NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 24 May to 30 May 2015, CDC Week 21

Prepared by Lisa M. Reed, Scott Crans and Mark Robson
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.

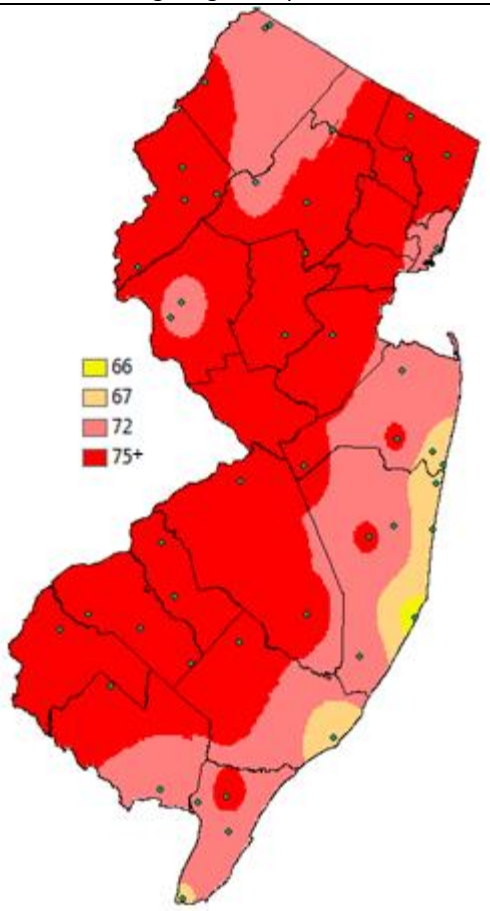
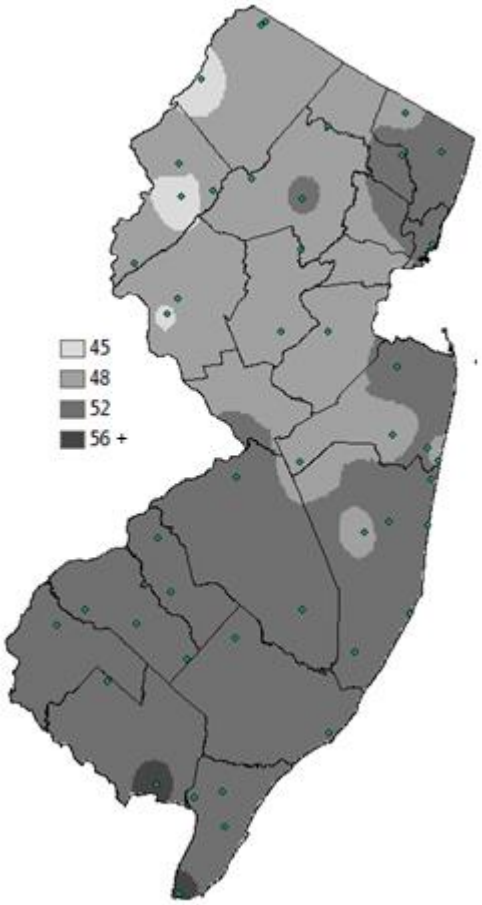
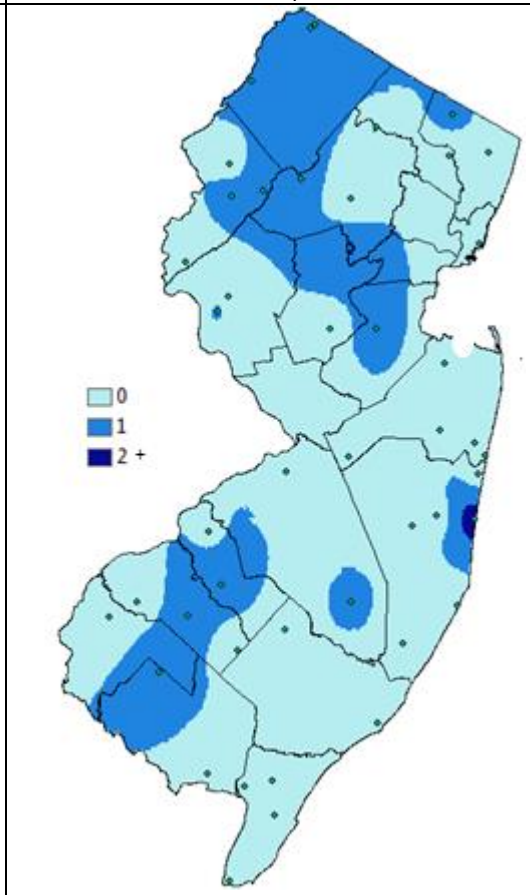
Summary Table – Week 21

	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	**0.02**	**2.92**	**0**	**0.21**	**2.37**	**0**	**0.00**	**0.06**	**0**	**0.00**	**0.03**	**0**
Coastal	**0.14**	**0.66**	**0**	**0.88**	**1.67**	**0**	**0.00**	**0.00**	**0**	**0.30**	**1.16**	**0**
Delaware Bayshore	**0.14**	**3.70**	**0**	**0.54**	**3.26**	**0**	**0.00**	**1.71**	**0**	**0.03**	**1.95**	**0**
Delaware River Basin	**0.14**	**0.95**	**0**	**0.00**	**1.60**	**0**	**0.00**	**0.03**	**0**	**0.00**	**0.00**	**0**
New York Metro	**0.19**	**0.51**	**0**	**0.89**	**0.69**	**1**	**0.00**	**0.00**	**0**	**0.00**	**0.14**	**0**
North Central Rural	**0.10**	**0.10**	**0**	**1.86**	**0.35**	**4**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.34**	**1.41**	**0**	**2.57**	**1.15**	**3**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**2.61**	**2.17**	**1**	**0.89**	**1.74**	**0**	**0.00**	**0.06**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.04**	**0.45**	**0**	**0.71**	**1.33**	**0**	**0.00**	**0.06**	**0**	**0.00**	**0.09**	**0**
Suburban Corridor	**0.13**	**1.30**	**0**	**0.66**	**1.57**	**0**	**0.00**	**0.08**	**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. nd=no data reported.

State Summary: Mosquito season has been underway with cold tolerant species on the wing for several weeks. Populations of pestiferous species (excepting the mid-season *Coq. perturbans*) are present and at this time, most are under historical averages. The exceptions are *Ae. vexans* in the Philadelphia Metro region and *Culex* species (likely *Cx. restuans*) in the New York Metropolitan, North Central Rural and the Northwest Rural regions.

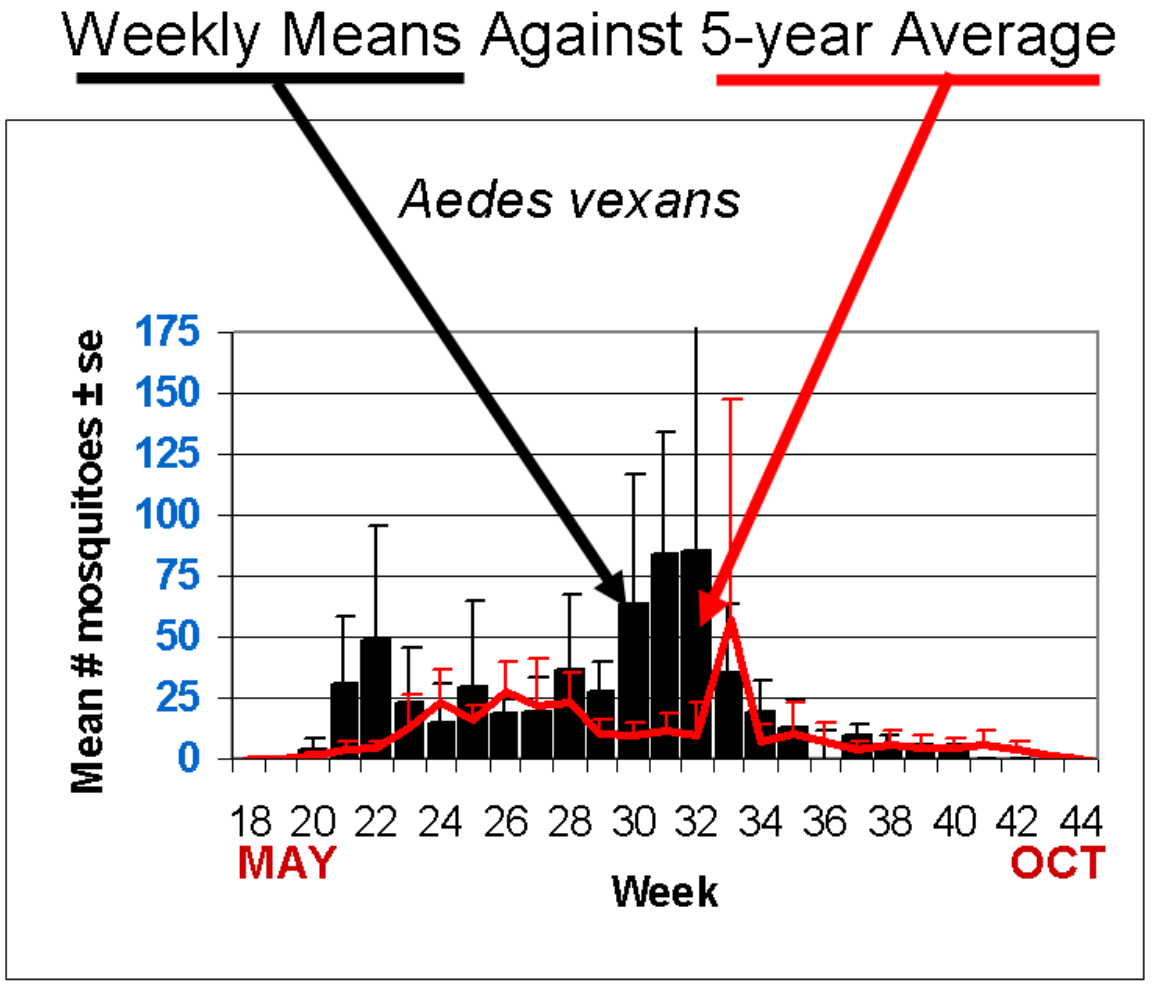
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

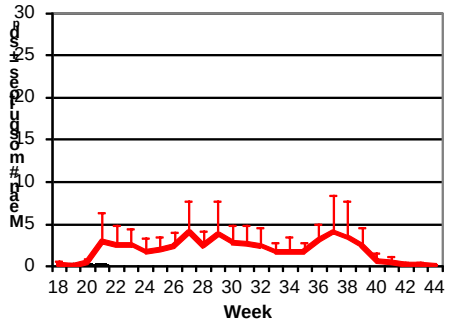
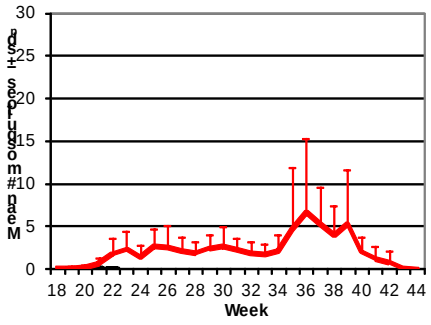
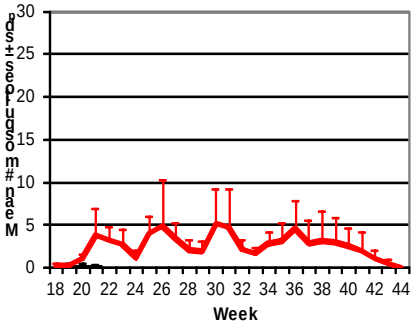
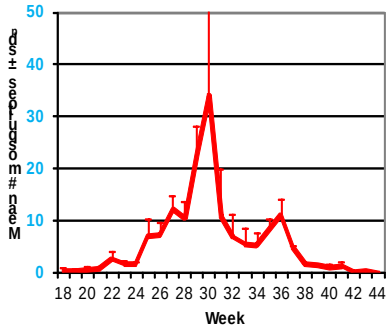
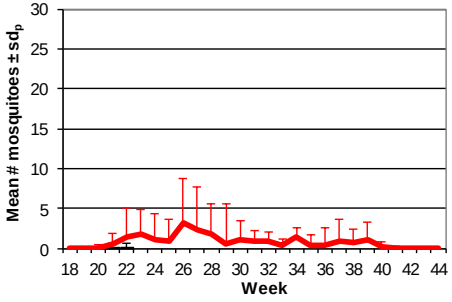
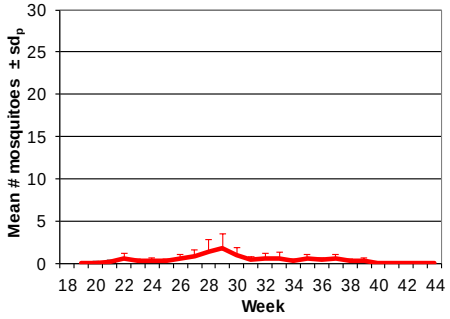
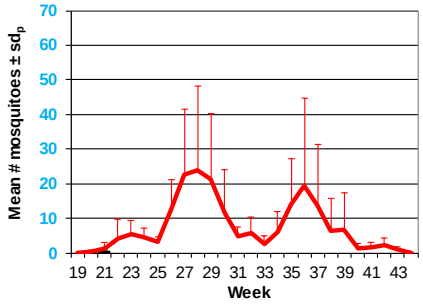
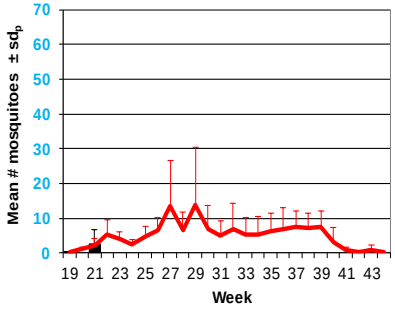
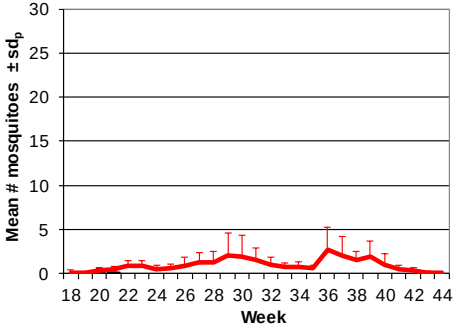
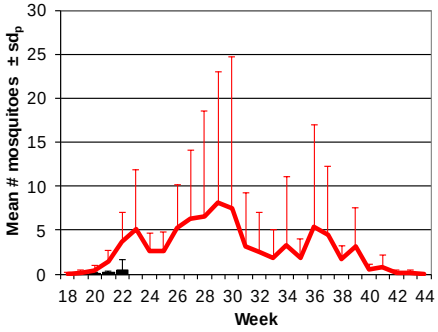
The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) for 30 days prior to 29 May 2015 in New Jersey. Data points are from about 46 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

NJ Weather & Climate NETWORK ONJSC at Rutgers University

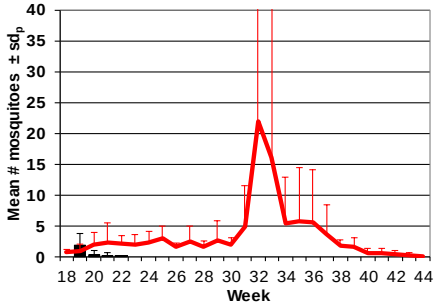
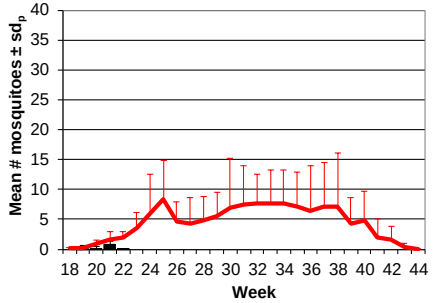
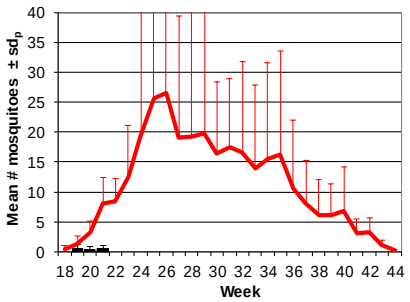
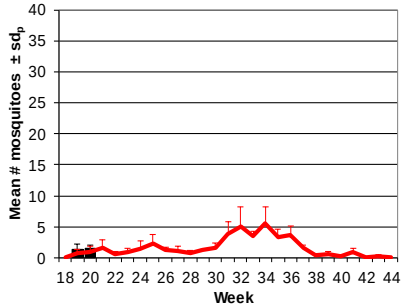
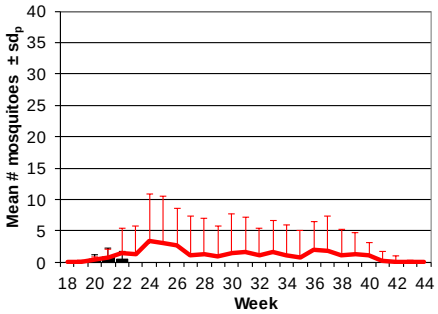
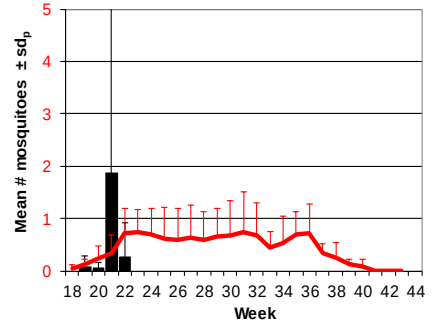
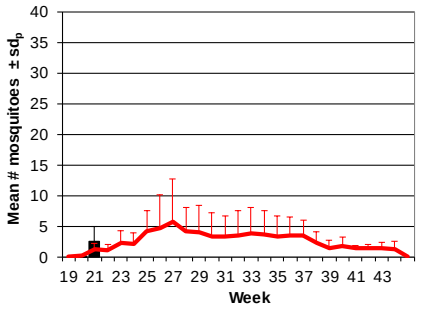
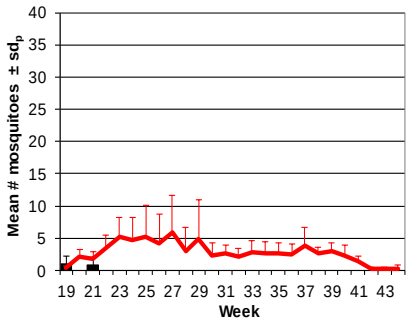
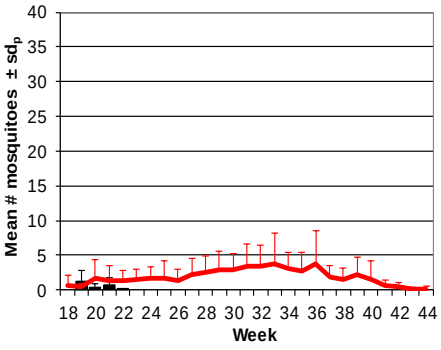
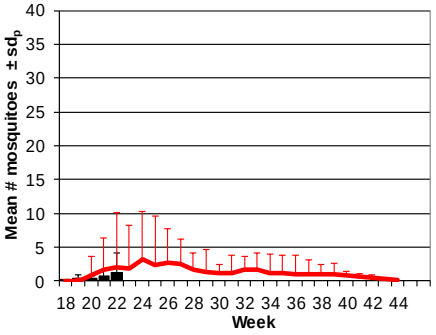
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 up to this week are from Atlantic, Bergen, Burlington, Cape May, Cumberland, Hudson, Mercer, Middlesex, Morris, Ocean, Salem, Sussex and Union counties.



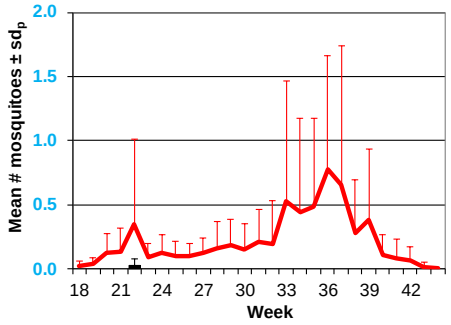
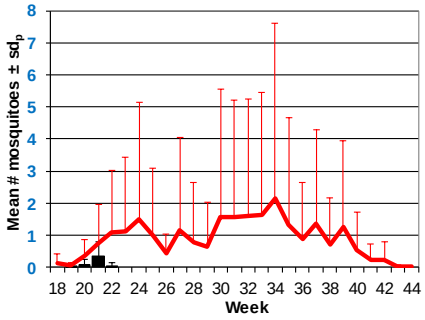
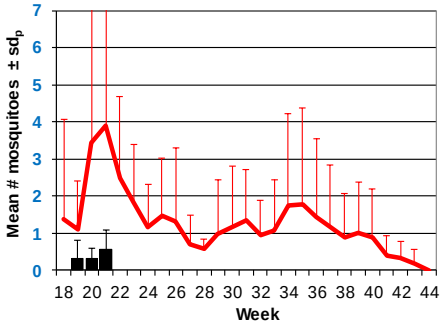
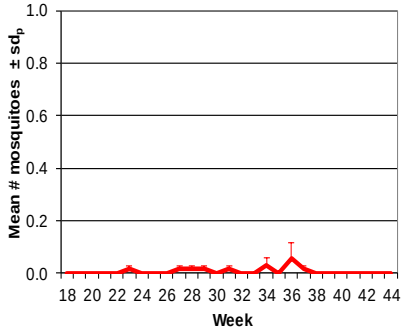
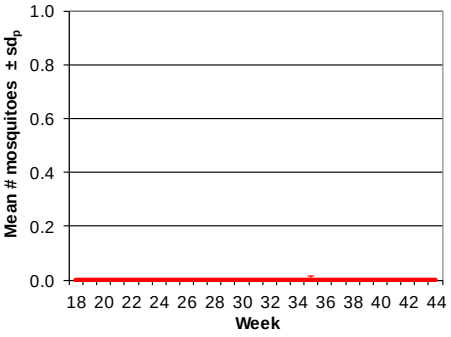
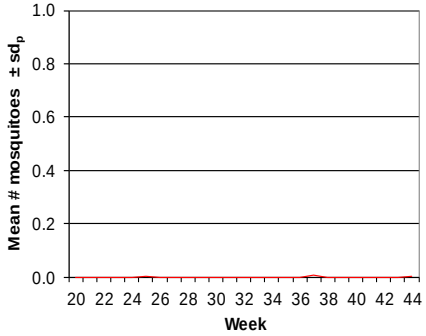
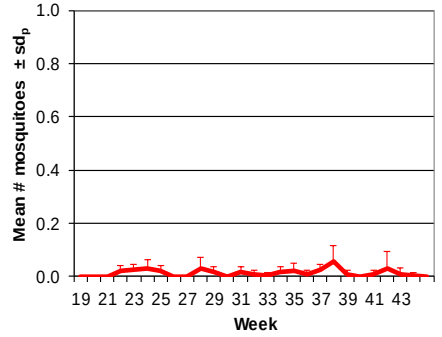
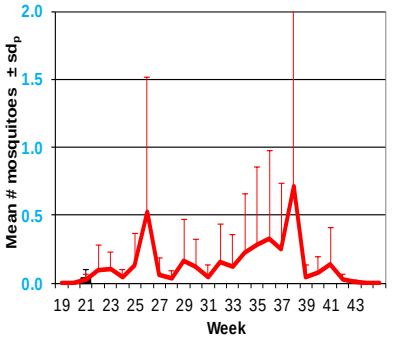
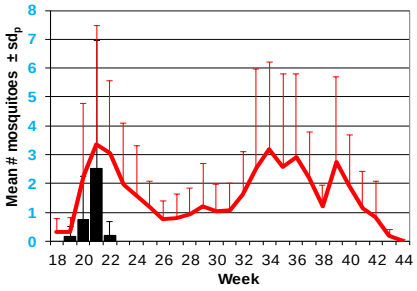
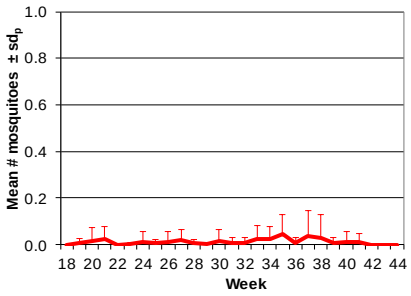
Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations, while present, are largely below historical averages for most regions, with the exception of the Philadelphia Metropolitan region where numbers are slightly elevated. Mild to moderate drought conditions in New Jersey contributes significantly to the lower numbers of this fresh floodwater species: http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?NJ	

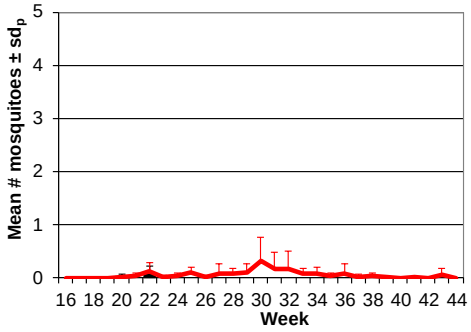
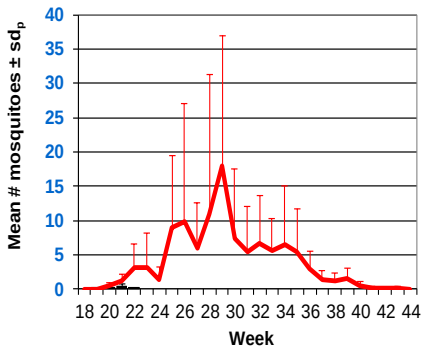
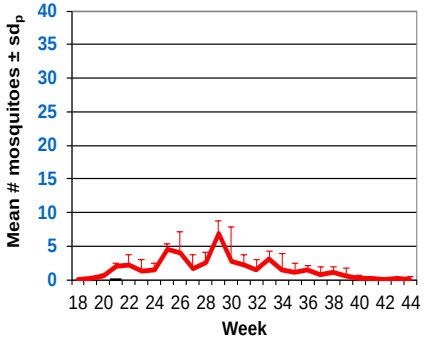
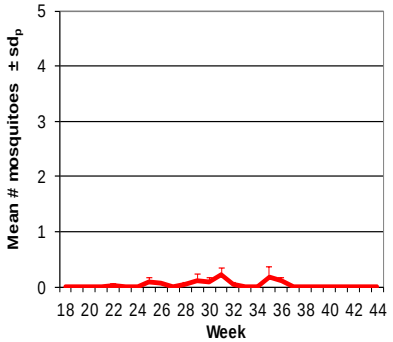
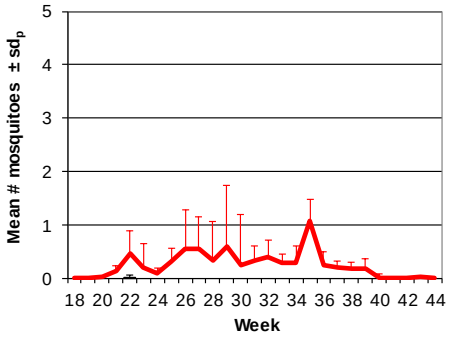
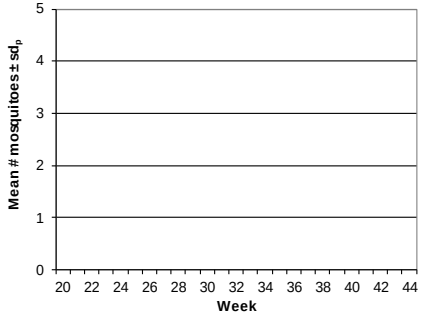
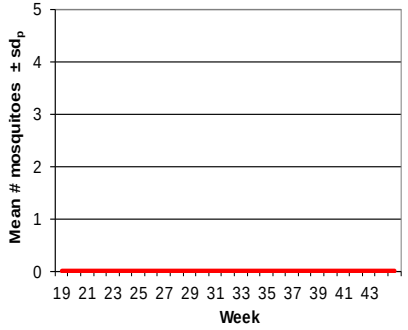
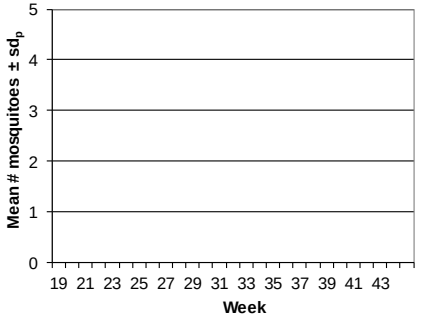
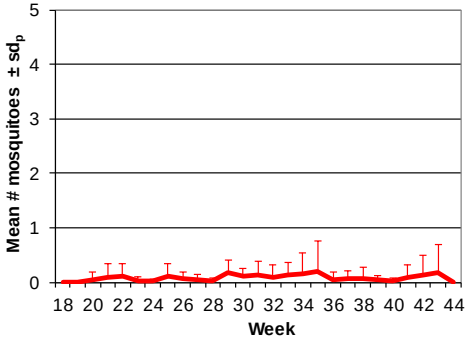
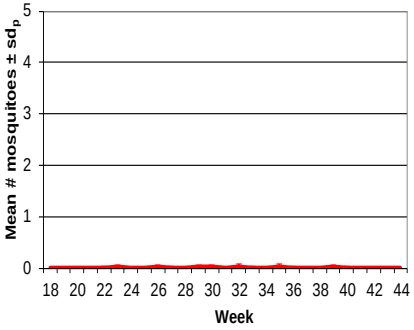
Culex Mix – Permanent Water Species
Multivoltine *Culex*/*Anopheles* (*Cx. pipiens* Type)

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. *Culex* populations in several regions including the New York Metropolitan, Northwestern Rural (greatest increase) and the Suburban Corridor show increased numbers of *Culex*, likely *Cx. restuans* which generally shows up earlier than *Cx. pipiens* in those regions.	

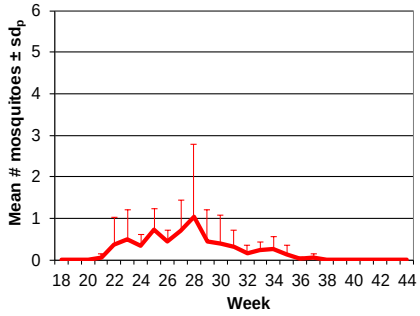
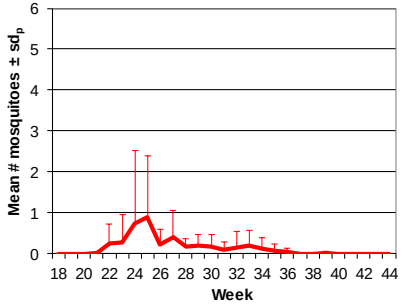
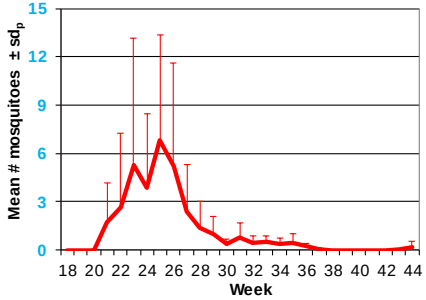
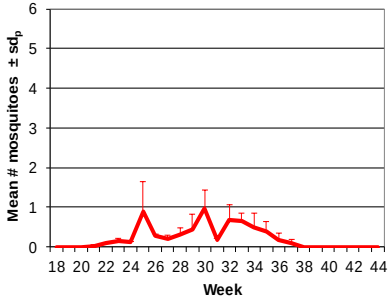
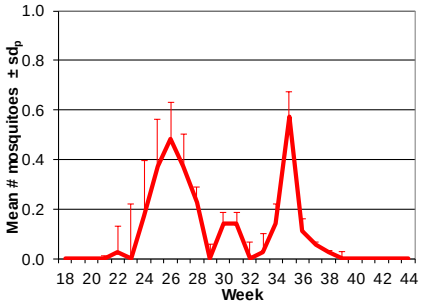
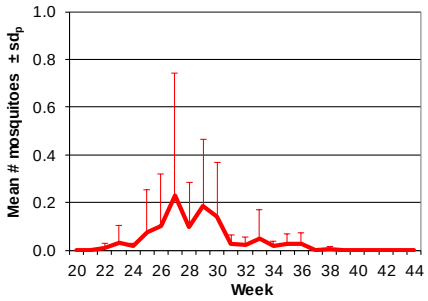
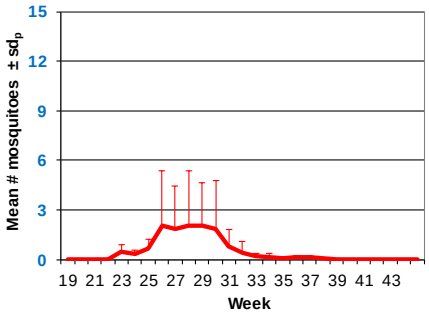
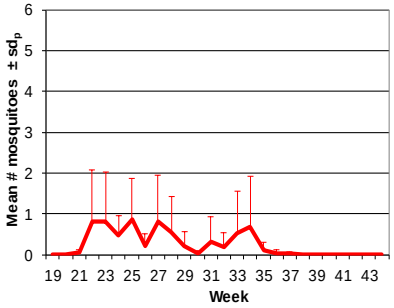
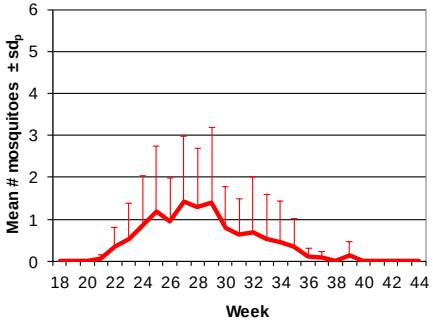
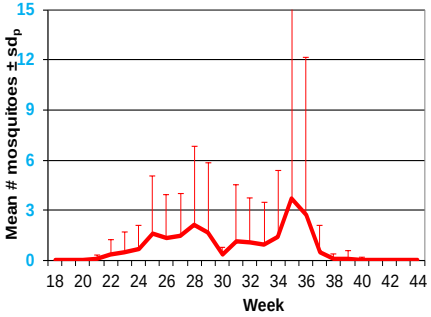
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* is the enzootic ornithophilic vector of eastern equine encephalitis. *Cs. melanura* numbers are generally close to or below historical values at this point in the season. This cold-tolerant species may well have survived overwintering during harsh spells, but drought conditions pose a greater issue for this species. If the water table decreases due to drought conditions, underground habitat for larvae decreases. Currently, drought conditions are being experienced in all but the most southerly regions of New Jersey.	

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. For the past few years, numbers of *Ae. sollicitans* have been severely reduced. Their season has just begun and populations, regardless of size, will build slowly. Since the 5-year historical mean is a running mean, those past few years of unusually low populations are now calculated in. If normal population levels return, numbers may seem to be above average in comparison to a temporarily lowered historical trend.	

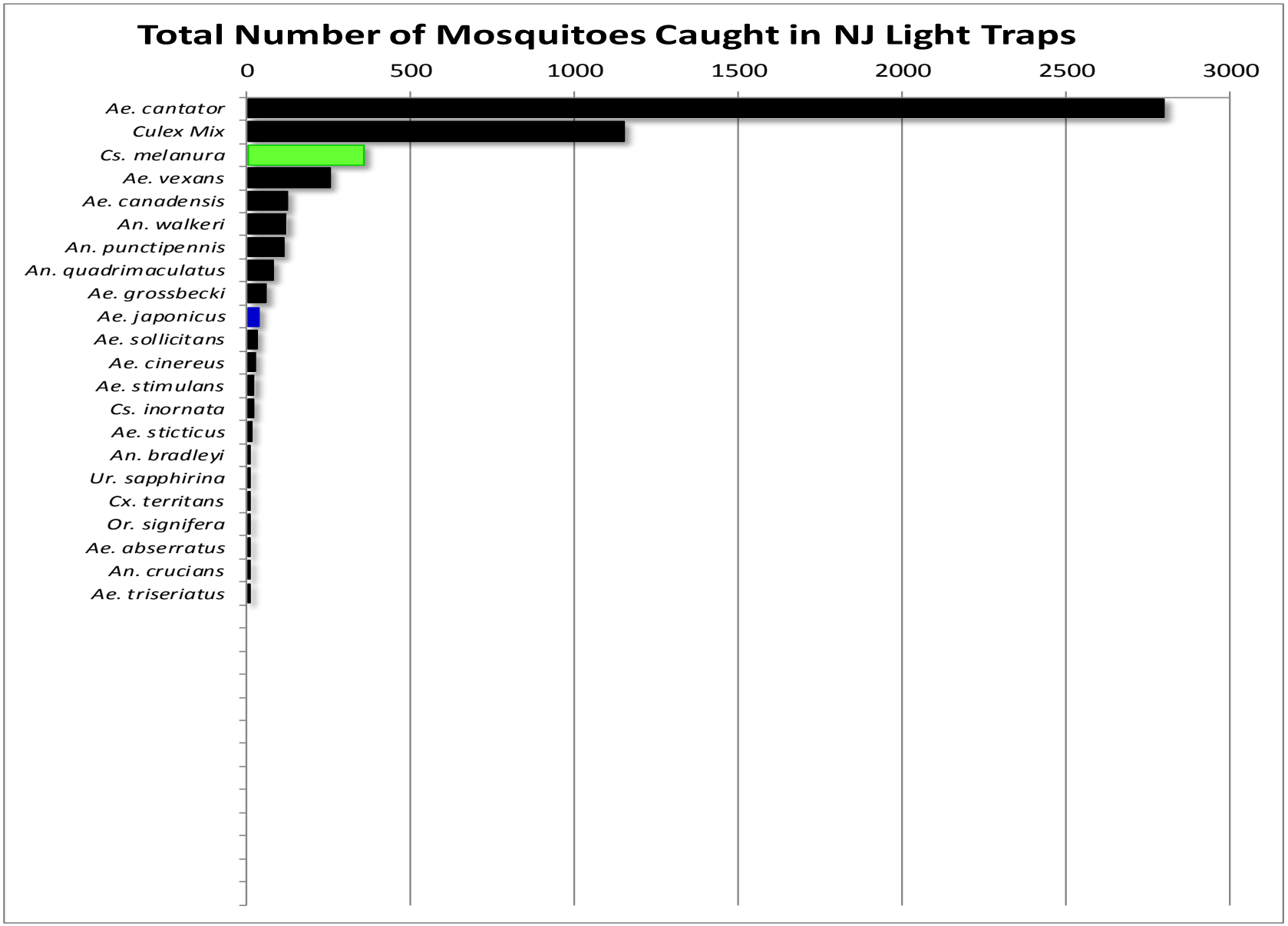
Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

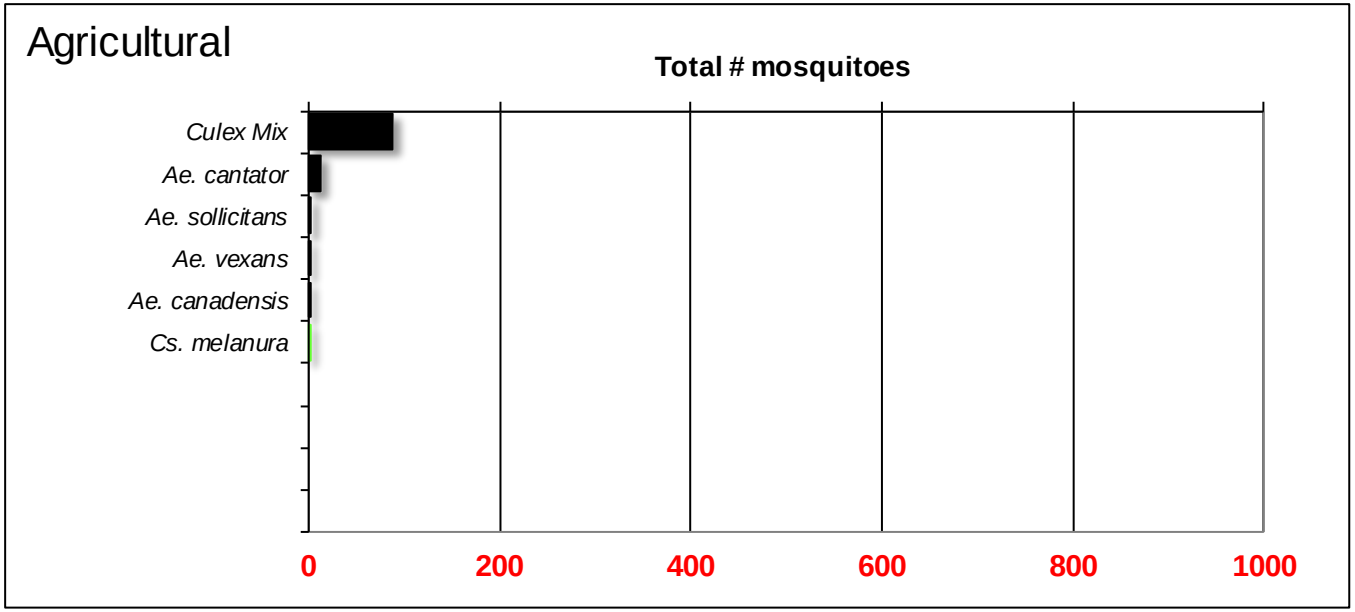
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. Adults are generally not yet on the wing for this mid-season mosquito.	

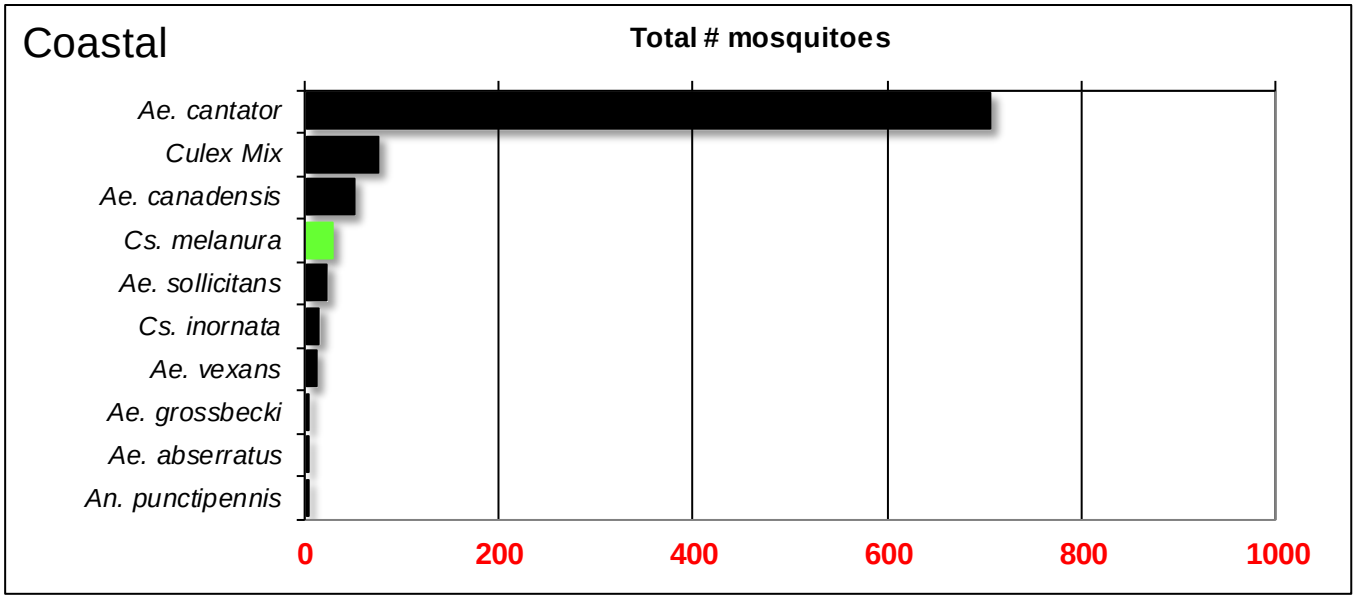
WNV *EEE*

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

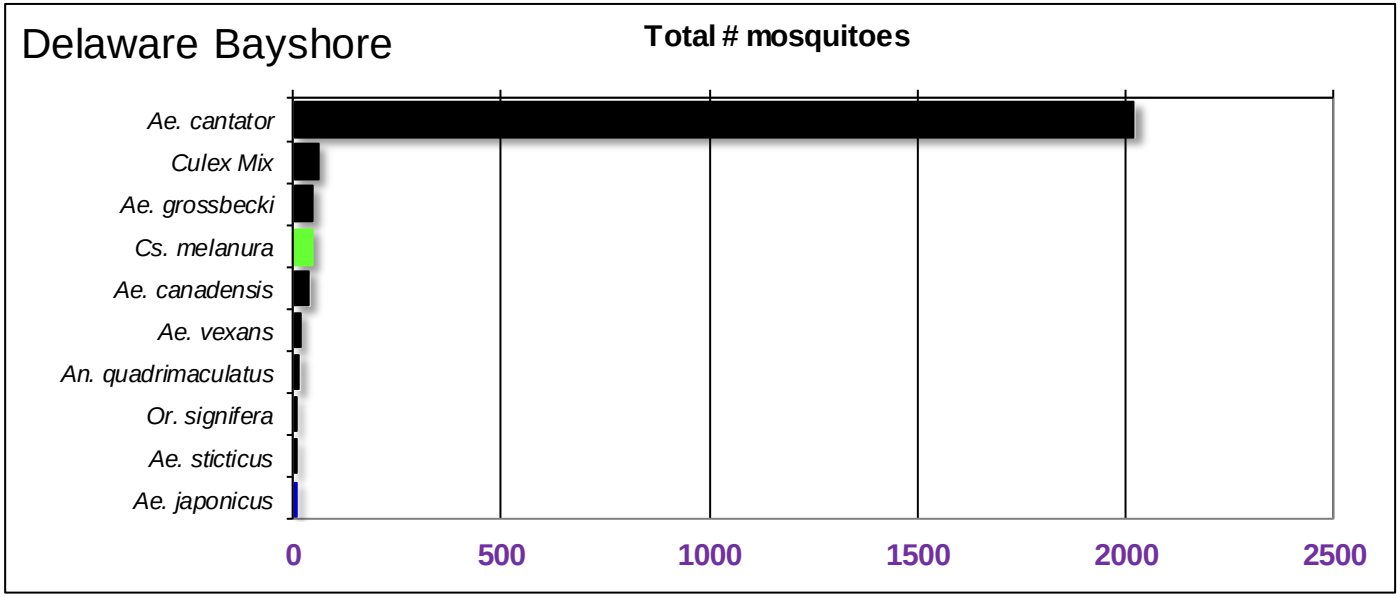
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.



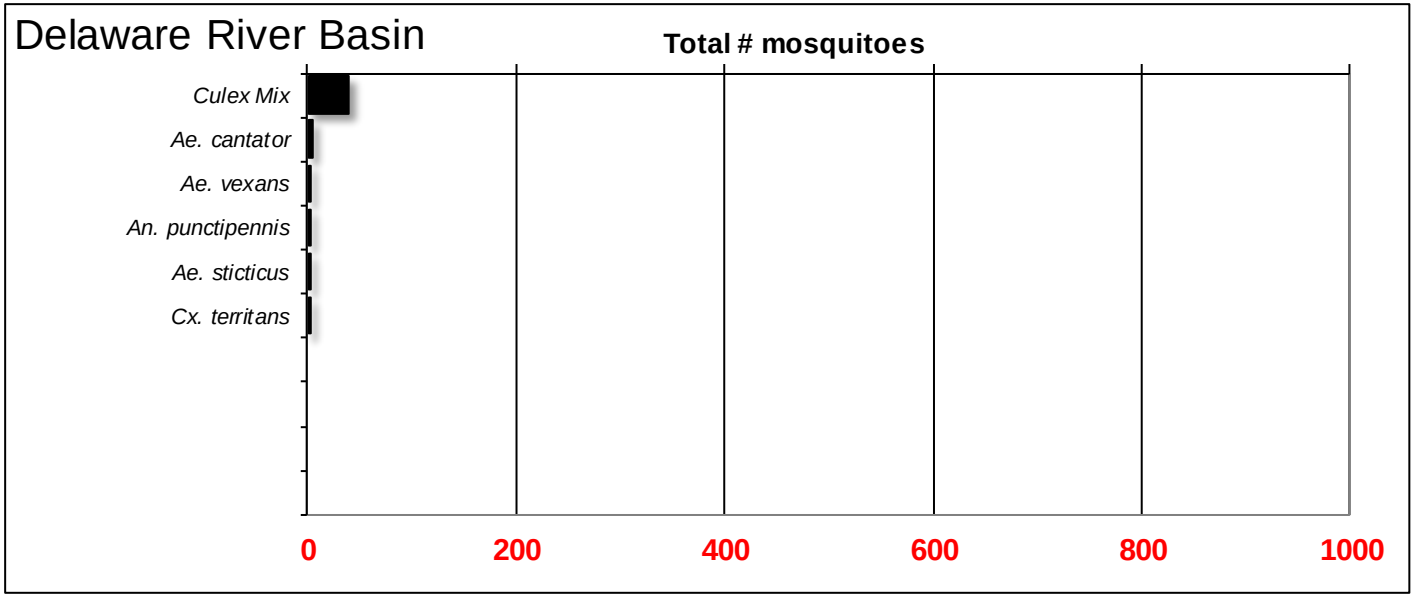

Agricultural
Total # mosquitoes
Culex Mix
Ae. cantator
Ae. sollicitans
Ae. vexans
Ae. canadensis
Cs. melanura
0
200
400
600
800
1000

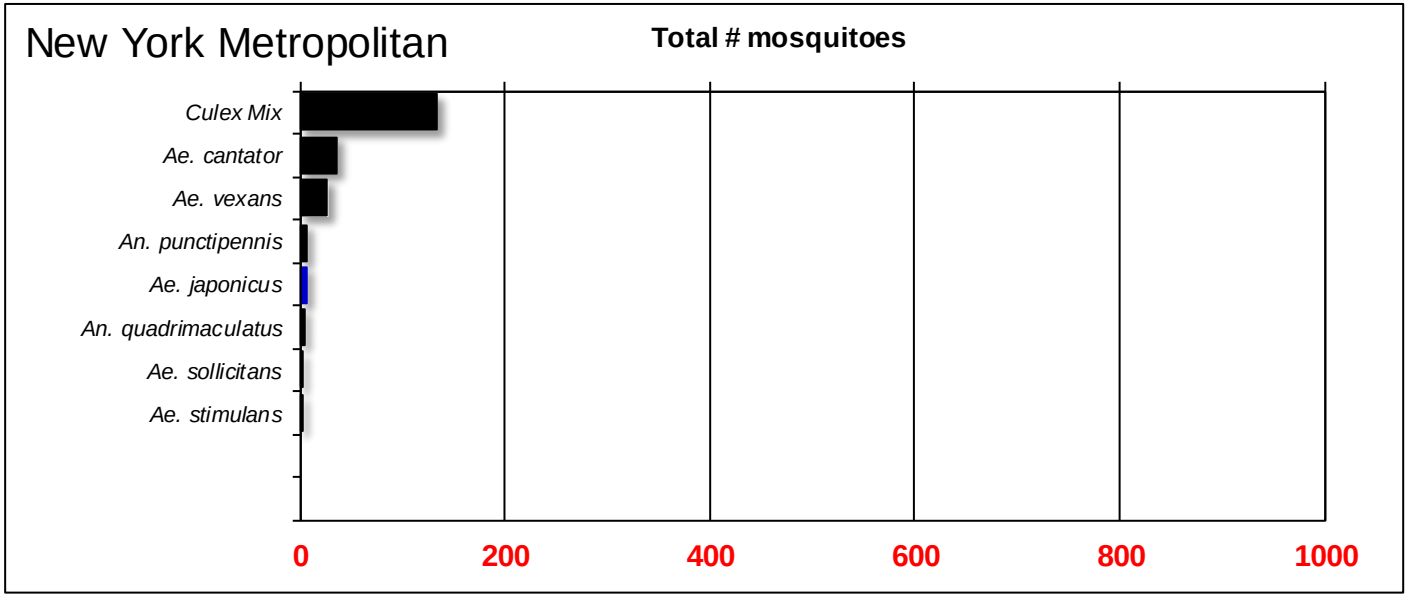

Coastal
Total # mosquitoes
Ae. cantator
Culex Mix
Ae. canadensis
Cs. melanura
Ae. sollicitans
Cs. inornata
Ae. vexans
Ae. grossbecki
Ae. abserratus
An. punctipennis
0
200
400
600
800
1000

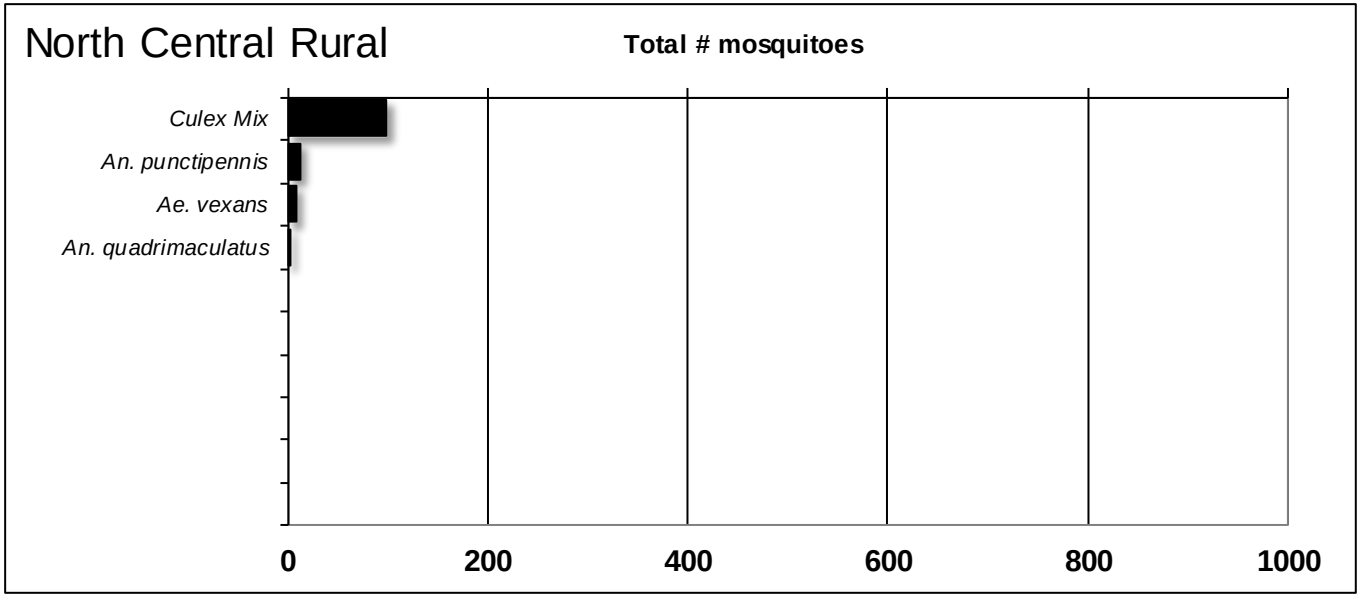
Delaware Bayshore

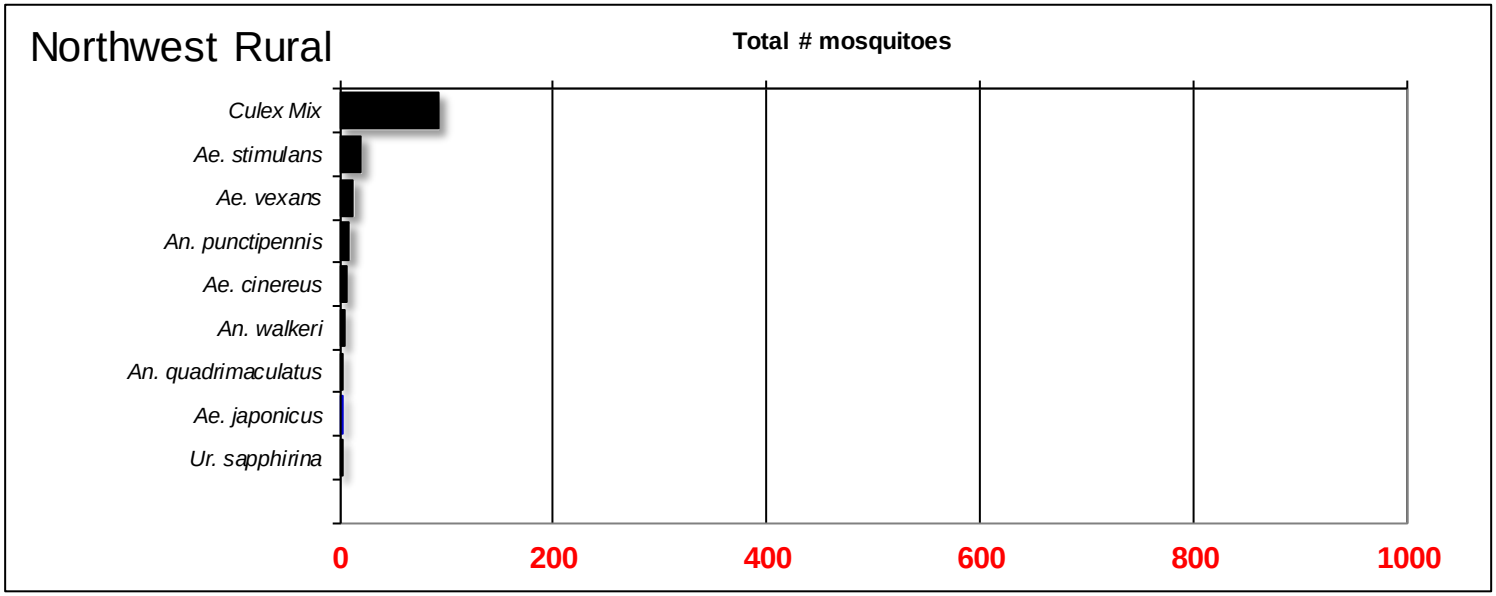


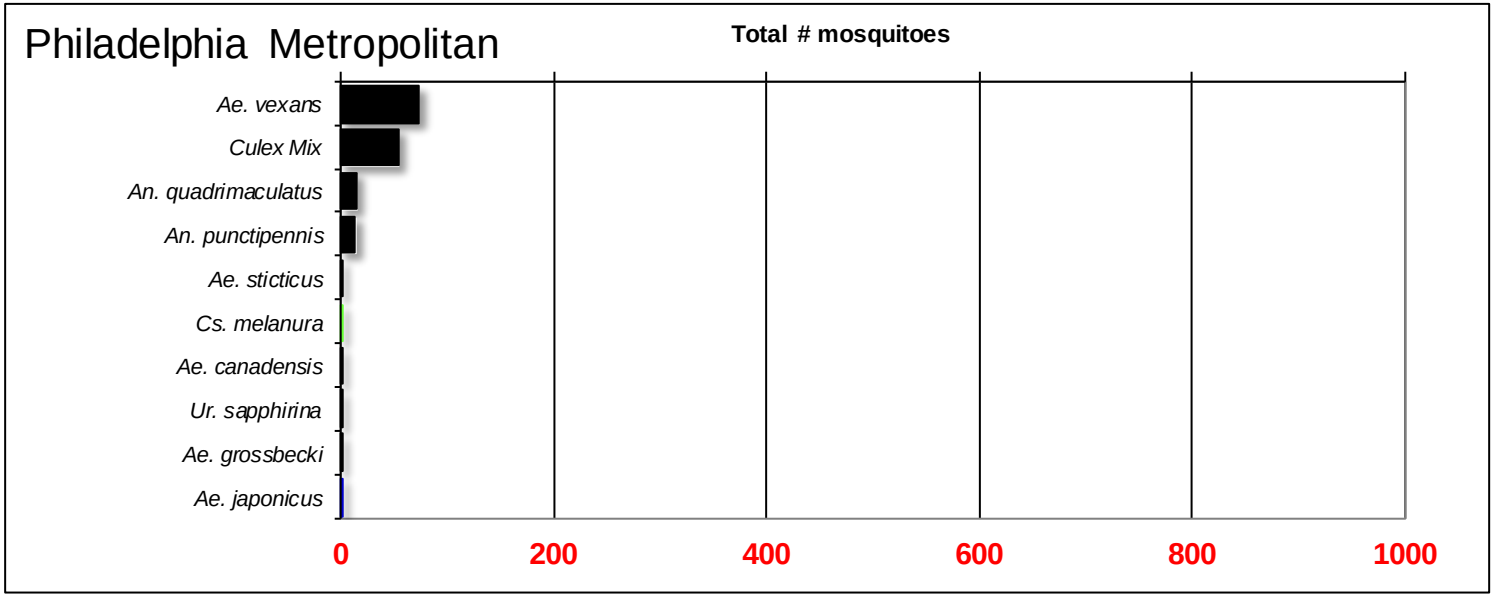
Delaware River Basin

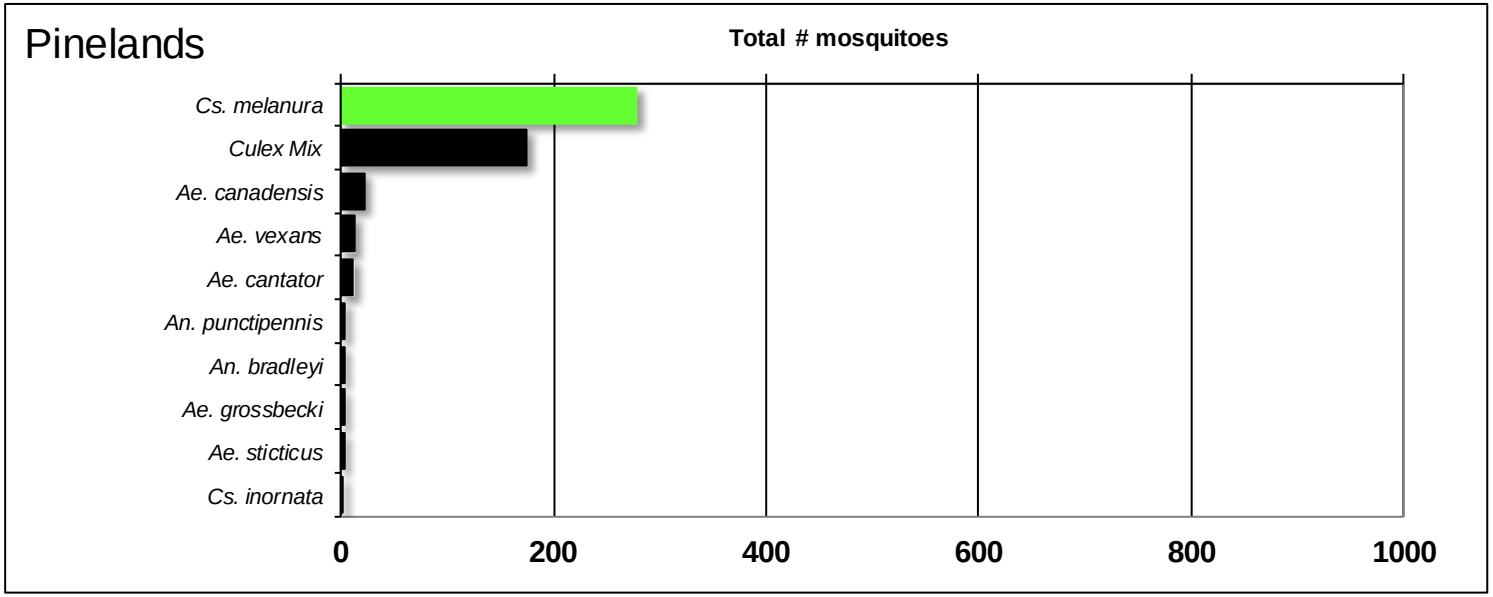


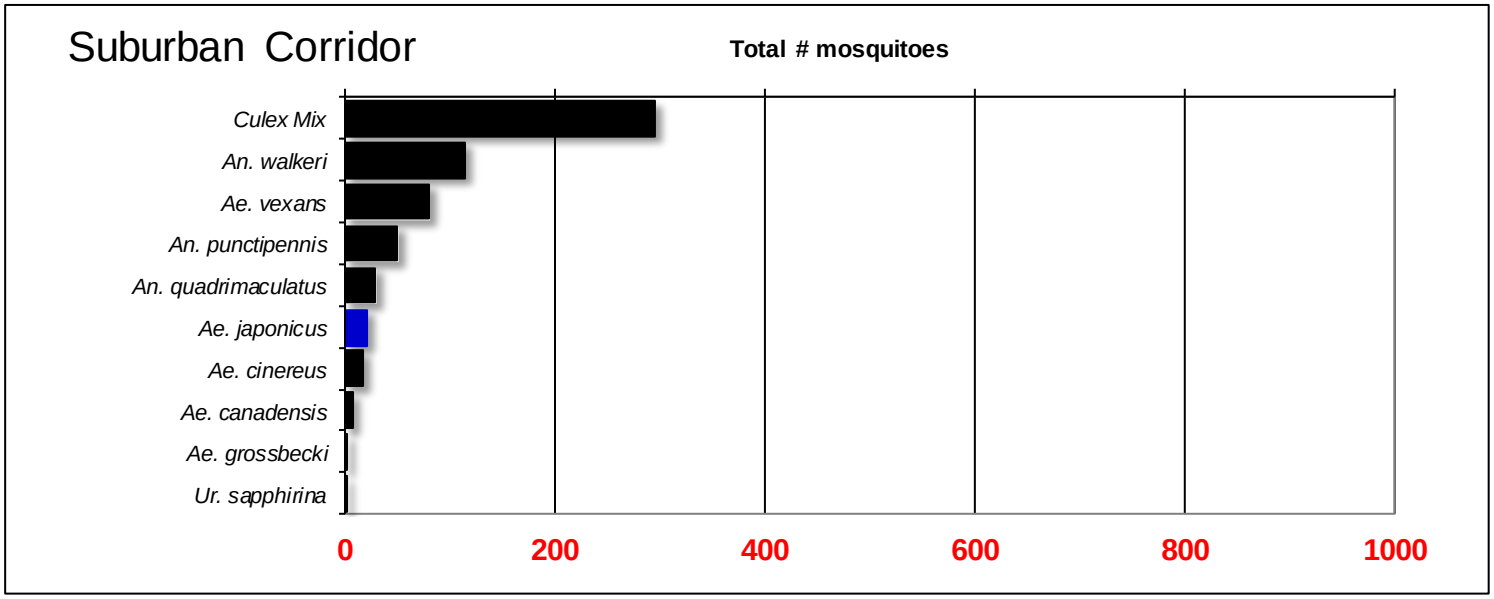

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. cantator
Ae. vexans
An. punctipennis
Ae. japonicus
An. quadrimaculatus
Ae. sollicitans
Ae. stimulans
0
200
400
600
800
1000


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


Northwest Rural
Total # mosquitoes
Culex Mix
Ae. stimulans
Ae. vexans
An. punctipennis
Ae. cinereus
An. walkeri
An. quadrimaculatus
Ae. japonicus
Ur. sapphirina
0
200
400
600
800
1000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
An. punctipennis
Ae. sticticus
Cs. melanura
Ae. canadensis
Ur. sapphirina
Ae. grossbecki
Ae. japonicus
0
200
400
600
800
1000


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Ae. canadensis
Ae. vexans
Ae. cantator
An. punctipennis
An. bradleyi
Ae. grossbecki
Ae. sticticus
Cs. inornata
0
200
400
600
800
1000


Suburban Corridor
Total # mosquitoes
Culex Mix
An. walkeri
Ae. vexans
An. punctipennis
An. quadrimaculatus
Ae. japonicus
Ae. cinereus
Ae. canadensis
Ae. grossbecki
Ur. sapphirina
0
200
400
600
800
1000