NEW JERSEY ADULT MOSQUITO SURVEILLANCE Report

Begin to May 24, CDC Week 21

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.

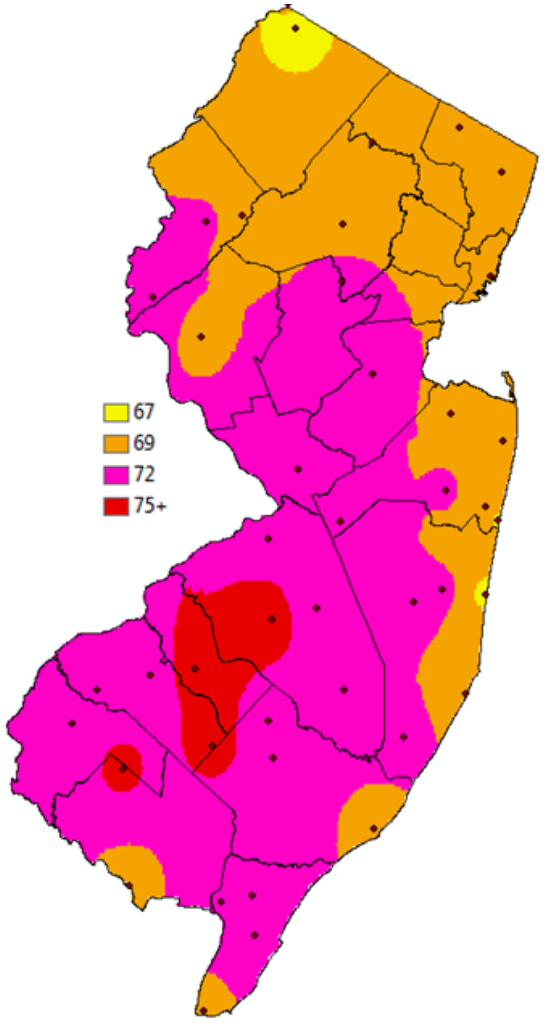
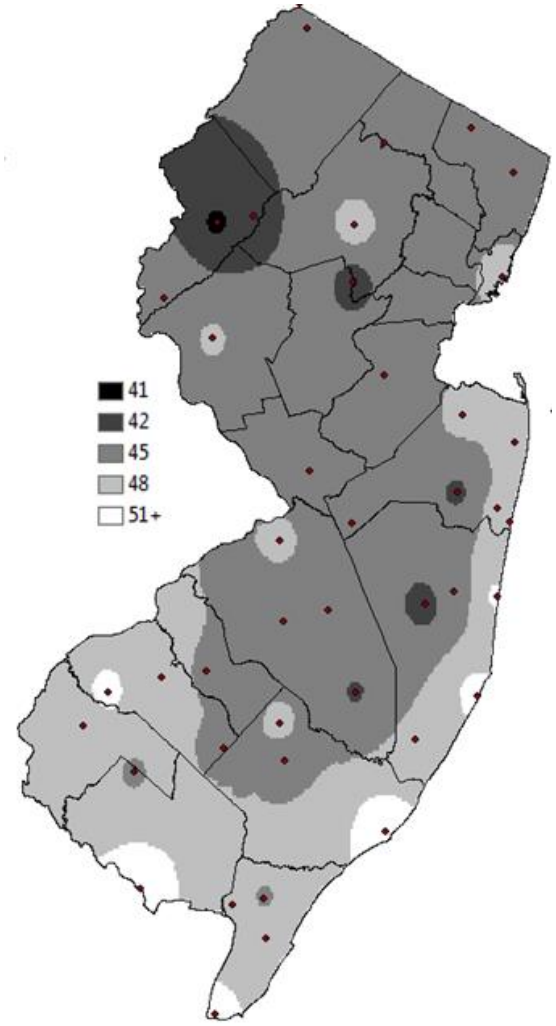
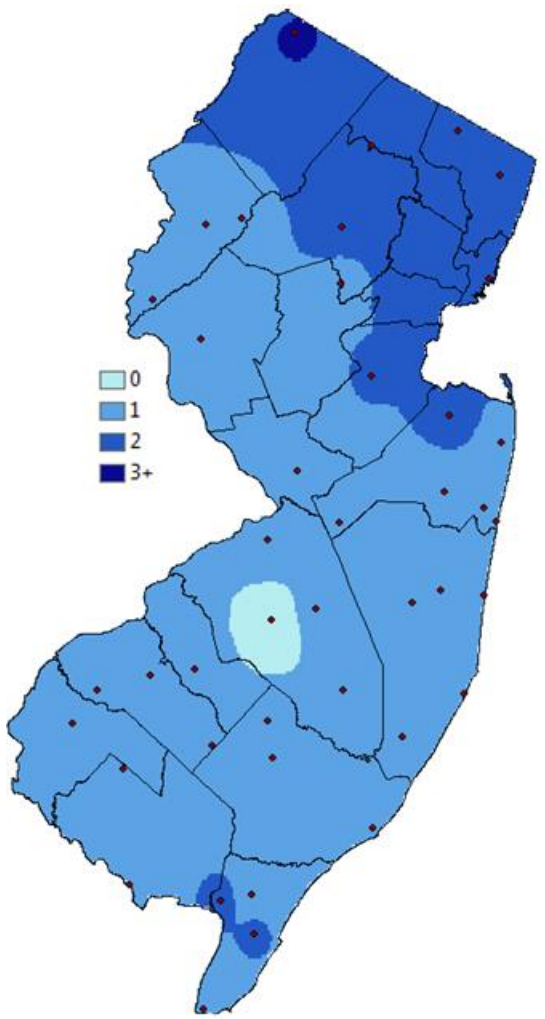
Summary Table – Week 21

	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	**0.00**	**1.88**	**0**	**0.00**	**5.90**	**0**	**0.00**	**0.06**	**0**	**0.00**	**0.24**	**0**
Coastal	**0.00**	**0.73**	**0**	**0.00**	**2.90**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.72**	**0**
Delaware Bayshore	**0.00**	**0.71**	**0**	**0.00**	**5.97**	**0**	**0.00**	**0.05**	**0**	**0.00**	**1.14**	**0**
Delaware River Basin	**0.00**	**3.50**	**0**	**0.00**	**9.40**	**0**	**0.00**	**0.07**	**0**	**0.00**	**0.01**	**0**
New York Metro	**0.00**	**0.35**	**0**	**0.00**	**1.69**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.03**	**0**
North Central Rural	**0.00**	**0.31**	**0**	**0.00**	**0.69**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.00**	**5.09**	**0**	**0.00**	**2.00**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.00**	**1.65**	**0**	**0.00**	**2.65**	**0**	**0.00**	**0.15**	**0**	**0.00**	**0.01**	**0**
Pinelands	**0.00**	**0.36**	**0**	**0.00**	**1.65**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.13**	**0**
Suburban Corridor	**0.00**	**0.44**	**0**	**0.03**	**0.63**	**0**	**0.00**	**0.00**	**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: This is the first report of the season. Currently, no populations are above the historical average for each species, although most counties are still in the process of evaluating mosquito populations and therefore data for the current week is not available. However, noteworthy are the populations for *Culiseta melanura* (see page 6) in the Delaware River Basin. Early above average population levels for this enzootic vector of eastern equine encephalitis (EEE) is always of concern and merits due diligence in monitoring both the populations and arbovirus levels.

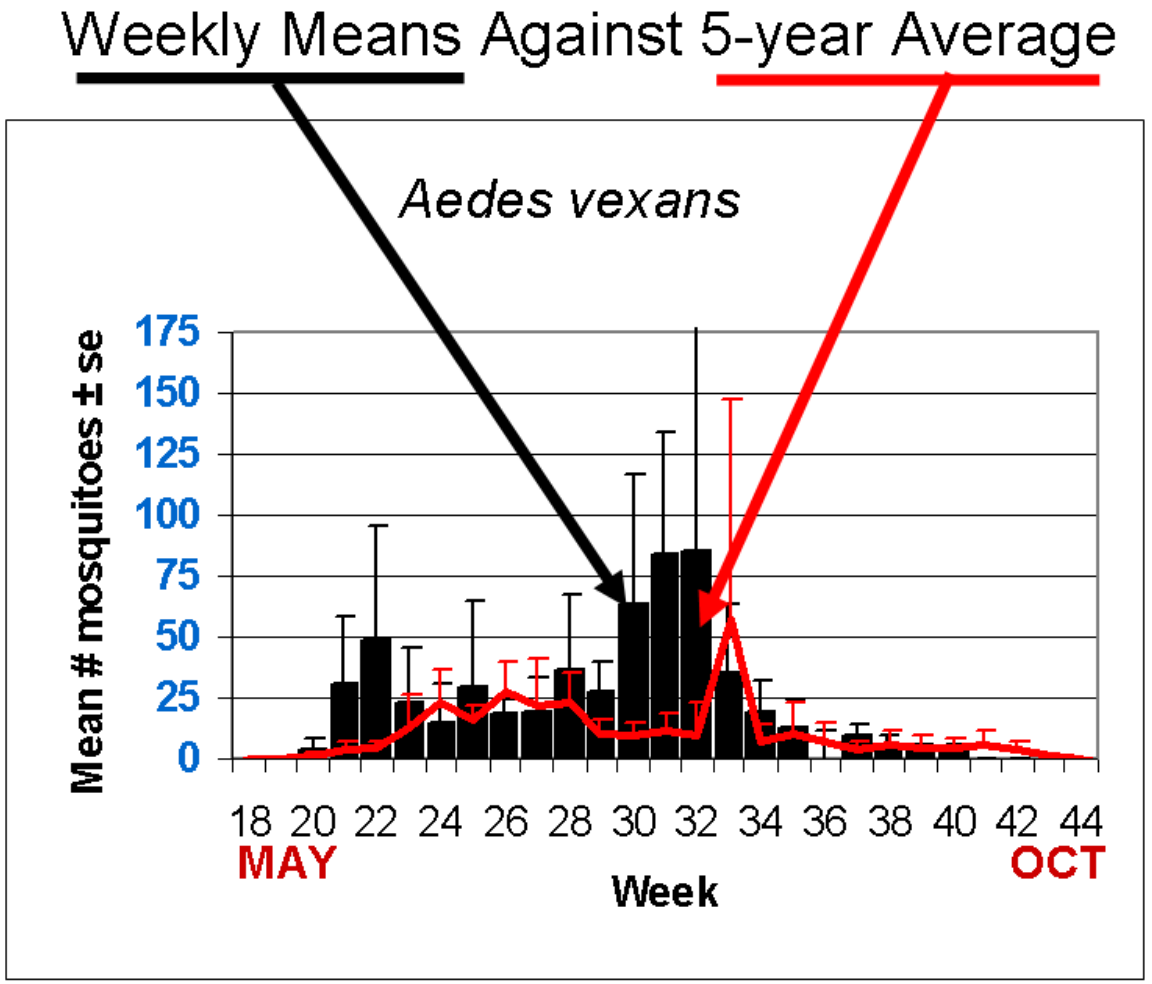
Climate Factors

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 24 May 2021 in New Jersey. Data points are from about 45 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

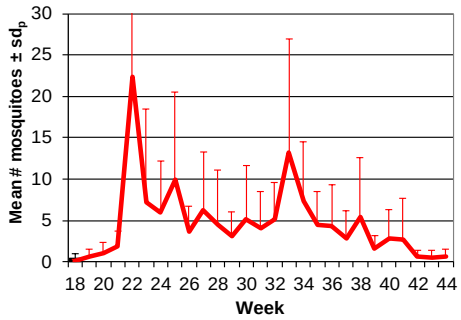
ONJSC at Rutgers University NJ Weather & Climate NETWORK

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 Mercer County. Data for the previous week are from Atlantic, Burlington, Cumberland, Hudson, Mercer, Morris, Ocean, Passaic, Salem, and Warren counties.

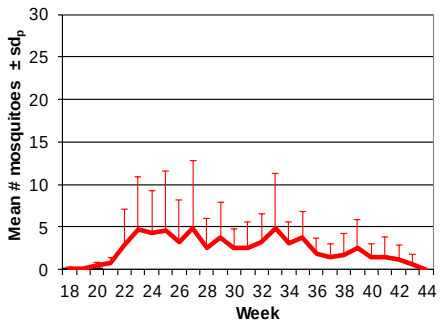


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

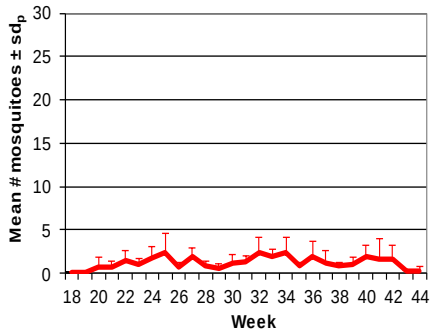
Agricultural



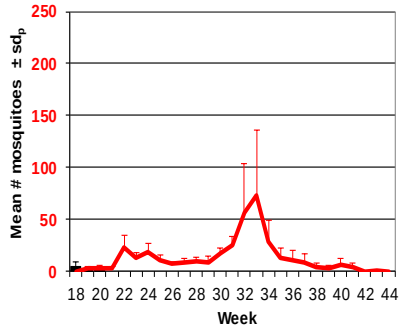
Coastal



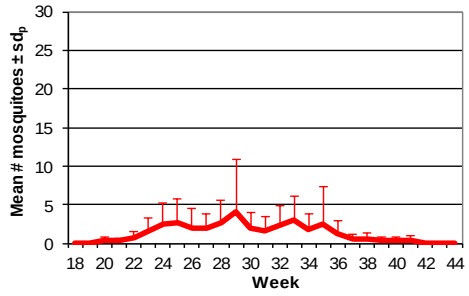
Delaware Bayshore



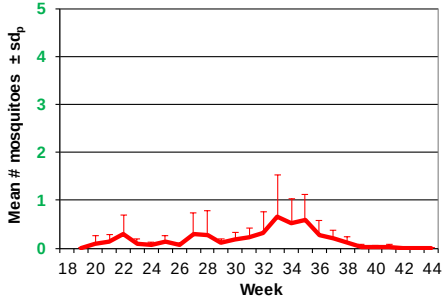
Delaware River Basin



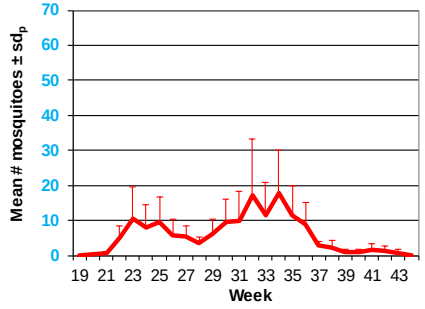
New York Metro



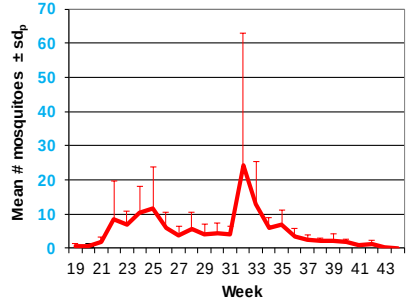
North Central Rural



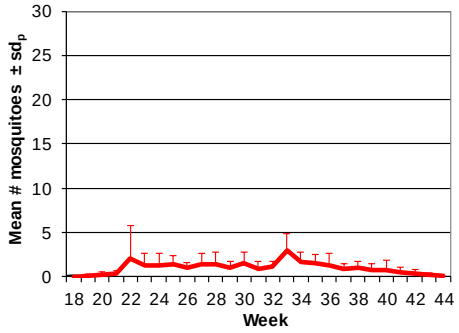
Northwestern Rural



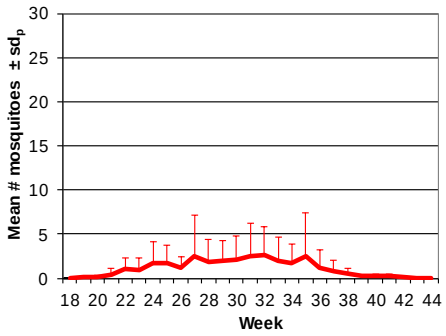
Philadelphia Metro



Pinelands



Suburban Corridor



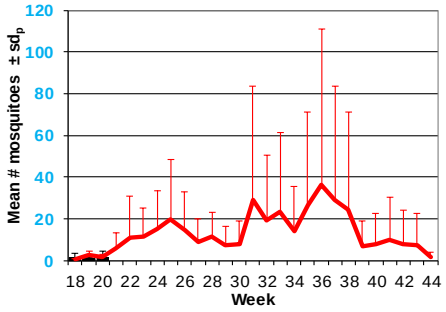
Comments

Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. Currently, north western portion of the state is under abnormally dry conditions and flooding areas will not have enough water to cover eggs positioned higher in a depression for much emergence to occur.

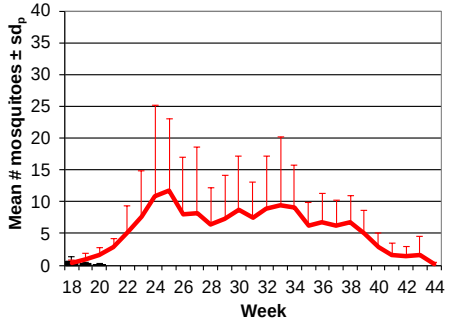
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NJ

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

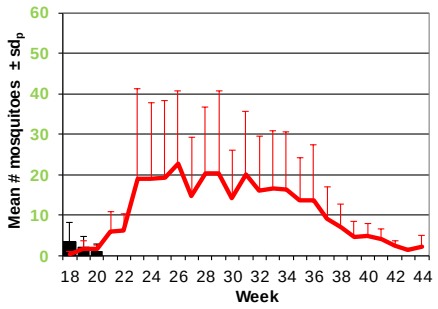
Agricultural



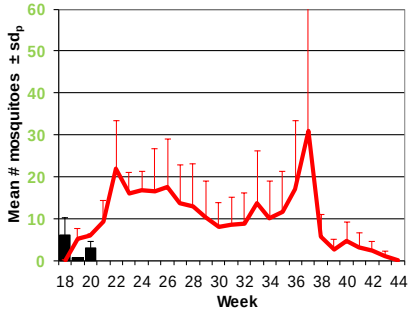
Coastal



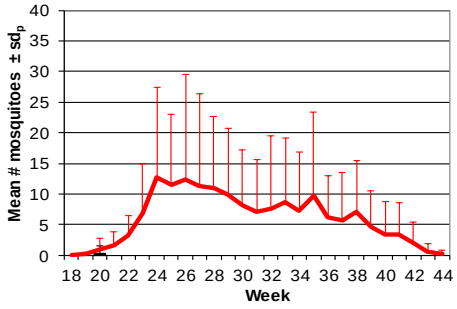
Delaware Bayshore



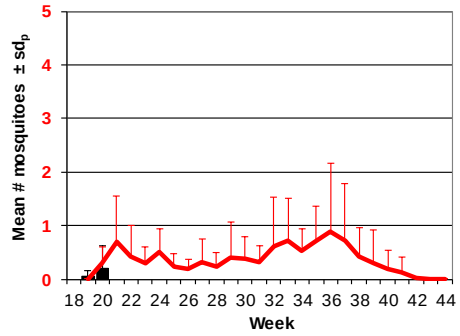
Delaware River Basin



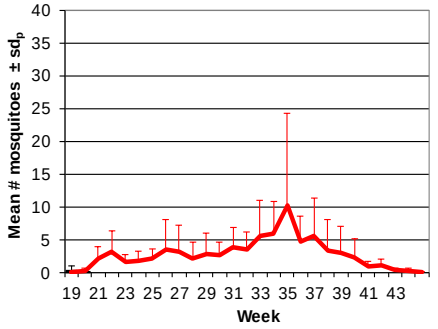
New York Metro



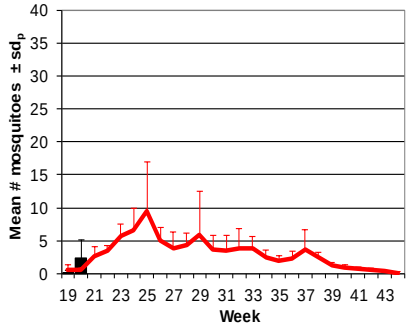
North Central Rural



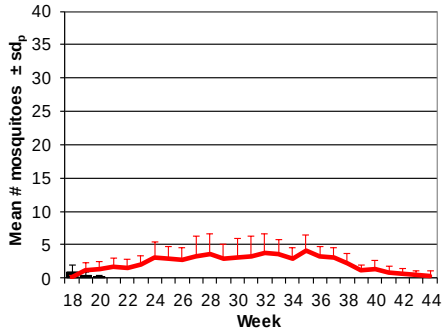
Northwestern Rural



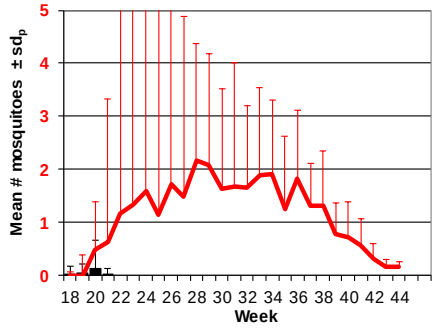
Philadelphia Metro



Pinelands



Suburban Corridor

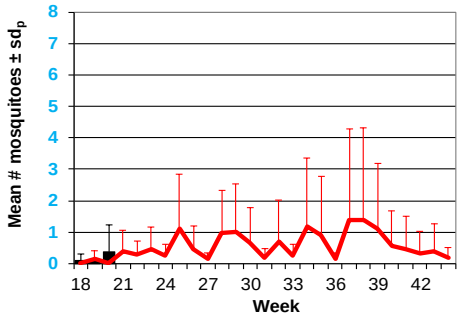


Comments

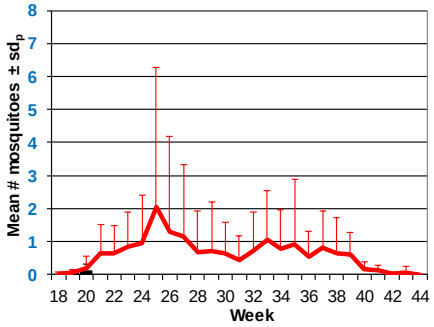
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. *Culex* Mix populations are showing up at most regions, at numbers expected for the beginning of the surveillance season. Early numbers are likely to compose more of *restuans* while *pipiens* will show up in greater numbers during mid to end of season.

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

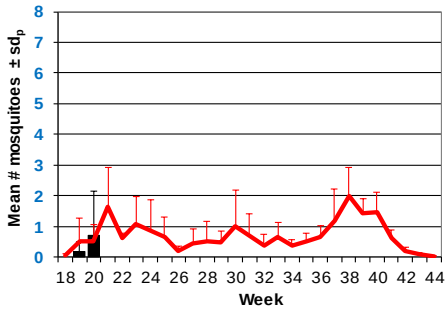
Agricultural



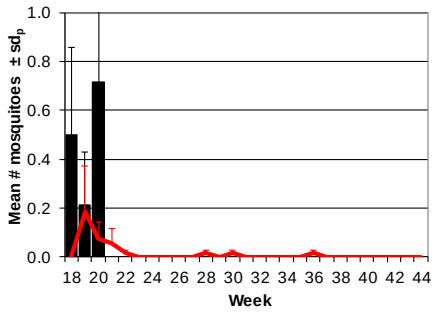
Coastal



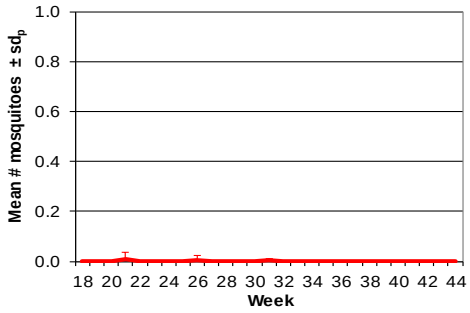
Delaware Bayshore



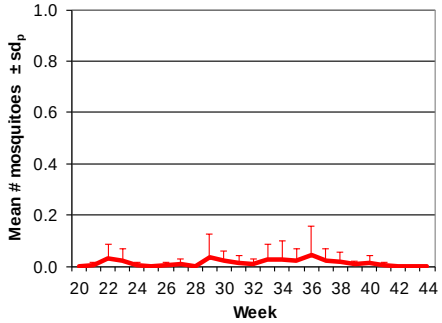
Delaware River Basin



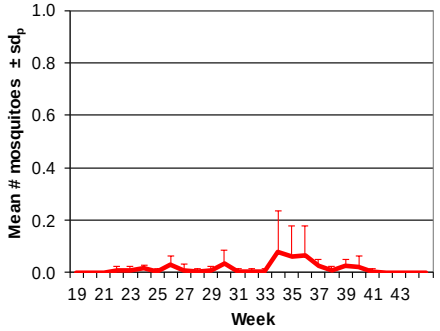
New York Metro



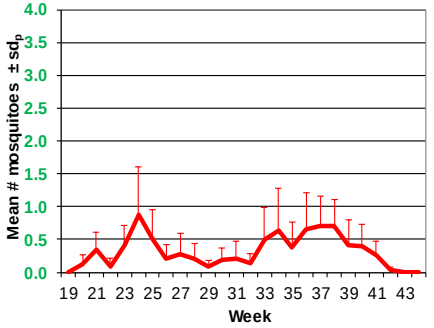
North Central Rural



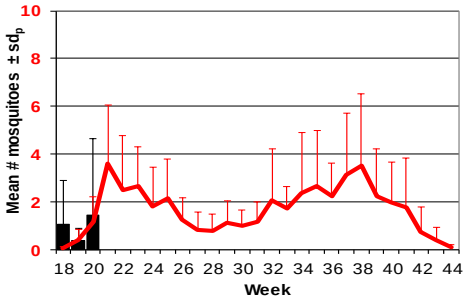
Northwestern Rural



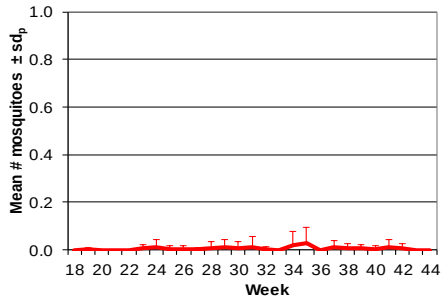
Philadelphia Metro



Pinelands



Suburban Corridor

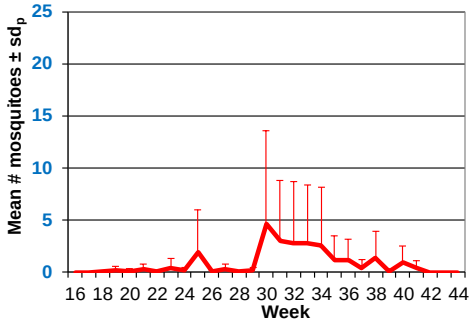
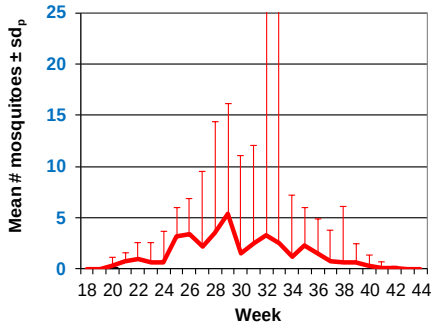
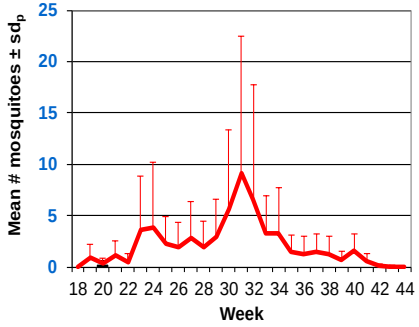
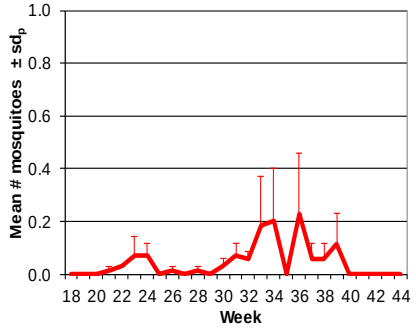
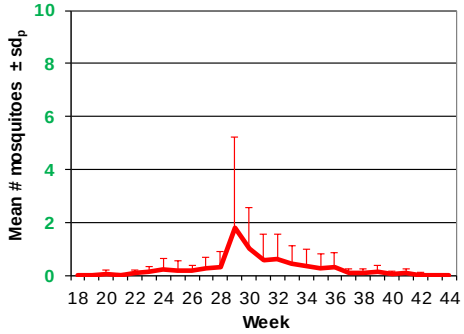
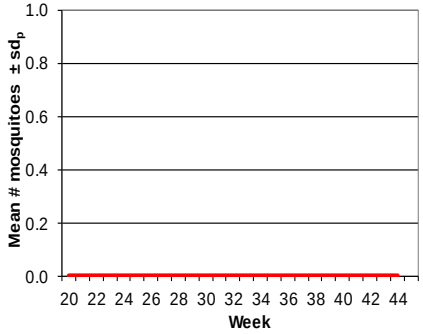
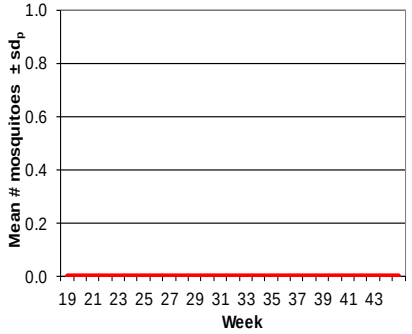
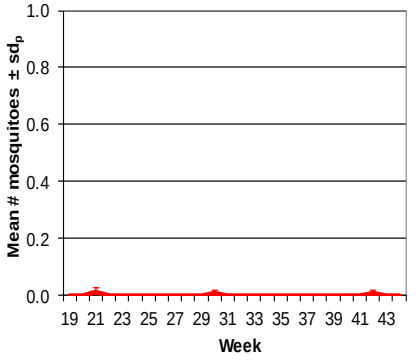
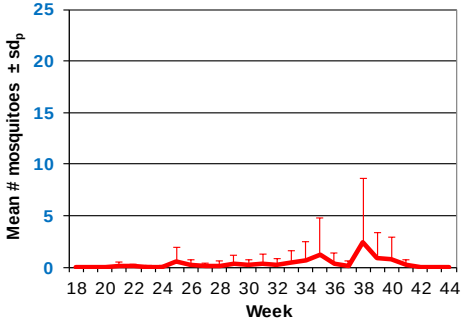
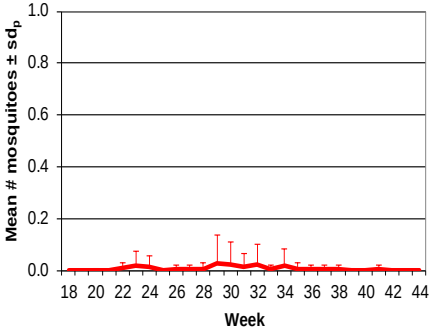


Comments

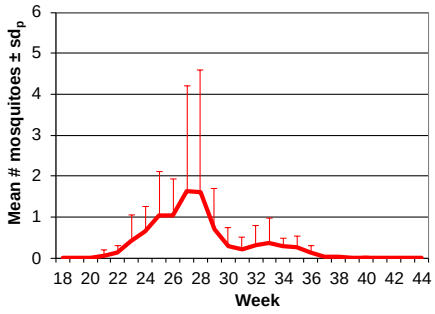
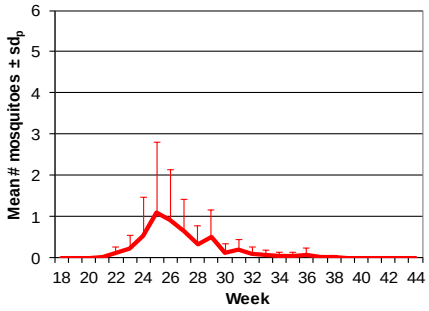
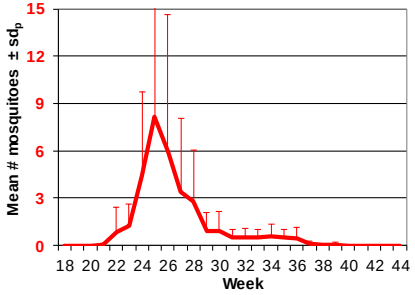
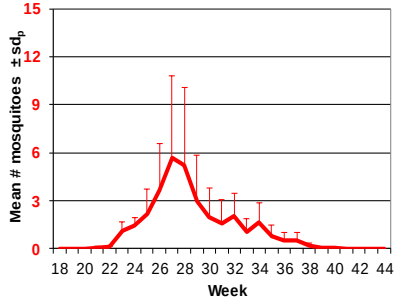
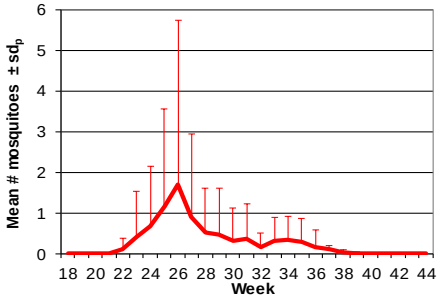
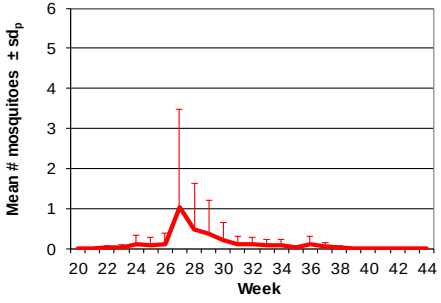
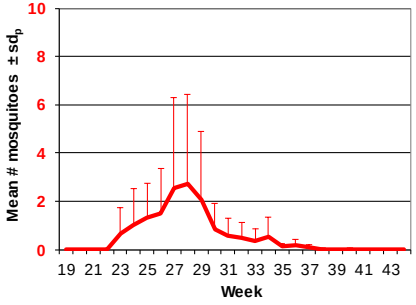
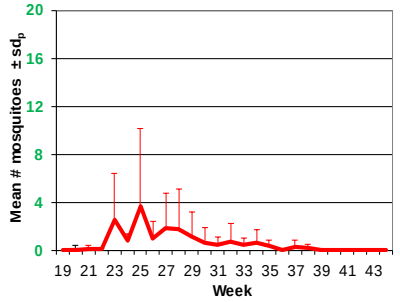
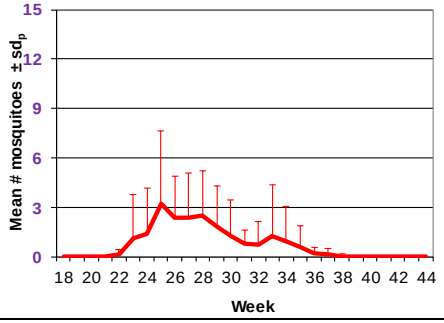
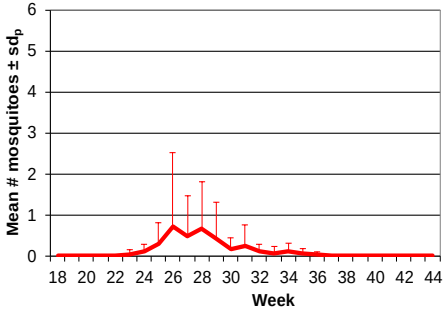
Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. This cold-hearty species can emerge early in the season as well as staying active later. Noteworthy numbers are seen in the Delaware River Basin (but nore scale). Other populations are also noted in the Agricultural, Delaware Bayshore and Pinelands regions.

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. The season is just beginning for this species, with low numbers reported in the Delaware Bayshore region. Next full moon on 26 May.	

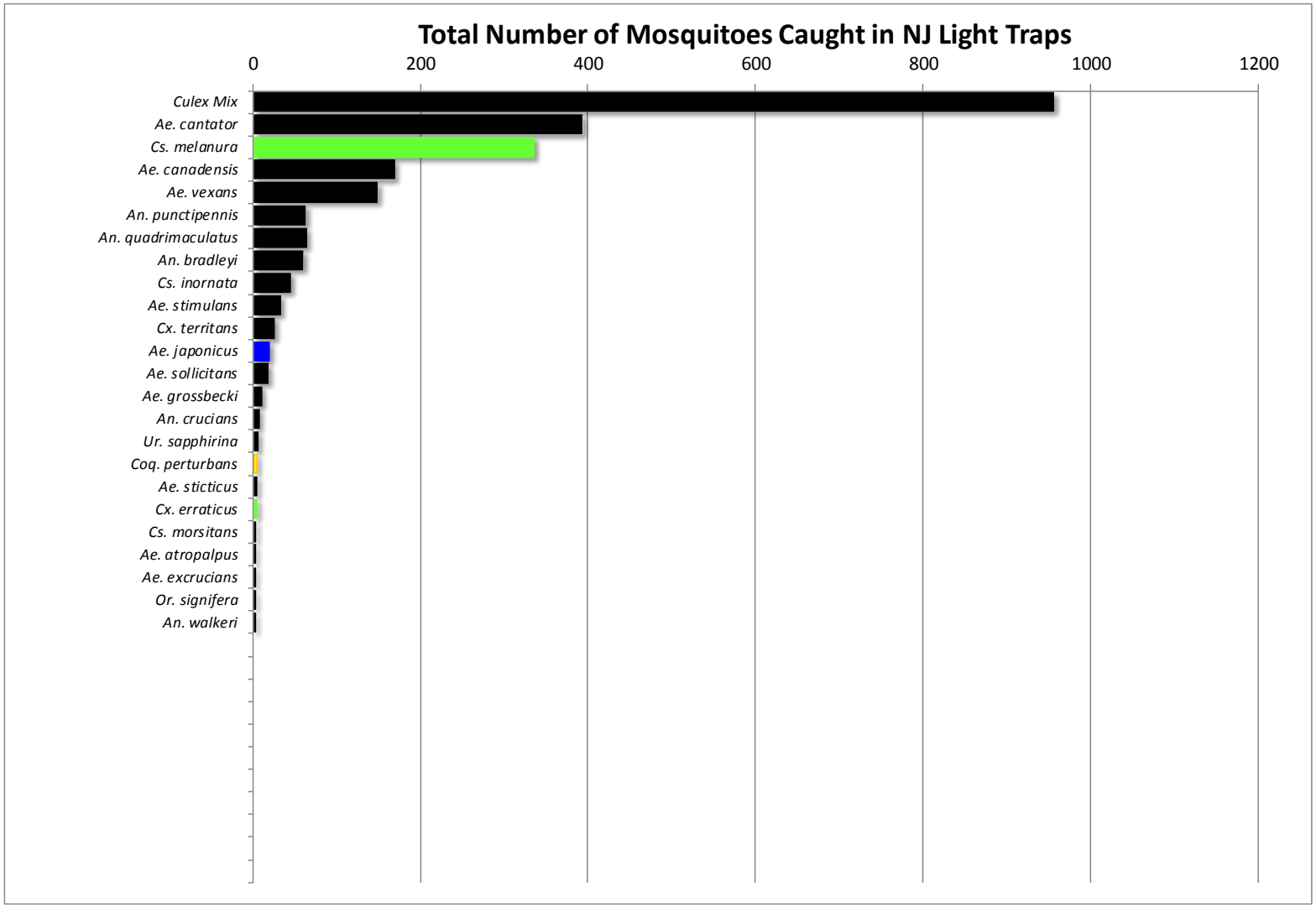
Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

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. This is primarily a mid-season species, although low numbers have been reported in one trap in the Philadelphia Metropolitan region. This species is likely an inland vector of EEE, and should always be monitored in areas of potential EEE transmission.	

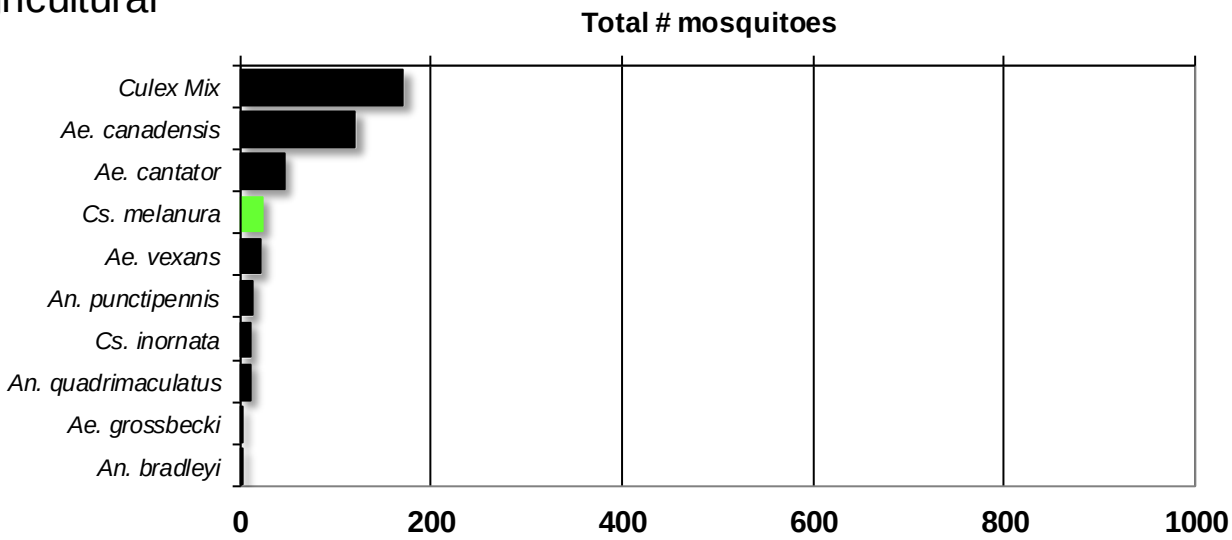
WNV *EEE*

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

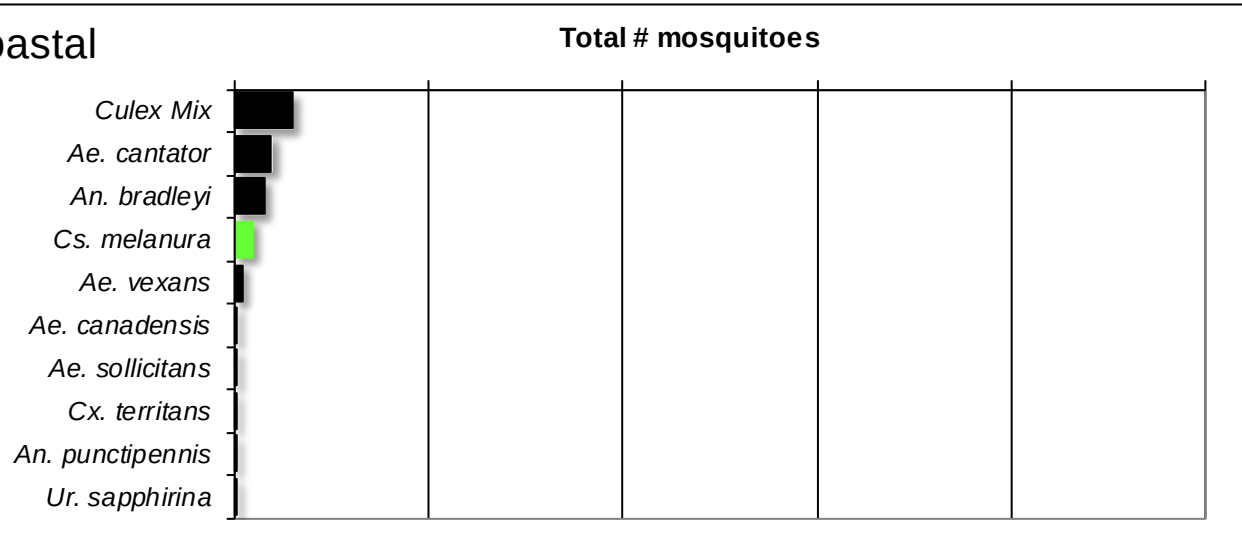
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

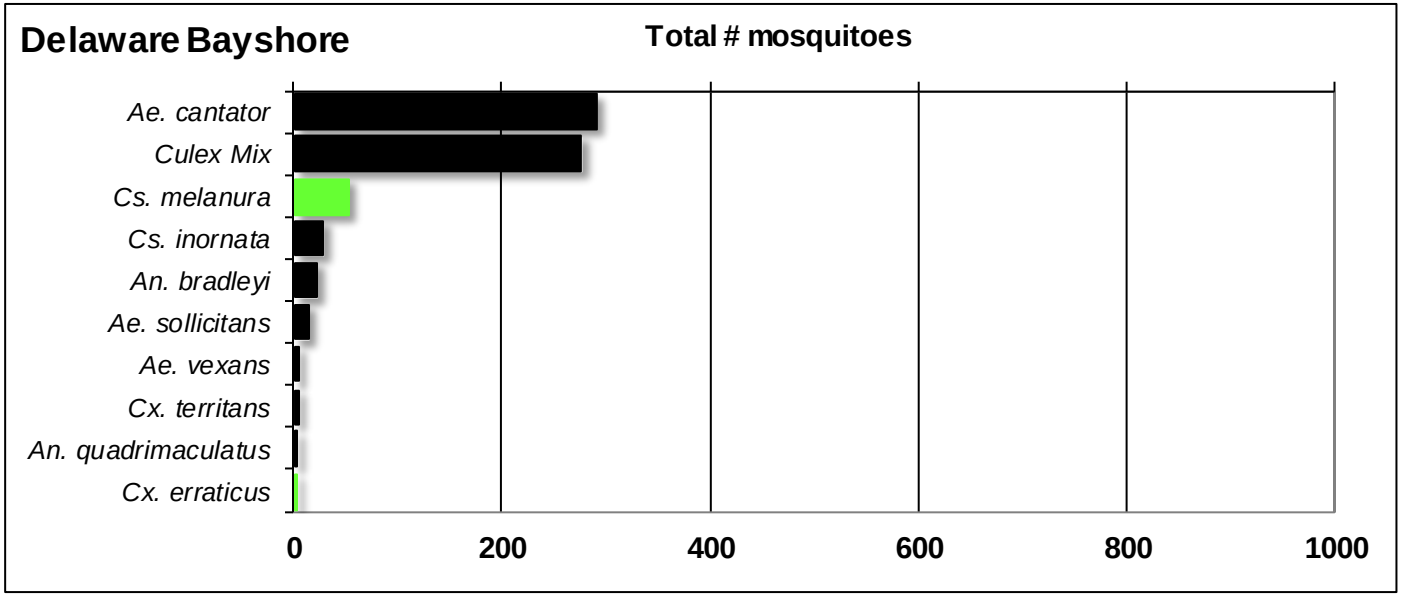


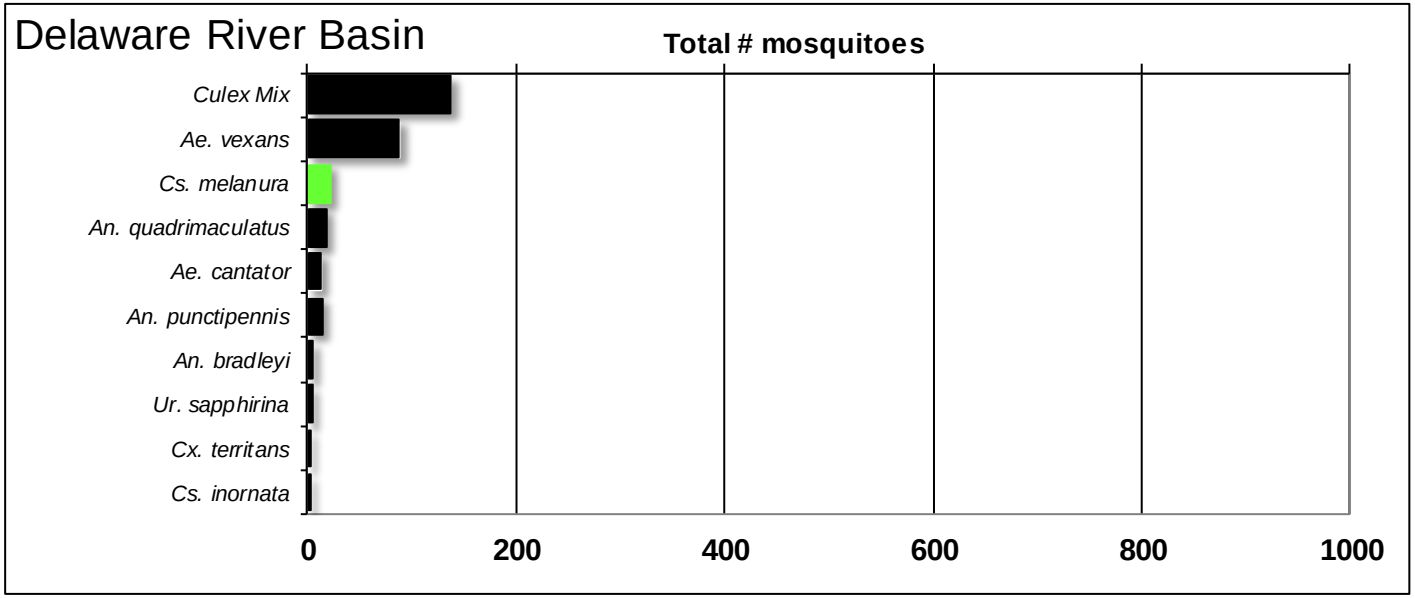
Agricultural

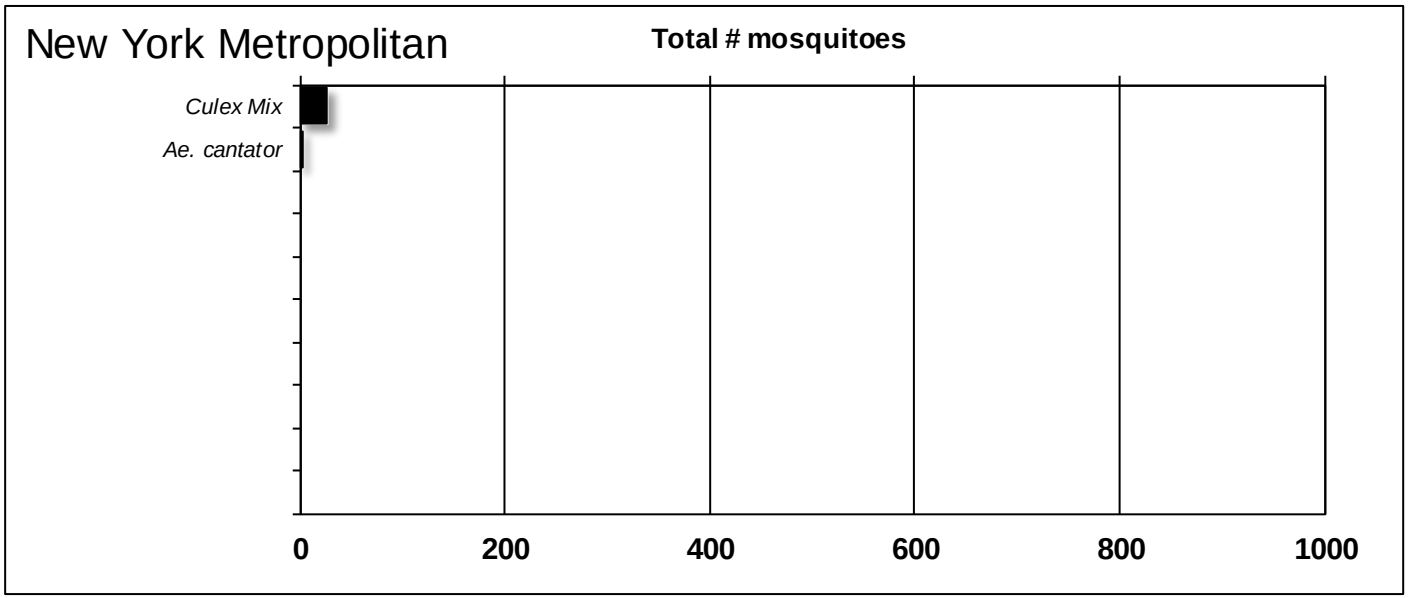


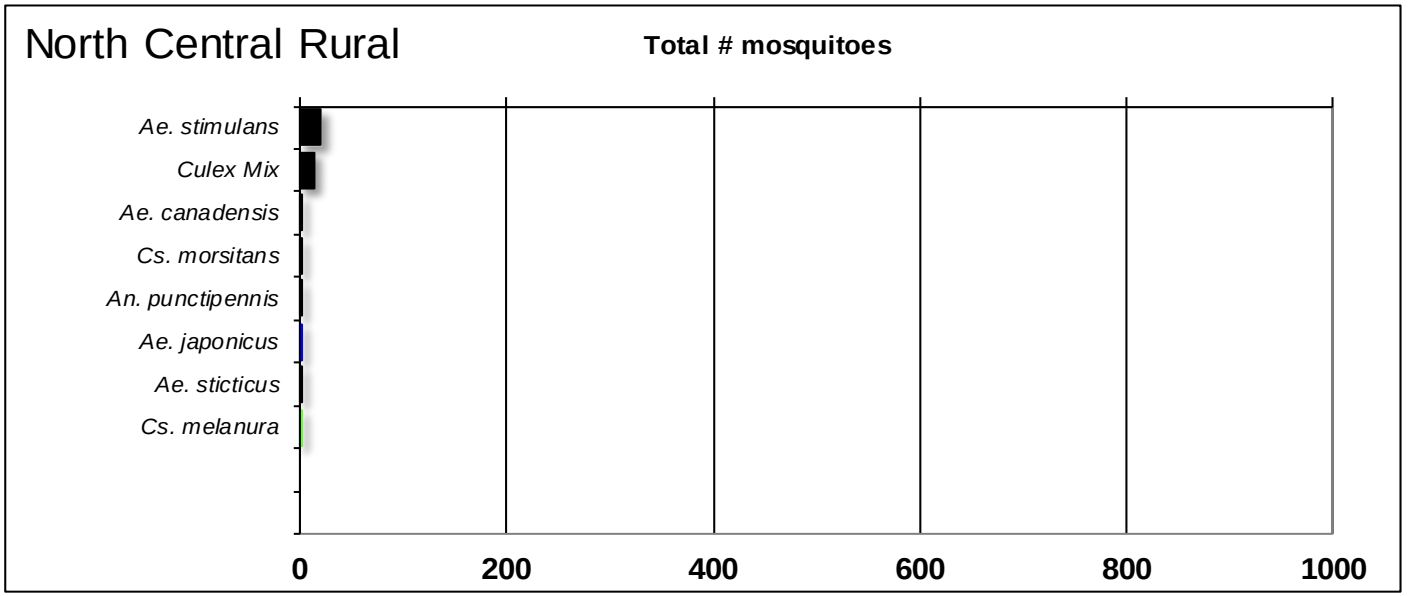
Coastal

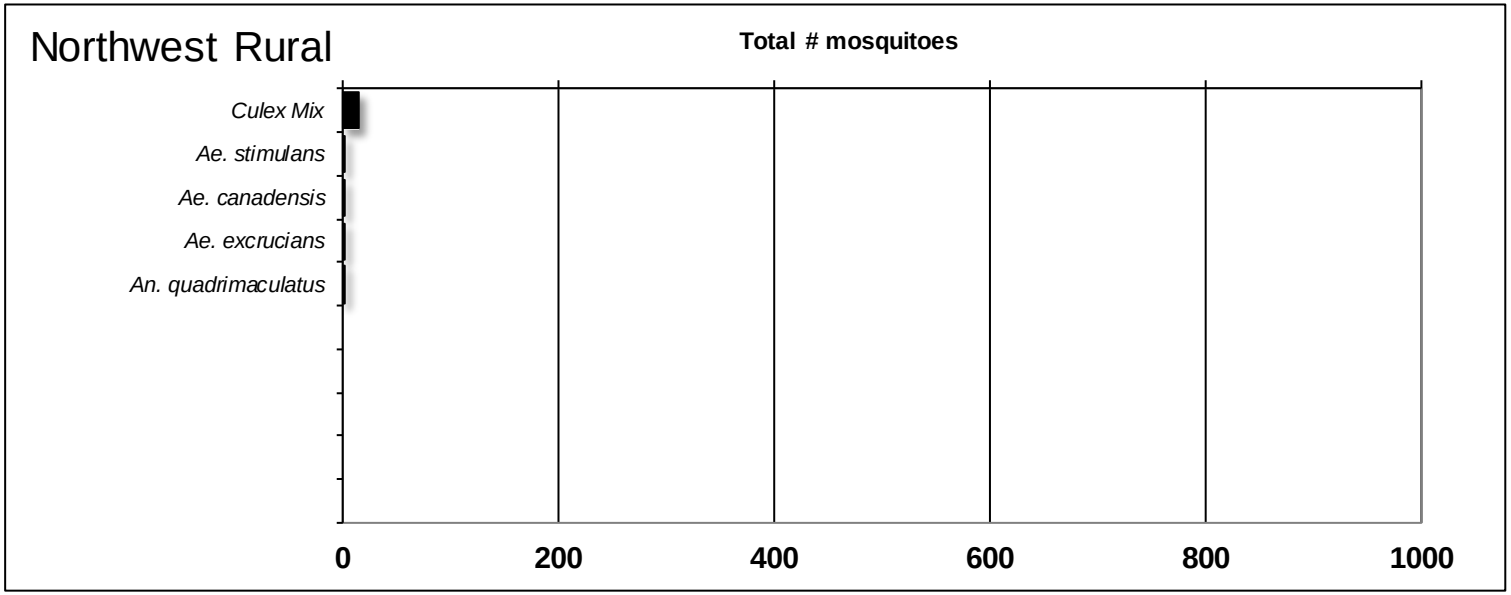


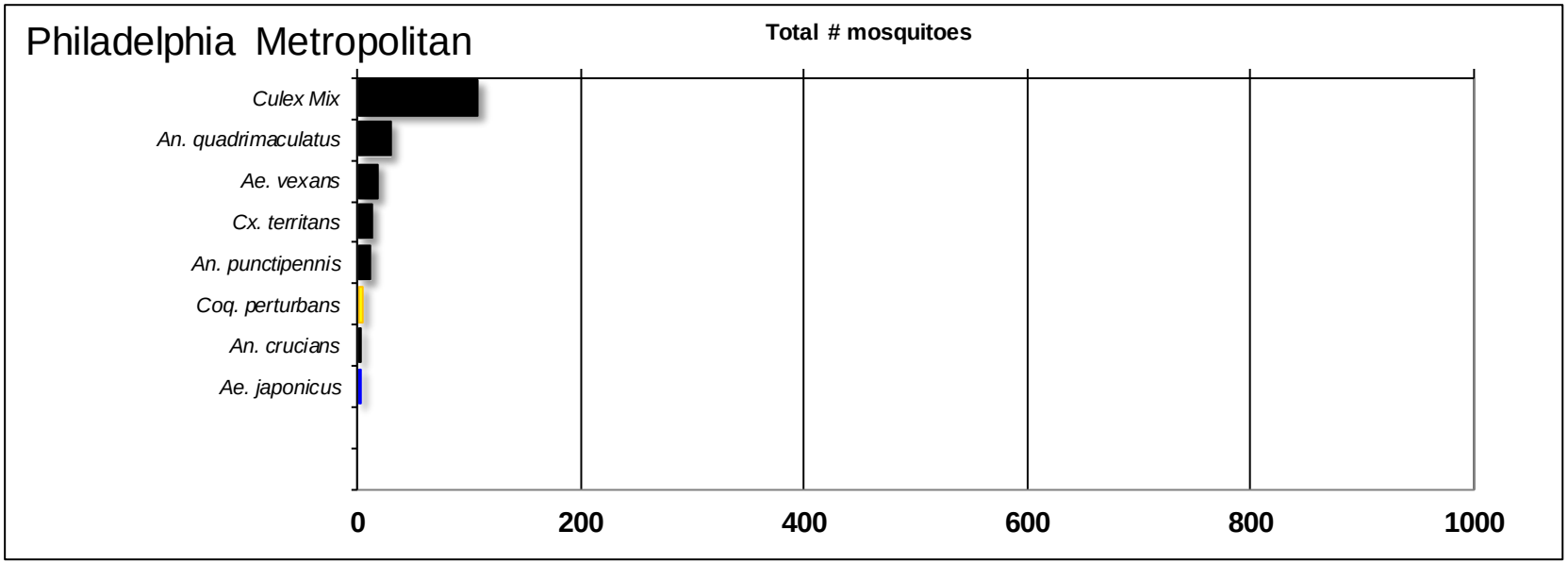

Delaware Bayshore
Total # mosquitoes
Ae. cantator
Culex Mix
Cs. melanura
Cs. inornata
An. bradleyi
Ae. sollicitans
Ae. vexans
Cx. territans
An. quadrimaculatus
Cx. erraticus
0
200
400
600
800
1000


Delaware River Basin
Total # mosquitoes
Culex Mix
Ae. vexans
Cs. melanura
An. quadrimaculatus
Ae. cantator
An. punctipennis
An. bradleyi
Ur. sapphirina
Cx. territans
Cs. inornata
0
200
400
600
800
1000

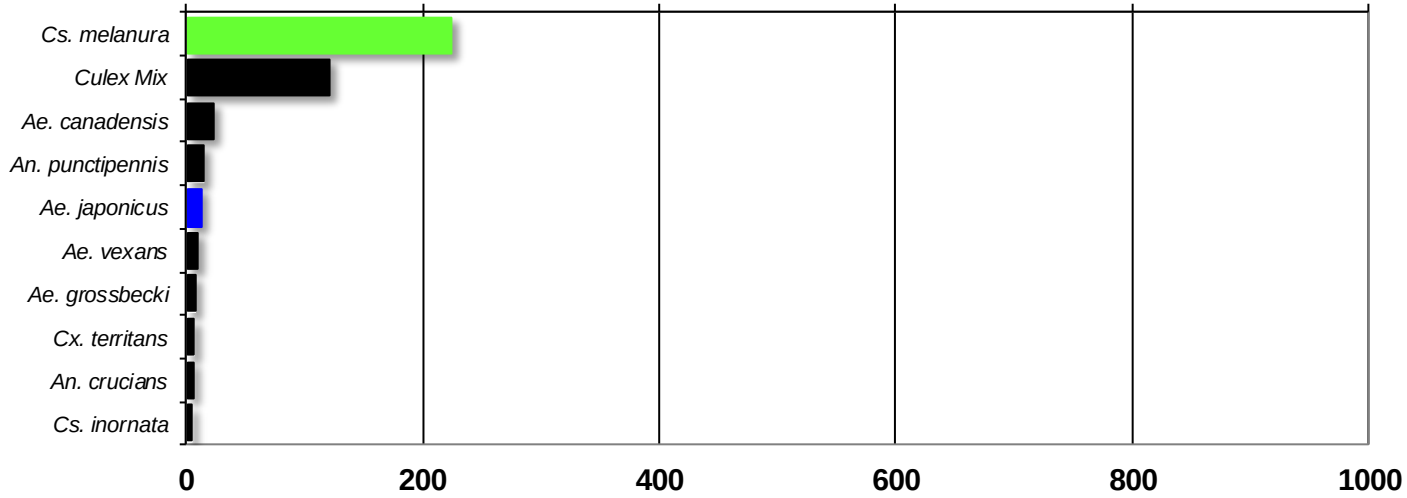

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. cantator
0
200
400
600
800
1000


North Central Rural
Total # mosquitoes
Ae. stimulans
Culex Mix
Ae. canadensis
Cs. morsitans
An. punctipennis
Ae. japonicus
Ae. sticticus
Cs. melanura
0
200
400
600
800
1000


Northwest Rural
Total # mosquitoes
Culex Mix
Ae. stimulans
Ae. canadensis
Ae. excrucians
An. quadrimaculatus
0
200
400
600
800
1000


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
An. quadrimaculatus
Ae. vexans
Cx. territans
An. punctipennis
Coq. perturbans
An. crucians
Ae. japonicus
0
200
400
600
800
1000

Pinelands



Suburban Corridor