NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 21 October to 10 November 2012, CDC Weeks 43-45

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.

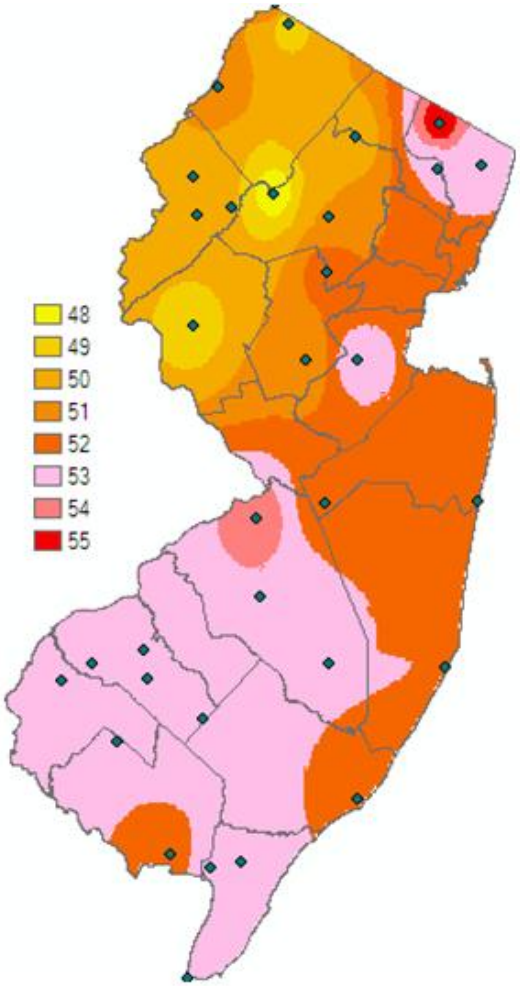
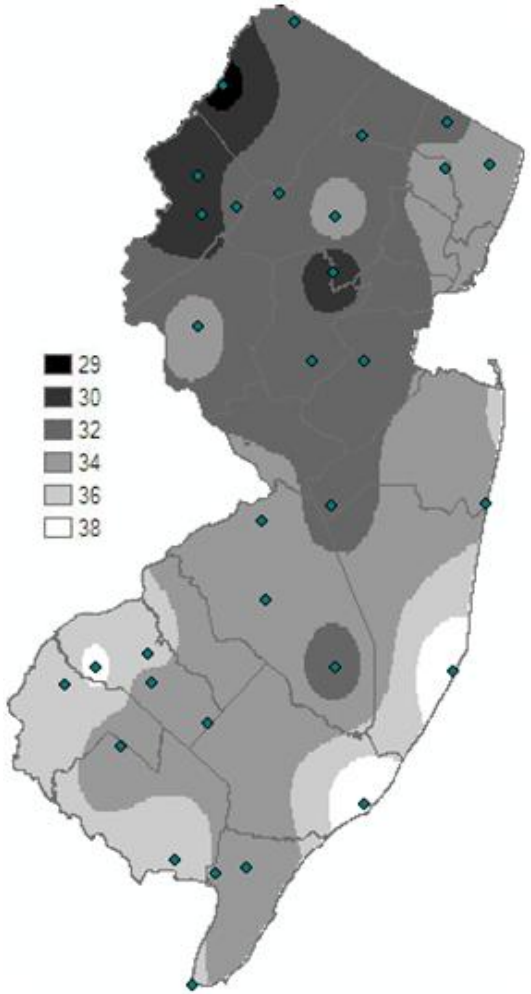
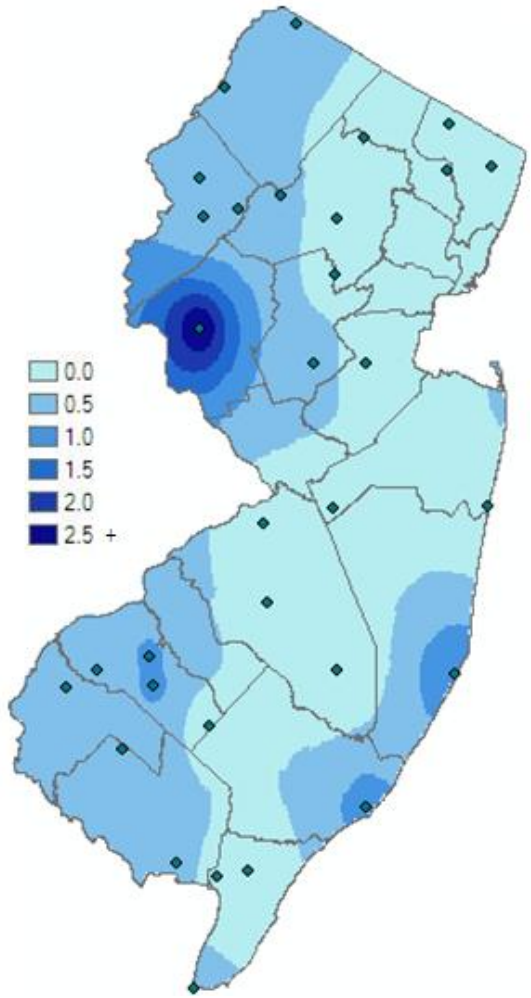
Summary Table – Week 43-45

	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												
Coastal												
Delaware Bayshore												
Delaware River Basin												
New York Metro												
North Central Rural												
Northwest Rural												
Philadelphia Metro												
Pinelands												
Suburban Corridor												

*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: Most adult mosquitoes on the wing have gone with the winds of Hurricane Sandy and the following nor'easter effectively ended the mosquito season for New Jersey. Although a few numbers were reported in Week 44, interpretation is difficult given that most counties ended their surveillance prior to the arrival of Sandy. Given that, no numbers are reported in the above table. This is the last report of the 2012 season.

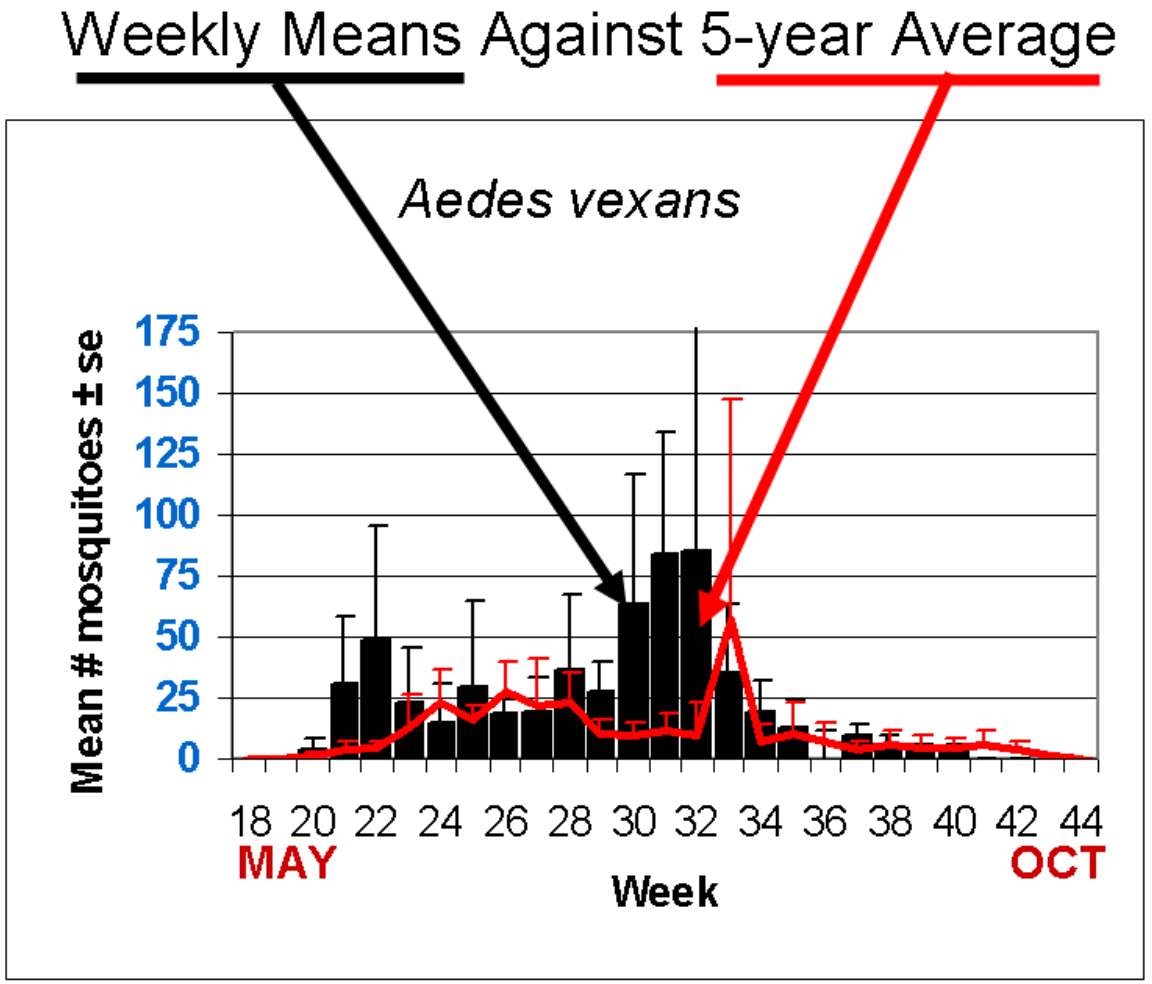
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

The three figures show the interpolation of average maximum and minimum temperature and total precipitation for Nov 1-13, 2012 in New Jersey. Data points are from about 34 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

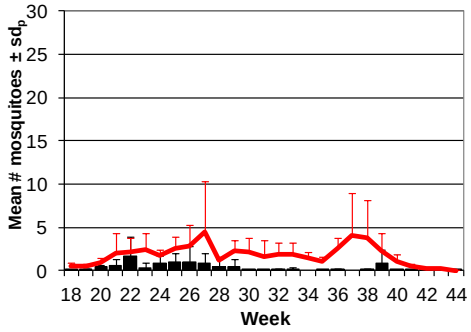
NJ Weather & Climate NETWORK ONJSC at Rutgers University

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 for this report are from Atlantic, Bergen, Camden, Cape May, Cumberland, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Salem, Somerset, Sussex, Union and Warren counties. Counties have discontinued their traps for the season beginning mid to late October.

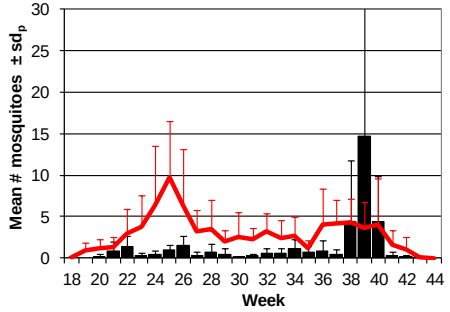


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

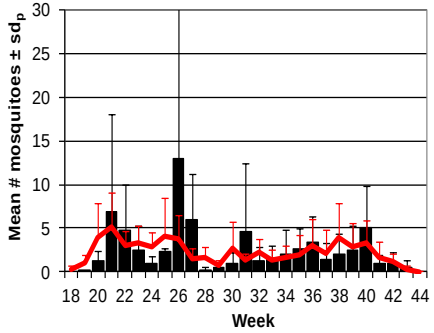
Agricultural



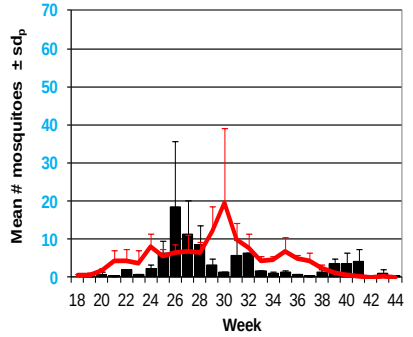
Coastal



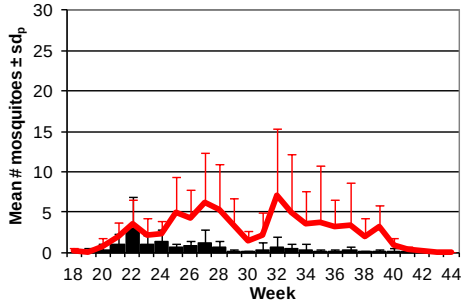
Delaware Bayshore



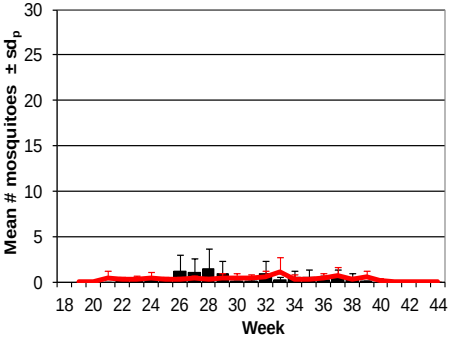
Delaware River Basin



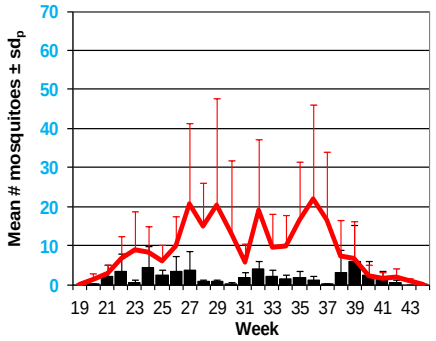
New York Metro



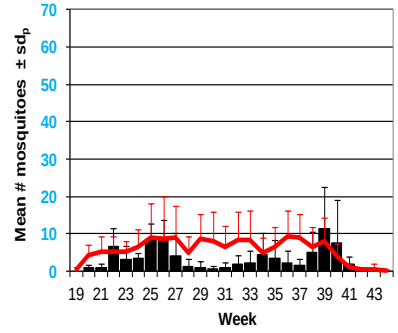
North Central Rural



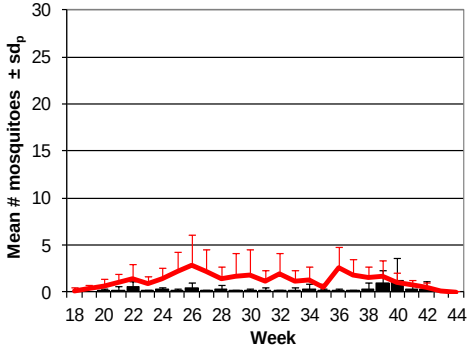
Northwestern Rural



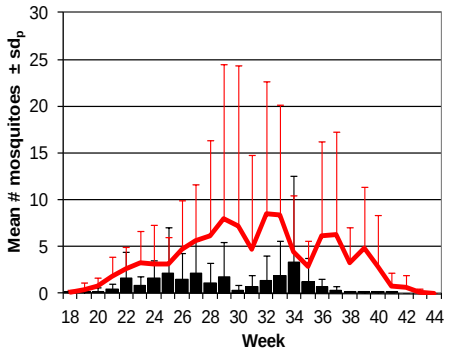
Philadelphia Metro



Pinelands



Suburban Corridor

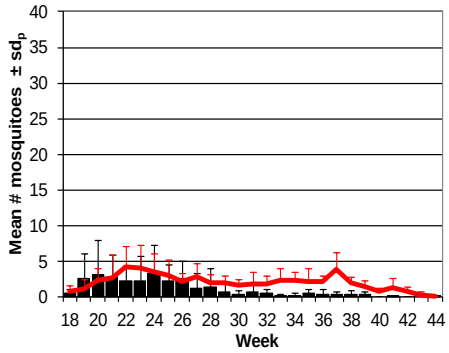


Comments

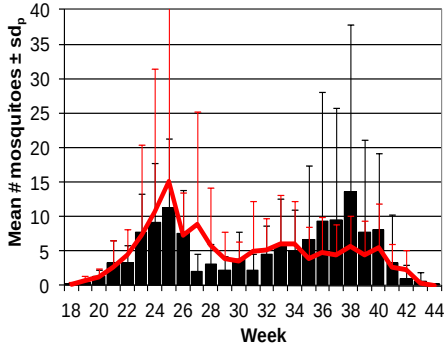
Aedes vexans populations in several regions represent the lack of precipitation in July with the presence of lower population levels than seen in historical trends. This was not observed in the Delaware Bayshore region where population levels were around, if not occasionally higher than historical trends. Strong emergences as is often seen in the Northwestern Rural region did not occur this year.

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

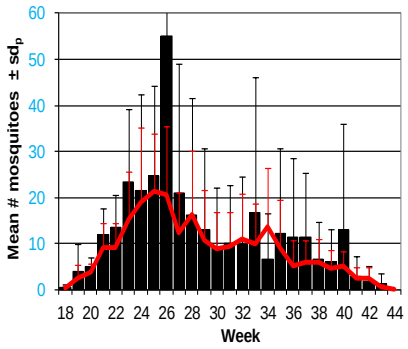
Agricultural



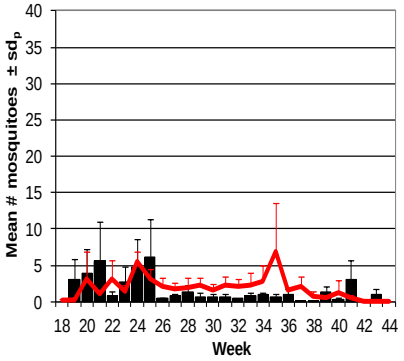
Coastal



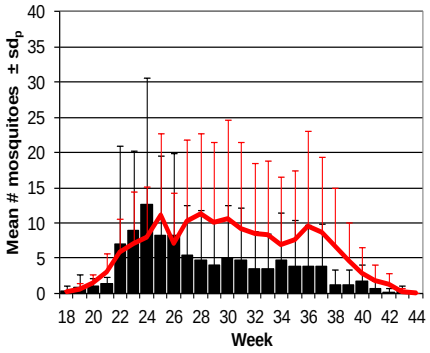
Delaware Bayshore



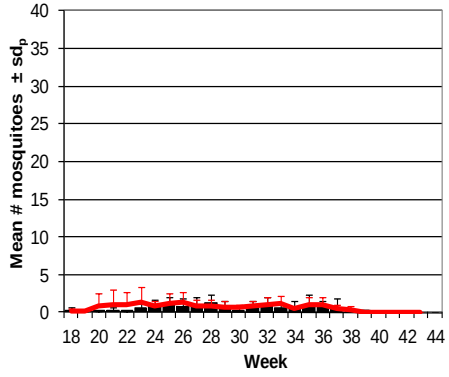
Delaware River Basin



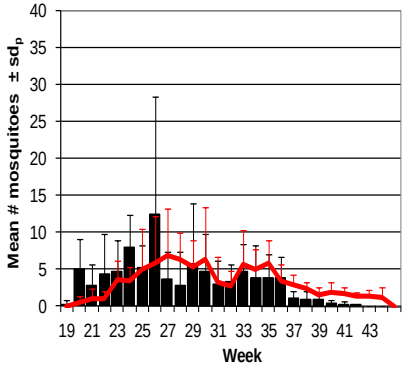
New York Metro



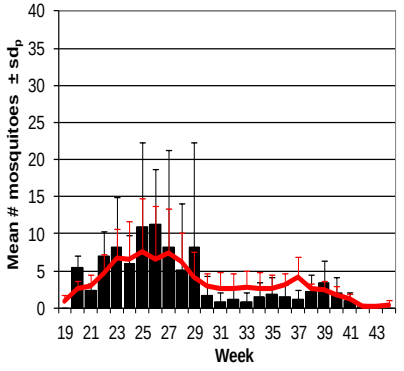
North Central Rural



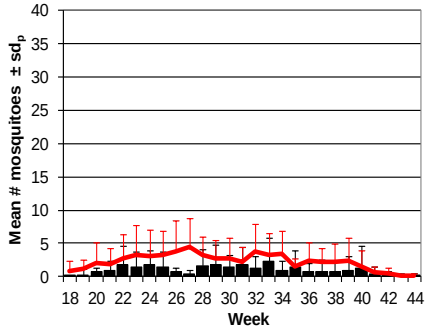
Northwestern Rural



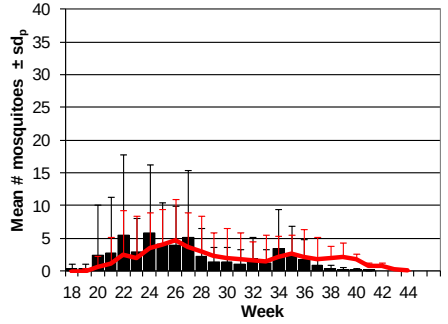
Philadelphia Metro



Pinelands



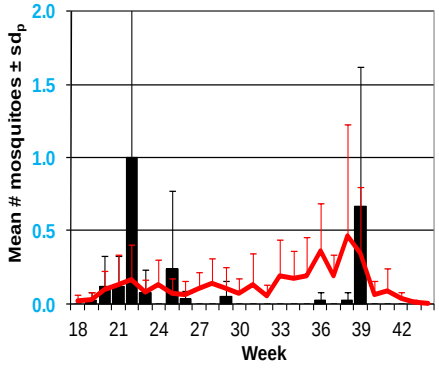
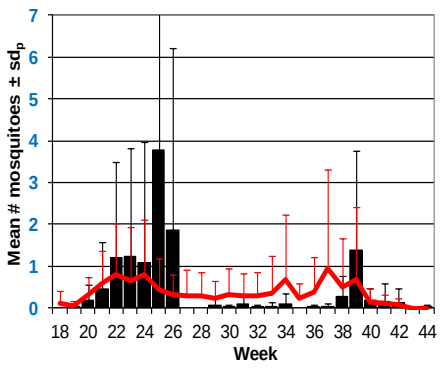
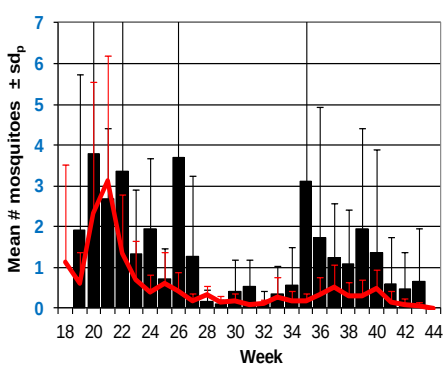
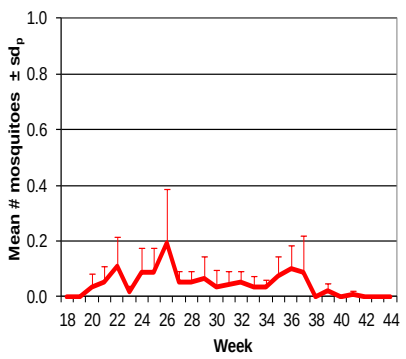
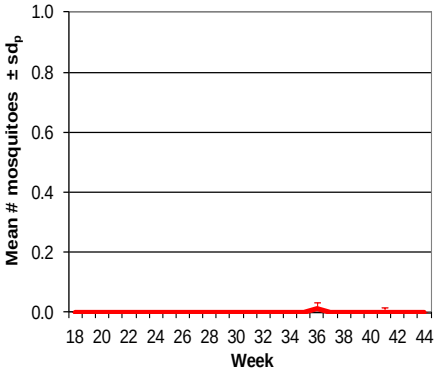
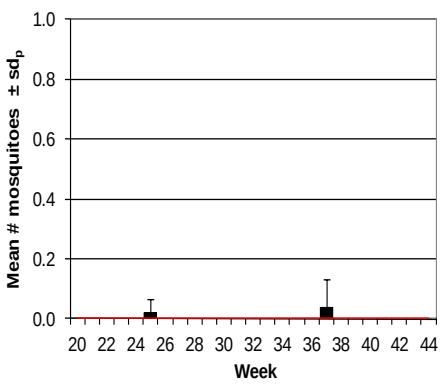
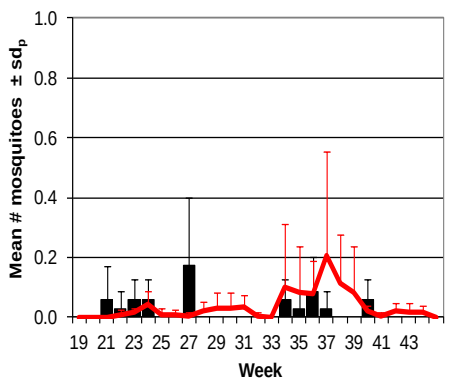
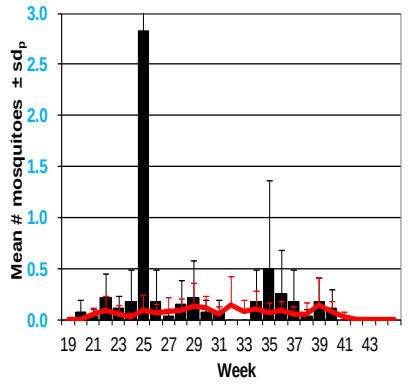
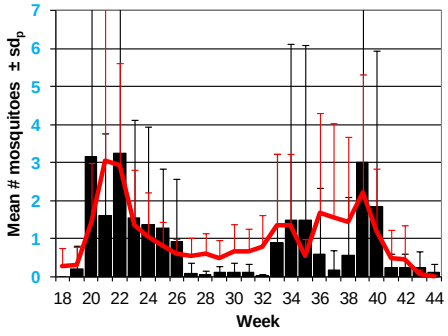
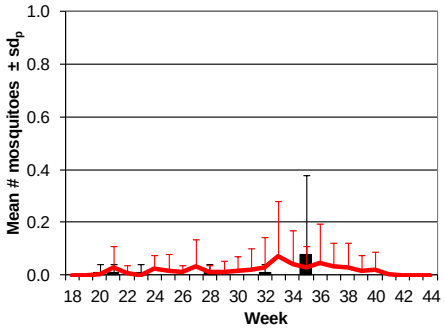
Suburban Corridor



Comments

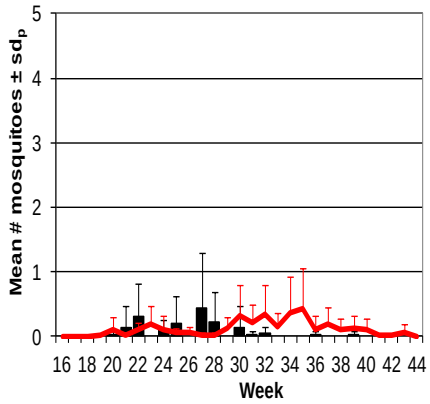
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. *Culex* populations appeared most suppressed in the New York Metropolitan region while population abundances were close to or at historical levels in most other regions. In some areas, such as the Delaware Bayshore and selected areas in the New York Metropolitan region (Union County), *Culex* populations were elevated early in the season. This year, WNV activity was the highest observed, both with the number of human cases and with *Culex* infection. This high activity reflected activity across much of the US for 2012.

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

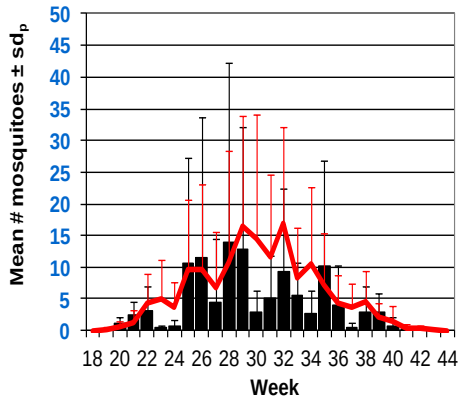
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* is the enzootic ornithophilic vector of eastern equine encephalitis. Populations at various localities in light traps appear to indicate abundances that are at or sometimes well above historical trends. This was opposed to resting box populations, which for the most part appeared to indicate lower *Cs. melanura* numbers. Populations were able to maintain EEE levels such that multiple positive mosquito pools and multiple horse cases were observed in 2012.	

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

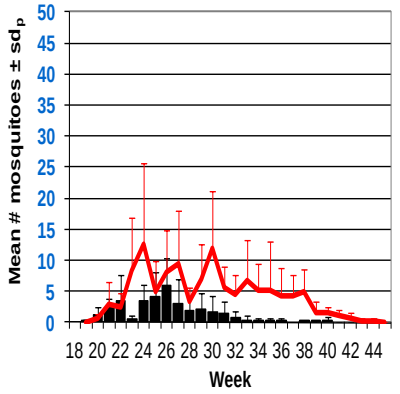
Agricultural



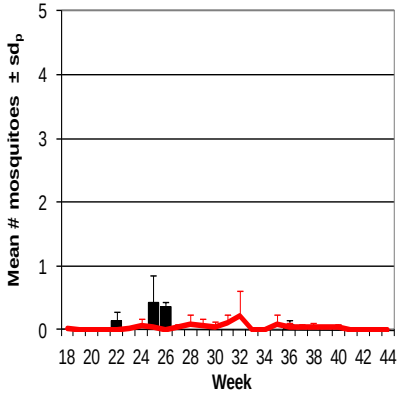
Coastal



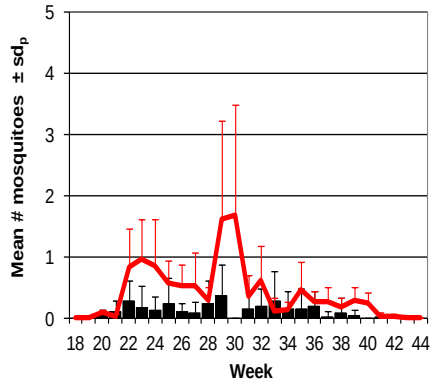
Delaware Bayshore



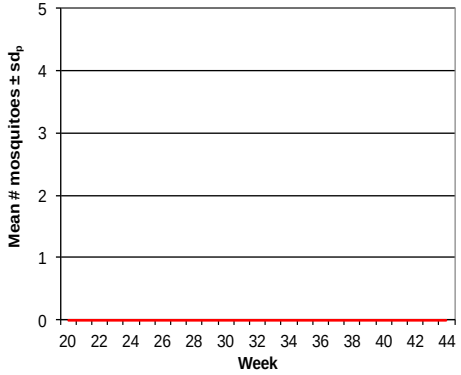
Delaware River Basin



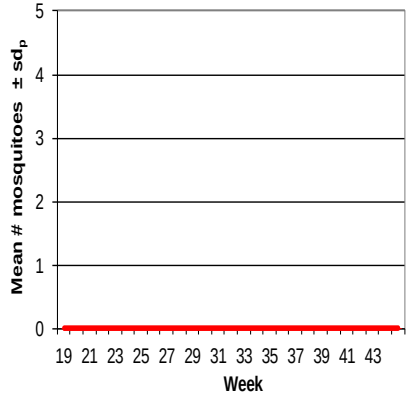
New York Metro



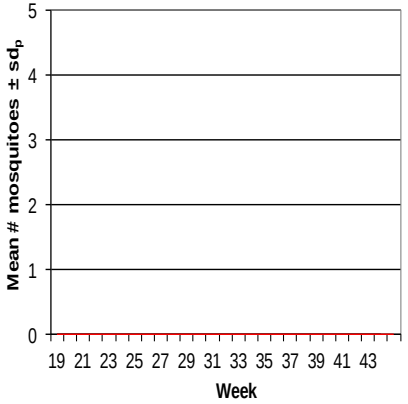
North Central Rural



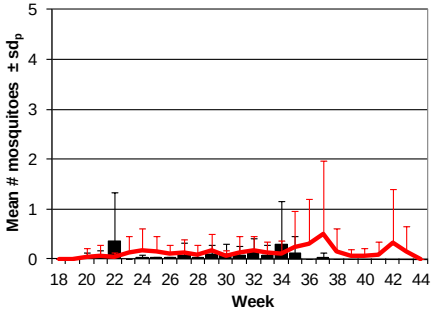
Northwestern Rural



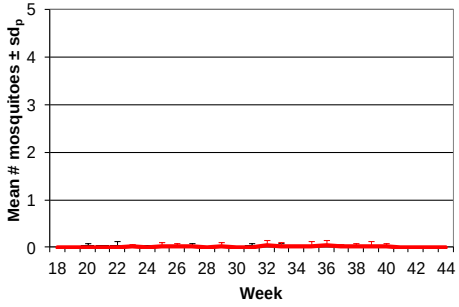
Philadelphia Metro



Pinelands



Suburban Corridor



Comments

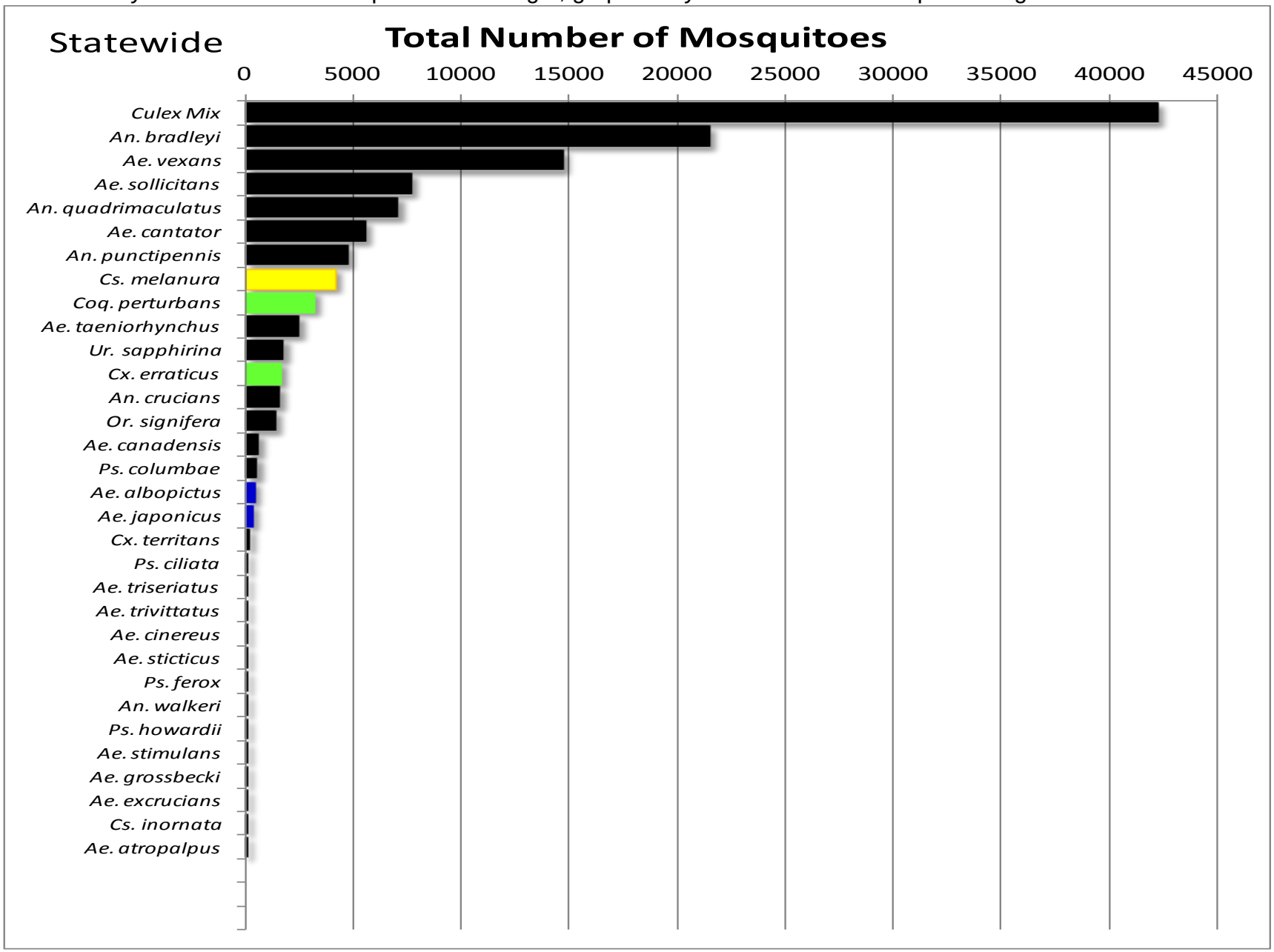
Aedes sollicitans abundances were generally below numbers normally seen, particularly in the Delaware Bayshore region. Several well-defined emergences occurred in the Coastal region while mid to late season emergences in the Delaware Bayshore region were absent. Downing (1976) noted that there was little synchronization between the two regions when reporting on *Ae. sollicitans* populations for the adult mosquito surveillance program from an earlier time.

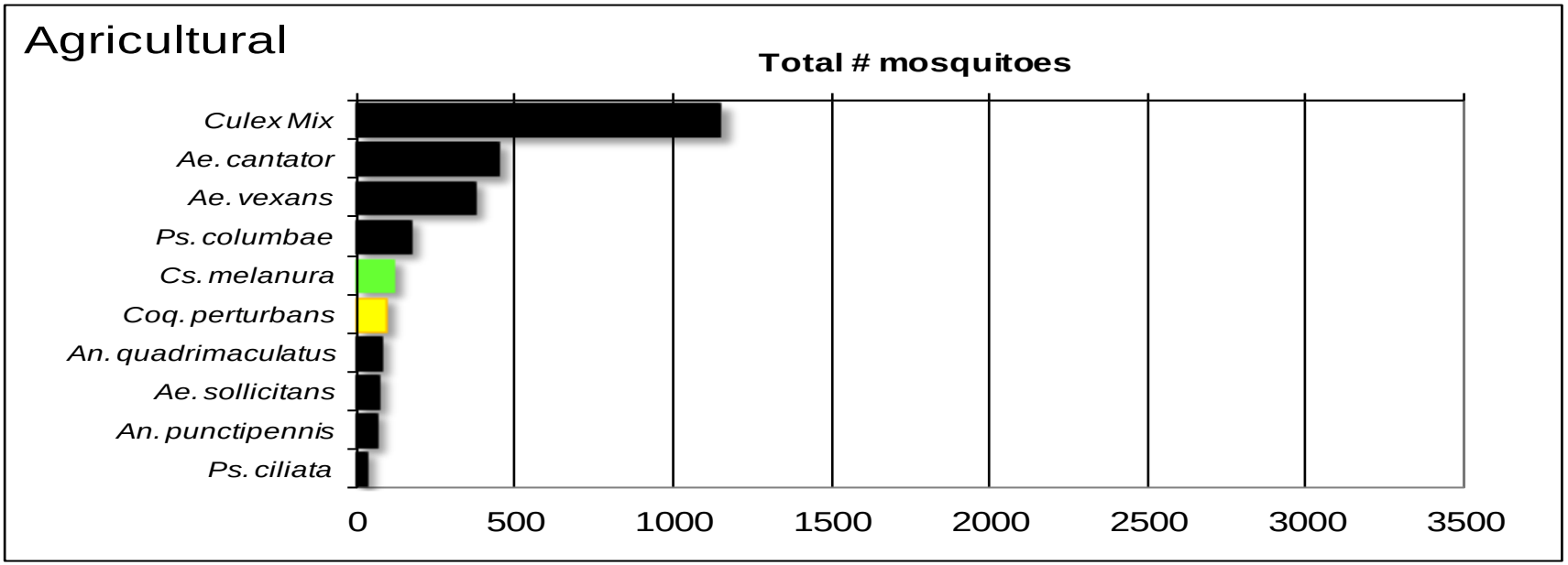
Downing J. 1976 A three year analysis of mosquito population abundance in New Jersey. NJMCA 111-122.

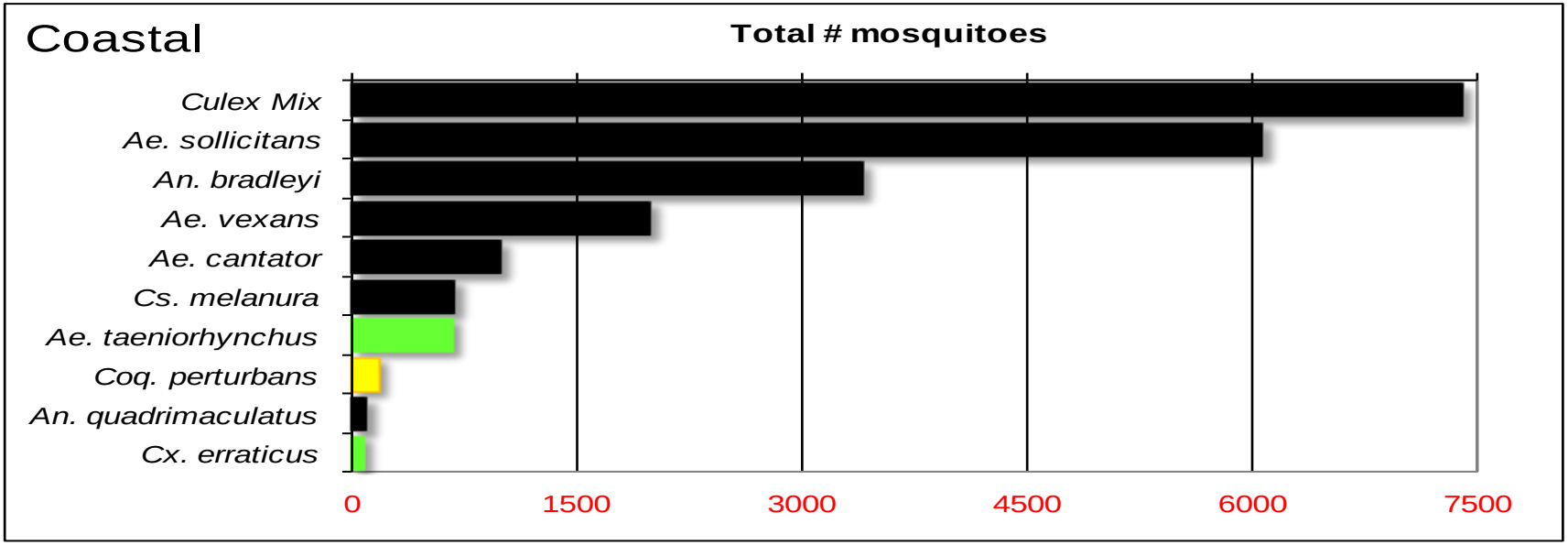
WNV *EEE*

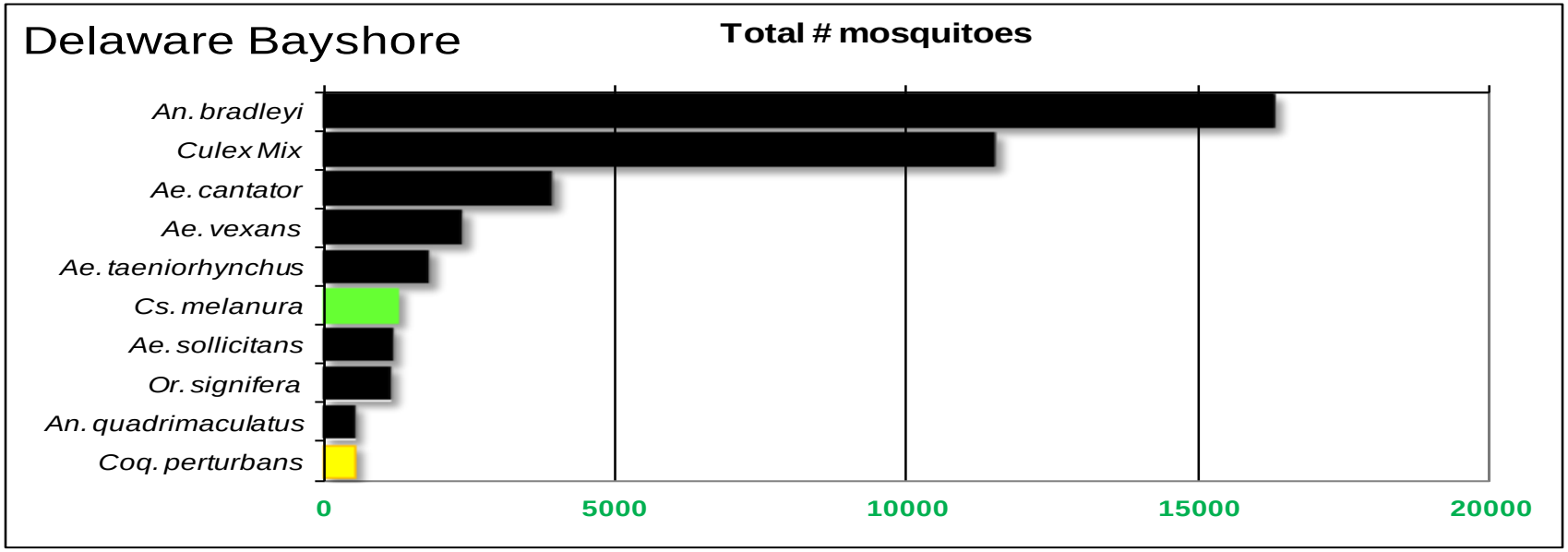
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

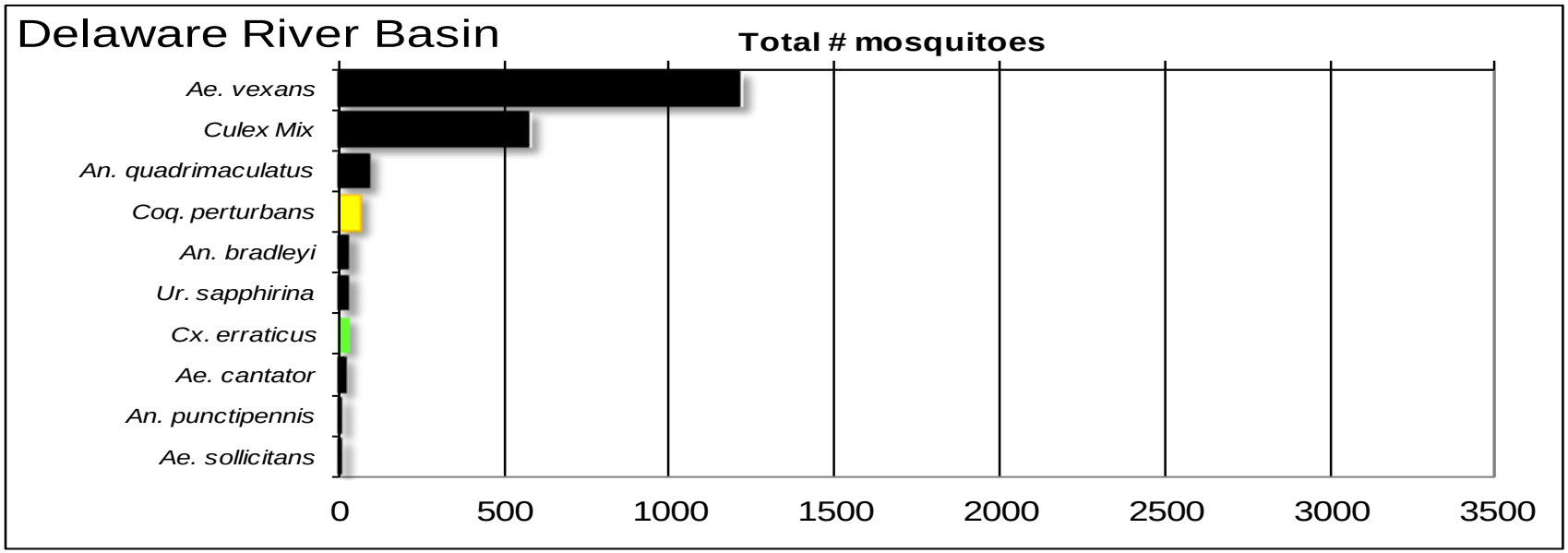
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

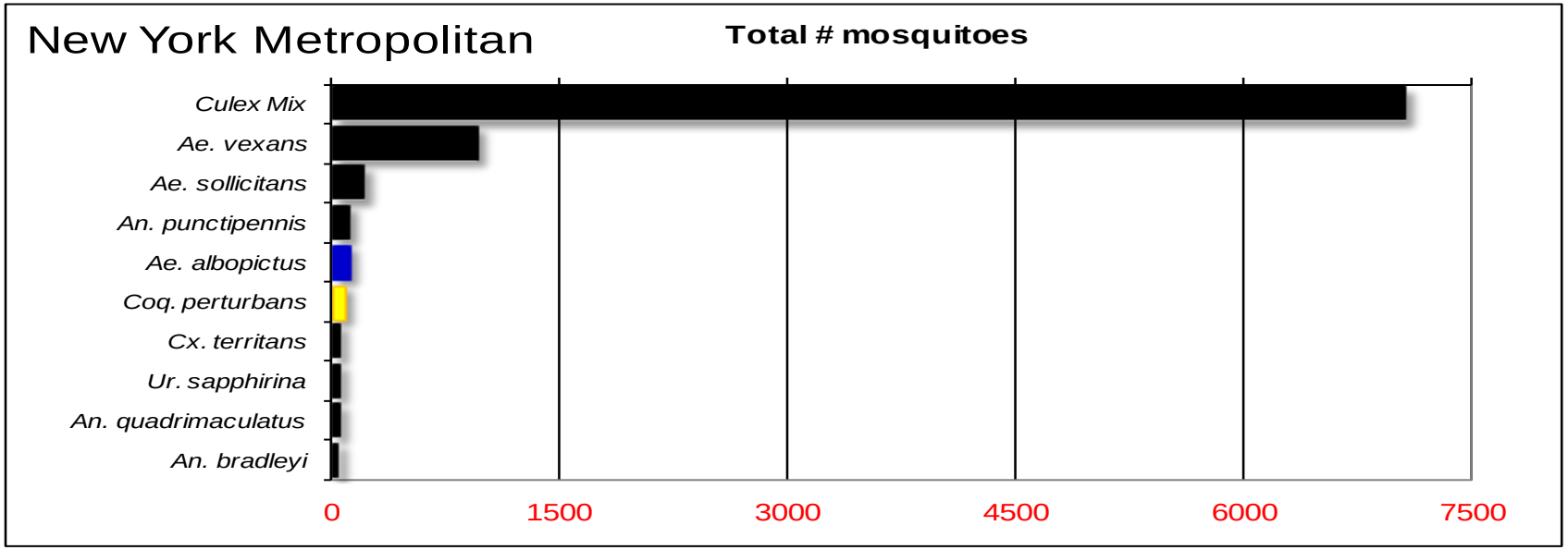


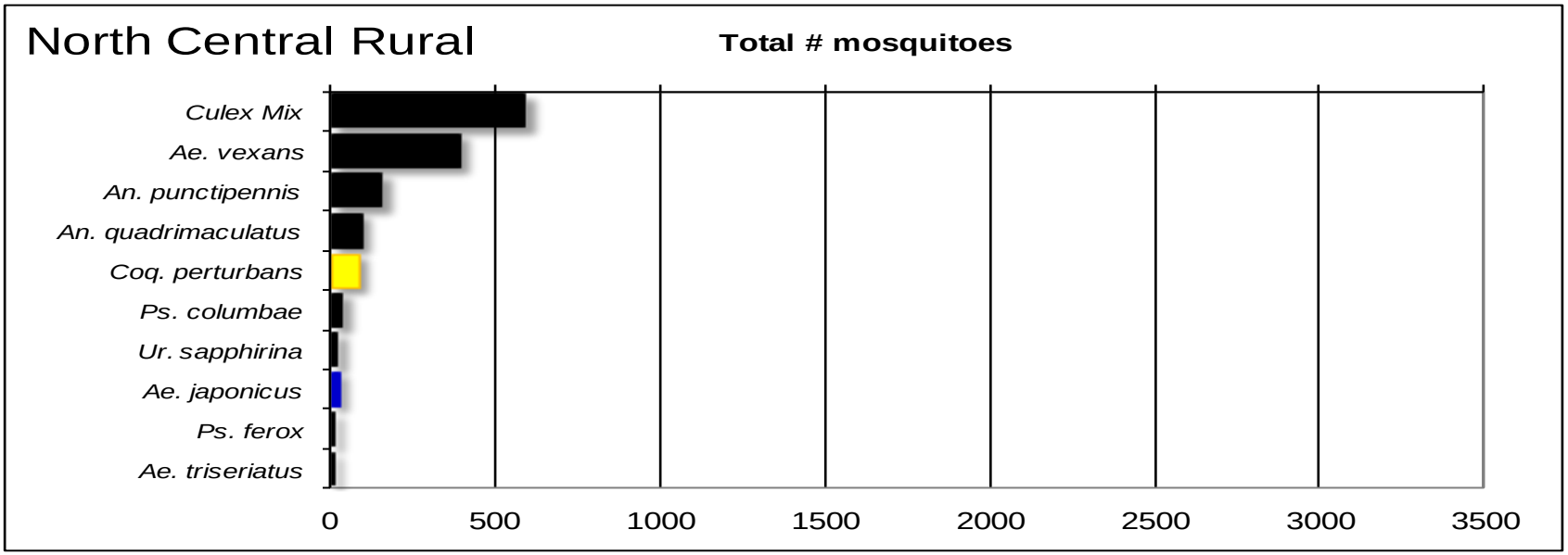

Agricultural
Total # mosquitoes
Culex Mix
Ae. cantator
Ae. vexans
Ps. columbae
Cs. melanura
Coq. perturbans
An. quadrimaculatus
Ae. sollicitans
An. punctipennis
Ps. ciliata
0
500
1000
1500
2000
2500
3000
3500

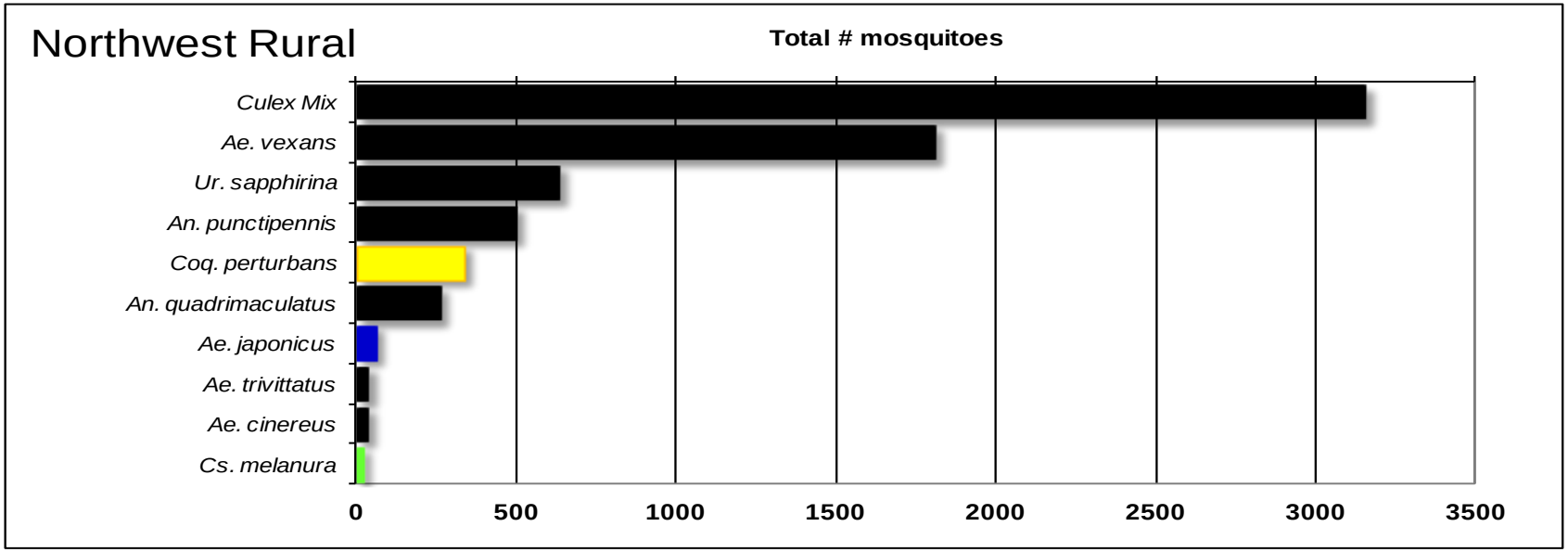

Coastal
Total # mosquitoes
Culex Mix
Ae. sollicitans
An. bradleyi
Ae. vexans
Ae. cantator
Cs. melanura
Ae. taeniorhynchus
Coq. perturbans
An. quadrimaculatus
Cx. erraticus
0
1500
3000
4500
6000
7500

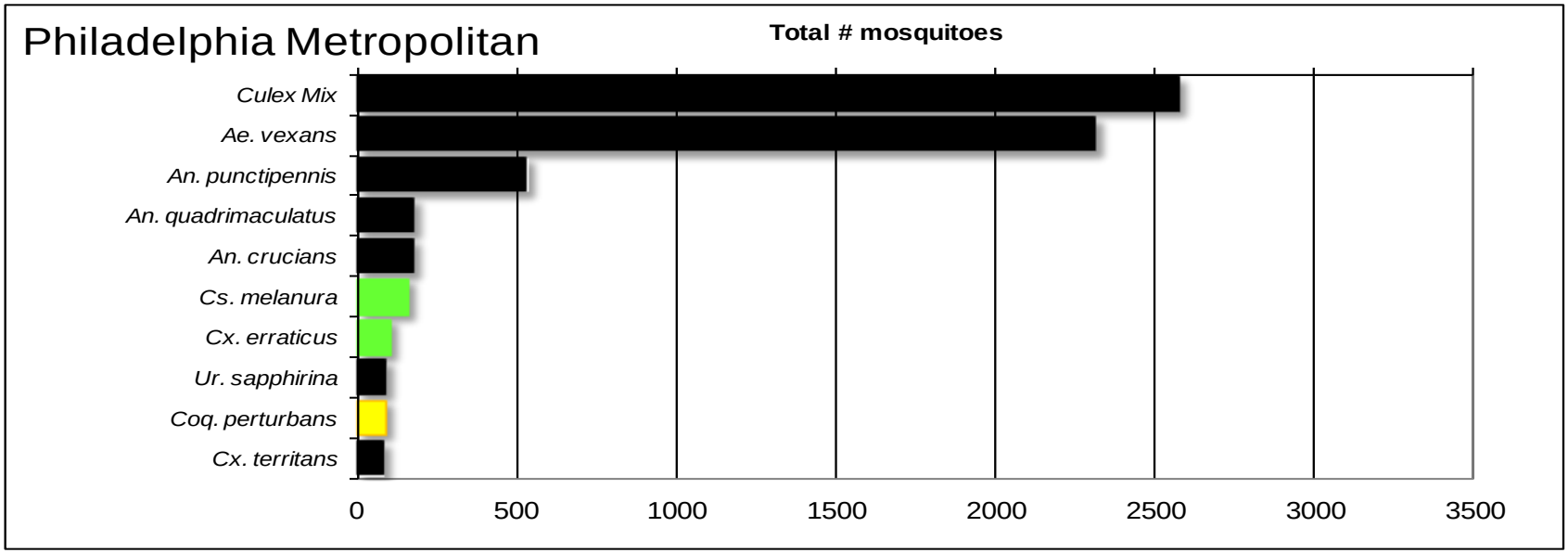

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
Ae. cantator
Ae. vexans
Ae. taeniorhynchus
Cs. melanura
Ae. sollicitans
Or. signifera
An. quadrimaculatus
Coq. perturbans
0
5000
10000
15000
20000

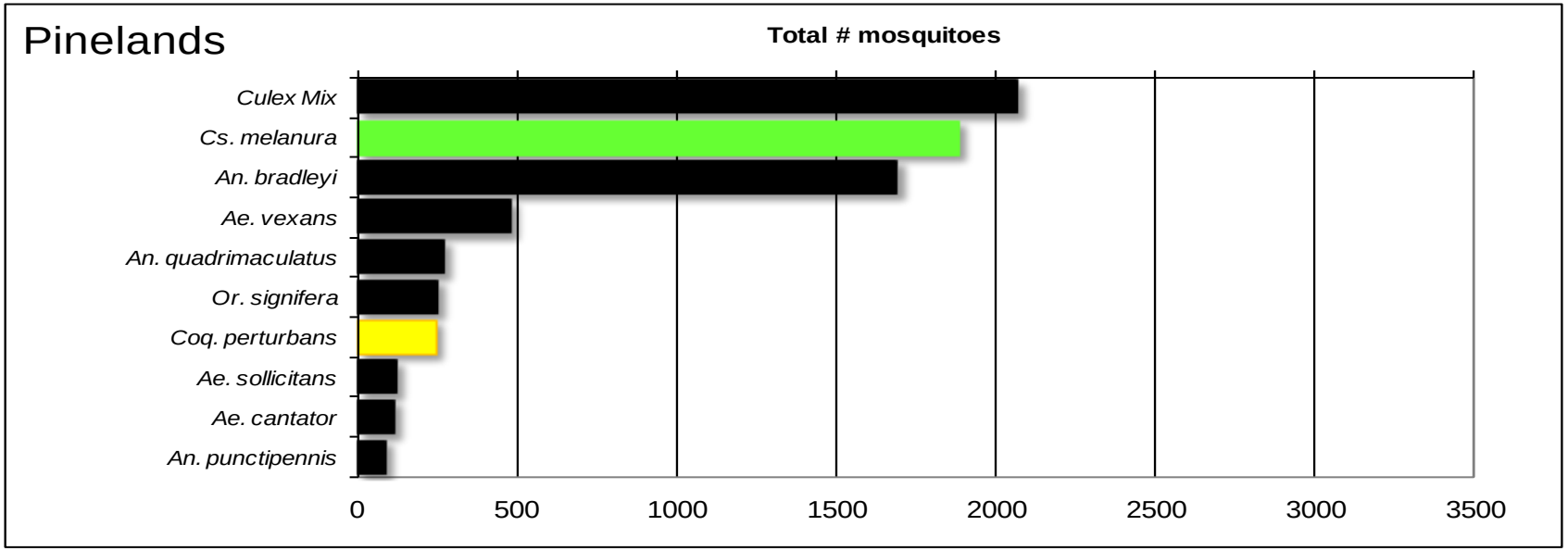

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
Coq. perturbans
An. bradleyi
Ur. sapphirina
Cx. erraticus
Ae. cantator
An. punctipennis
Ae. sollicitans
0
500
1000
1500
2000
2500
3000
3500

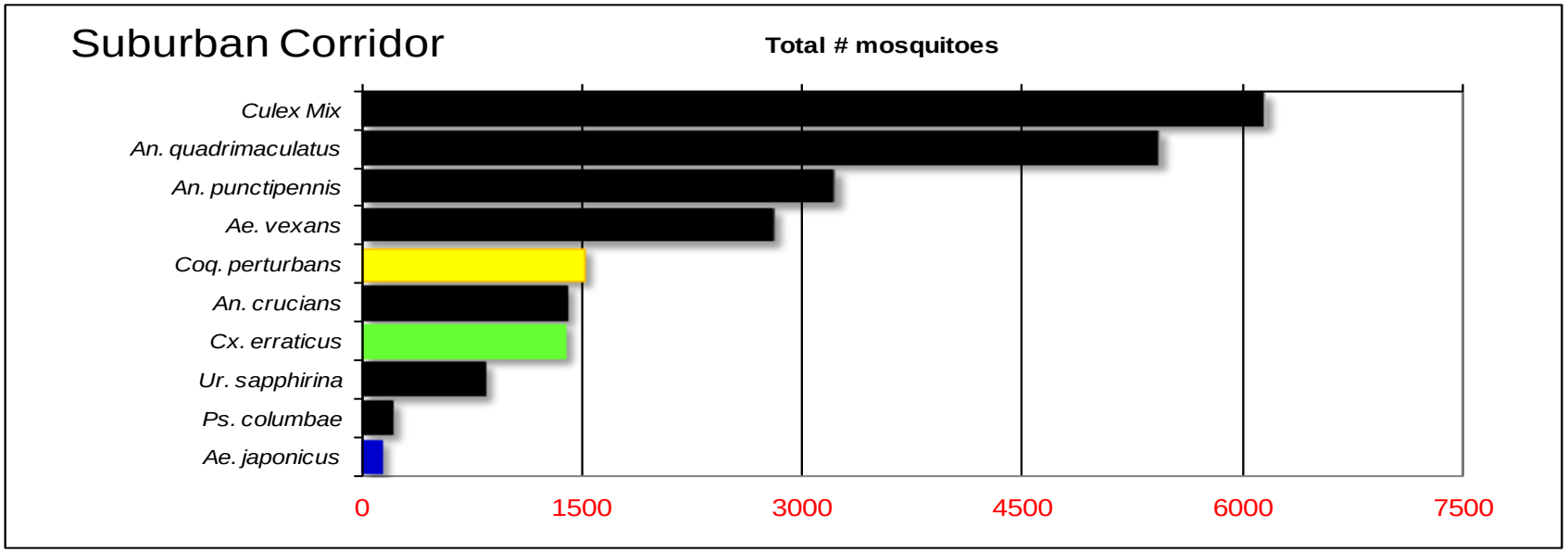

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. sollicitans
An. punctipennis
Ae. albopictus
Coq. perturbans
Cx. territans
Ur. sapphirina
An. quadrimaculatus
An. bradleyi
0
1500
3000
4500
6000
7500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Coq. perturbans
Ps. columbae
Ur. sapphirina
Ae. japonicus
Ps. ferox
Ae. triseriatus
0
500
1000
1500
2000
2500
3000
3500


Northwest Rural
Total # mosquitoes
Culex Mix
Ae. vexans
Ur. sapphirina
An. punctipennis
Coq. perturbans
An. quadrimaculatus
Ae. japonicus
Ae. trivittatus
Ae. cinereus
Cs. melanura
0
500
1000
1500
2000
2500
3000
3500


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
An. crucians
Cs. melanura
Cx. erraticus
Ur. sapphirina
Coq. perturbans
Cx. territans
0
500
1000
1500
2000
2500
3000
3500


Pinelands
Total # mosquitoes
Culex Mix
Cs. melanura
An. bradleyi
Ae. vexans
An. quadrimaculatus
Or. signifera
Coq. perturbans
Ae. sollicitans
Ae. cantator
An. punctipennis
0
500
1000
1500
2000
2500
3000
3500


Suburban Corridor
Total # mosquitoes
Culex Mix
An. quadrimaculatus
An. punctipennis
Ae. vexans
Coq. perturbans
An. crucians
Cx. erraticus
Ur. sapphirina
Ps. columbae
Ae. japonicus
0
1500
3000
4500
6000
7500