NEW JERSEY ADULT MOSQUITO SURVEILLANCE Report

June 28 to July 4, CDC Week 27

Prepared by Lisa M. Reed and Dina Fonseca
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.

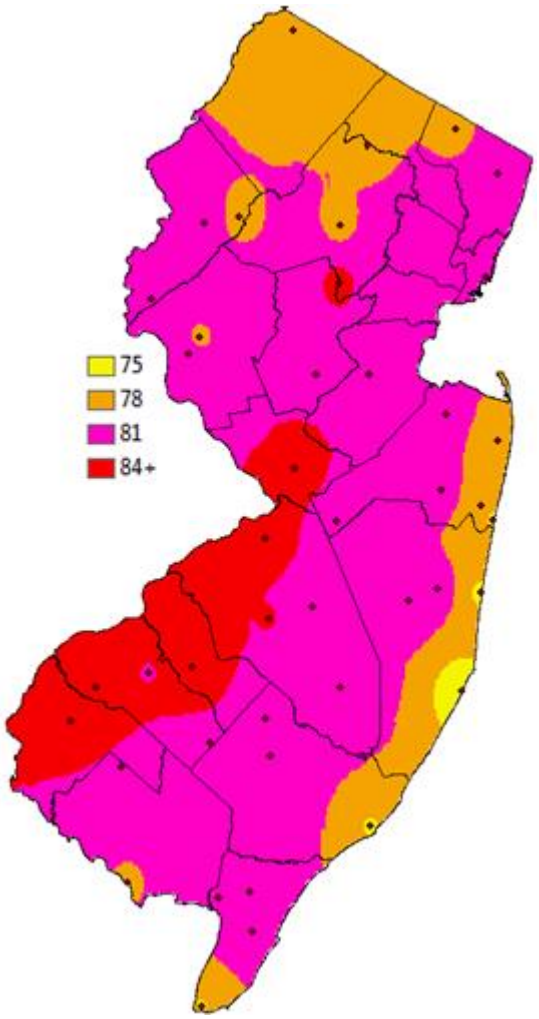
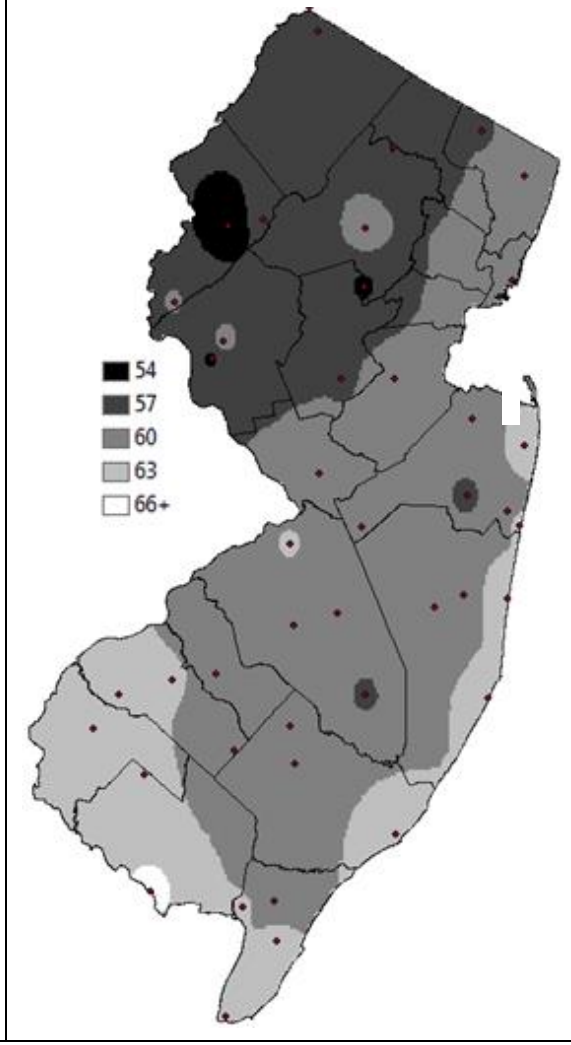
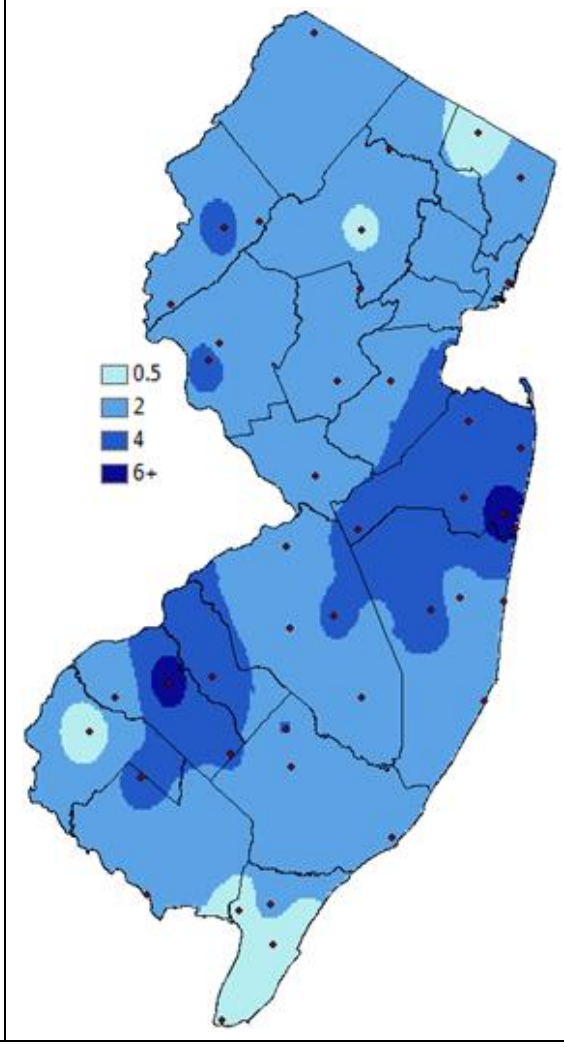
Summary Table – Week 27

	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	**0.51**	**7.33**	**0**	**7.36**	**5.84**	**1**	**0.03**	**1.70**	**0**	**0.34**	**0.36**	**0**
Coastal	**0.68**	**4.60**	**0**	**0.11**	**7.20**	**0**	**0.06**	**0.62**	**0**	**0.10**	**2.11**	**0**
Delaware Bayshore	**0.00**	**4.46**	**0**	**13.38**	**16.50**	**0**	**0.11**	**4.65**	**0**	**2.57**	**2.83**	**0**
Delaware River Basin	**3.64**	**19.20**	**0**	**5.21**	**7.79**	**0**	**2.79**	**3.13**	**0**	**0.00**	**0.23**	**0**
New York Metro	**0.40**	**5.07**	**0**	**1.33**	**8.87**	**0**	**0.44**	**0.50**	**0**	**0.06**	**0.61**	**0**
North Central Rural	**0.00**	**0.36**	**0**	**0.00**	**0.46**	**0**	**0.00**	**1.08**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.03**	**8.43**	**0**	**0.03**	**4.88**	**0**	**0.07**	**1.58**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.00**	**8.24**	**0**	**0.00**	**4.17**	**0**	**0.00**	**0.47**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.14**	**1.59**	**0**	**0.71**	**3.93**	**0**	**1.04**	**1.84**	**0**	**0.00**	**0.04**	**0**
Suburban Corridor	**0.02**	**3.89**	**0**	**0.41**	**1.86**	**0**	**0.02**	**0.76**	**0**	**0.00**	**0.01**	**0**

*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference by 3 (orange) and greater than 150% increase by 4 (red). White cells in the increase column denote increases from an historic zero and thus no value can be appropriately given. nd=no data reported.

State Summary: This week's data represents 8 out of 21 counties, and consequently, population levels continue to be significantly underestimated. At this time, elevated populations are only seen for *Culex* Mix in the Agricultural region.

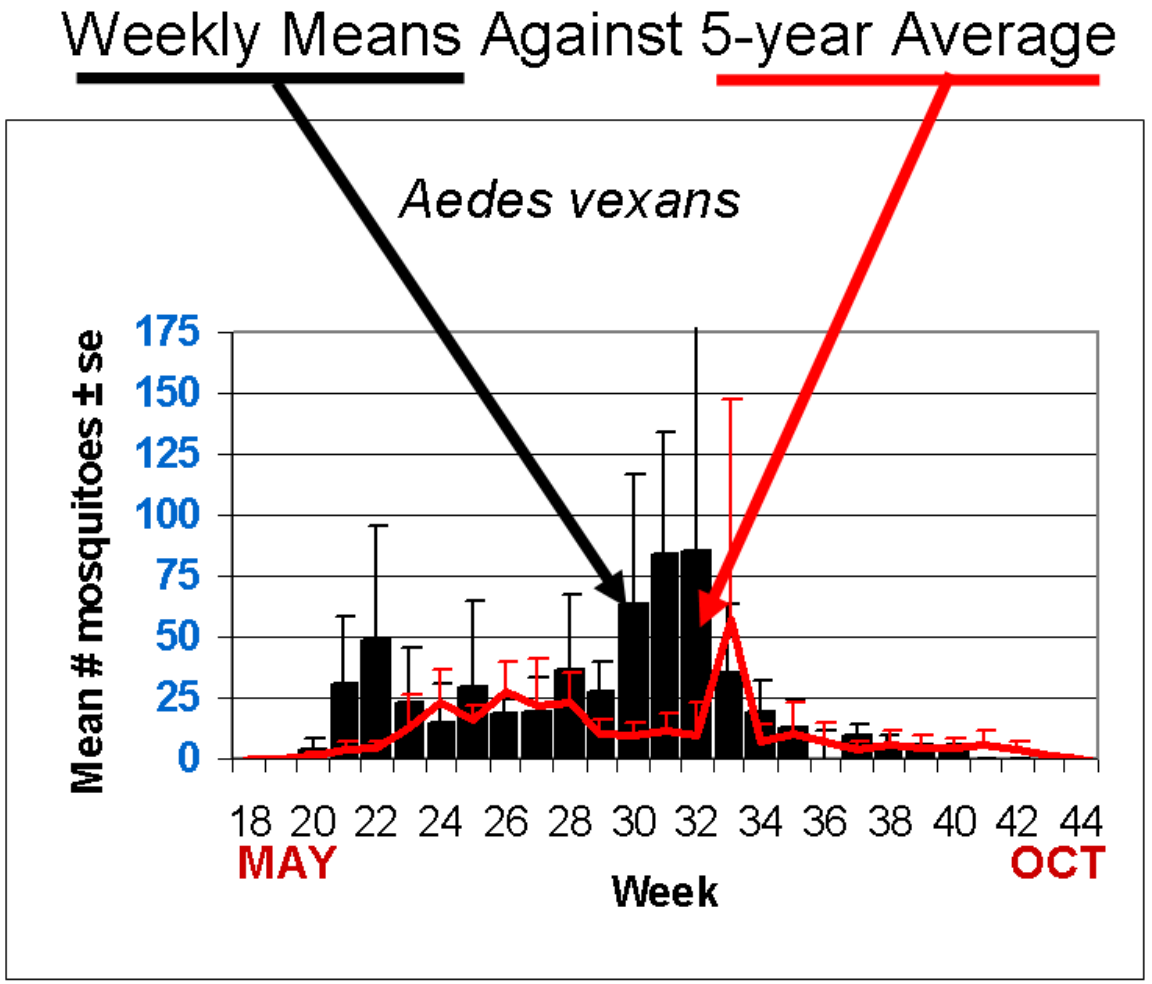
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) for 30 days prior to 2 July 2020 in New Jersey. Data points are from about 50 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

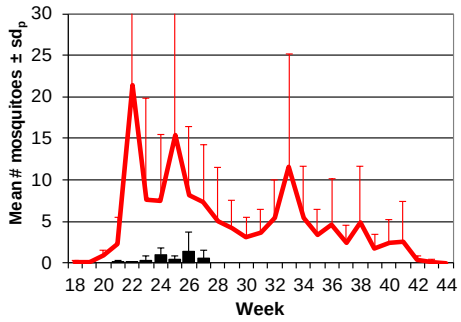
ONJSC at Rutgers University NJ Weather & Climate NETWORK

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, Cumberland, Hudson, Hunterdon, Middlesex, Morris, Salem, and Warren counties. Data for the previous week are from Atlantic, Cumberland, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, and Warren counties.

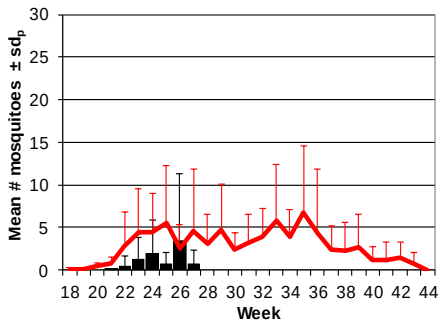


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

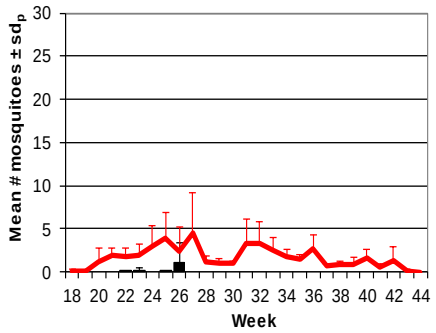
Agricultural



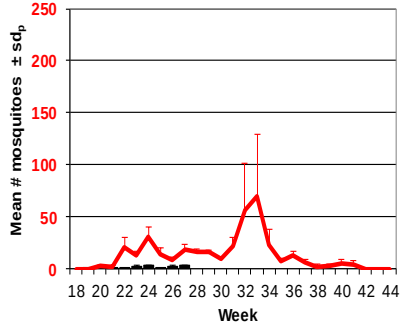
Coastal



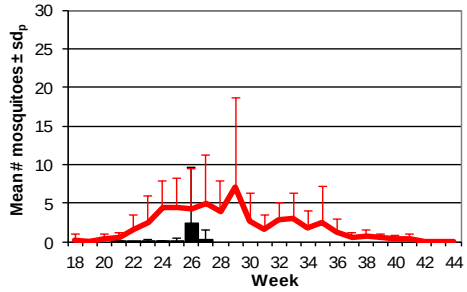
Delaware Bayshore



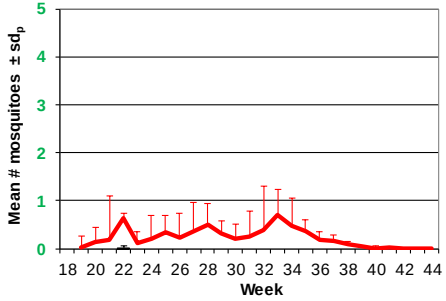
Delaware River Basin



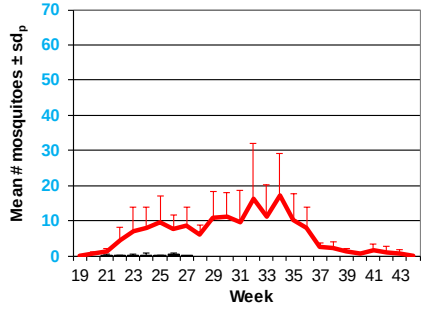
New York Metro



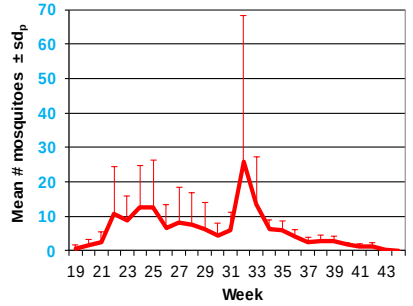
North Central Rural



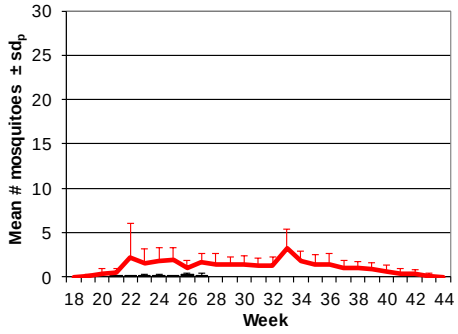
Northwestern Rural



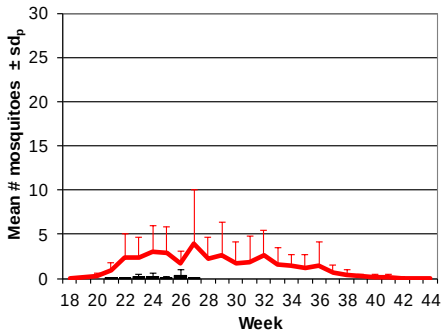
Philadelphia Metro



Pinelands



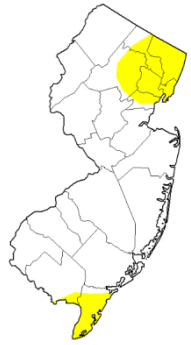
Suburban Corridor



Comments

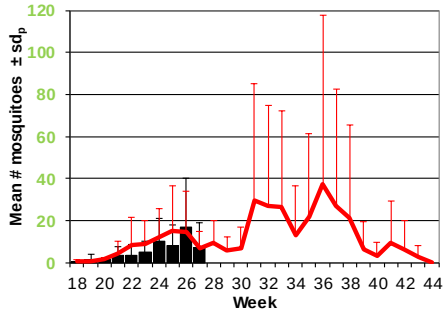
Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. Abnormally dry conditions continue in the north and south portions of the state. *Ae. vexans* populations are likely the result of these conditions plus the reduction of county participaion due to covid created work conditions.

https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NJ

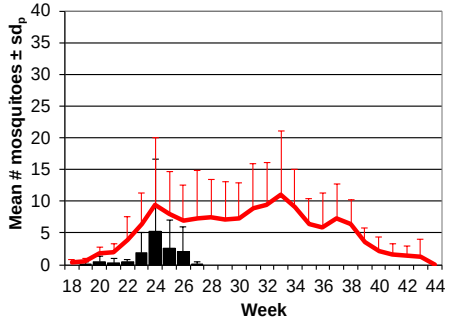


Culex Mix – Permanent Water Species
Multivoltine *Culex/Anopheles* (*Cx. pipiens* Type)

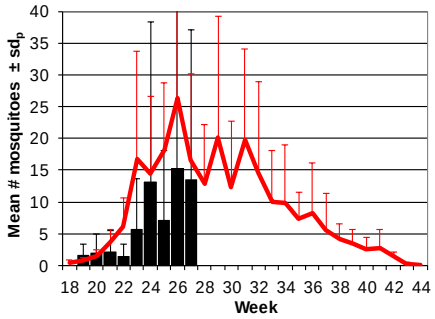
Agricultural



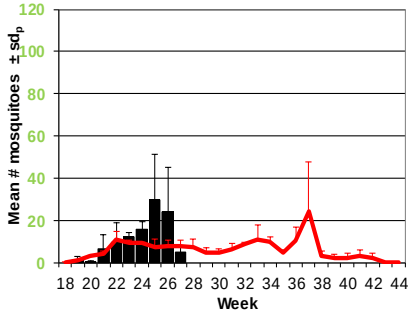
Coastal



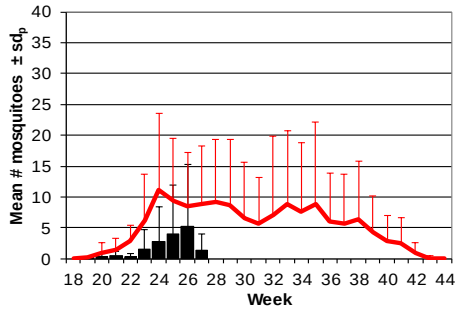
Delaware Bayshore



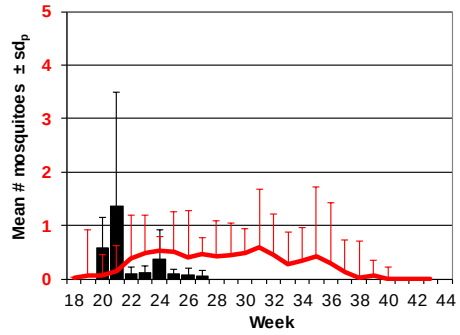
Delaware River Basin



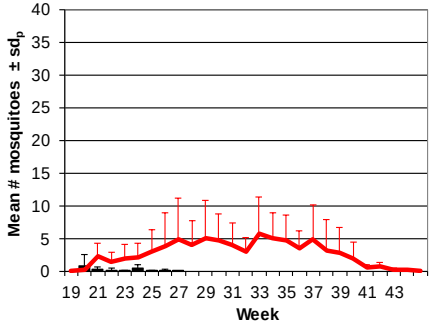
New York Metro



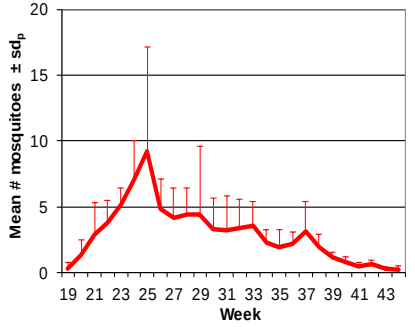
North Central Rural



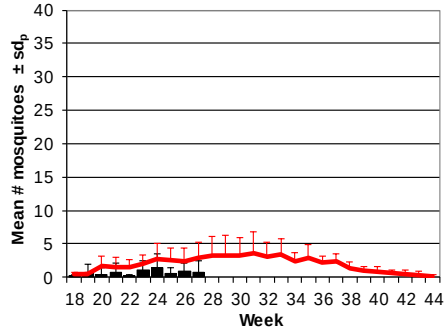
Northwestern Rural



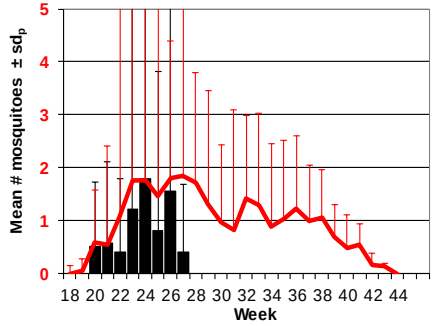
Philadelphia Metro



Pinelands



Suburban Corridor

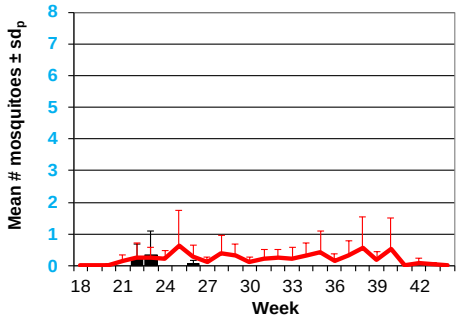


Comments

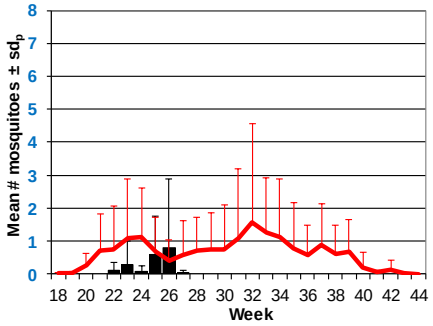
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. Only the Agricultural regions reported *Culex* Mix populations as being slightly elevated over the 5 year historical running mean.

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

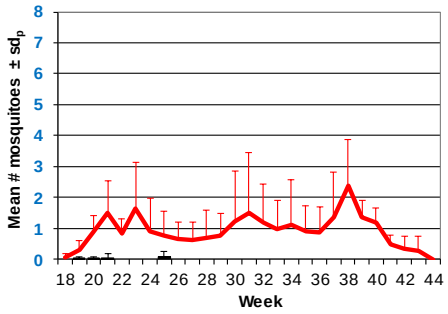
Agricultural



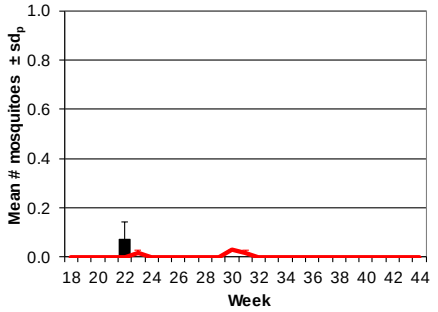
Coastal



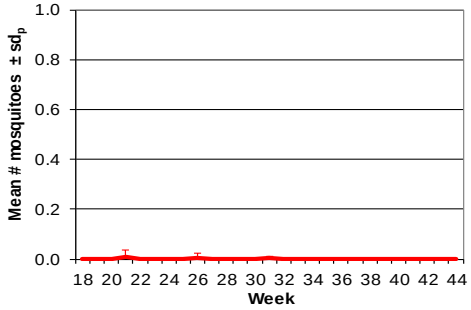
Delaware Bayshore



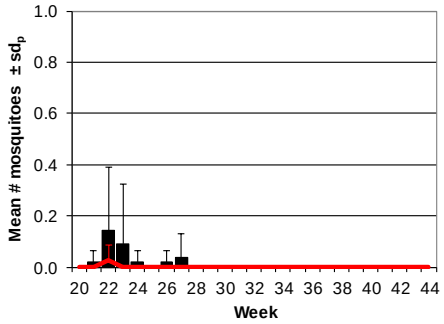
Delaware River Basin



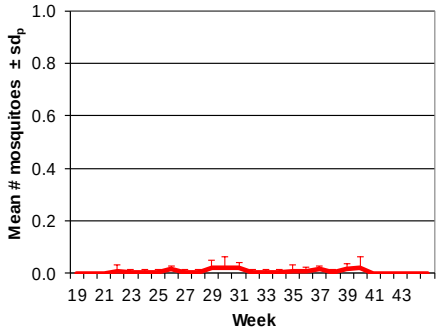
New York Metro



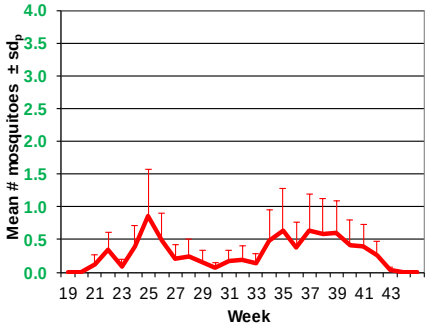
North Central Rural



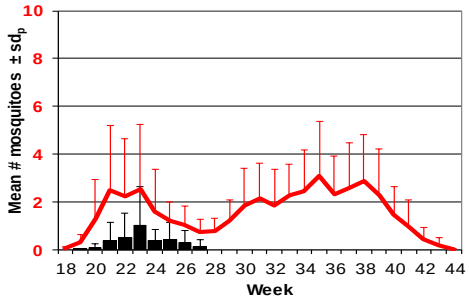
Northwestern Rural



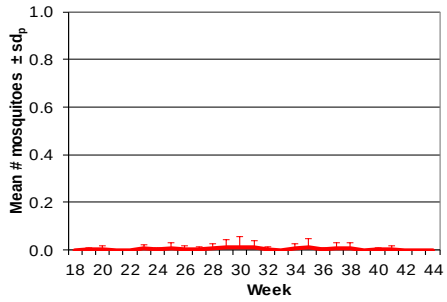
Philadelphia Metro



Pinelands



Suburban Corridor



Comments

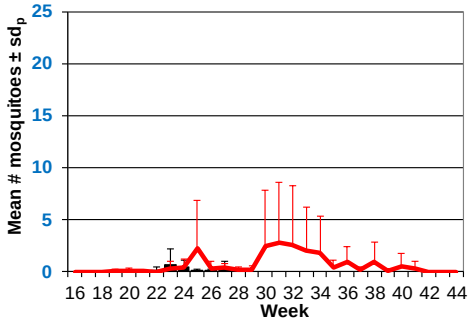
Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. This cold-hearty species can emerge early in the season as well as staying active later. These populations will be monitored closely after 2019's significant EEE activity. This is the second week in a row that populations in the North Central Rural were above historical means. All other regions appear with population levels below historical trends.

First positive EEE in *Cs. melanura* occurred in Atlantic County, collected at the earliest date in the past 20 years.

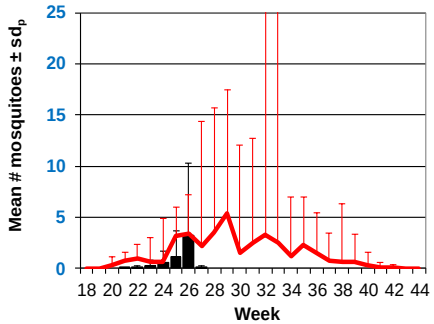
All horse owners should make sure their horses are up to date on their EEE/WNV vaccination schedules: http://www.aaep.org/custdocs/adultvaccinationchart.pdf

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

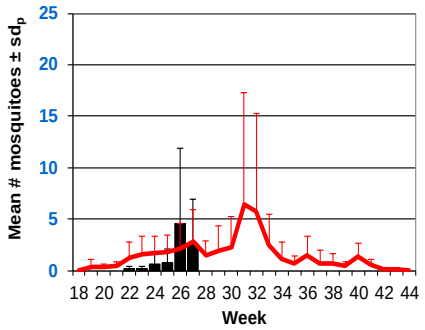
Agricultural



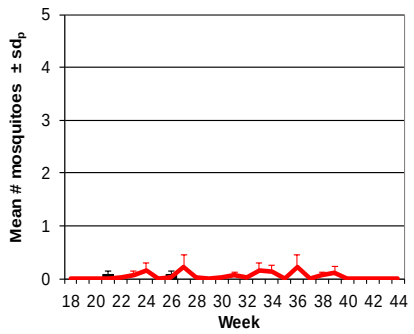
Coastal



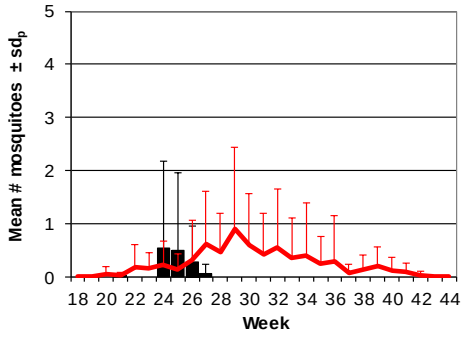
Delaware Bayshore



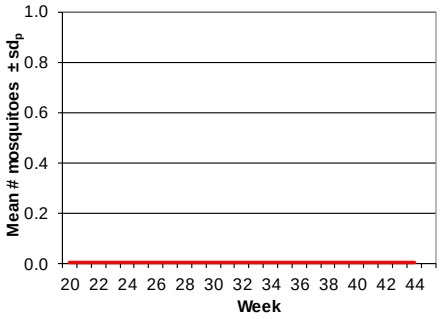
Delaware River Basin



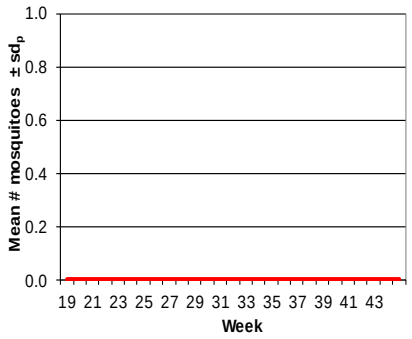
New York Metro



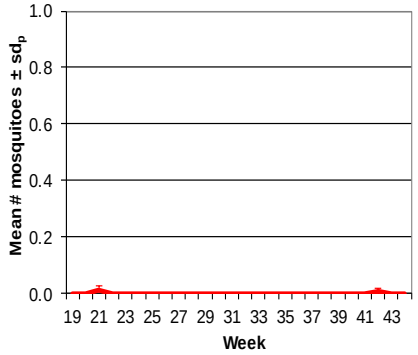
North Central Rural



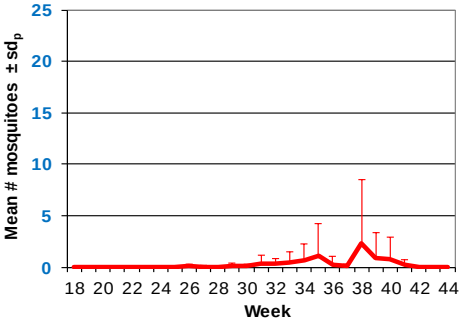
Northwestern Rural



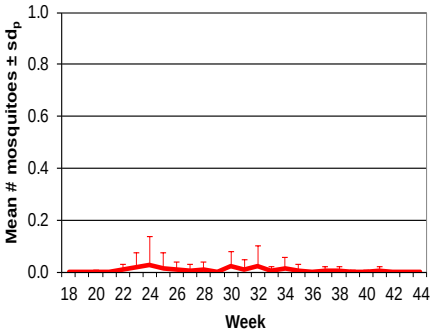
Philadelphia Metro



Pinelands



Suburban Corridor



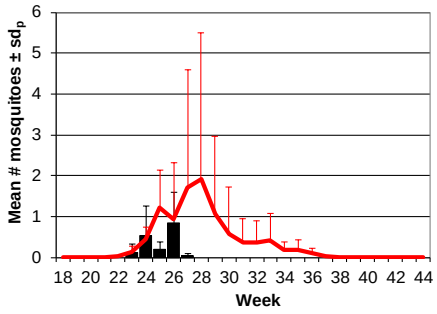
Comments

Aedes sollicitans is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. *Aedes sollicitans* remained below historical averages in all regions, possibly representing the end of the first emergence. This will become more apparent once the full dataset is in.

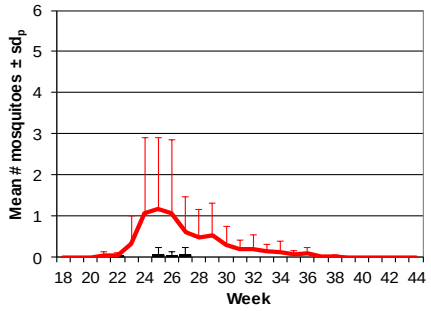
Next full moon on 5 July.

Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

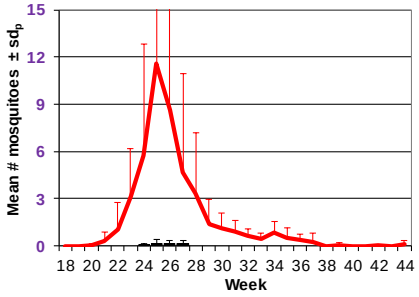
Agricultural



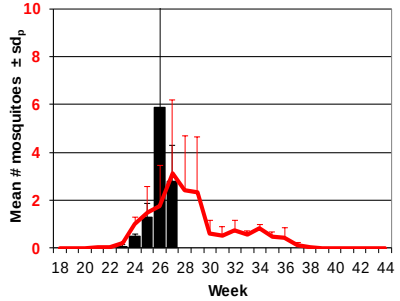
Coastal



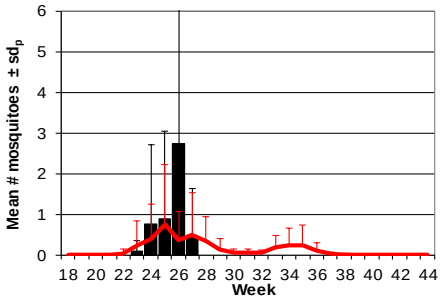
Delaware Bayshore



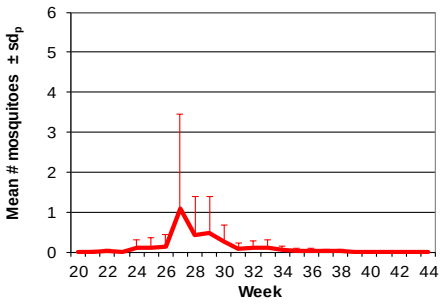
Delaware River Basin



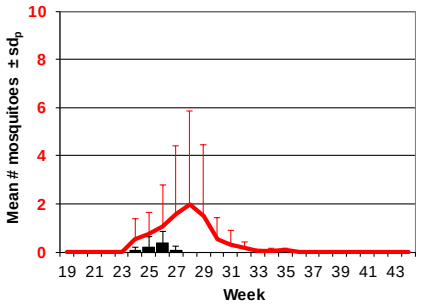
New York Metro



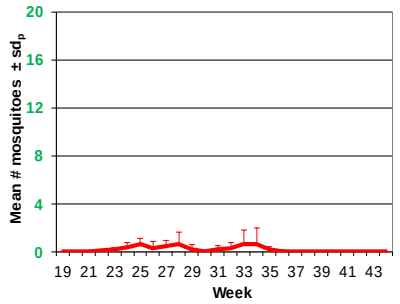
North Central Rural



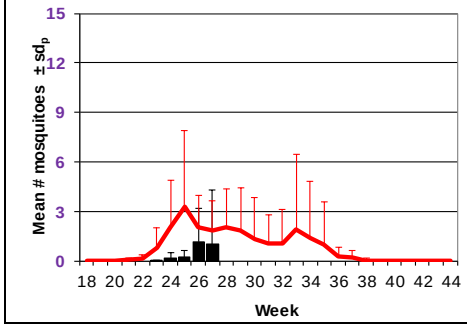
Northwestern Rural



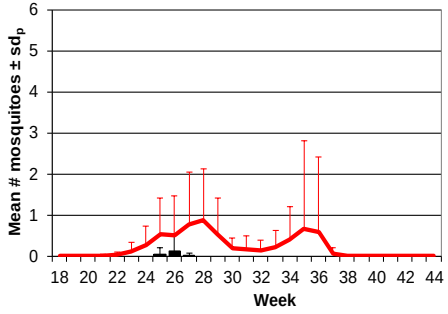
Philadelphia Metro



Pinelands



Suburban Corridor



Comments

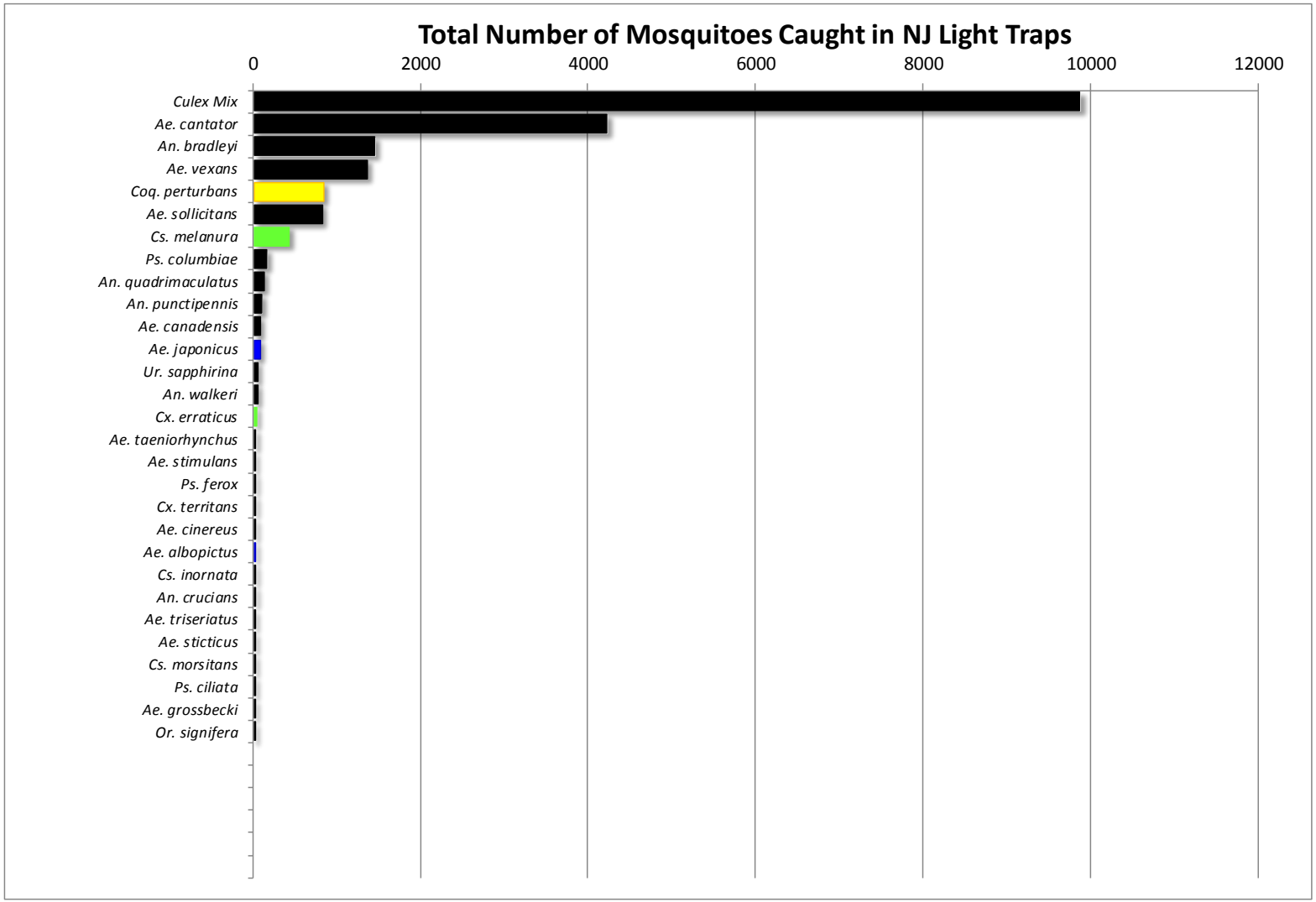
Coquillettidia perturbans populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. *Coquillettidia perturbans* populations should be entering into their peaks, but appear to be significantly underestimated for many regions. The Delaware River Basin and New York Metropolitan regions are likely more accurate.

Given that this species may play a role in inland transmission of EEE, populations will be monitored closely.

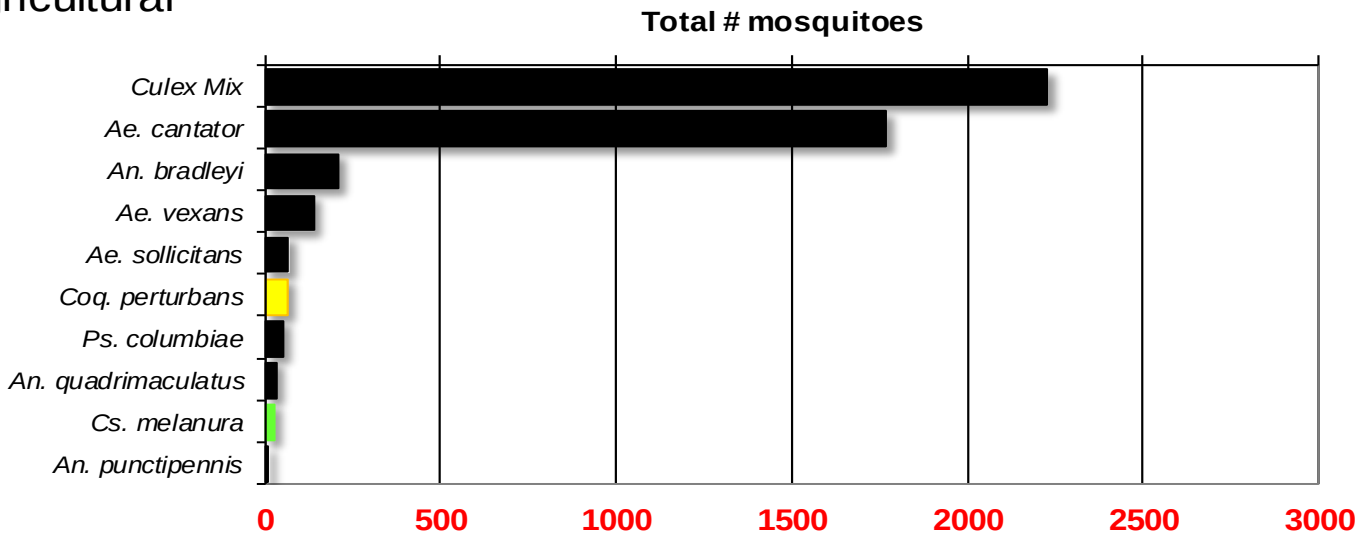
WNV *EEE*

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

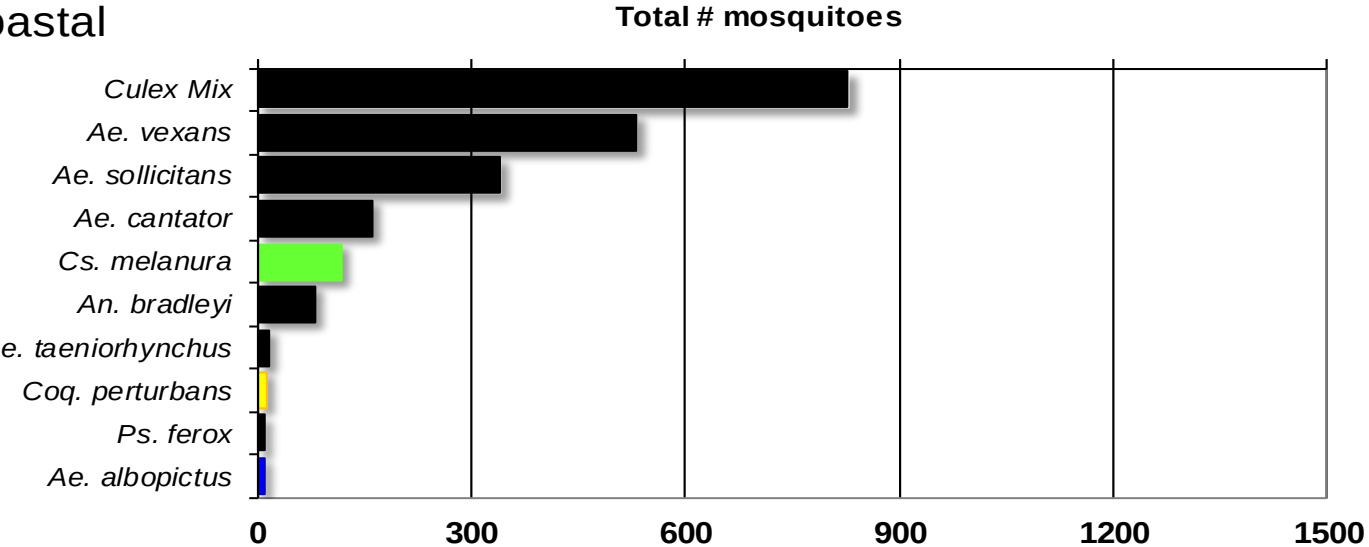
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

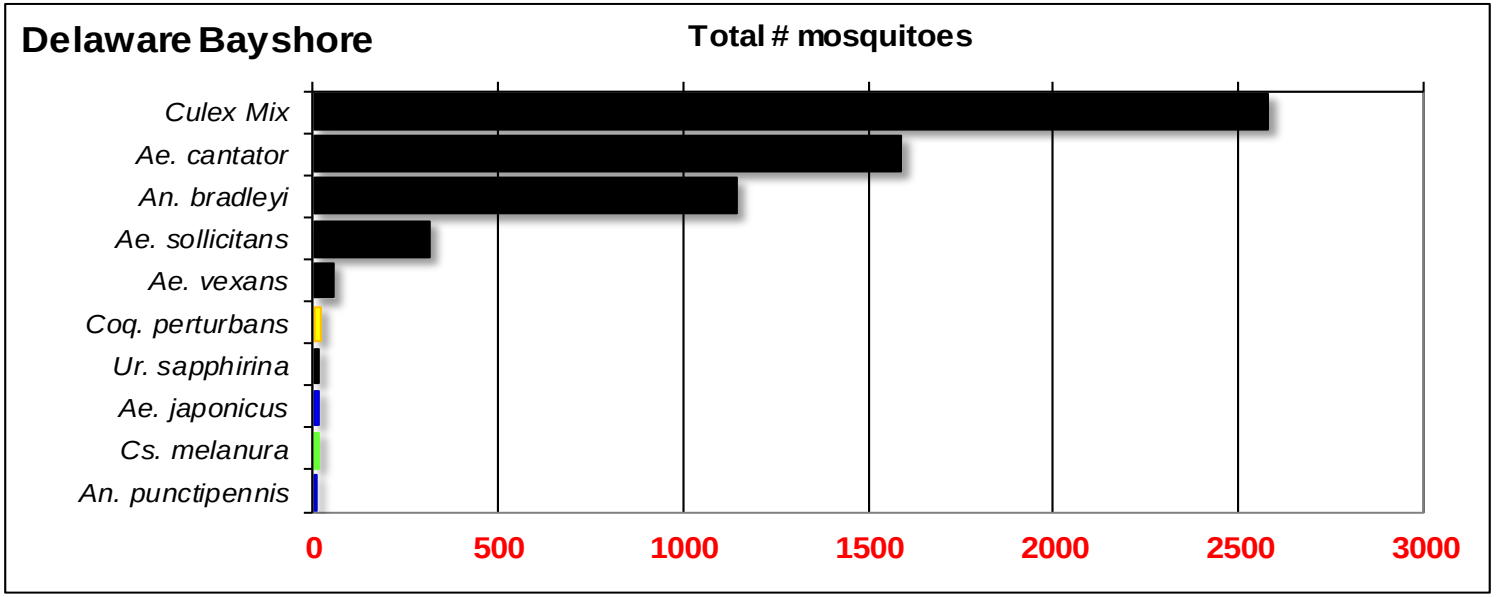


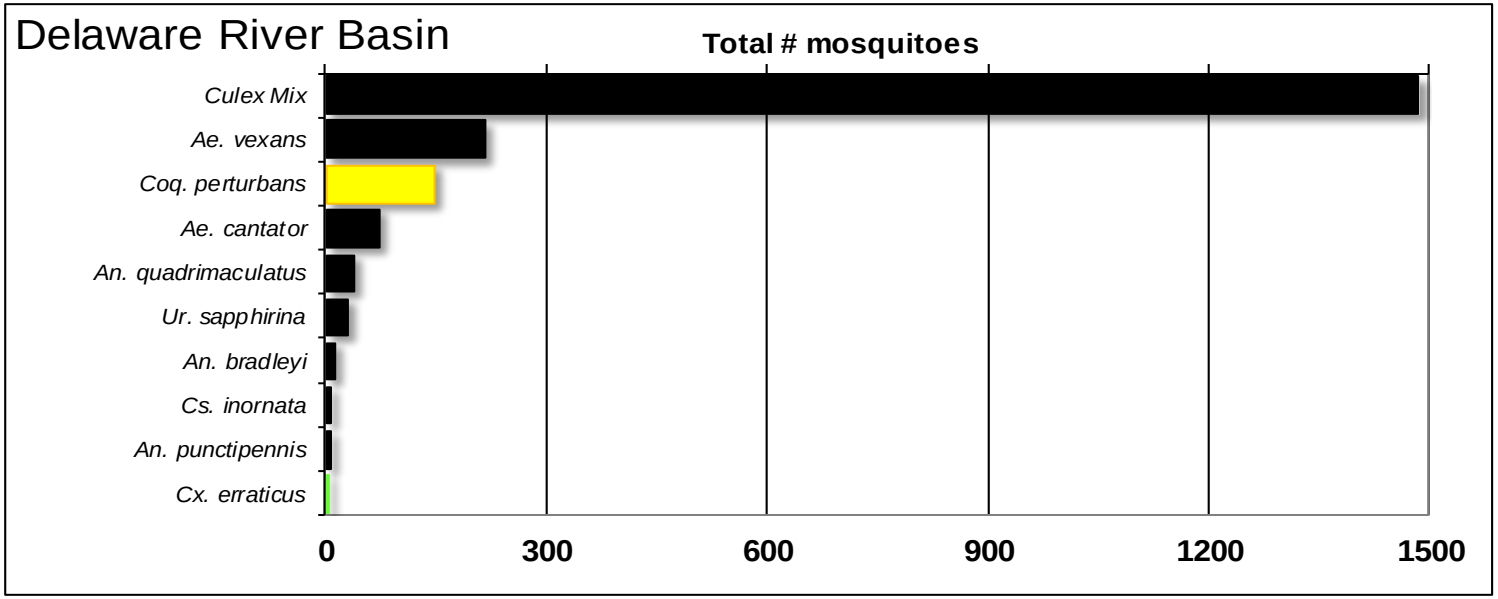
Agricultural

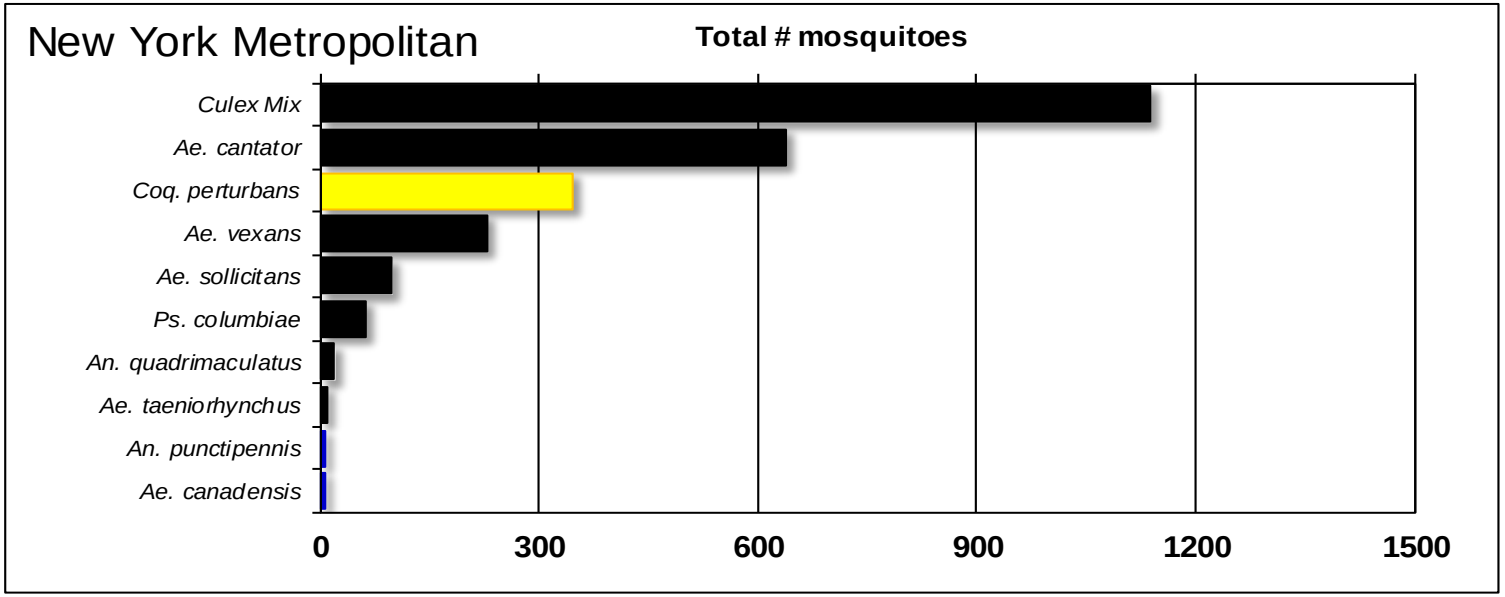


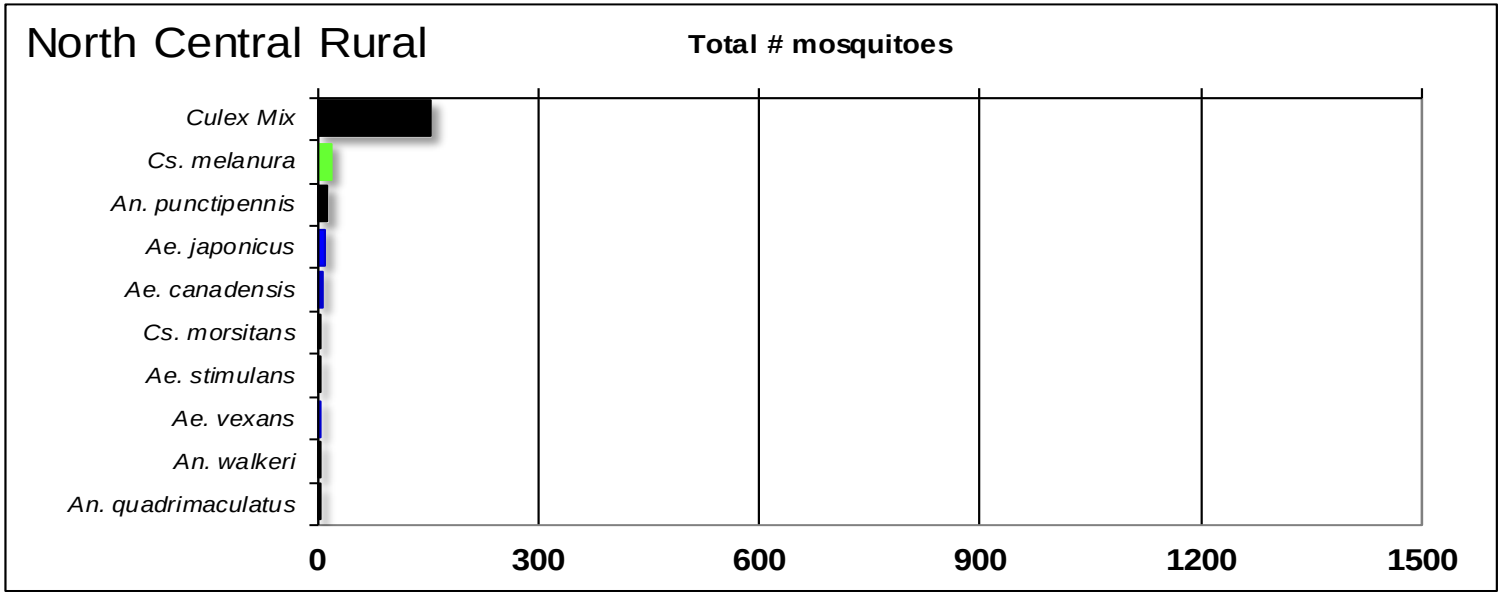
Coastal

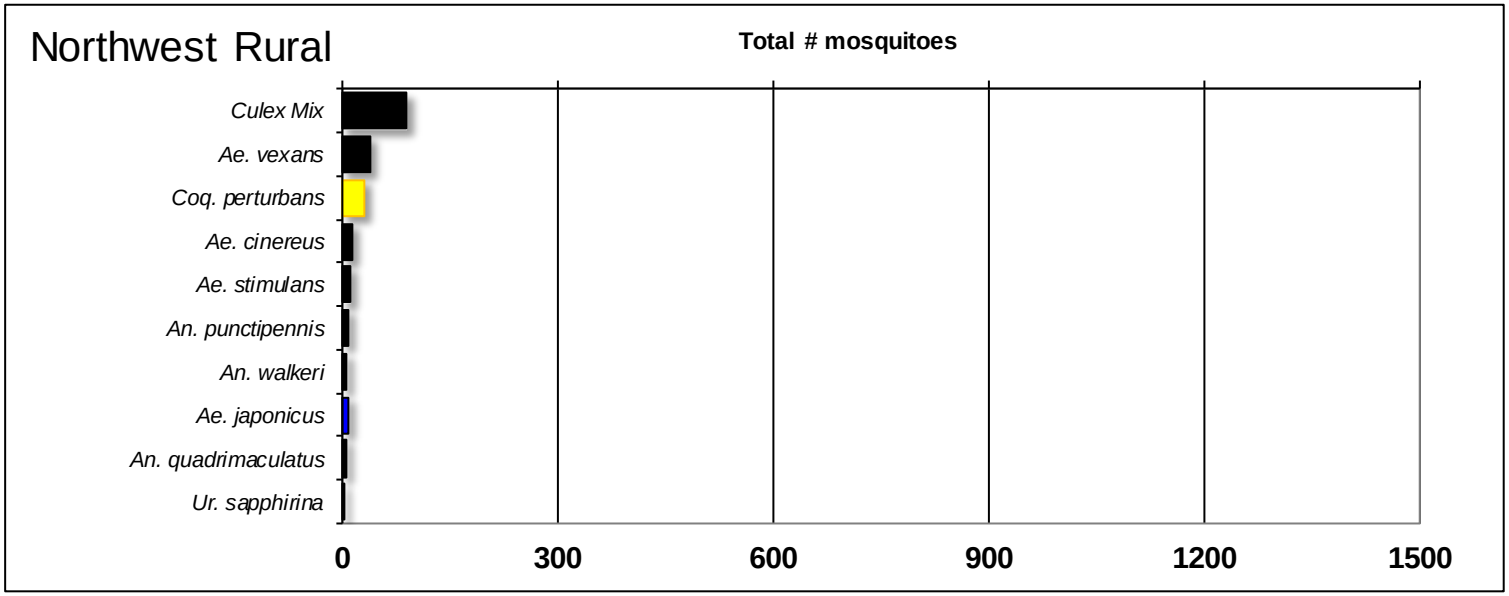


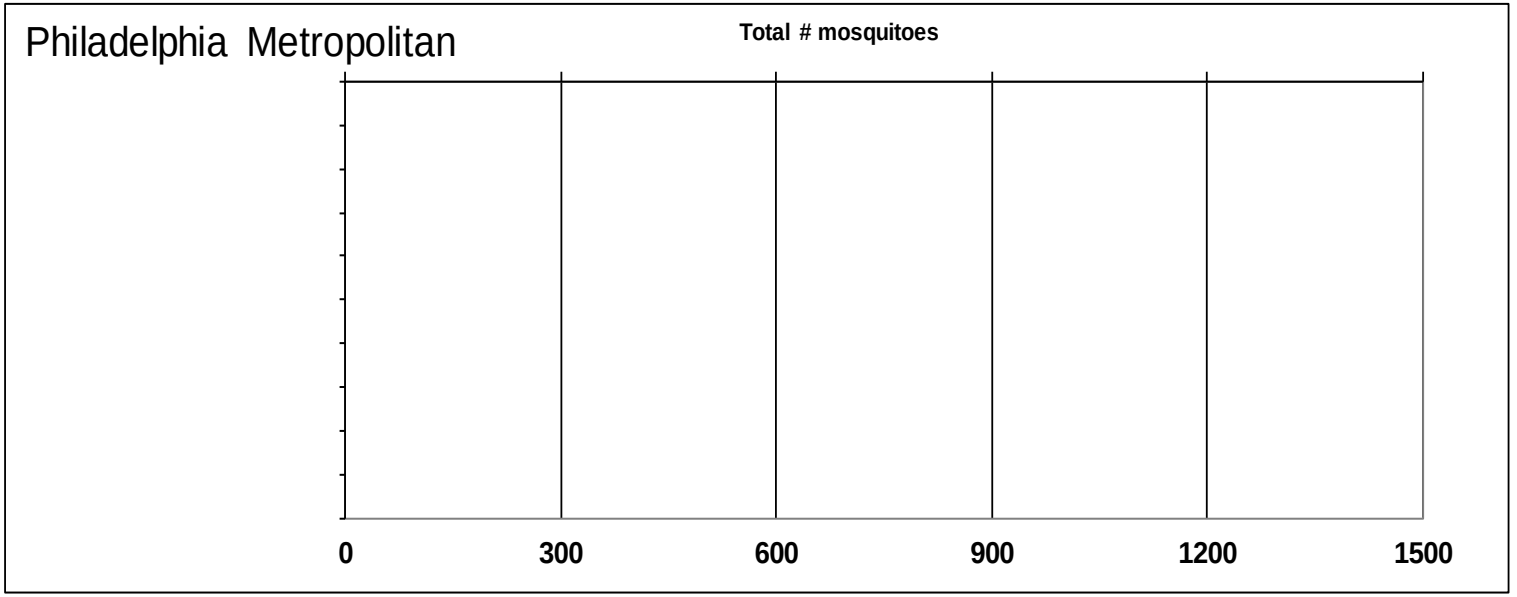

Delaware Bayshore
Total # mosquitoes
Culex Mix
Ae. cantator
An. bradleyi
Ae. sollicitans
Ae. vexans
Coq. perturbans
Ur. sapphirina
Ae. japonicus
Cs. melanura
An. punctipennis
0
500
1000
1500
2000
2500
3000

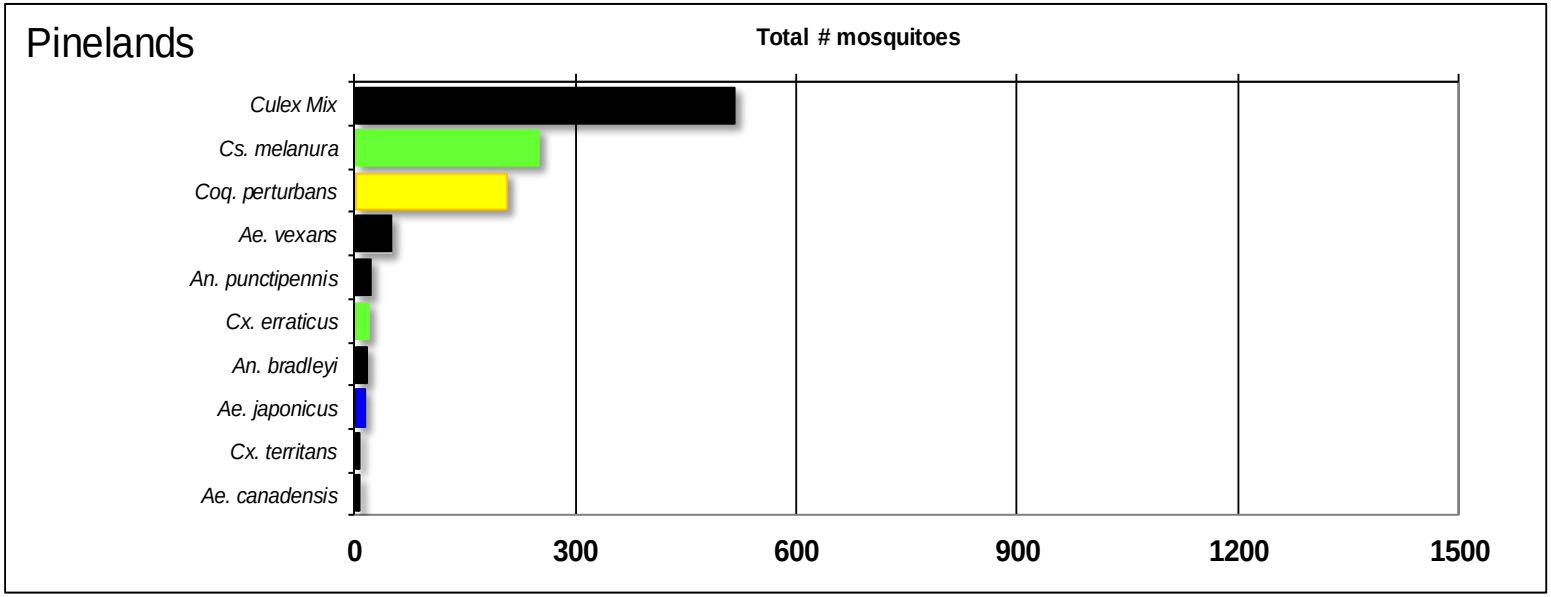

Delaware River Basin
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ae. cantator
An. quadrimaculatus
Ur. sapphirina
An. bradleyi
Cs. inornata
An. punctipennis
Cx. erraticus
0
300
600
900
1200
1500

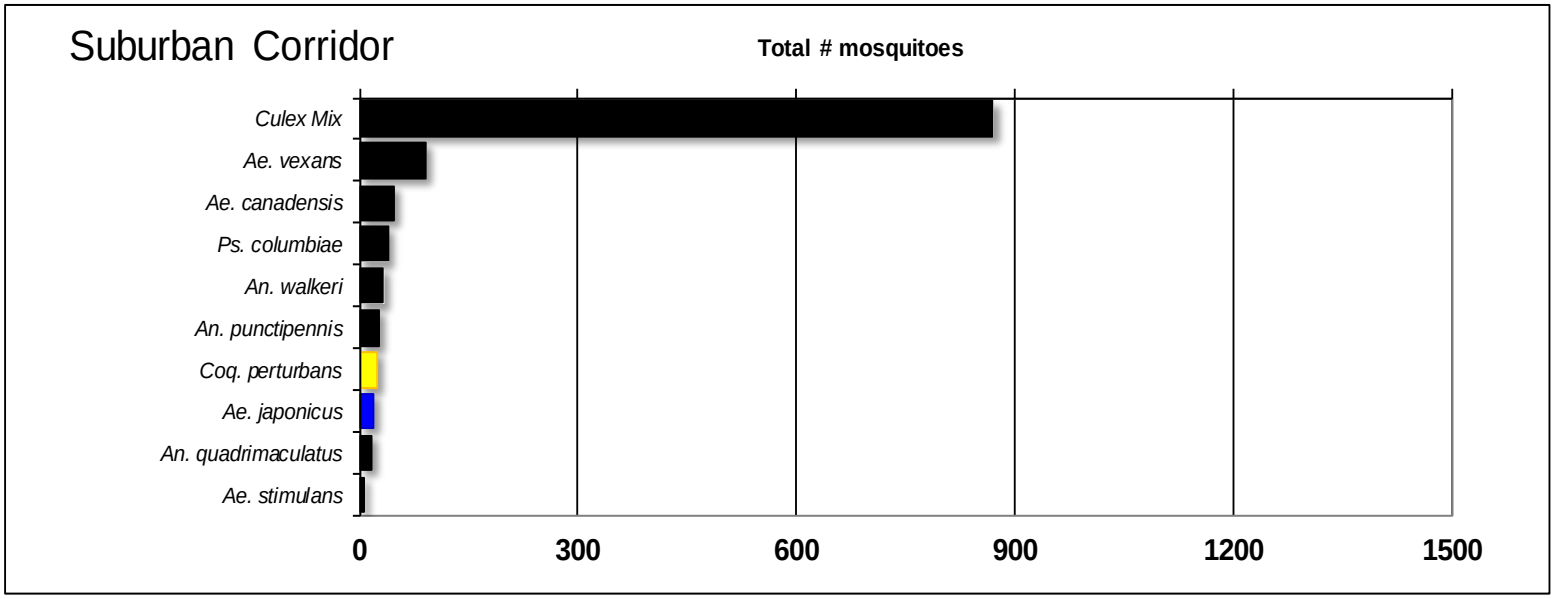

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. cantator
Coq. perturbans
Ae. vexans
Ae. sollicitans
Ps. columbiae
An. quadrimaculatus
Ae. taeniorhynchus
An. punctipennis
Ae. canadensis
0
300
600
900
1200
1500


North Central Rural
Total # mosquitoes
Culex Mix
Cs. melanura
An. punctipennis
Ae. japonicus
Ae. canadensis
Cs. morsitans
Ae. stimulans
Ae. vexans
An. walkeri
An. quadrimaculatus
0
300
600
900
1200
1500


Northwest Rural
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ae. cinereus
Ae. stimulans
An. punctipennis
An. walkeri
Ae. japonicus
An. quadrimaculatus
Ur. sapphirina
0
300
600
900
1200
1500


Philadelphia Metropolitan
Total # mosquitoes
0
300
600
900
1200
1500


Pinelands
Total # mosquitoes
Culex Mix
Cs. melanura
Coq. perturbans
Ae. vexans
An. punctipennis
Cx. erraticus
An. bradleyi
Ae. japonicus
Cx. territans
Ae. canadensis
0
300
600
900
1200
1500


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. canadensis
Ps. columbiae
An. walkeri
An. punctipennis
Coq. perturbans
Ae. japonicus
An. quadrimaculatus
Ae. stimulans
0
300
600
900
1200
1500