NEW JERSEY ADULT MOSQUITO SURVEILLANCE Report

16 September to 22 September 2018, CDC Week 38

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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.

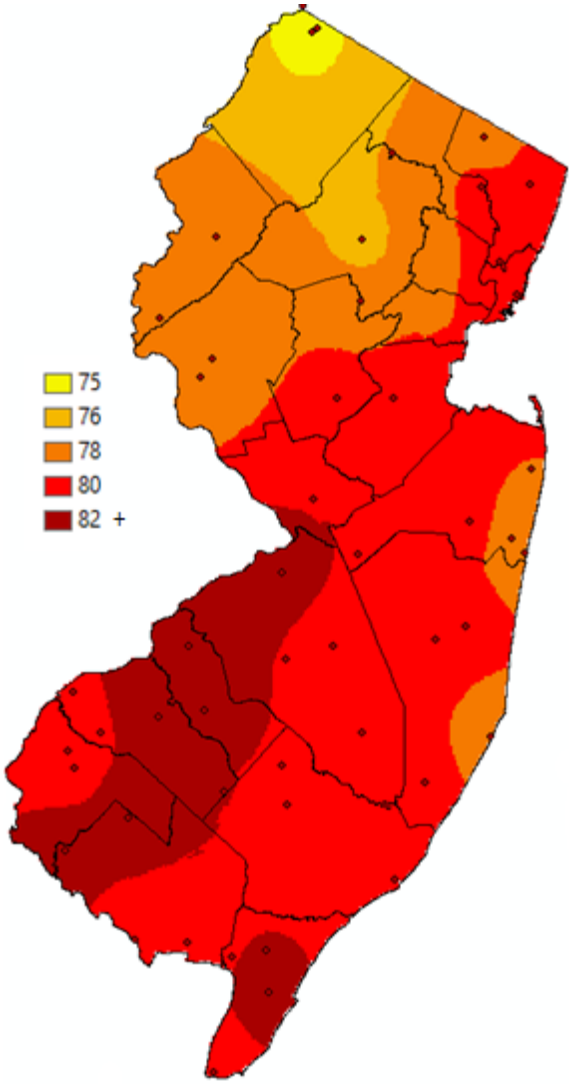
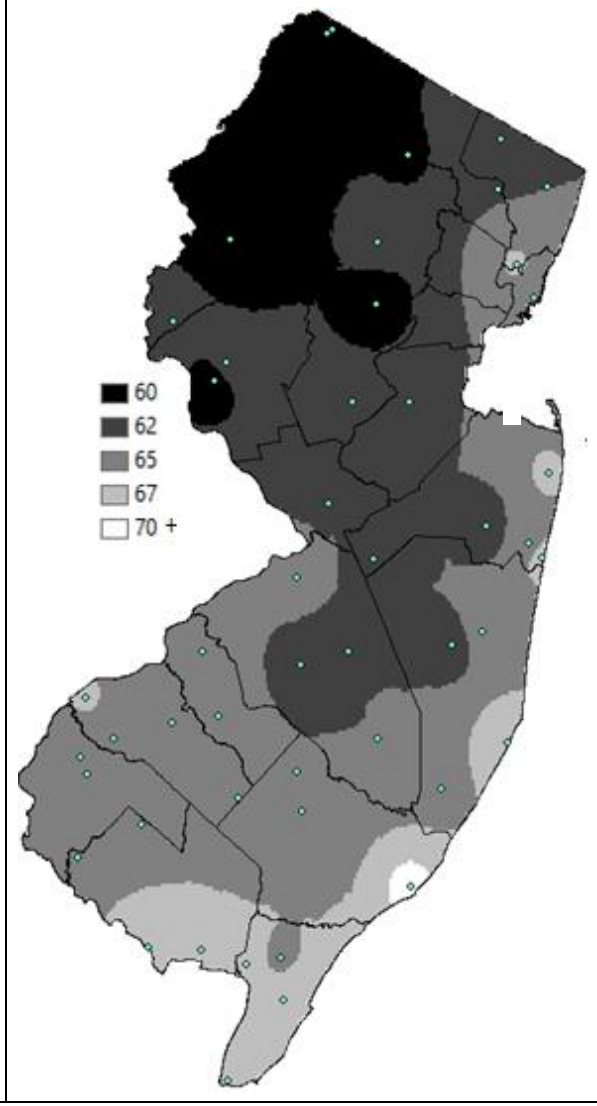
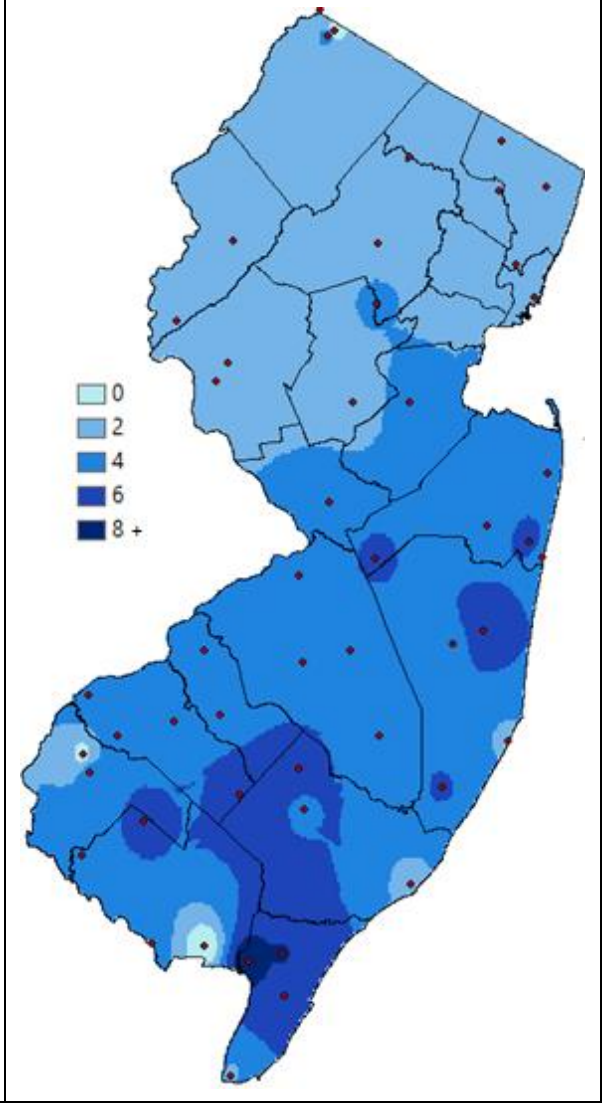
Summary Table – Week 38

	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	**14.71**	**0.25**	**4**	**10.24**	**0.46**	**4**	**0.00**	**0.00**	**0**	**4.10**	**0.19**	**4**
Coastal	**0.05**	**1.45**	**0**	**0.19**	**5.05**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.59**	**0**
Delaware Bayshore	**1.90**	**0.87**	**3**	**0.17**	**2.81**	**0**	**0.00**	**0.00**	**0**	**1.20**	**0.03**	**4**
Delaware River Basin	**2.86**	**0.51**	**4**	**5.36**	**0.04**	**4**	**0.00**	**0.00**	**0**	**0.14**	**0.00**	
New York Metro	**0.54**	**0.19**	**4**	**1.96**	**1.28**	**2**	**0.01**	**<0.01**	**1**	**0.07**	**0.04**	**2**
North Central Rural	**0.04**	**0.10**	**0**	**0.09**	**0.03**	**4**	**0.00**	**<0.01**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.00**	**0.70**	**0**	**0.00**	**1.11**	**0**	**0.00**	**0.03**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.00**	**2.43**	**0**	**0.00**	**1.01**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.23**	**0.35**	**0**	**0.16**	**0.68**	**0**	**0.00**	**<0.01**	**0**	**0.01**	**0.00**	
Suburban Corridor	**0.24**	**0.13**	**2**	**0.19**	**0.57**	**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.

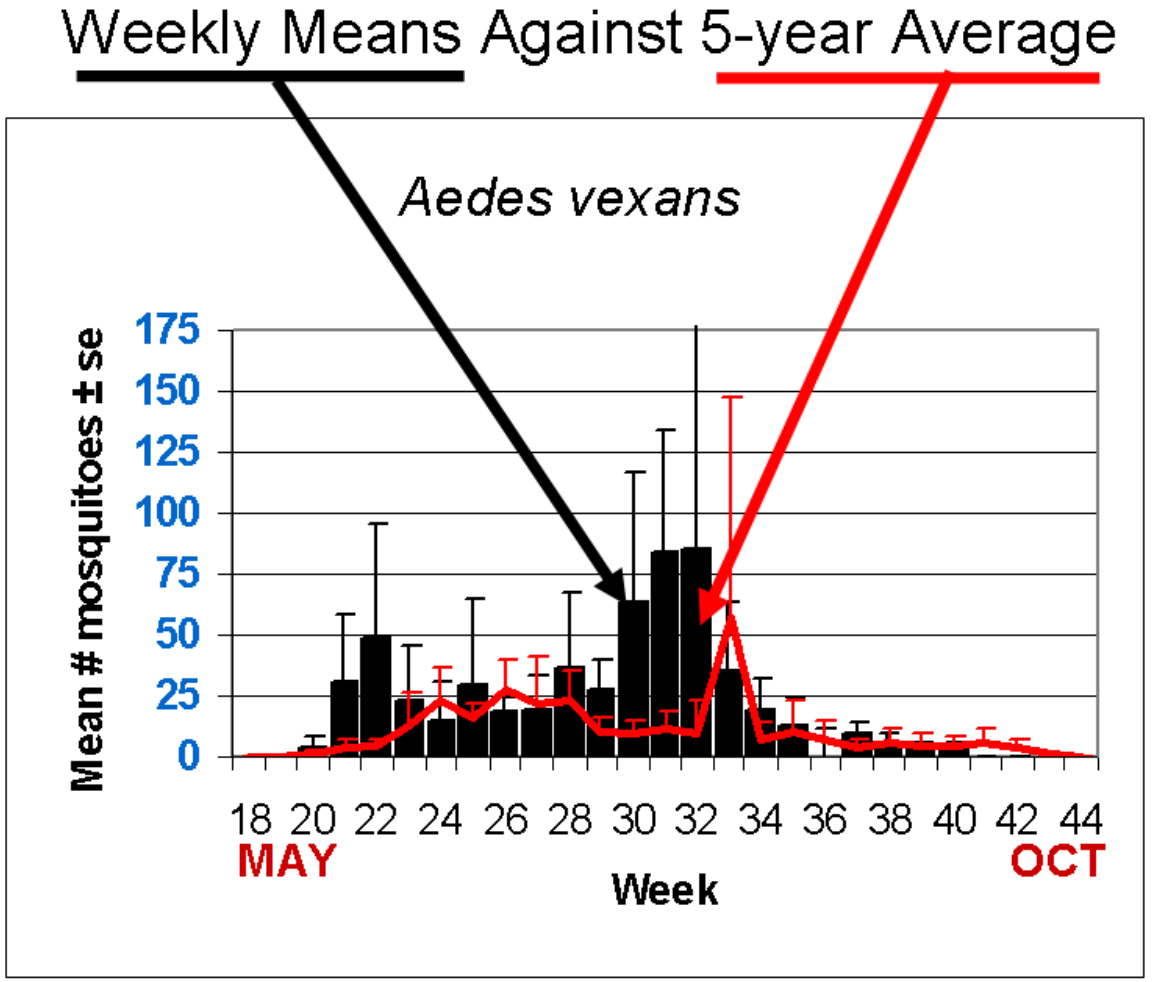
State Summary: Floodwater species abundances were above recent historical average, along with other pestiferous species. *Aedes vexans* abundances were significantly above average in the Agricultural, Delaware Bayshore, Delaware River Basin, and the New York Metropolitan, with minor increases in the Suburban Corridor. *Aedes sollicitans* also showed significant increases in the Agricultural and Delaware Bayshore region with increases also in the Delaware River Basin and the New York Metropolitan regions. *Culex* Mix numbers were significantly higher in the Agricultural, Delaware River Basin, North Central Rural regions with smaller increases in the New York Metropolitan region. Higher numbers were seen for *Coquillettidia perturbans* in the New York Metropolitan region.

Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

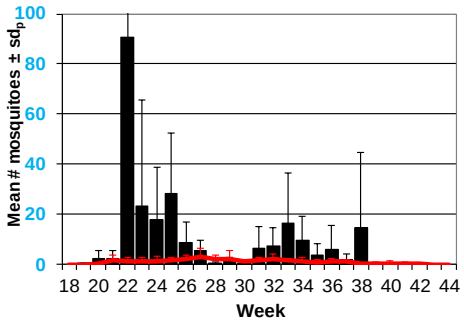
The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) for 30 days prior to 22 September 2018 in New Jersey. Data points are from about 53 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

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 Cumberland, Monmouth, Passaic, Salem, Somerset, and Union counties. Data for the previous week are from Atlantic, Bergen, Burlington, Cape May, Cumberland, Hudson, Hunterdon, Monmouth, Passaic, Salem, Somerset, and Union counties.

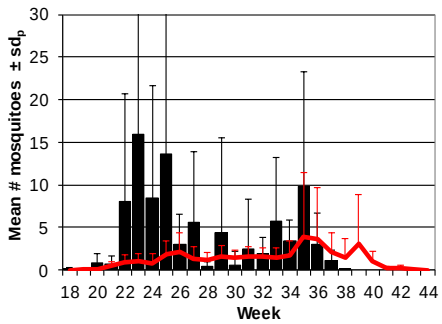


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

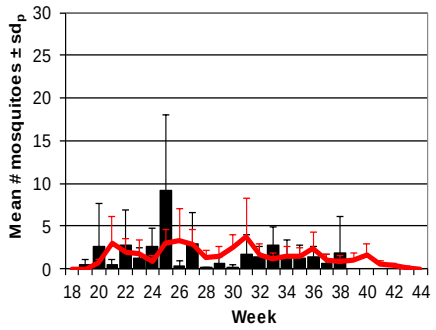
Agricultural



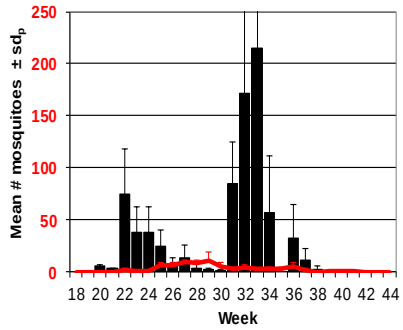
Coastal



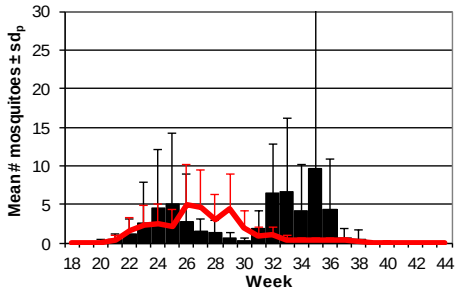
Delaware Bayshore



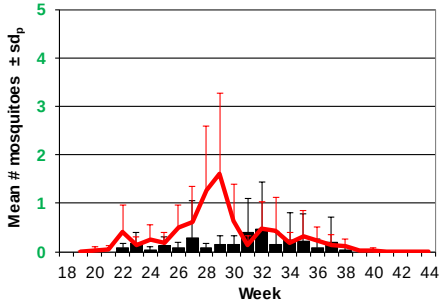
Delaware River Basin



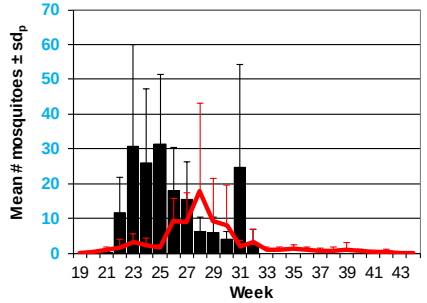
New York Metro



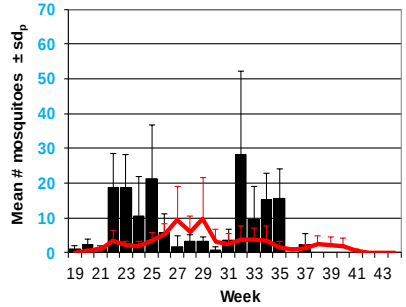
North Central Rural



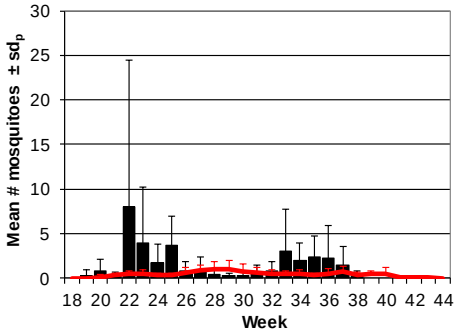
Northwestern Rural



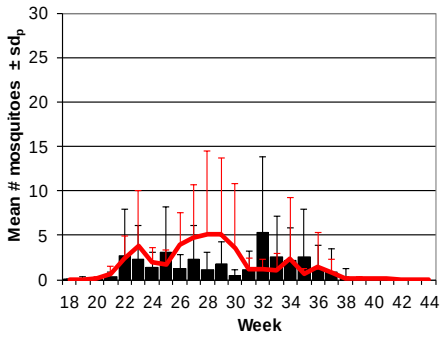
Philadelphia Metro



Pinelands



Suburban Corridor

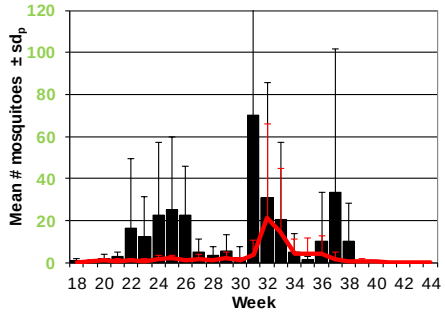


Comments

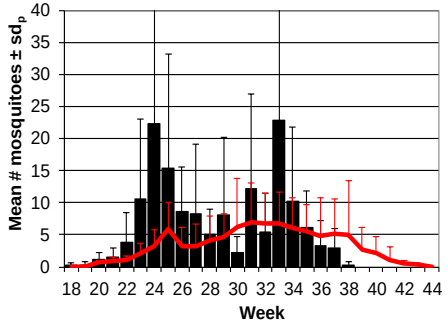
Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. *Aedes vexans* populations continues to be significantly above average in the Agricultural, Delaware Bayshore, Delaware River Basin, and the New York Metropolitan, with minor increases in the Suburban Corridor. As past historical averages indicate, populations should start to decrease rapidly in most regions. The National Weather Service has the southern half of the state in for coastal flood advisories as low pressure systems continue to deliver precipitation. Cooler temperatures are predicted by mid-week and the combination of cooler temps and decreased sunlight should begin to put eggs into diapause.

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

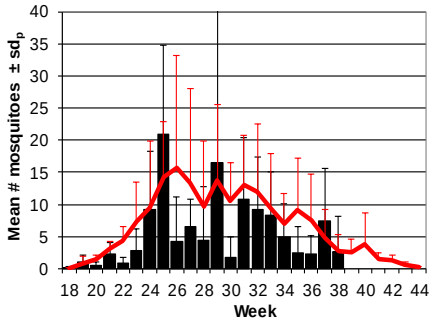
Agricultural



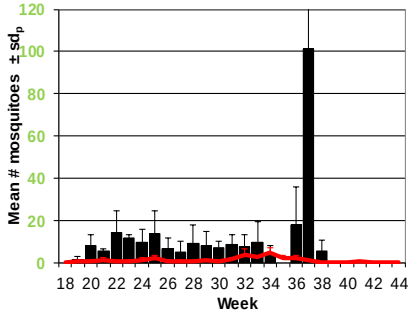
Coastal



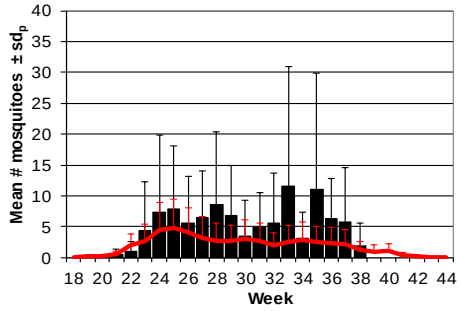
Delaware Bayshore



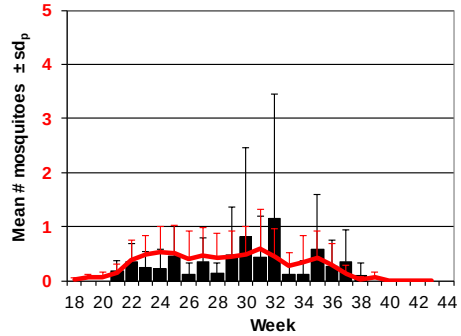
Delaware River Basin



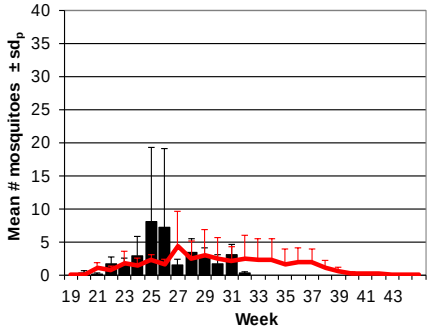
New York Metro



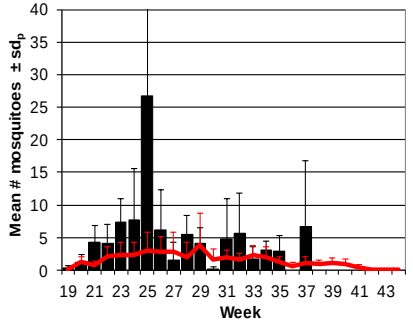
North Central Rural



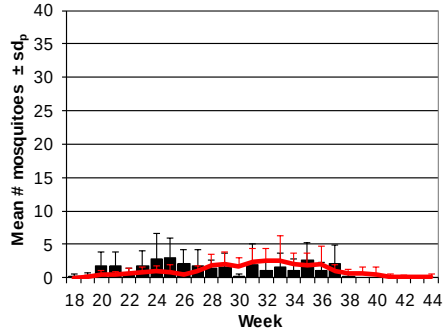
Northwestern Rural



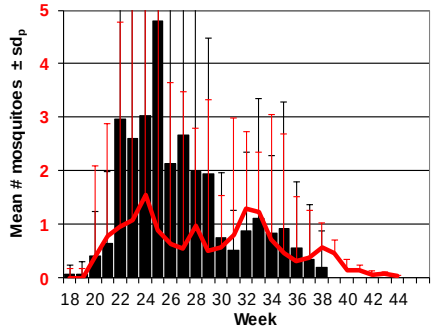
Philadelphia Metro



Pinelands



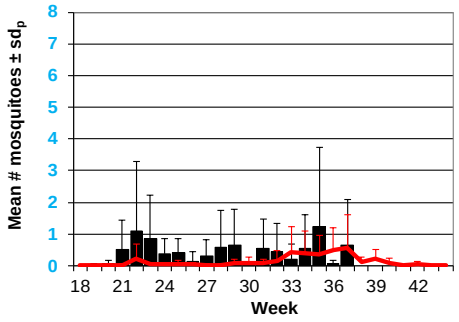
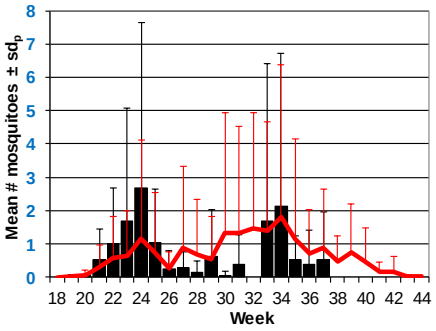
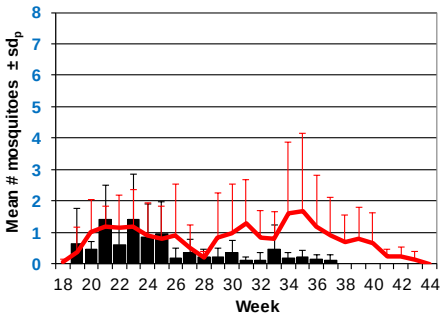
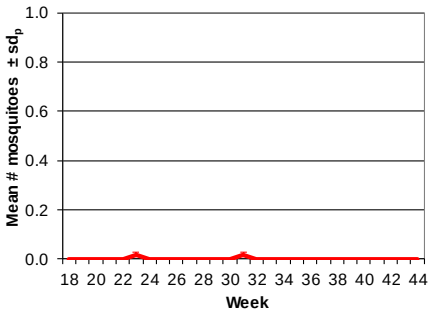
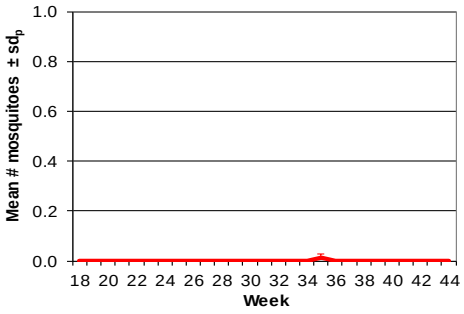
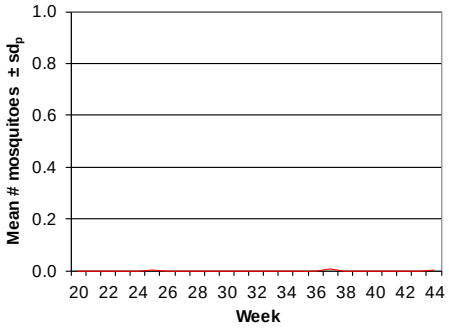
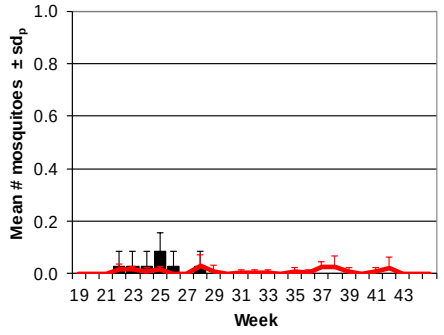
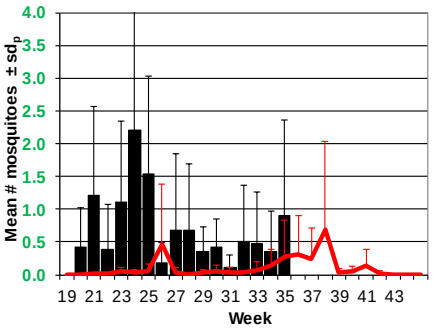
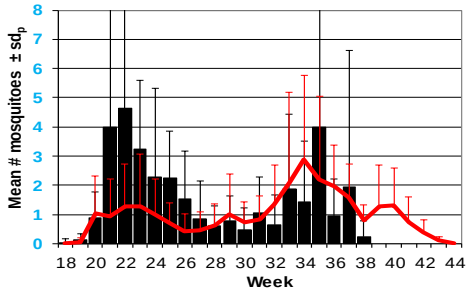
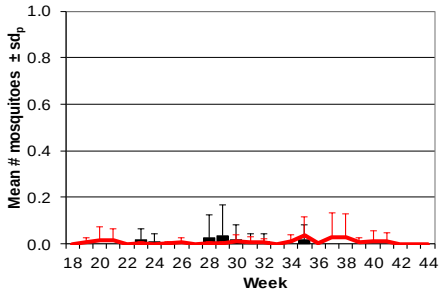
Suburban Corridor



Comments

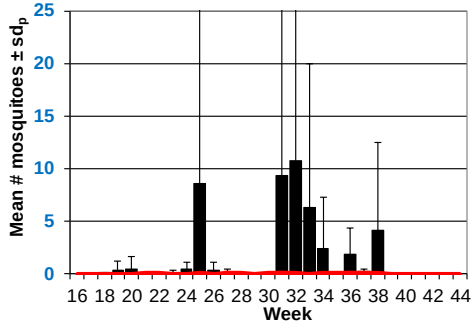
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. *Culex* Mix numbers were significantly higher in the Agricultural, Delaware River Basin, North Central Rural regions with smaller increases in the New York Metropolitan region. Most regions should begin to see a decline in the numbers of *Culex* as overwintering females should begin to look for hibernaculae in which to spend winter months. However, the high activity levels of WNV should not decrease the amount of due diligence with regard to this and other infective species.

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

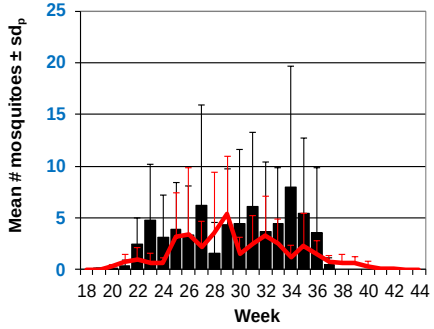
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* is the enzootic ornithophilic vector of eastern equine encephalitis. Abundances in reporting regions continue to indicate population levels near historical values. Delaware Bayshore numbers continue to be well below historic averages. Currently, five EEE positive horses are reported to date and due diligence for this species and associated bridge vectors should continue. All horse owners should make sure their horses are up to date on the vaccination schedules: http://www.aaep.org/custdocs/adultvaccinationchart.pdf	

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

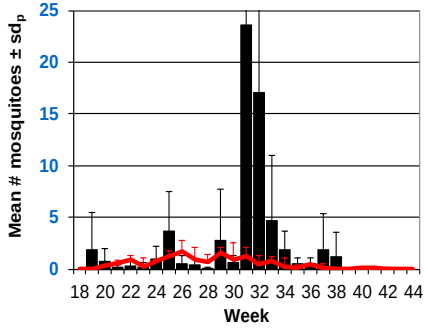
Agricultural



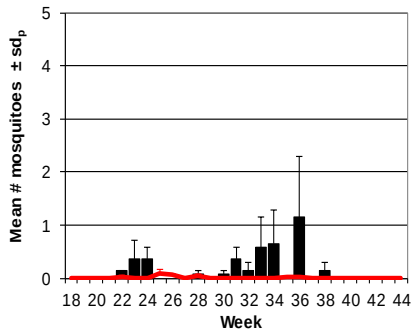
Coastal



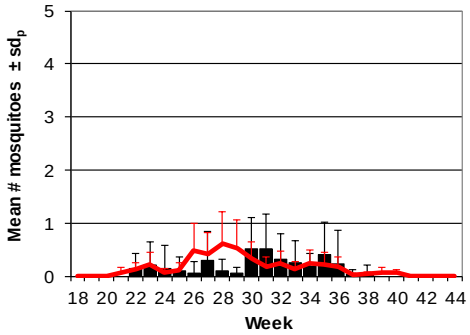
Delaware Bayshore



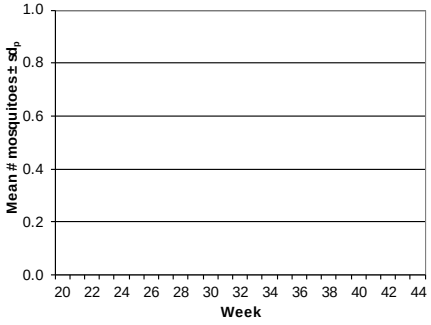
Delaware River Basin



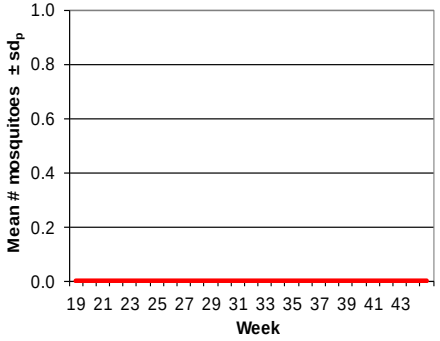
New York Metro



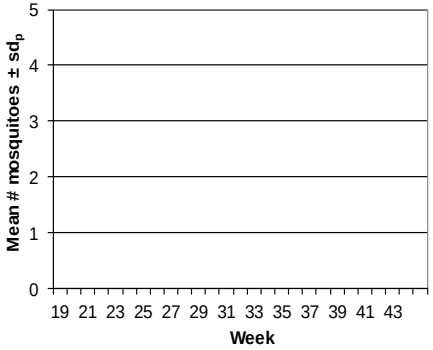
North Central Rural



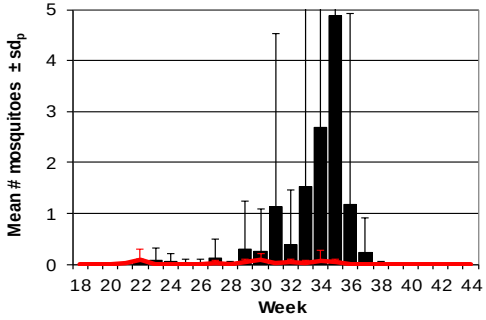
Northwestern Rural



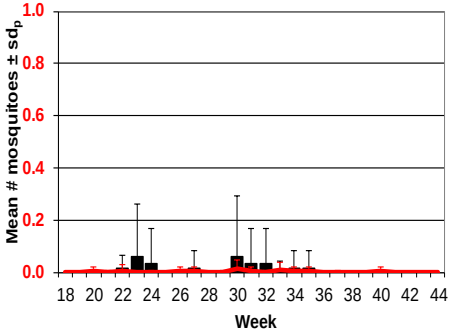
Philadelphia Metro



Pinelands



Suburban Corridor

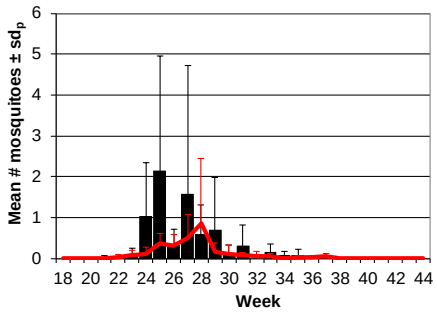
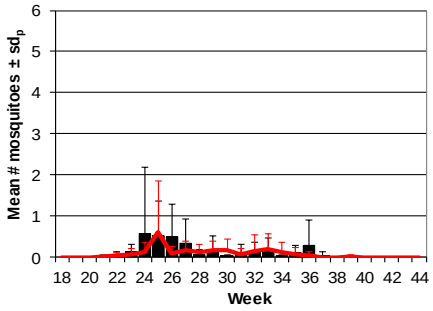
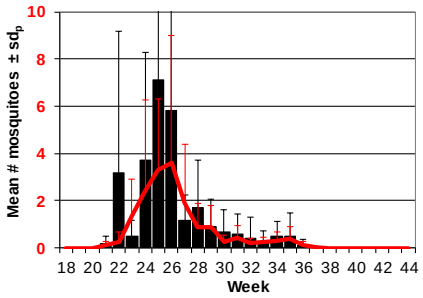
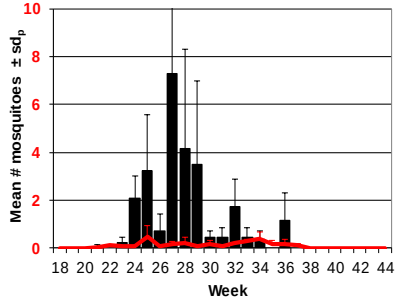
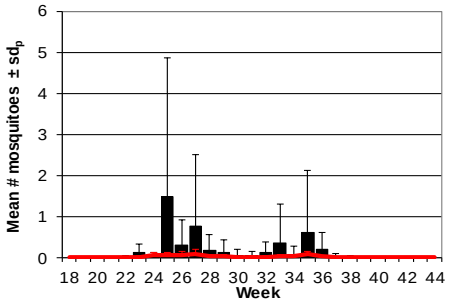
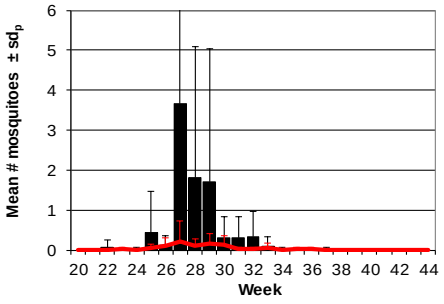
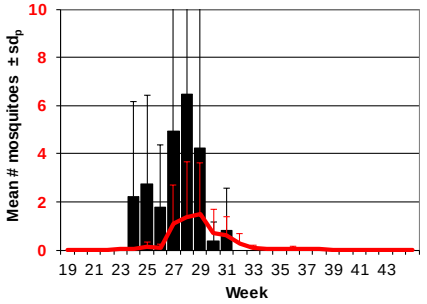
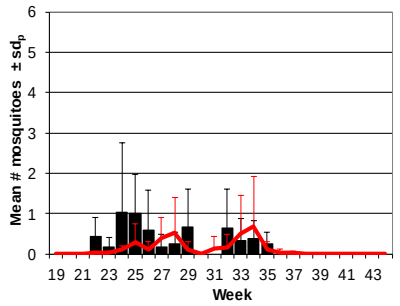
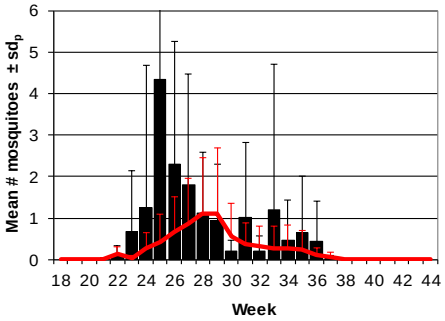
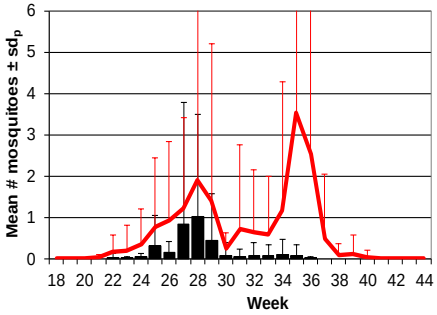


Comments

Aedes sollicitans is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. With the continued precipitation, significant abundances were still observed in the Agricultural and the Delaware Bayshore regions. Minor increases were also seen in the New York Metropolitan region. Several more days of precipitation is expected to continue, with cooler temperatures after mid-week.

The next full moon occurs on the 24th of September.

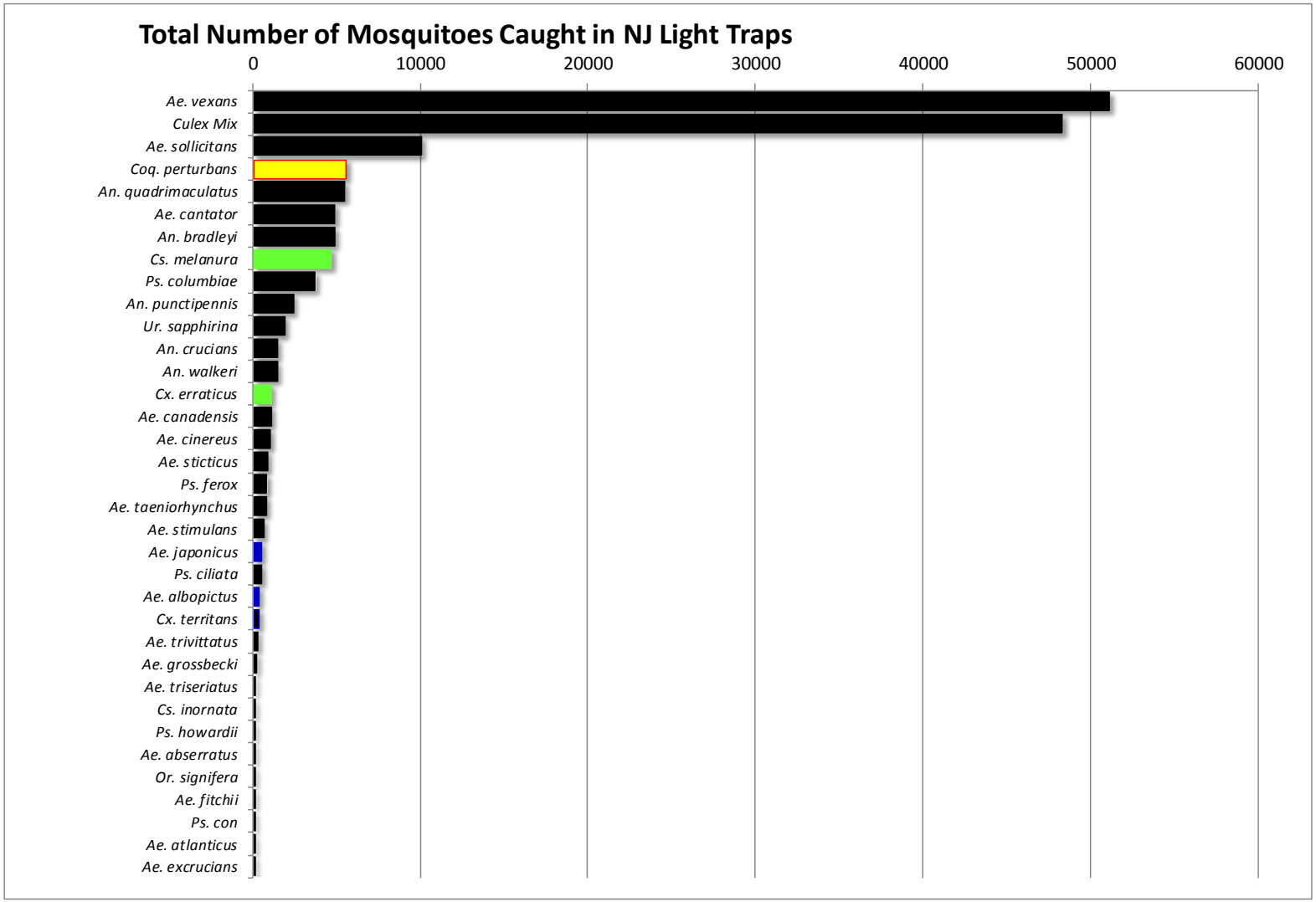
Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

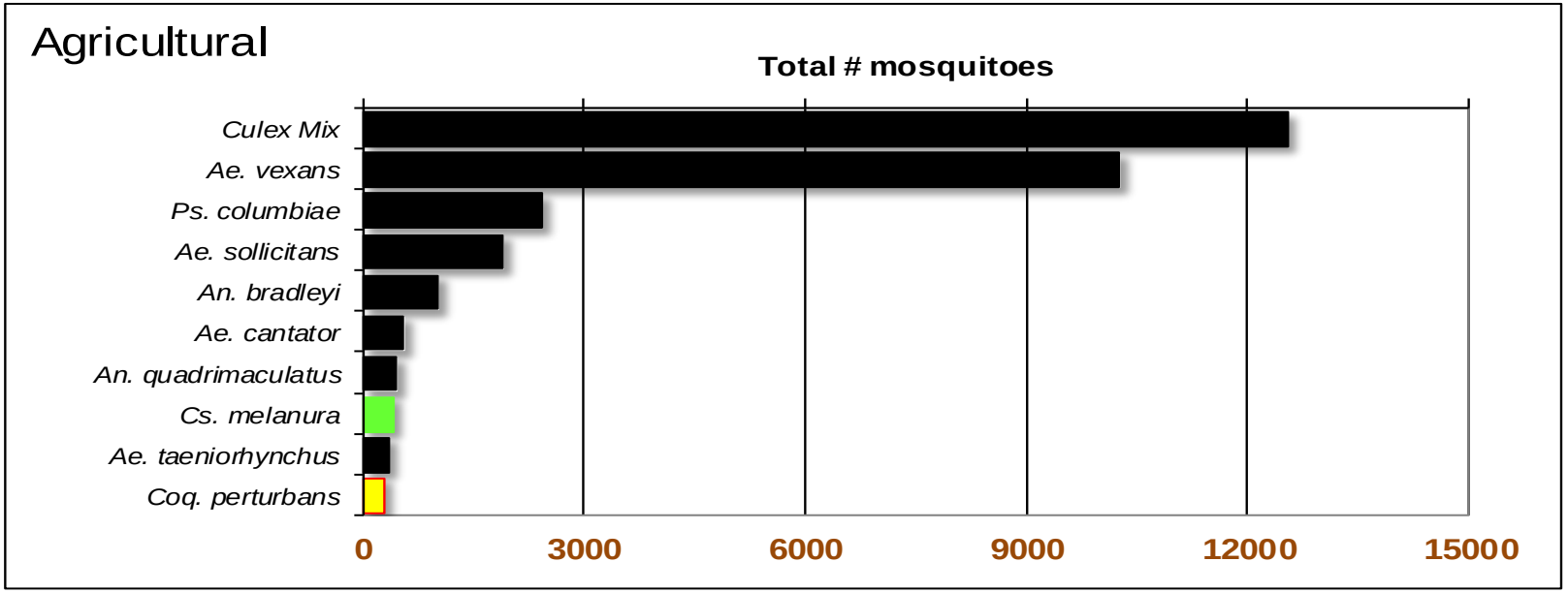
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. *Coquillettidia perturbans* abundances were mildly higher in the New York Metropolitan region. Numbers for this mid-season species continue to decline as the season is ending for them.	

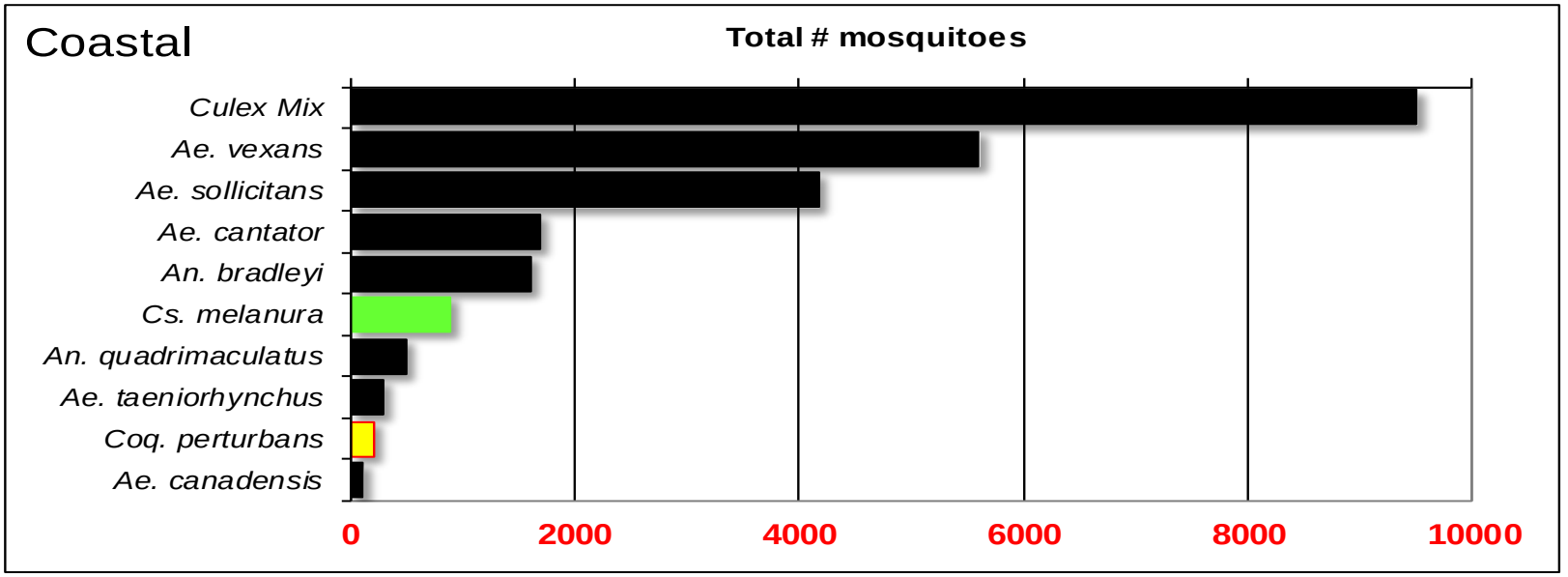
WNV *EEE*

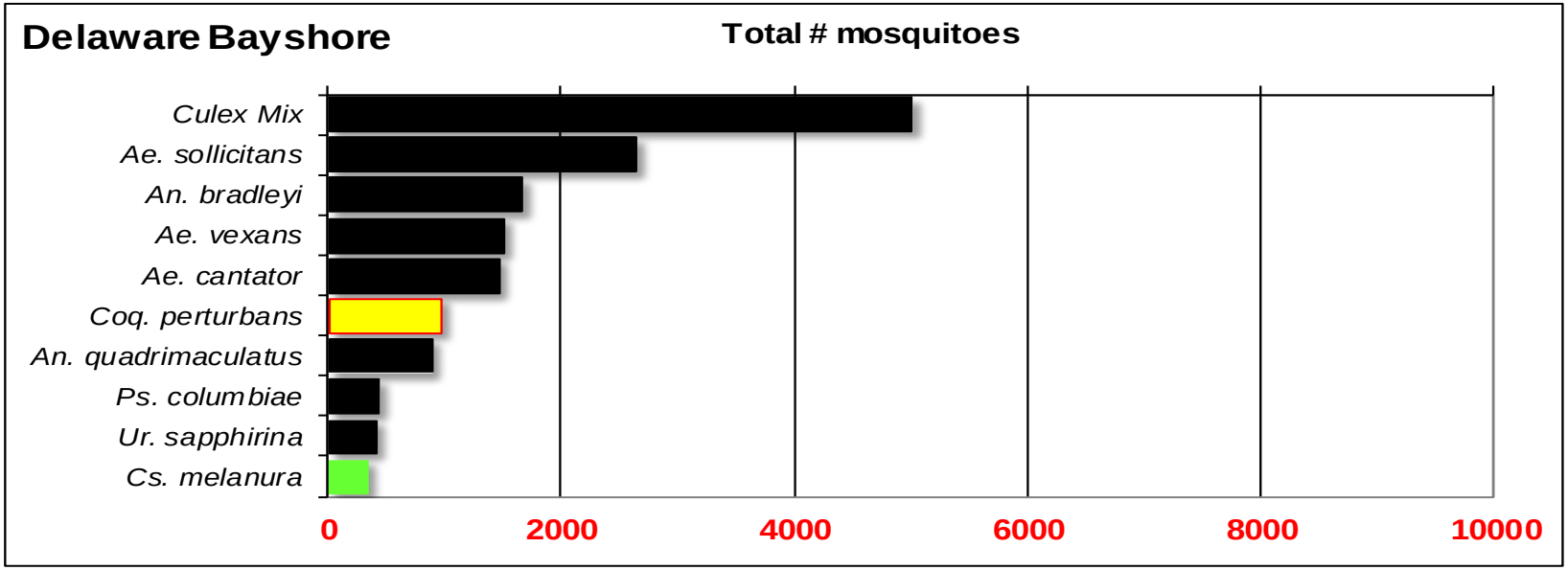
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

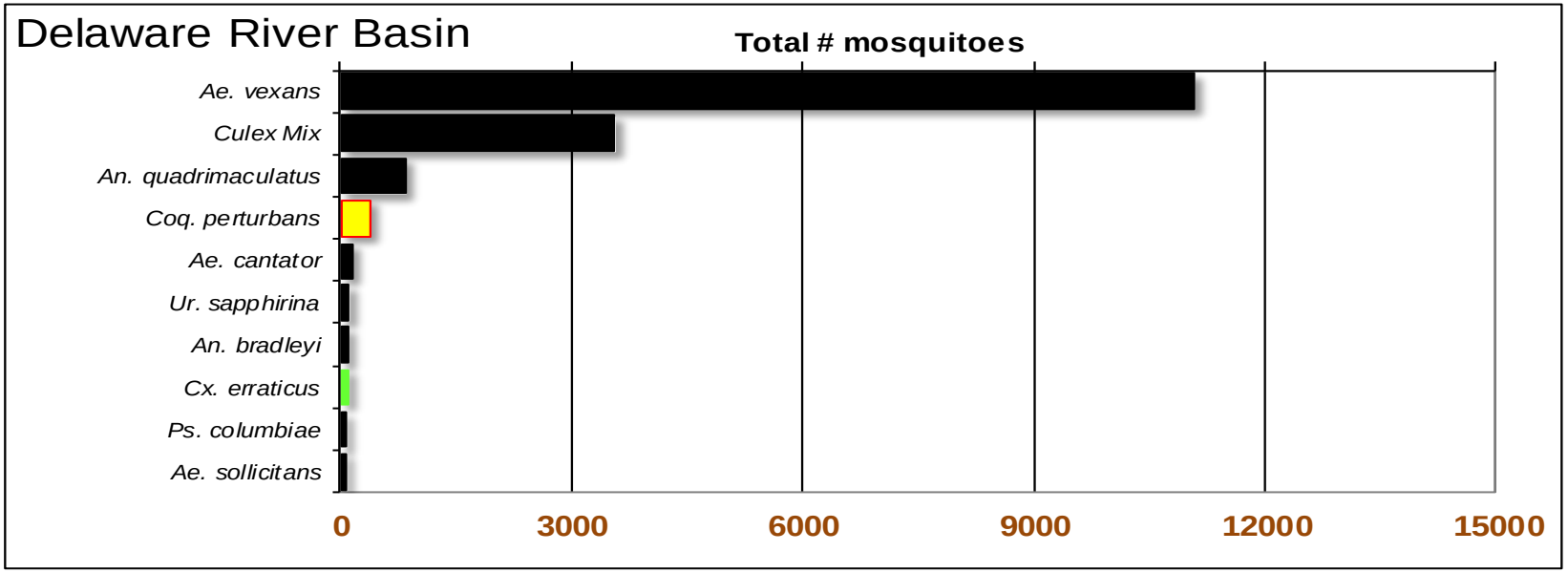
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

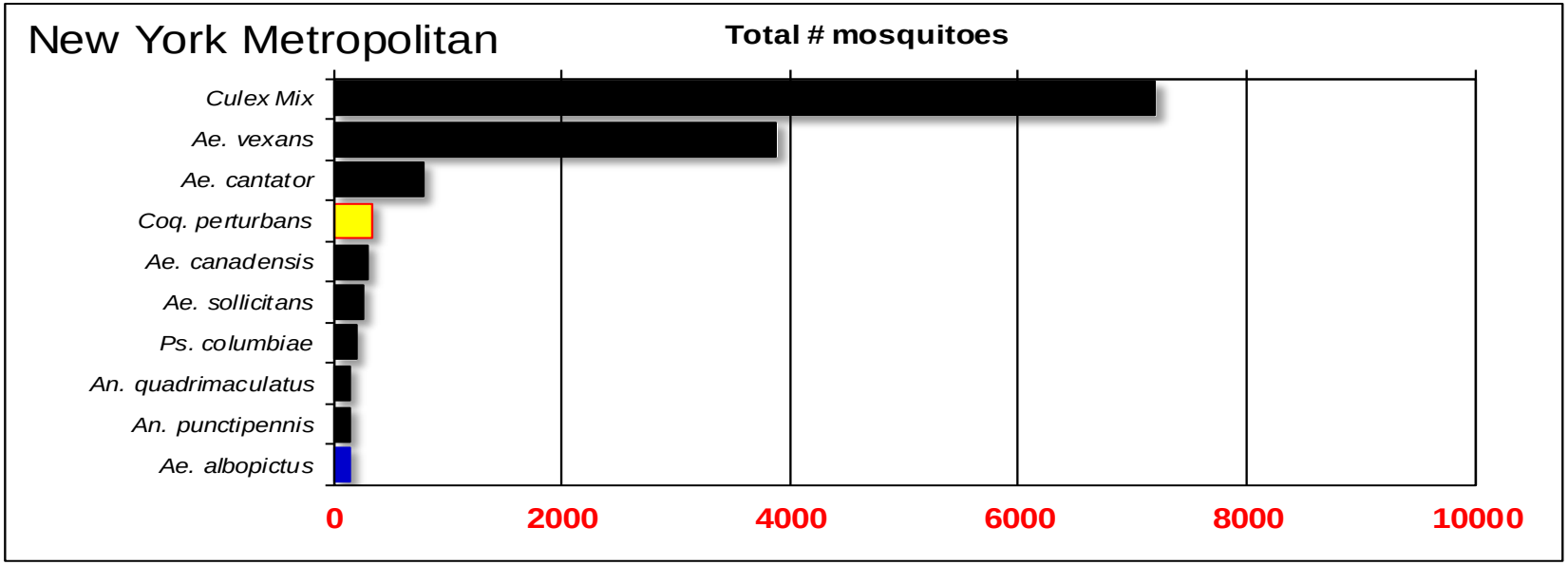


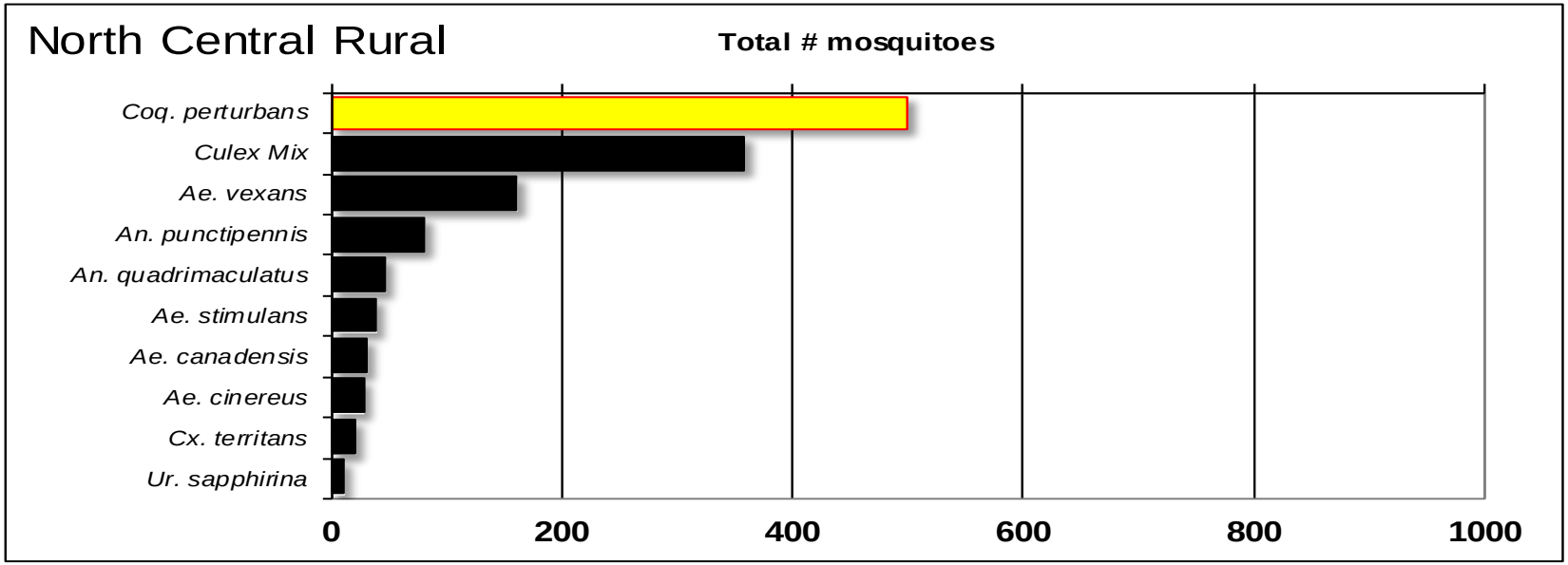

Agricultural
Total # mosquitoes
Culex Mix
Ae. vexans
Ps. columbiae
Ae. sollicitans
An. bradleyi
Ae. cantator
An. quadrimaculatus
Cs. melanura
Ae. taeniorhynchus
Coq. perturbans
0
3000
6000
9000
12000
15000

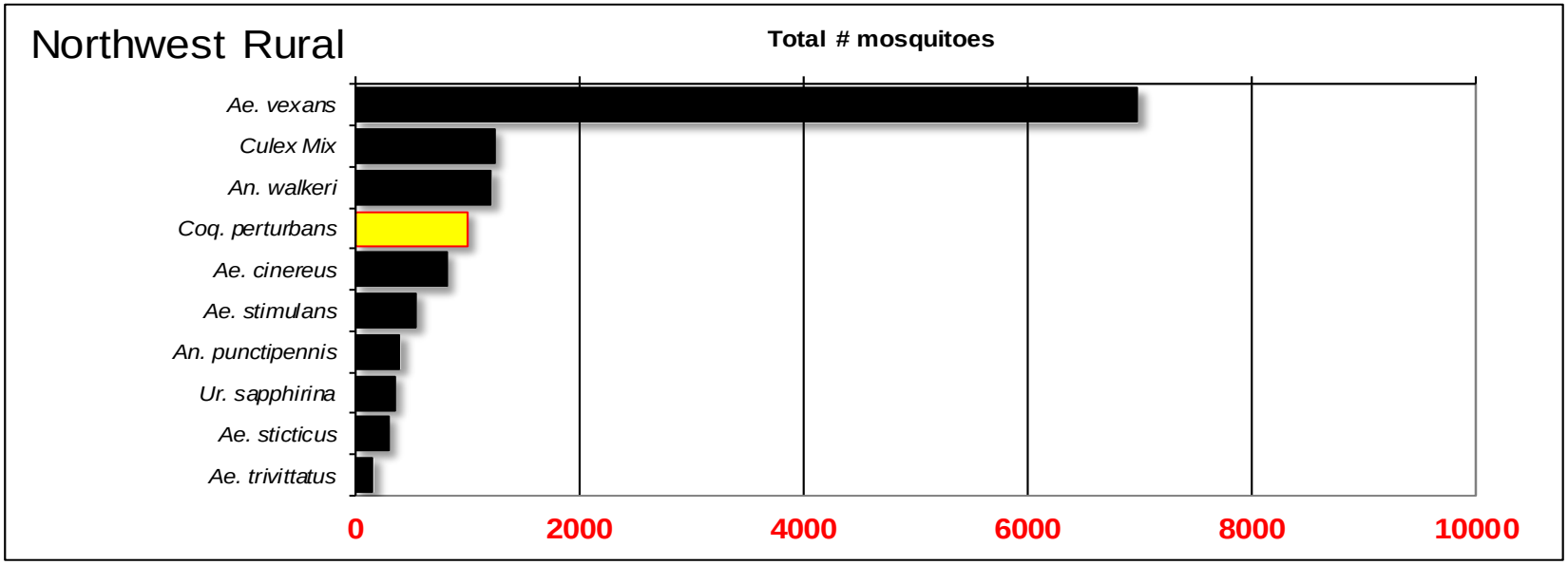

Coastal
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. sollicitans
Ae. cantator
An. bradleyi
Cs. melanura
An. quadrimaculatus
Ae. taeniorhynchus
Coq. perturbans
Ae. canadensis
0
2000
4000
6000
8000
10000

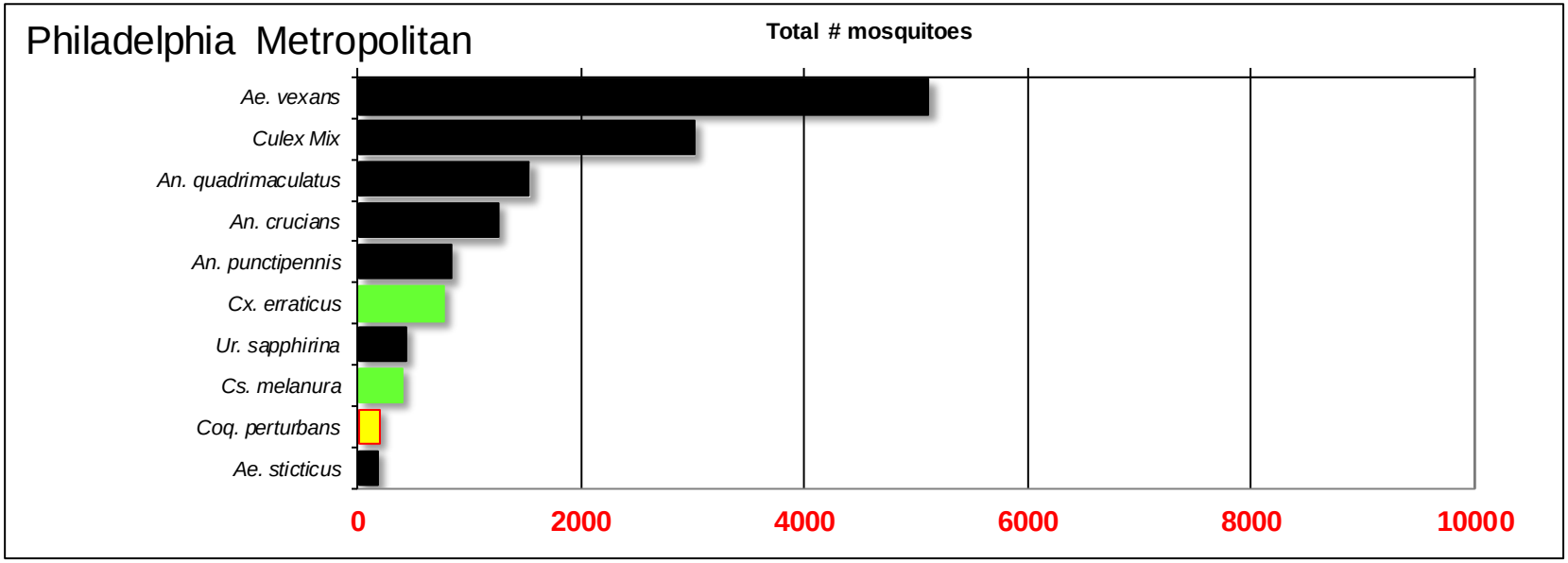

Delaware Bayshore
Total # mosquitoes
Culex Mix
Ae. sollicitans
An. bradleyi
Ae. vexans
Ae. cantator
Coq. perturbans
An. quadrimaculatus
Ps. columbiae
Ur. sapphirina
Cs. melanura
0
2000
4000
6000
8000
10000

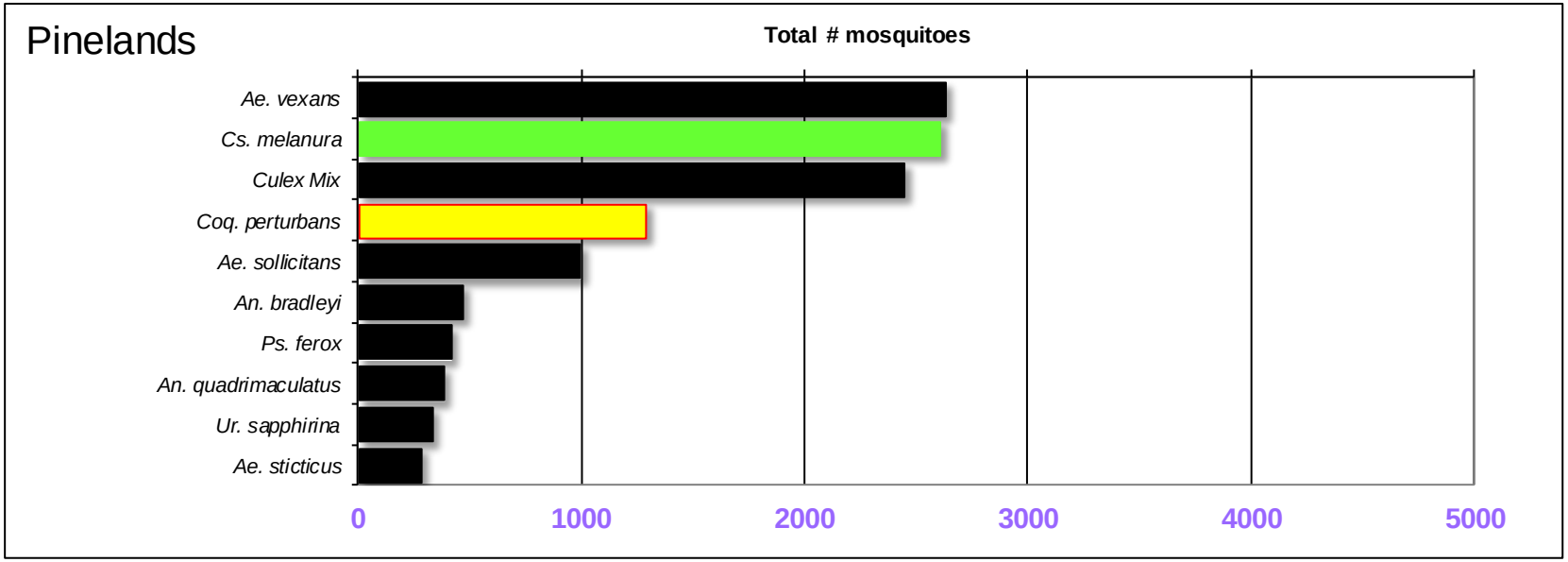

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
Coq. perturbans
Ae. cantator
Ur. sapphirina
An. bradleyi
Cx. erraticus
Ps. columbiae
Ae. sollicitans
0
3000
6000
9000
12000
15000

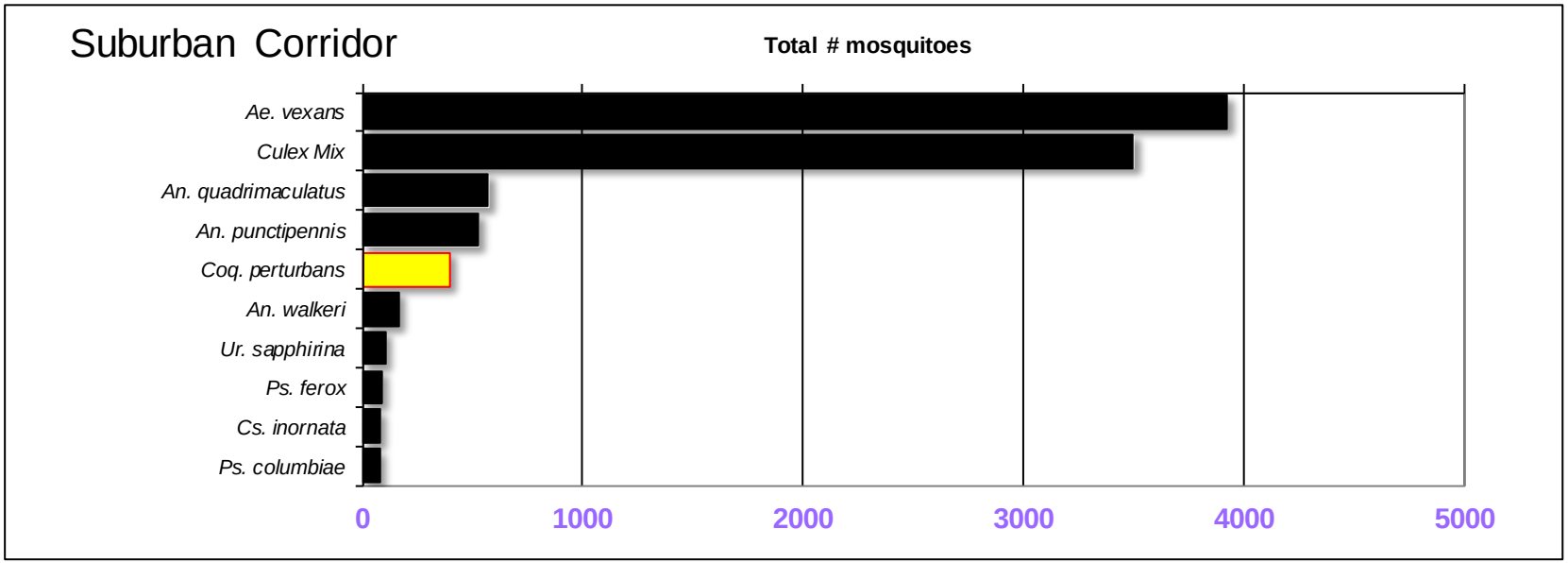

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. canadensis
Ae. sollicitans
Ps. columbiae
An. quadrimaculatus
An. punctipennis
Ae. albopictus
0
2000
4000
6000
8000
10000


North Central Rural
Total # mosquitoes
Coq. perturbans
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Ae. stimulans
Ae. canadensis
Ae. cinereus
Cx. territans
Ur. sapphirina
0
200
400
600
800
1000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
An. walkeri
Coq. perturbans
Ae. cinereus
Ae. stimulans
An. punctipennis
Ur. sapphirina
Ae. sticticus
Ae. trivittatus
0
2000
4000
6000
8000
10000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
An. crucians
An. punctipennis
Cx. erraticus
Ur. sapphirina
Cs. melanura
Coq. perturbans
Ae. sticticus
0
2000
4000
6000
8000
10000


Pinelands
Total # mosquitoes
Ae. vexans
Cs. melanura
Culex Mix
Coq. perturbans
Ae. sollicitans
An. bradleyi
Ps. ferox
An. quadrimaculatus
Ur. sapphirina
Ae. sticticus
0
1000
2000
3000
4000
5000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
An. punctipennis
Coq. perturbans
An. walkeri
Ur. sapphirina
Ps. ferox
Cs. inornata
Ps. columbiae
0
1000
2000
3000
4000
5000