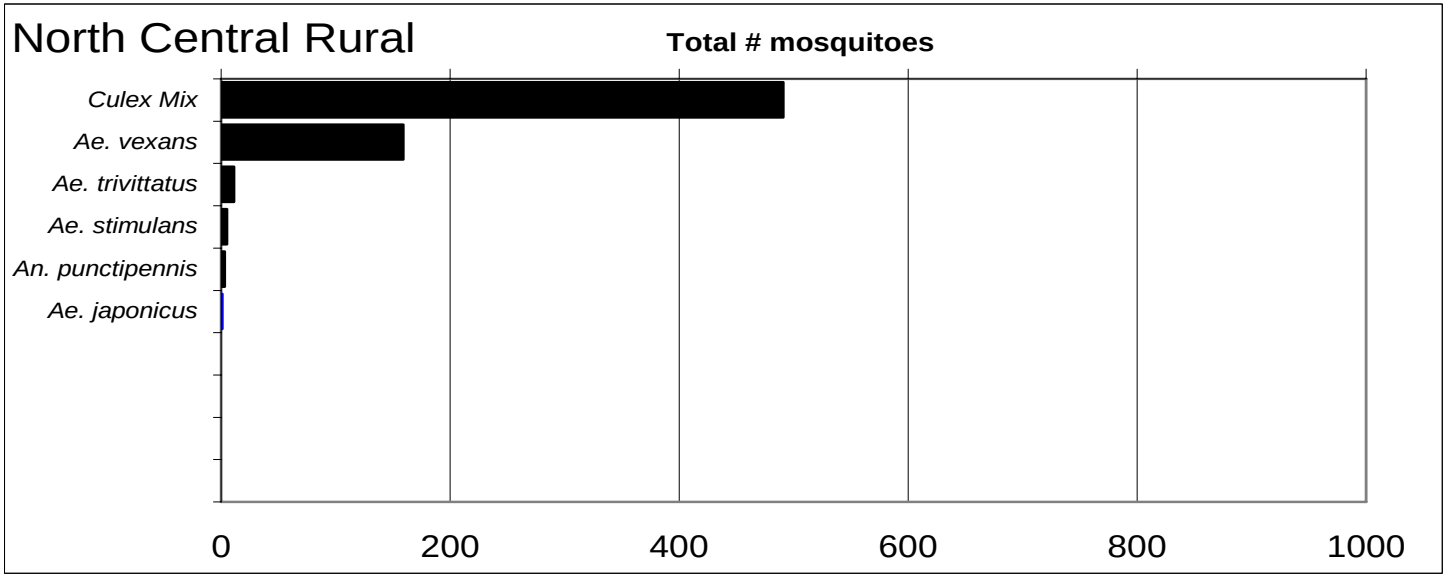


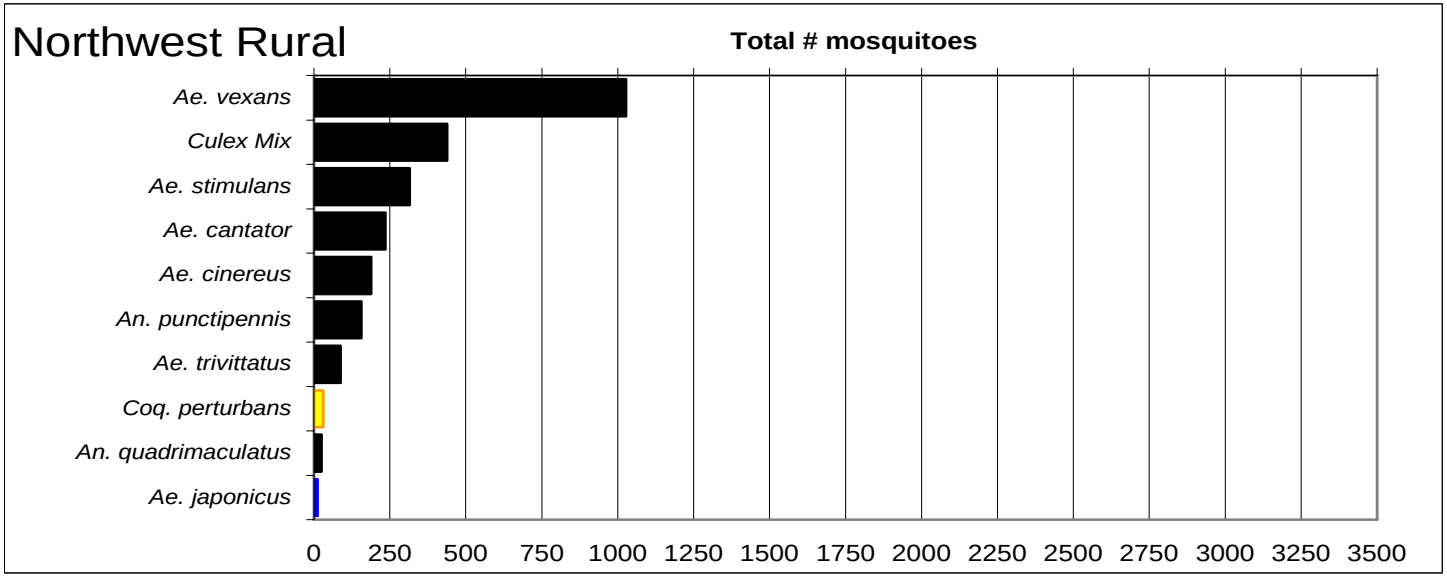


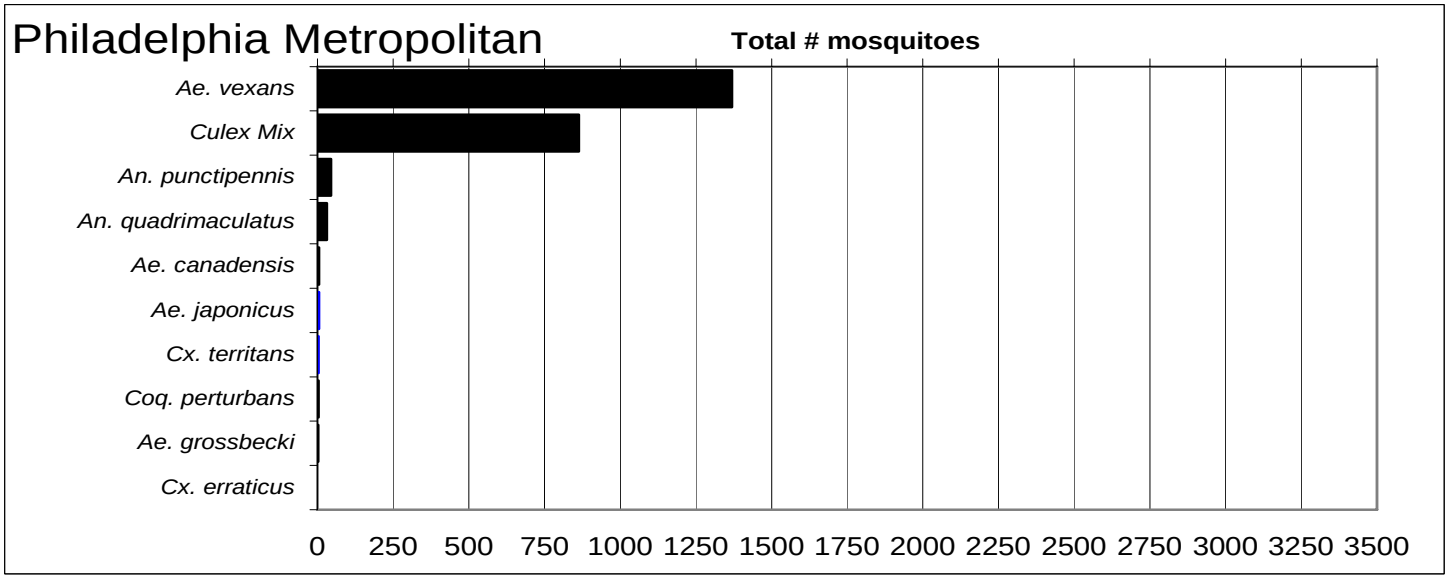

Delaware Bayshore
Total # mosquitoes
Ae. cantator
Ae. vexans
Ae. sollicitans
Culex Mix
Ae. canadensis
An. bradleyi
An. quadrimaculatus
Ae. taeniorhynchus
Cs. melanura
Coq. perturbans
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500

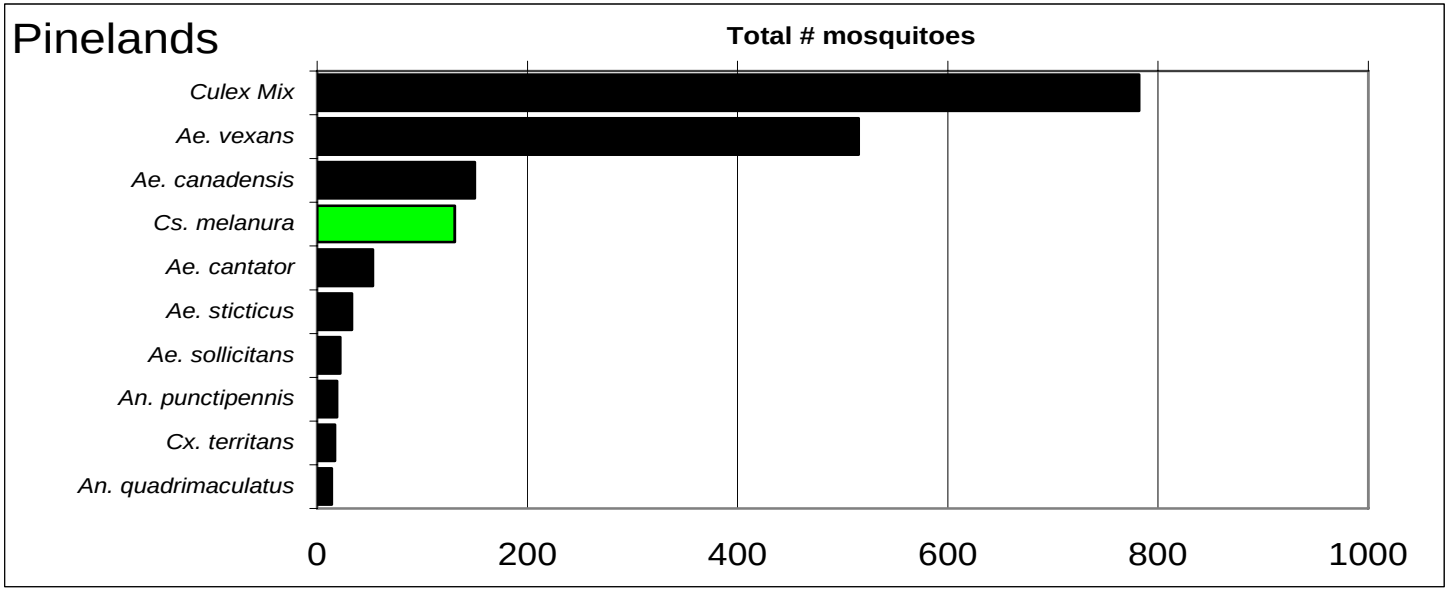

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. cantator
Ae. sollicitans
Cs. melanura
C.s inornata
Coq. perturbans
An. punctipennis
An. quadrimaculatus
An. bradleyi
0
200
400
600
800
1000

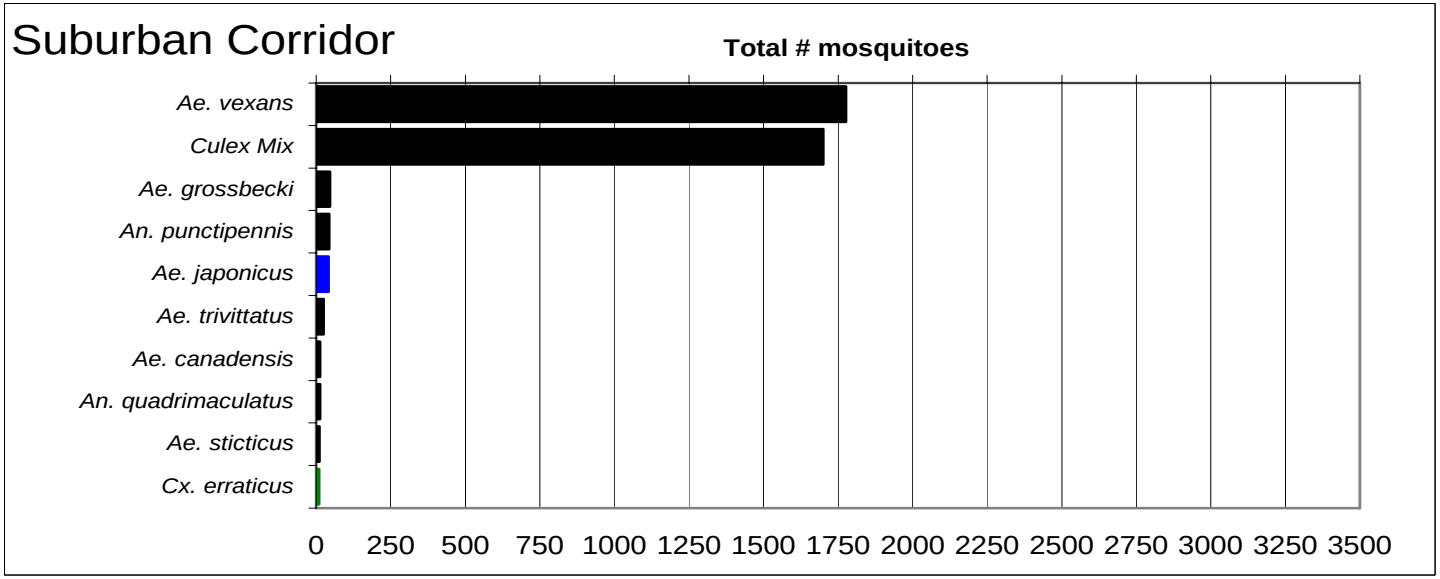

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ae. canadensis
An. punctipennis
An. quadrimaculatus
Ae. japonicus
Cx. territans
0 250 500 750 1000 1250 1500 1750 2000 2250 2500 2750 3000 3250 3500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. trivittatus
Ae. stimulans
An. punctipennis
Ae. japonicus
0 200 400 600 800 1000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. stimulans
Ae. cantator
Ae. cinereus
An. punctipennis
Ae. trivittatus
Coq. perturbans
An. quadrimaculatus
Ae. japonicus
0 250 500 750 1000 1250 1500 1750 2000 2250 2500 2750 3000 3250 3500


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
An. quadrimaculatus
Ae. canadensis
Ae. japonicus
Cx. territans
Coq. perturbans
Ae. grossbecki
Cx. erraticus
0 250 500 750 1000 1250 1500 1750 2000 2250 2500 2750 3000 3250 3500


Pinelands
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. canadensis
Cs. melanura
Ae. cantator
Ae. sticticus
Ae. sollicitans
An. punctipennis
Cx. territans
An. quadrimaculatus
0
200
400
600
800
1000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. grossbecki
An. punctipennis
Ae. japonicus
Ae. trivittatus
Ae. canadensis
An. quadrimaculatus
Ae. sticticus
Cx. erraticus
0
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500