RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 9 August to 14 August 2009, CDC Weeks 32

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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.

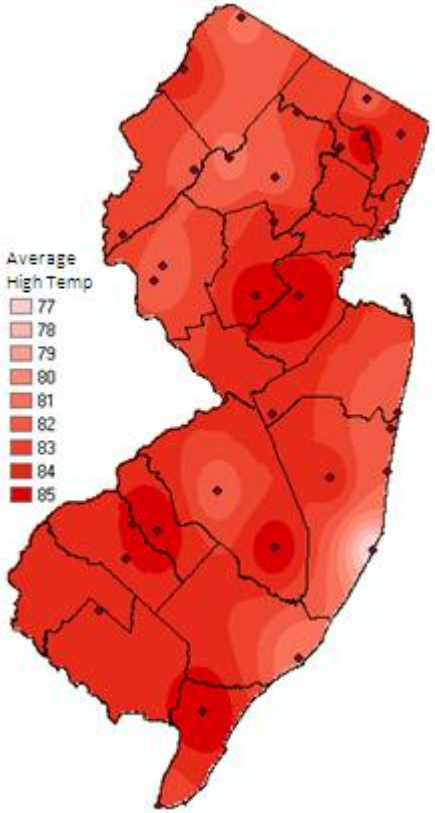
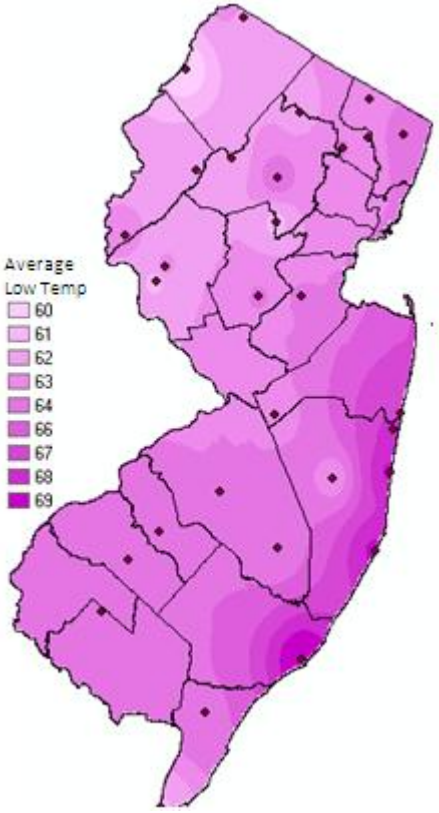
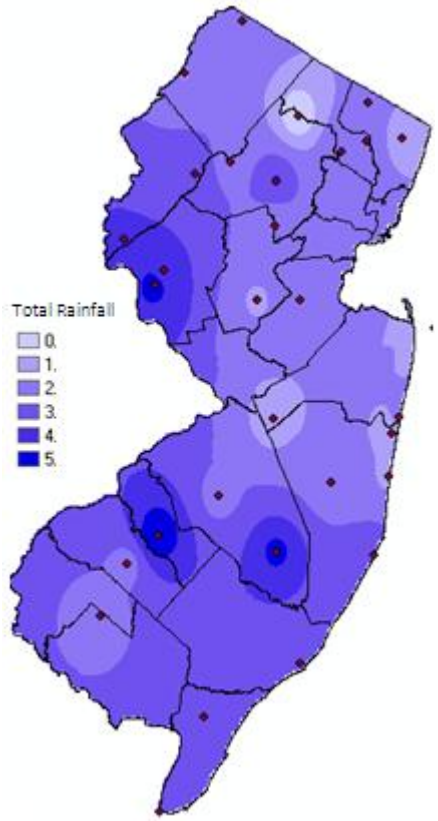
Summary table – Week 32

	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	1.50	3.53	0	0.74	5.43	0	0.05	0.12	0	0.00	0.80	0
Coastal	1.90	3.64	0	2.94	4.55	0	0.00	0.60	0	11.52	32.89	0
Delaware Bayshore	0.00	1.82	0	0.00	21.90	0	0.00	0.52	0	0.00	20.40	0
Delaware River Basin	0.00	23.71	0	0.00	7.01	0	0.00	0.86	0	0.00	0.01	0
New York Metro	16.71	3.95	4	8.30	5.46	2	0.03	0.07	0	0.51	1.18	0
North Central Rural	0.29	0.91	0	1.82	0.56	4	0.00	0.01	0	0.00	0.00	0
Northwest Rural	0.11	17.66	0	0.11	1.88	0	0.00	0.07	0	0.00	0.00	0
Philadelphia Metro	7.12	10.57	0	1.83	3.64	0	0.00	0.15	0	0.00	0.00	0
Pinelands	0.65	1.60	0	0.79	1.86	0	0.13	0.65	0	0.00	0.28	0
Suburban Corridor	5.85	8.30	0	1.85	2.57	0	0.02	0.36	0	0.10	0.02	4

*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.

State Summary: *Aedes vexans* and *Culex* species continue to show high numbers in northern areas of New Jersey such as the New York Metropolitan and North Central regions. The Suburban Corridor also show an increase in *Aedes sollicitans* as compared to historical trends, but should be noted that these values are very low.

Climate Factors

August Average High Temperature (Days 1-18)	August Average Low Temperature (Days 1-18)	August Total Precipitation (Days 1-18)
		

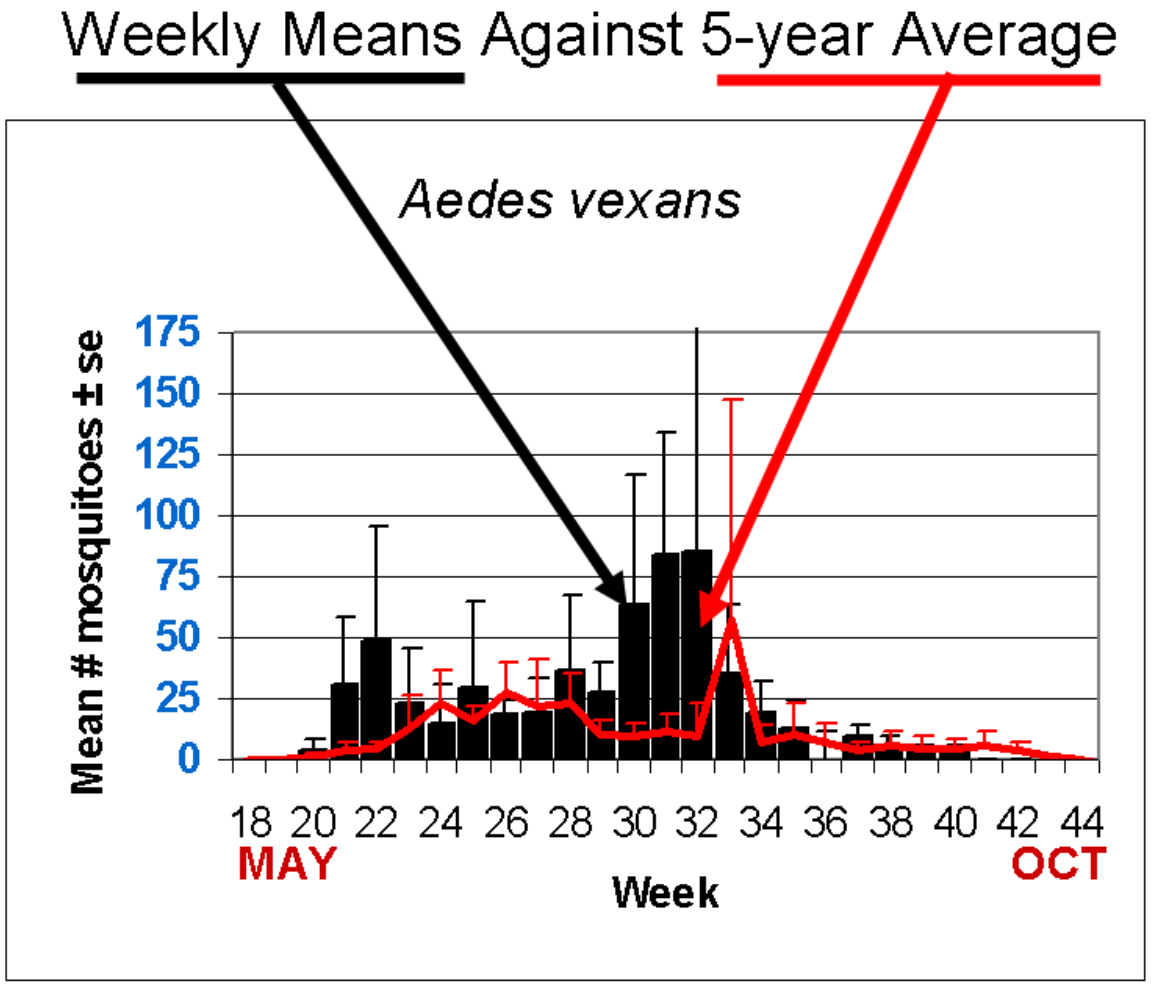
The three figures show the interpolation of average maximum and minimum temperature and total precipitation days 1-18 of August in New Jersey. Data points are from 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points were performed through ArcMap 9.2.

In August to date, average high temperatures were higher through the suburban corridor and parts of Camden, Gloucester and Cape May counties. Average low temperatures were again highest along the coastal region. The western portion of the state as well as parts of Burlington and Morris counties experienced higher rainfall. In general, it was warmer in central New Jersey during the day, warmer along the coast at night and wetter on the western and southern portions of the state.

NJ Weather & Climate NETWORK

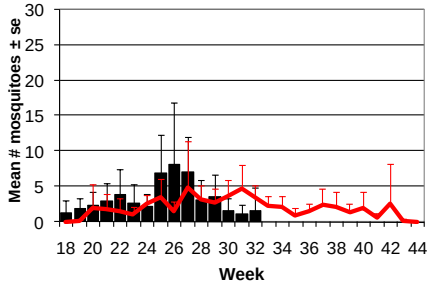
ONJSC at Rutgers University

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 week are from Bergen, Camden, Cumberland, Hunterdon, Morris, Ocean, Somerset, Union and Warren counties. Note: County data is sent in at a variety of times during the week.

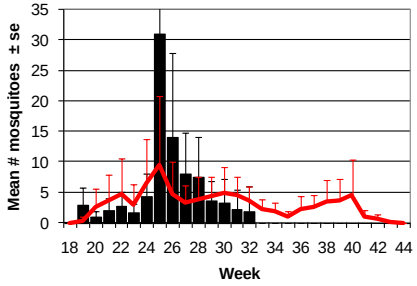


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

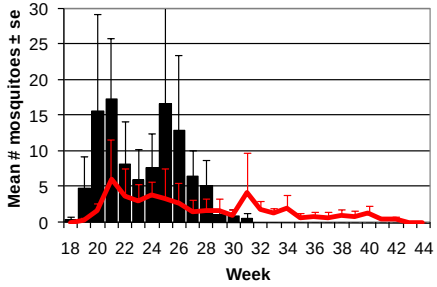
Agricultural



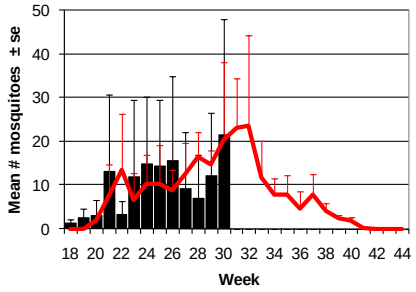
Coastal



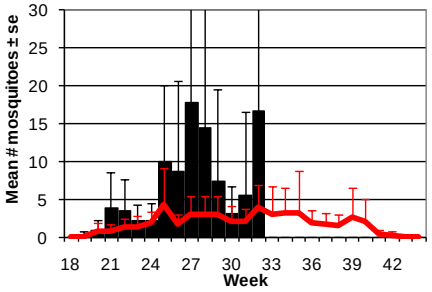
Delaware Bayshore



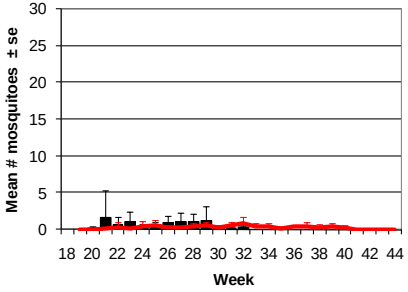
Delaware River Basin



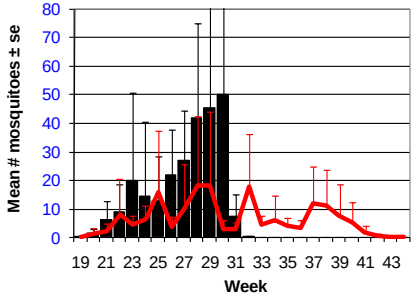
New York Metro



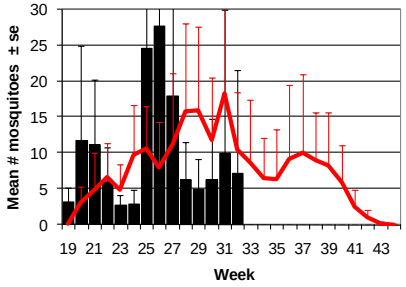
North Central Rural



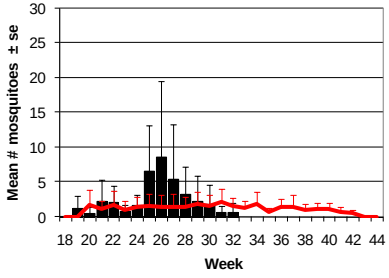
Northwestern Rural



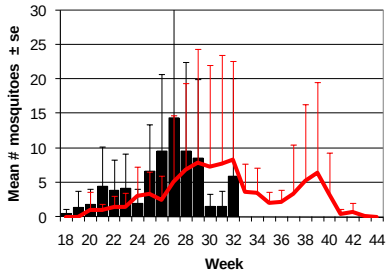
Philadelphia Metro



Pinelands



Suburban Corridor

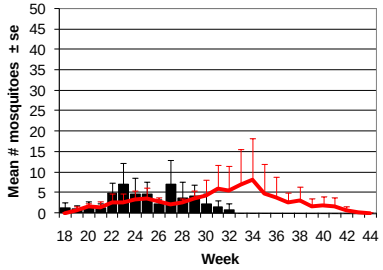


Comments

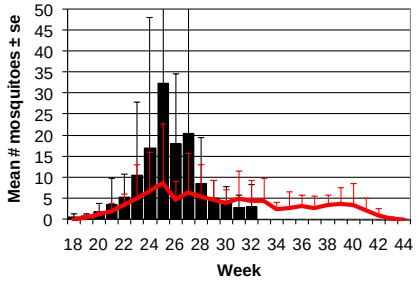
Aedes vexans abundance jumped considerable over historical values in the New York Metropolitan region. Other regions, such as the Agricultural, Coastal and Suburban Corridor show population trends lower than historical values after reaching high numbers early in the season. Sharp decreases in numbers likely represent control efforts. Lifespan of this species is reported from 3 to 6 weeks (Horsfall et al 1973 The bionomics and embryology of the inland floodwater mosquito, *Aedes vexans*. Univ. Illinois. Press, Urbana) during which the female will lay eggs that can remain viable for several years.

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

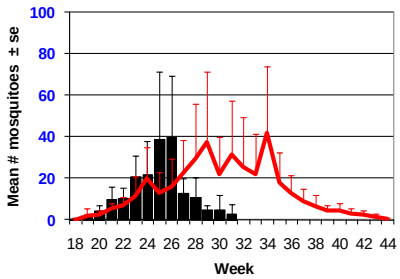
Agricultural



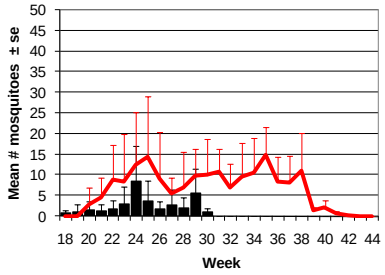
Coastal



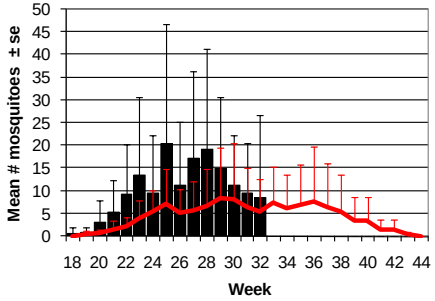
Delaware Bayshore



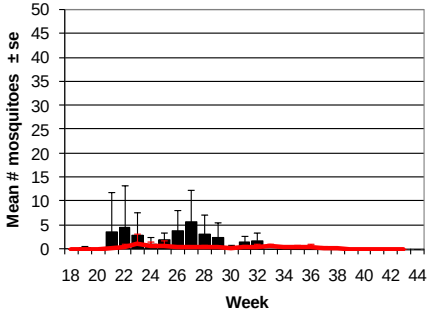
Delaware River Basin



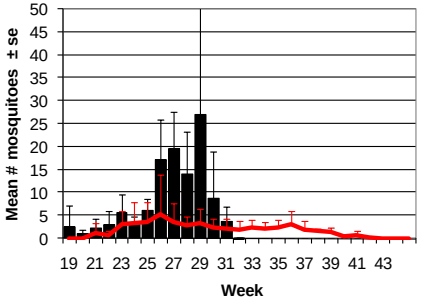
New York Metro



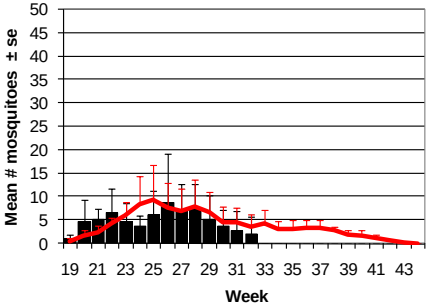
North Central Rural



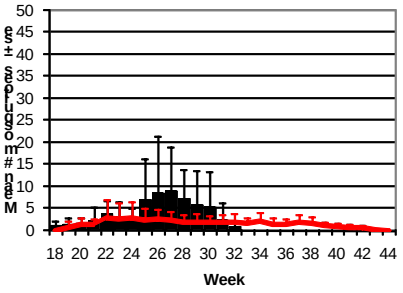
Northwestern Rural



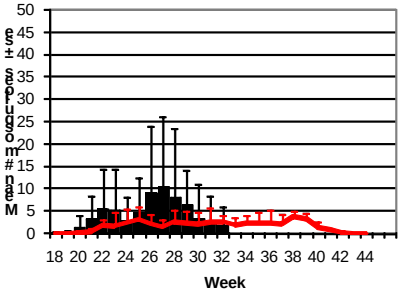
Philadelphia Metro



Pinelands



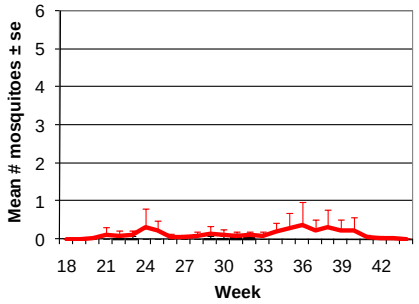
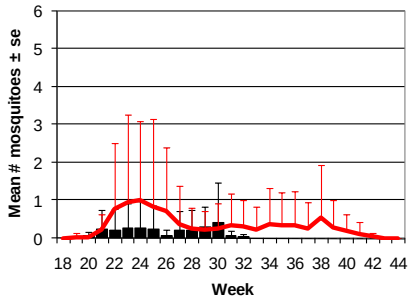
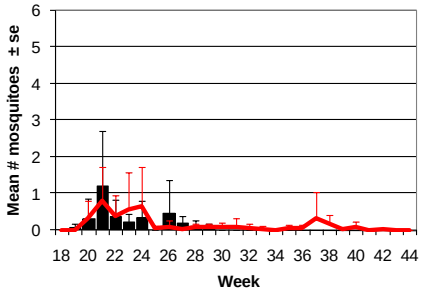
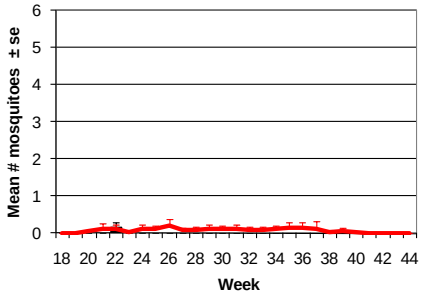
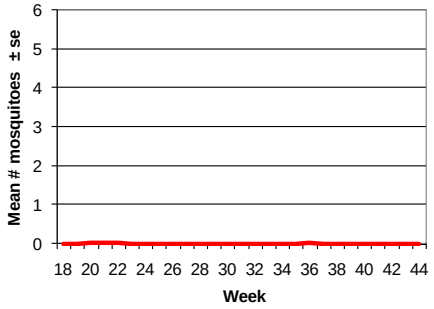
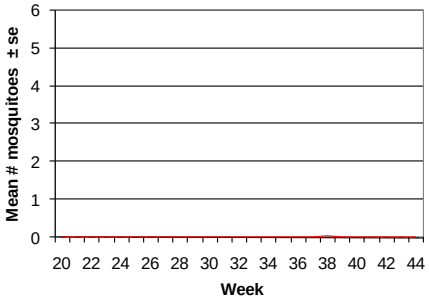
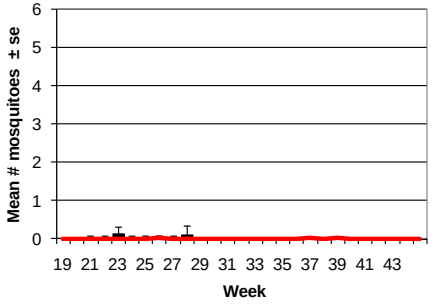
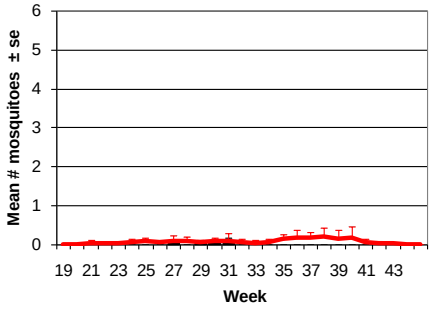
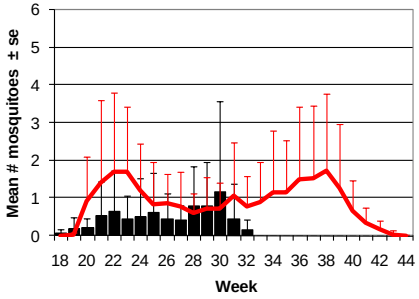
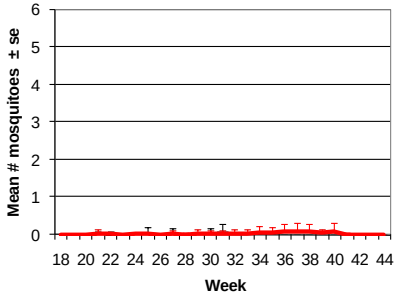
Suburban Corridor



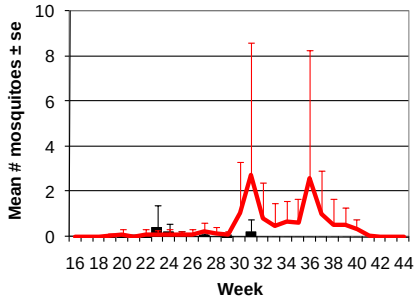
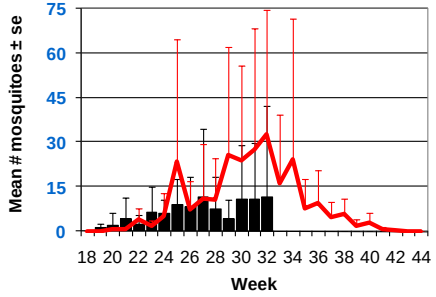
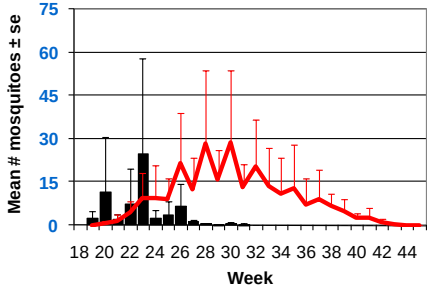
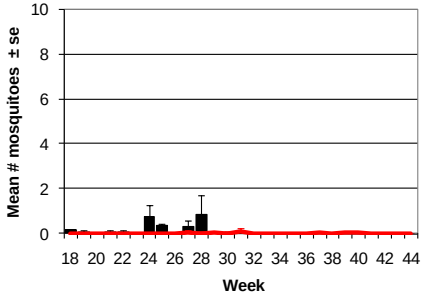
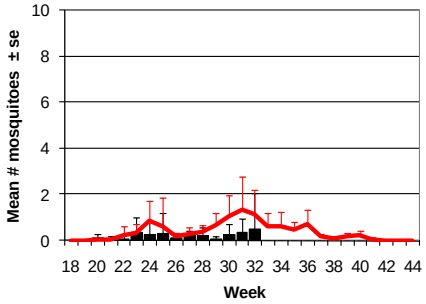
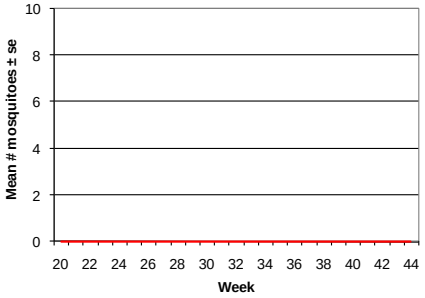
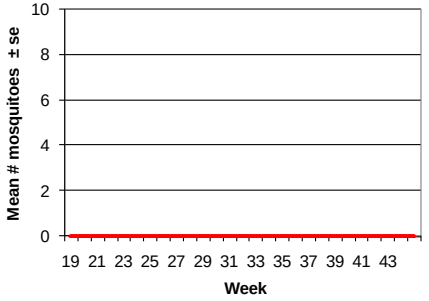
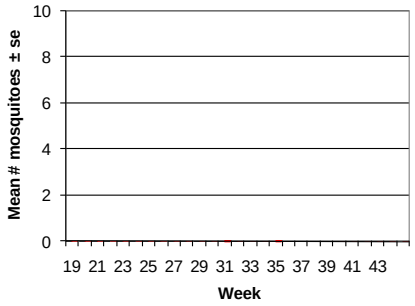
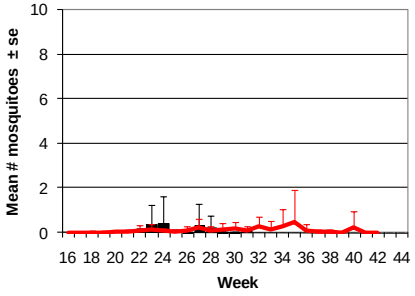
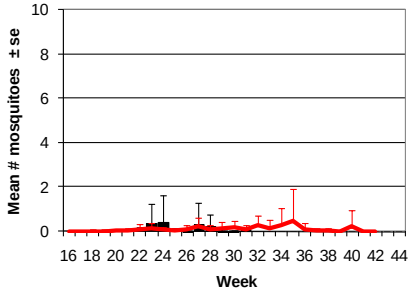
Comments

Culex populations that include *Cx. pipiens, Cx. restuans and Cx. salinarius* are showing numbers above historical trends in the New York Metropolitan and North Central Rural regions. Other regions (the Suburban Corridor, for example) have abundances around the historical values after (like *Aedes vexans*) higher numbers in early season. Despite greater than average numbers in areas of West Nile activity, the numbers of positive pools remain much lower than at this same time last year.

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**	
		Pineland populations of *Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, appear to be lower than historical values in the Pinelands region. Data is forthcoming for the current week from counties that contribute from that region, and it is likely that some increase will occur. This is based on the vector surveillance program's monitoring of traditional resting box site, and that data suggests an increase or maintenance of population numbers. Currently, EEE activity has been detected not only in *Cs. melanura* but *Cx. salinarius* as well.	

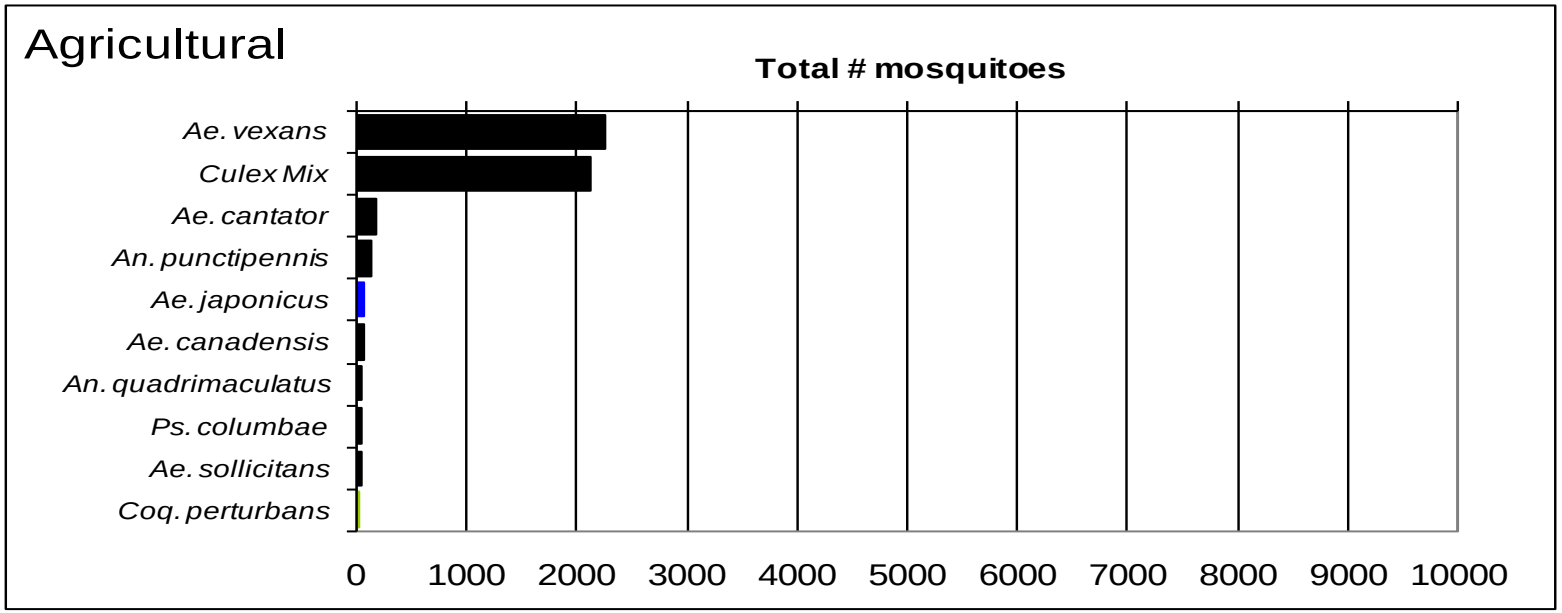
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

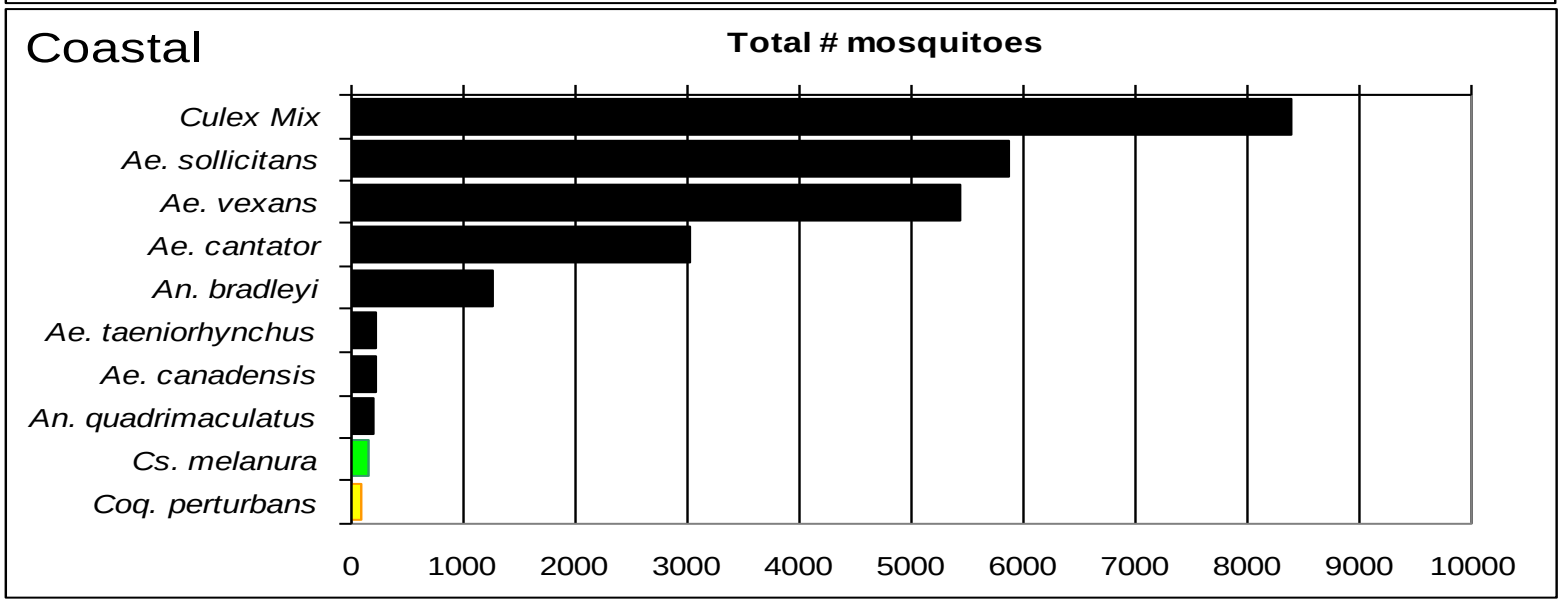
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* populations were all below historical trends, except in the Suburban Corridor, where numbers recorded there are magnitudes lower than in the Coastal or Delaware Bayshore regions. Nonetheless, *Ae. sollicitans* from the Coastal and New York Metropolitan regions can make their way to the Suburban Corridor easily as this is one of the more distance travelling mosquitoes. It was this characteristic that drove the philosophy of statewide mosquito control in New Jersey (Patterson, 2009 Mosquito Crusades, Rutgers University Press, New Brunswick) Next Full Moon: 4 September	

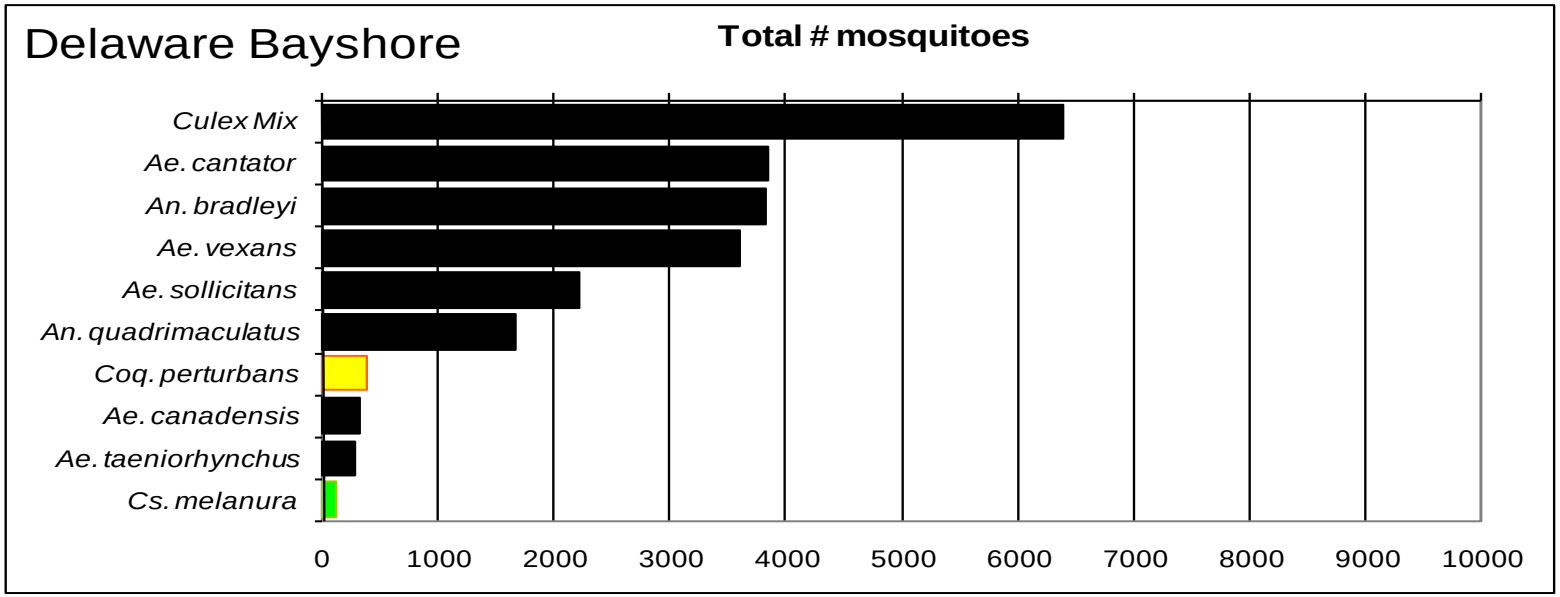
WNV *EEE*

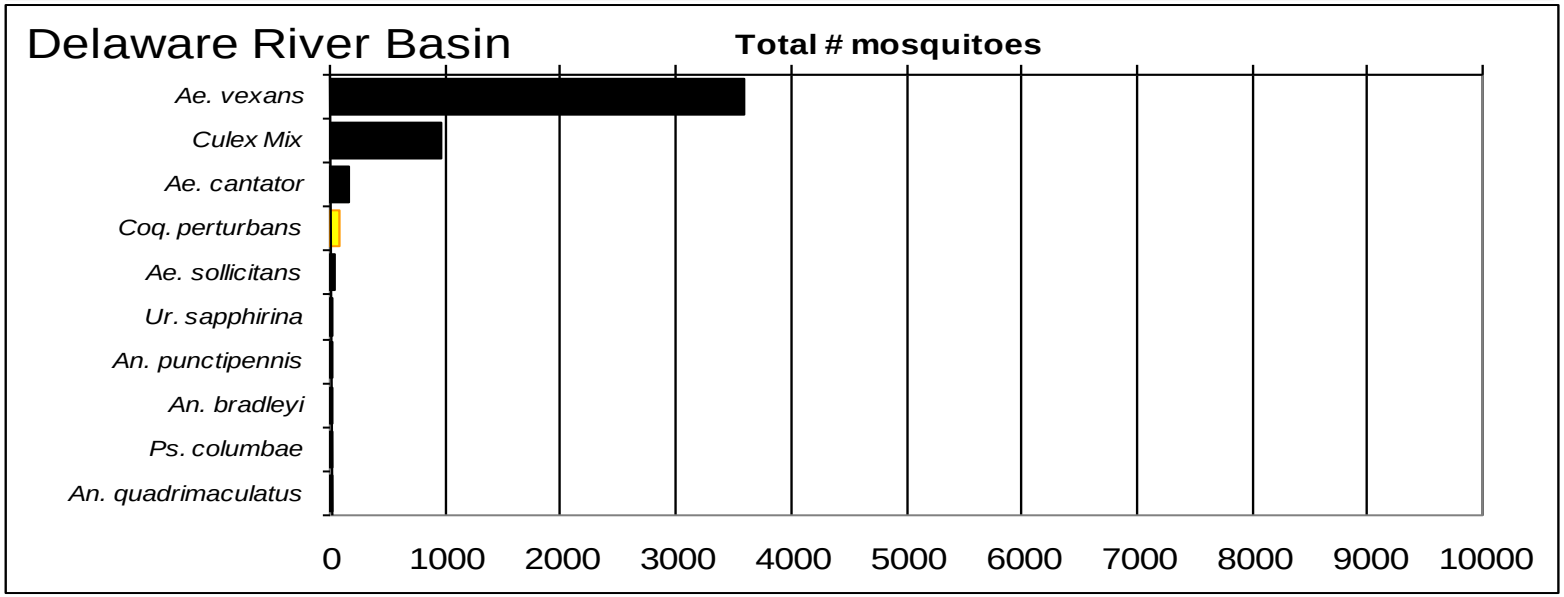
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

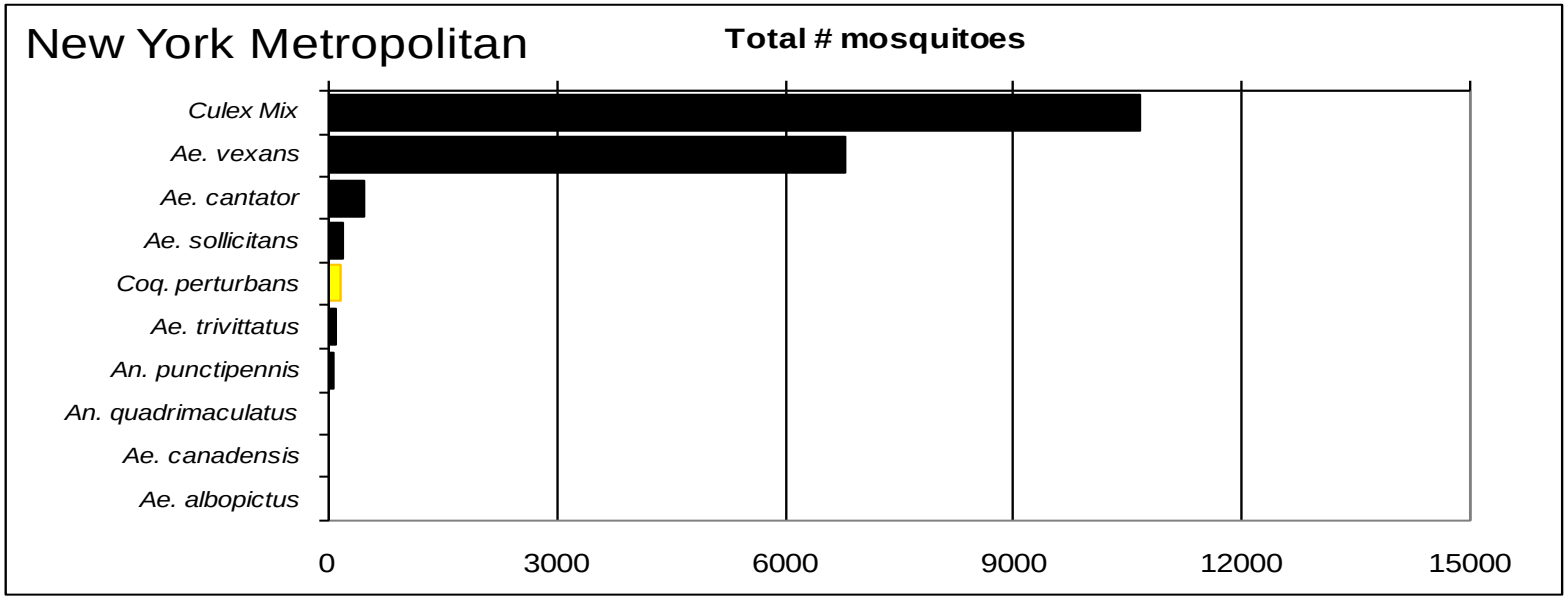
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

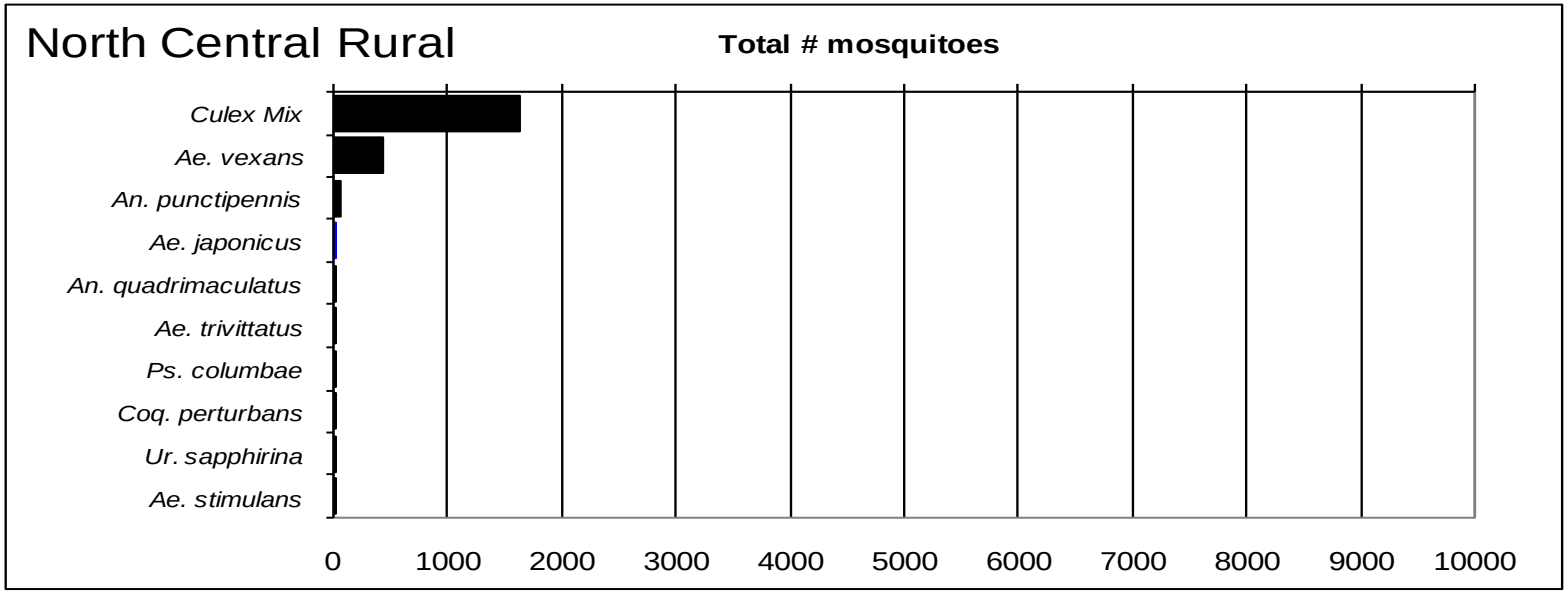


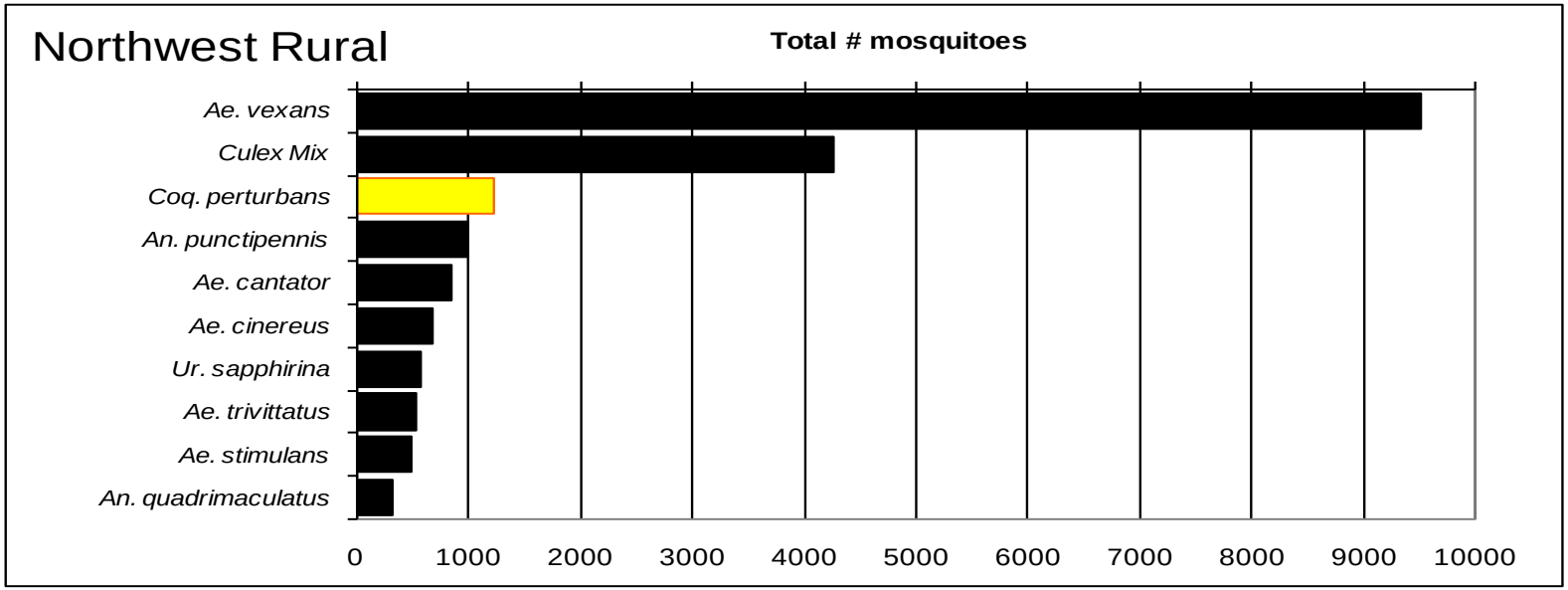


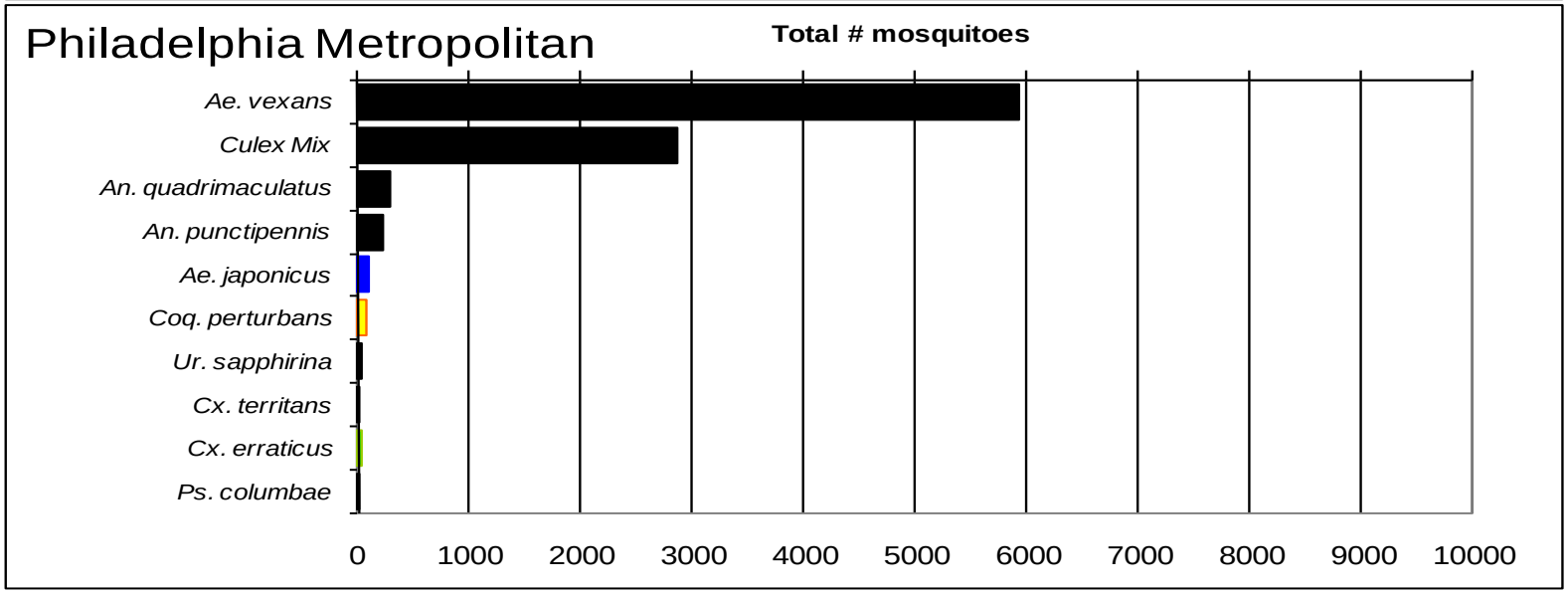

Delaware Bayshore
Total # mosquitoes
Culex Mix
Ae. cantator
An. bradleyi
Ae. vexans
Ae. sollicitans
An. quadrimaculatus
Coq. perturbans
Ae. canadensis
Ae. taeniorhynchus
Cs. melanura
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

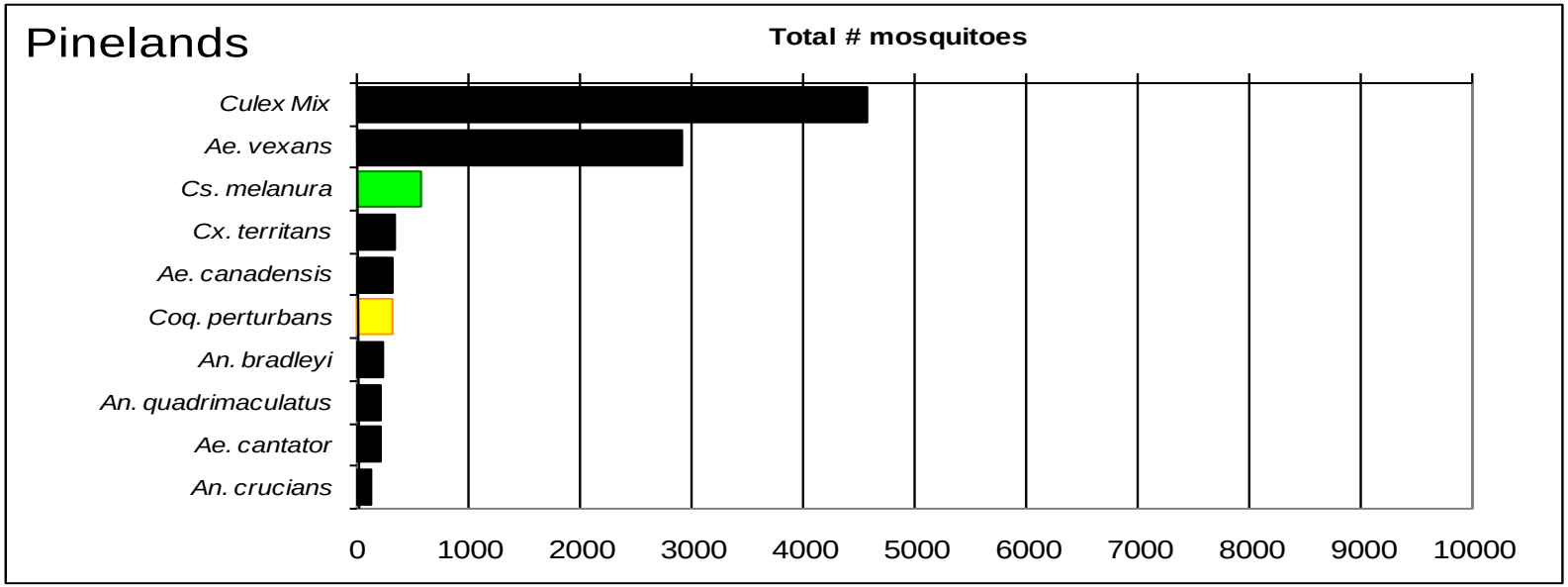

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ur. sapphirina
An. punctipennis
An. bradleyi
Ps. columbae
An. quadrimaculatus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

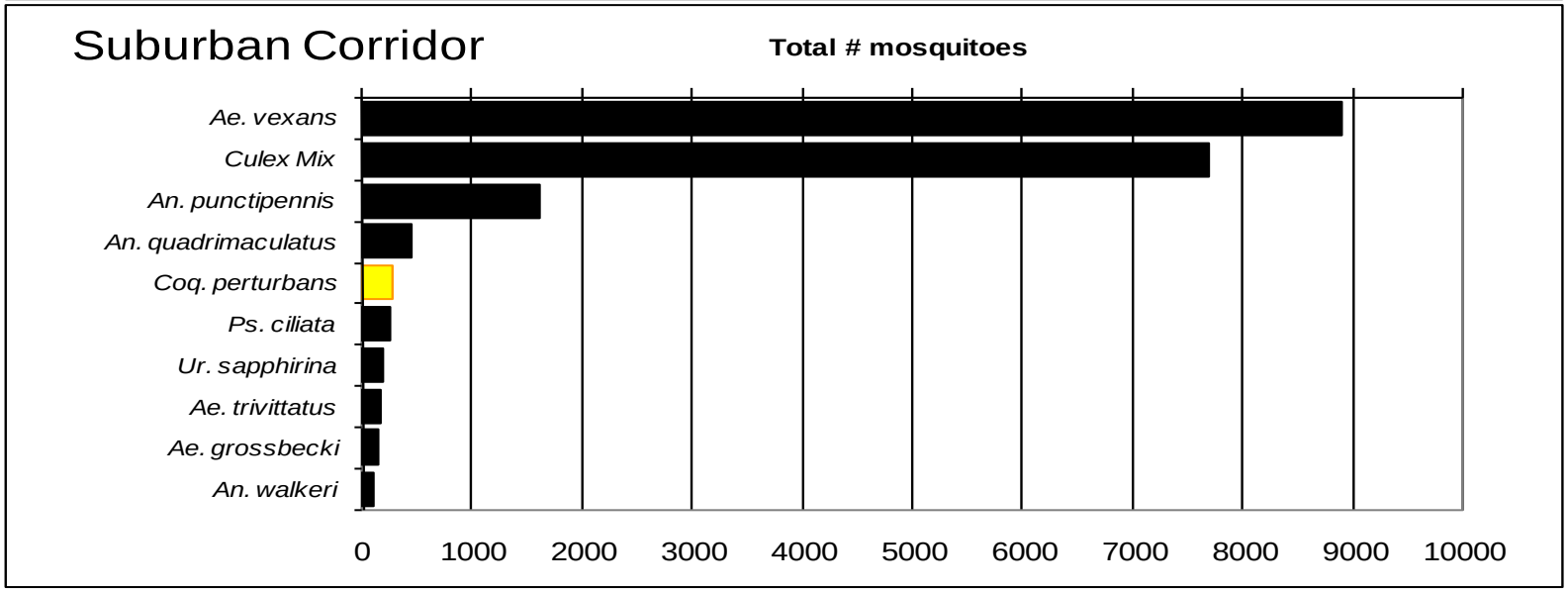

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
Ae. trivittatus
An. punctipennis
An. quadrimaculatus
Ae. canadensis
Ae. albopictus
0
3000
6000
9000
12000
15000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
Ae. japonicus
An. quadrimaculatus
Ae. trivittatus
Ps. columbae
Coq. perturbans
Ur. sapphirina
Ae. stimulans
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. punctipennis
Ae. cantator
Ae. cinereus
Ur. sapphirina
Ae. trivittatus
Ae. stimulans
An. quadrimaculatus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
An. punctipennis
Ae. japonicus
Coq. perturbans
Ur. sapphirina
Cx. territans
Cx. erraticus
Ps. columbae
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Pinelands
Total # mosquitoes
Culex Mix
Ae. vexans
Cs. melanura
Cx. territans
Ae. canadensis
Coq. perturbans
An. bradleyi
An. quadrimaculatus
Ae. cantator
An. crucians
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
An. quadrimaculatus
Coq. perturbans
Ps. ciliata
Ur. sapphirina
Ae. trivittatus
Ae. grossbecki
An. walkeri
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000