NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 24 September to 30 September 2017, CDC Week 39

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.

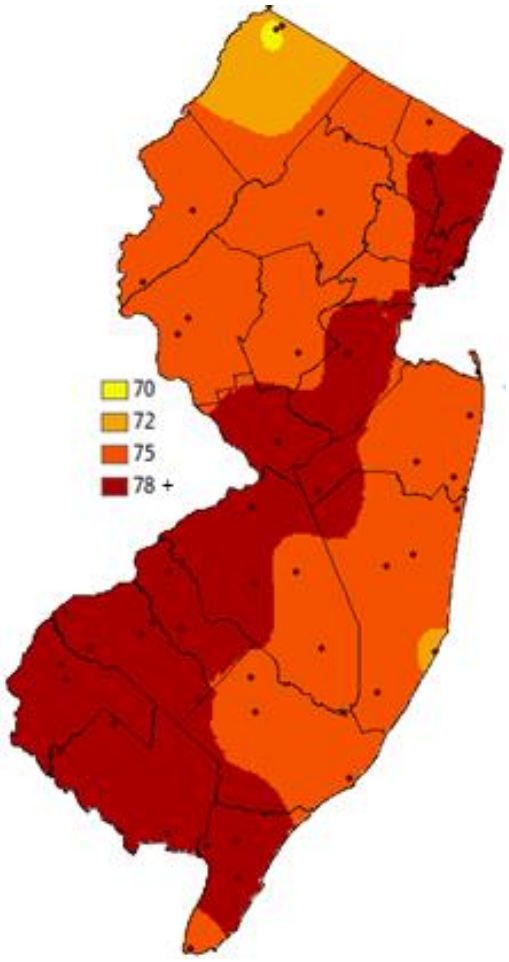
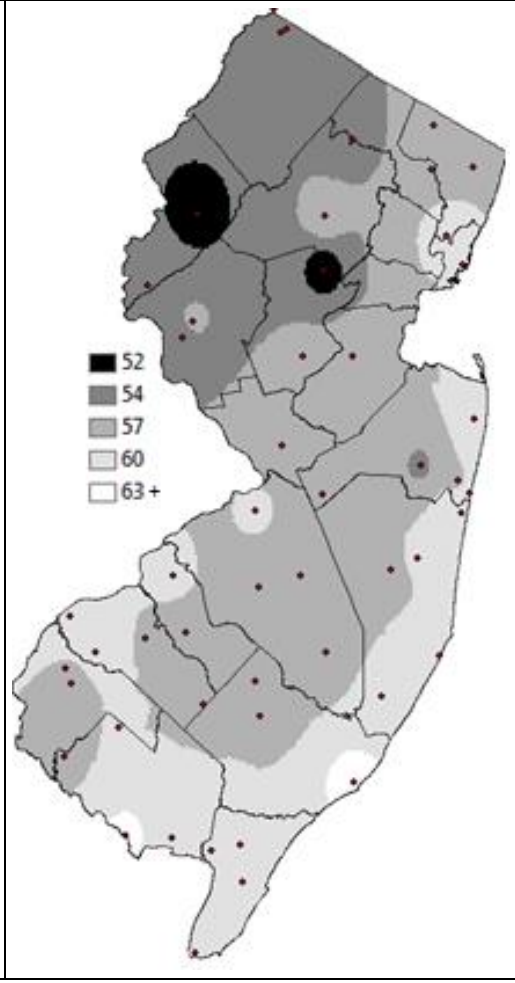
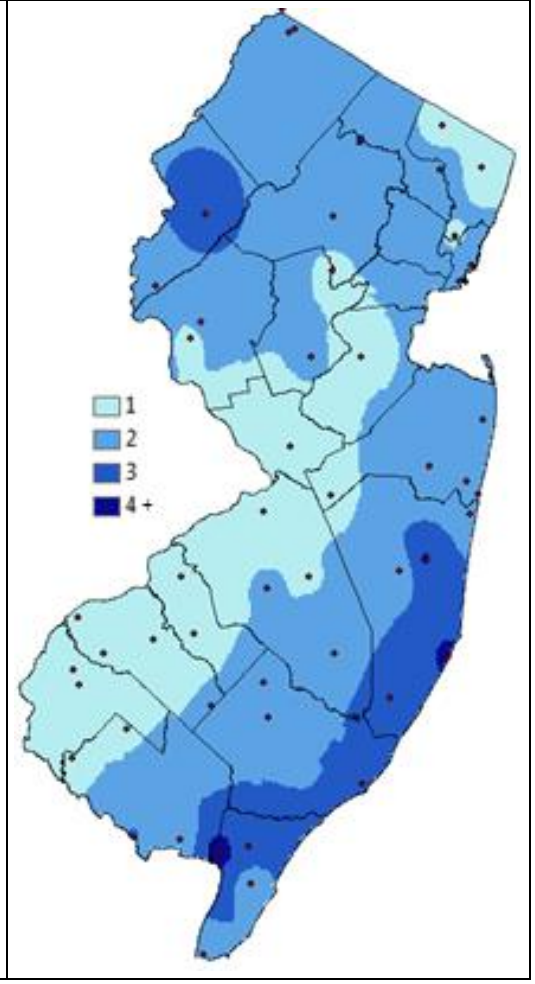
Summary Table – Week 39

Region	*Aedes vexans*			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	0.71	0.50	1	0.69	0.78	0	0.00	0.00	0	0.05	0.05	0
Coastal	1.87	3.02	0	2.19	2.69	0	0.00	0.02	0	0.90	0.62	1
Delaware Bayshore	0.83	1.03	0	9.60	2.47	4	0.00	0.00	0	0.97	0.04	4
Delaware River Basin	nd	0.70	0	nd	0.30	0	nd	0.00	0	nd	0.00	0
New York Metro	0.39	0.11	4	4.60	1.00	4	0.03	0.00	0	0.16	0.08	3
North Central Rural	0.02	0.01	3	0.11	0.05	3	0.00	0.00	0	0.00	0.00	0
Northwest Rural	0.80	1.08	0	1.00	0.45	3	0.02	0.01	3	0.00	0.00	0
Philadelphia Metro	nd	1.77	0	nd	1.01	0	nd	0.00	0	0.00	0.00	0
Pinelands	0.12	0.49	0	0.34	0.75	0	0.00	<0.01	0	0.01	<0.01	2
Suburban Corridor	0.07	0.15	0	0.24	0.46	0	0.00	0.12	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: As the season winds down, pestiferous populations are sometimes well above recent historical values. However, some of these differences are for very small values, such as for *Coquillettidia perturbans* in the Northwest Rural region. Other values are more noteworthy, such as *Culex* Mix in the Delaware Bayshore region.

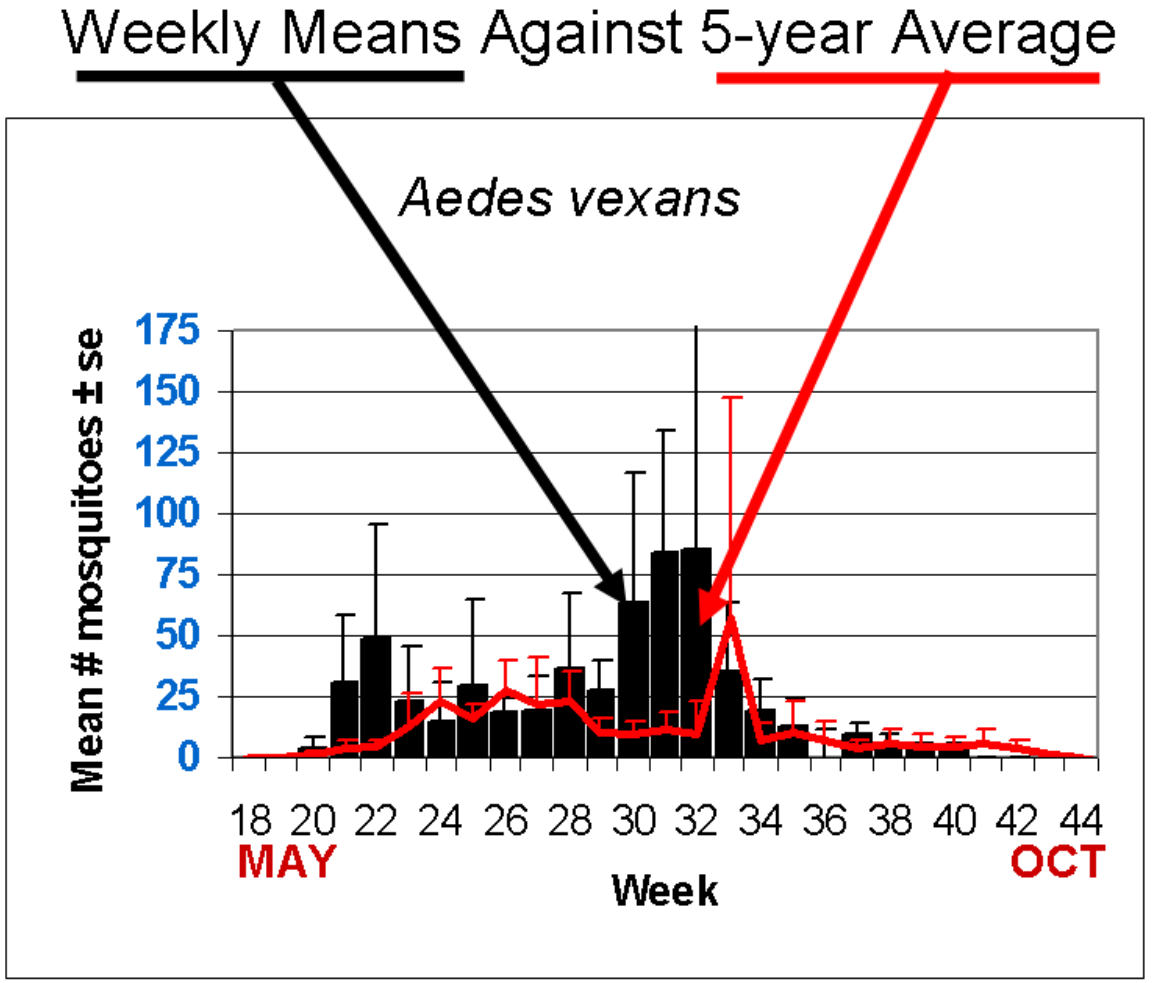
Climate Factors

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 24 September 2017 in New Jersey. Data points are from about 55 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

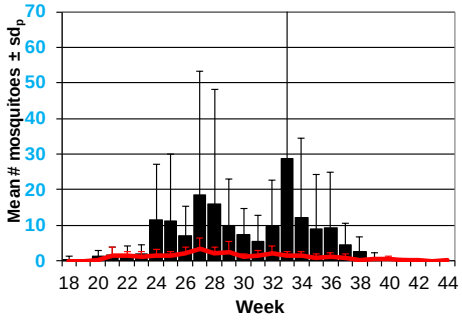
ONJSC at Rutgers University NJ Weather & Climate NETWORK

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 Atlantic, Bergen, Cape May, Cumberland, Hunterdon, Middlesex, Monmouth, Morris, Sussex, Union, and Warren counties. Data for the previous week are from Atlantic, Bergen, Burlington, Cape May, Cumberland, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Salem, Sussex, Union, and Warren counties.

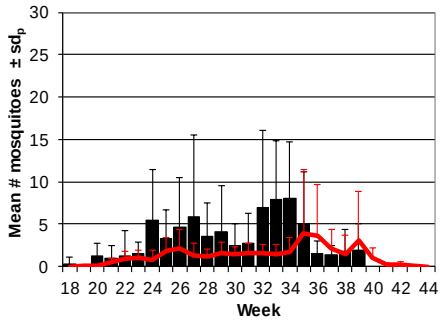


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

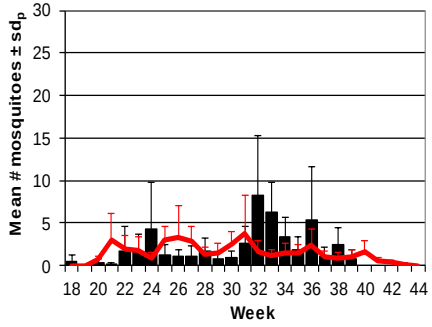
Agricultural



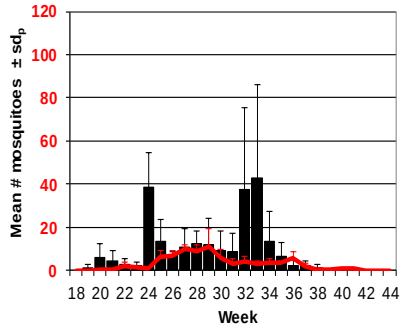
Coastal



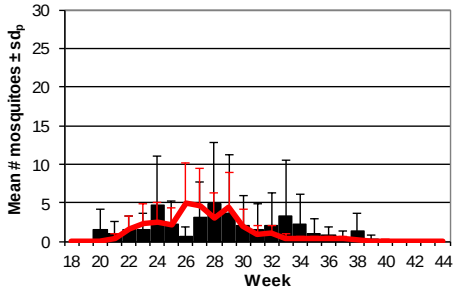
Delaware Bayshore



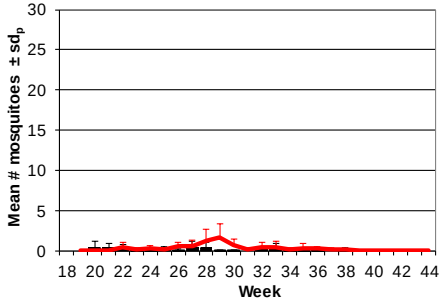
Delaware River Basin



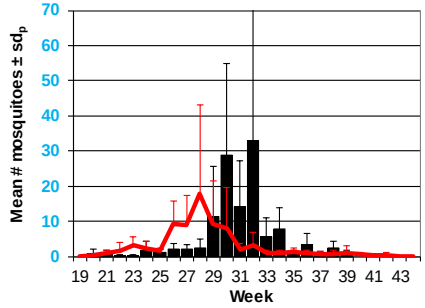
New York Metro



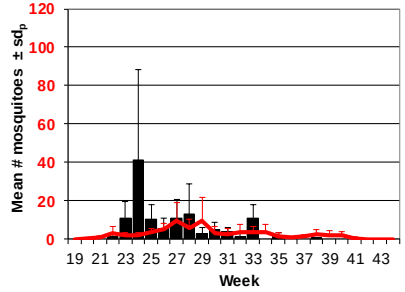
North Central Rural



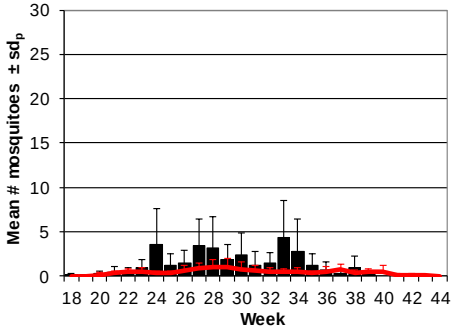
Northwestern Rural



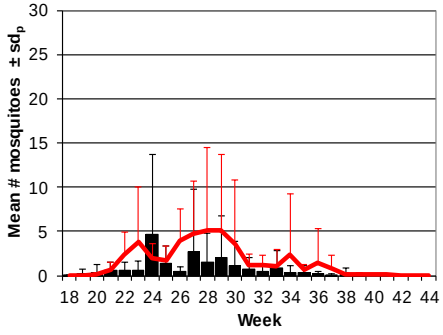
Philadelphia Metro



Pinelands



Suburban Corridor

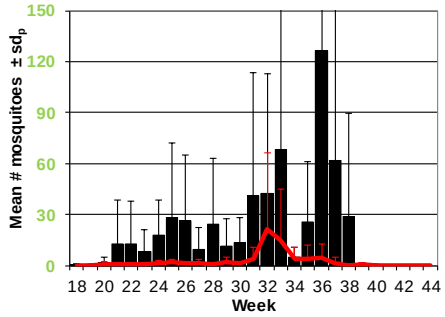


Comments

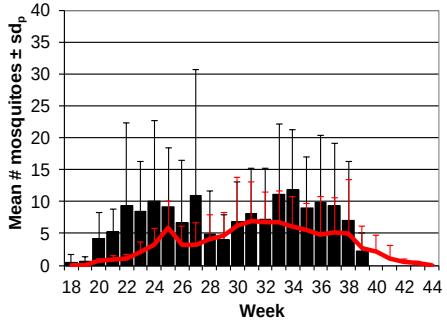
Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. This week, the New York Metropolitan and the North Central Rural regions experienced the highest abundances above historical averages. However, the absolute numbers in the North Central Rural region were quite low.

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

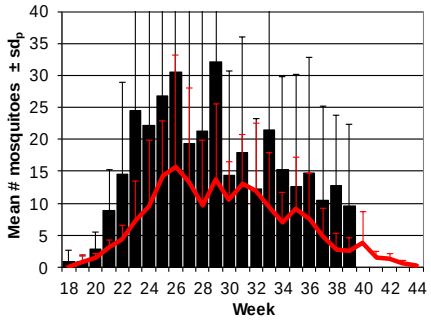
Agricultural



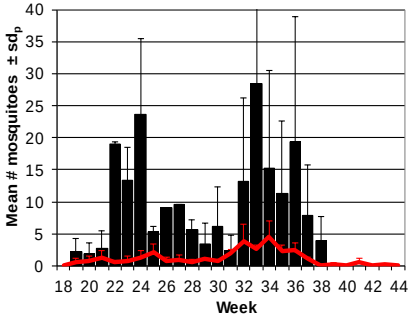
Coastal



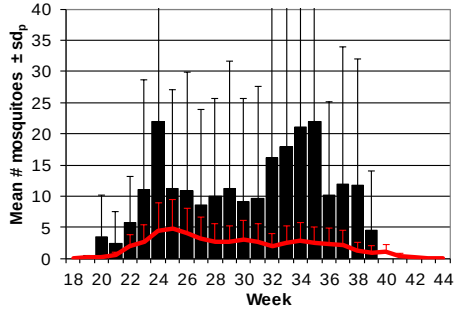
Delaware Bayshore



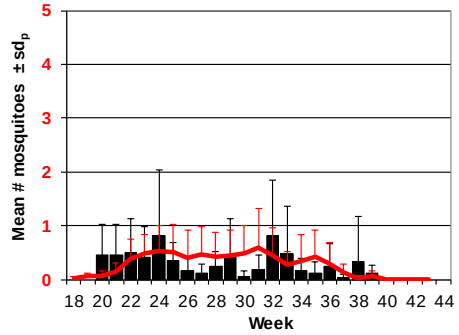
Delaware River Basin



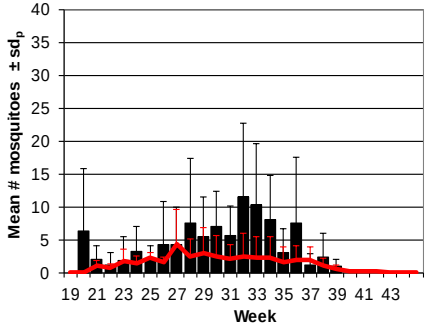
New York Metro



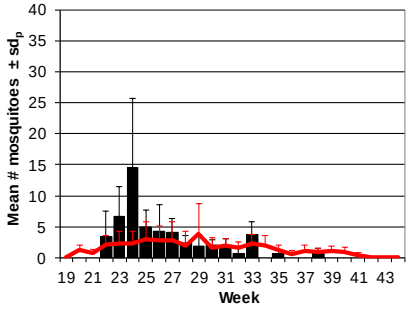
North Central Rural



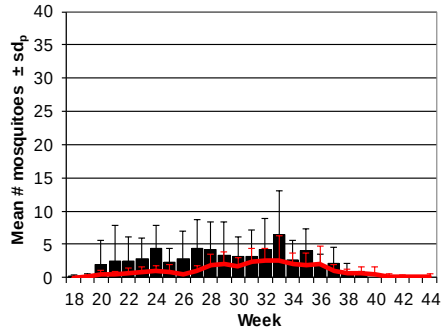
Northwestern Rural



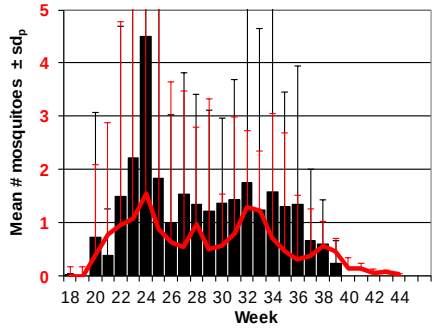
Philadelphia Metro



Pinelands



Suburban Corridor

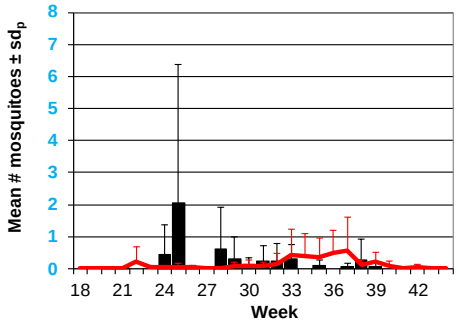


Comments

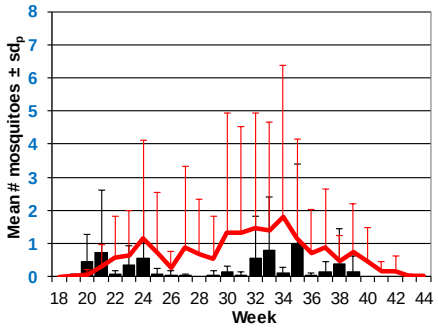
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. During the current week, the Delaware Bayshore, New York Metropolitan, the North Central Rural and the Northwest Rural regions had populations significantly above the recent historical averages. WNV continues to show significant activity in the state after a slow beginning.

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

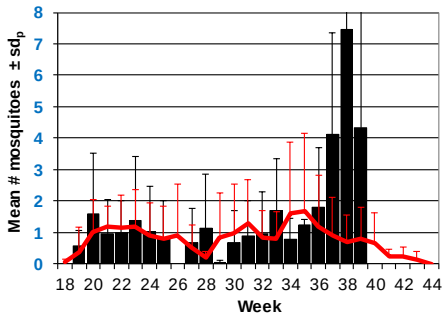
Agricultural



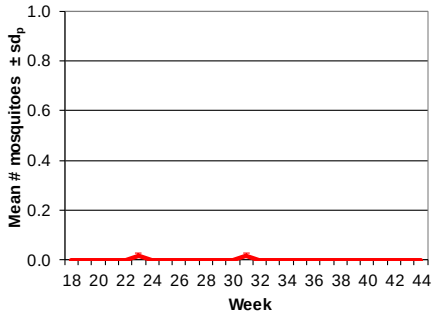
Coastal



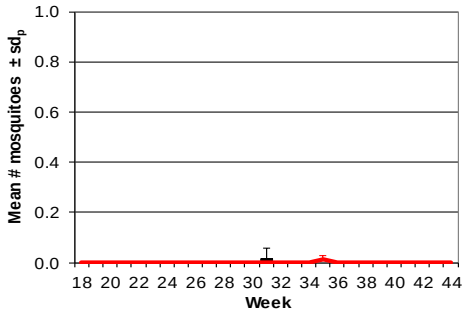
Delaware Bayshore



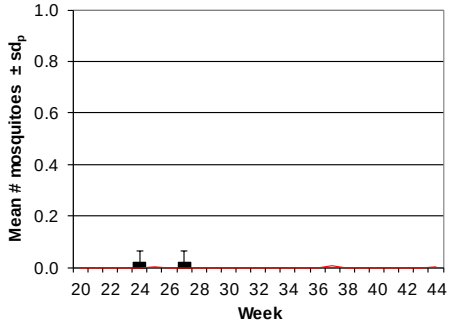
Delaware River Basin



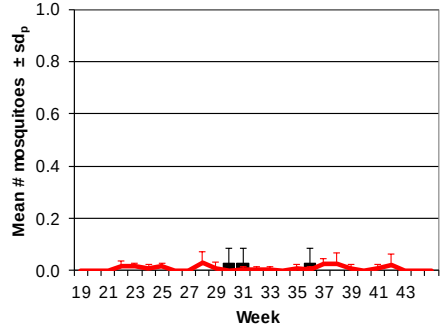
New York Metro



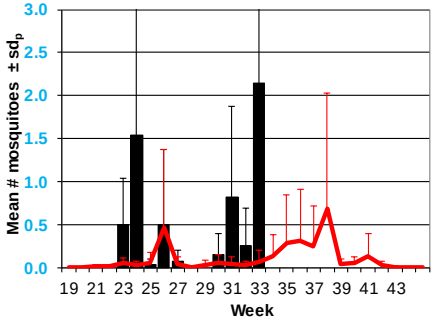
North Central Rural



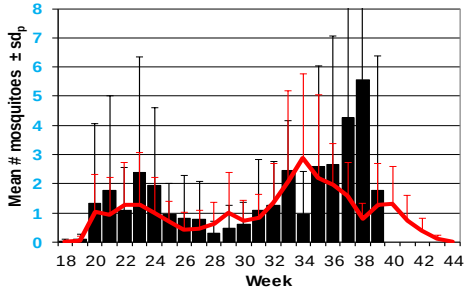
Northwestern Rural



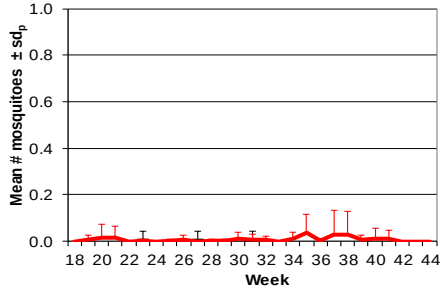
Philadelphia Metro



Pinelands



Suburban Corridor



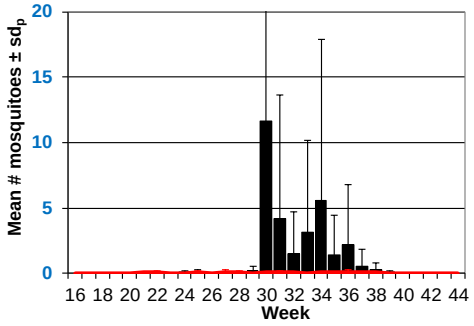
Comments

Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. Last year, EEE activity was recorded not only in southern NJ where it is typically found, but also in the northern half of the state. One human case occurred in the latter area. EEE activity has been consistent, with positive pools now at 11. Activity has remained in the southern half of the state. Late season activity for this species has picked up in two regions of significant habitat: the Delaware Bayshore and Pinelands regions. This may indicate the population levels of reproductive individuals, setting the stage for next year's overwintering population.

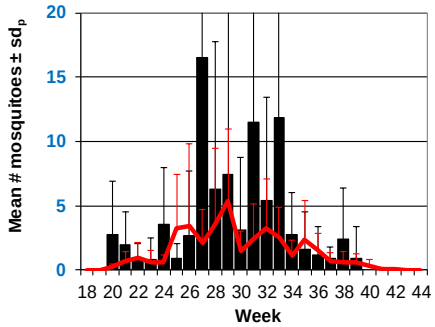
All horse owners should make sure their horses are up to date on the vaccination schedules: http://www.aaep.org/custdocs/adultvaccinationchart.pdf

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

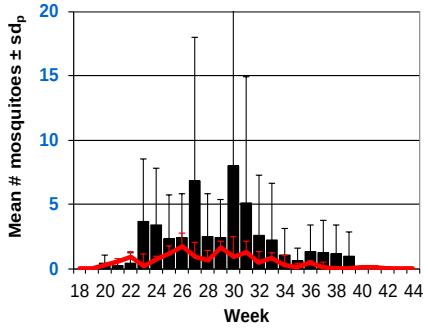
Agricultural



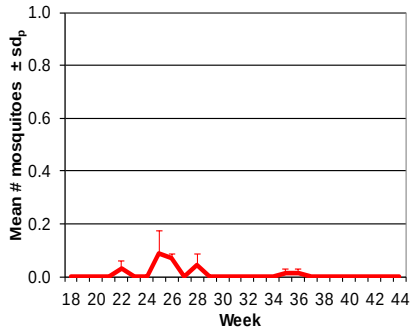
Coastal



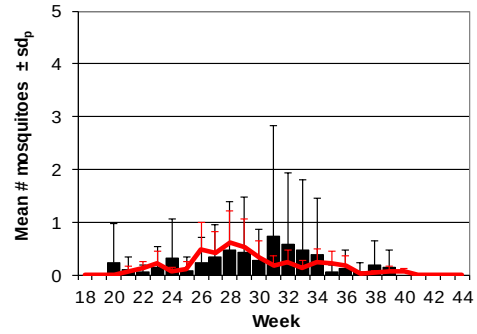
Delaware Bayshore



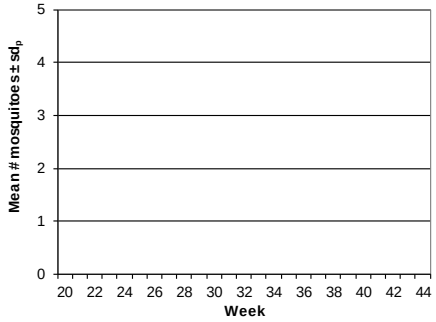
Delaware River Basin



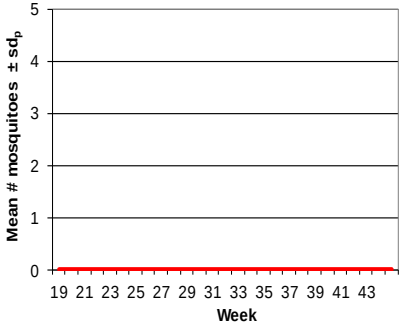
New York Metro



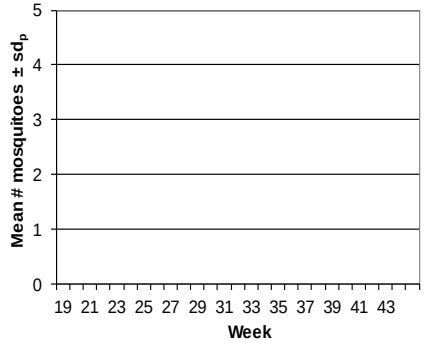
North Central Rural



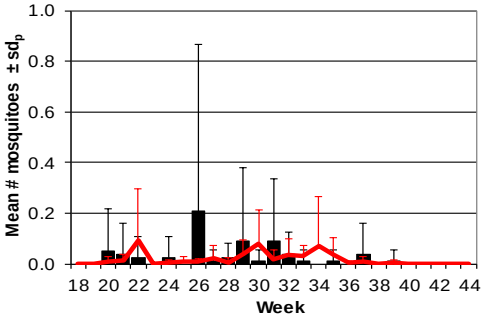
Northwestern Rural



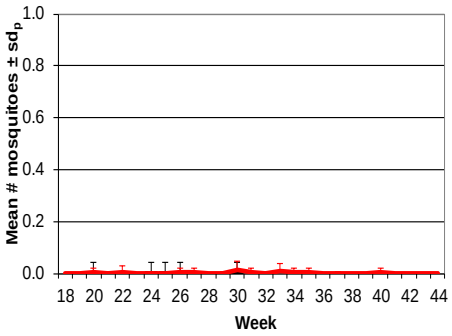
Philadelphia Metro



Pinelands



Suburban Corridor



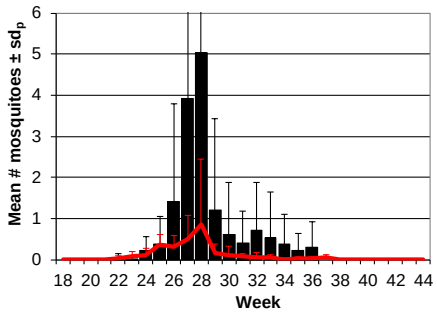
Comments

Aedes sollicitans is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. Above average activity was seen in the New York Metropolitan and to a lesser extent, the Coastal regions. It is unlikely any significant emergences will occur and numbers that show up are likely to be minor.

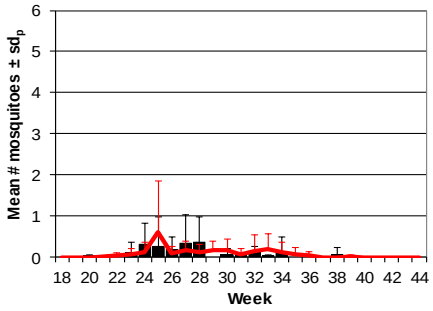
Next full moon is on the 5th October.

Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

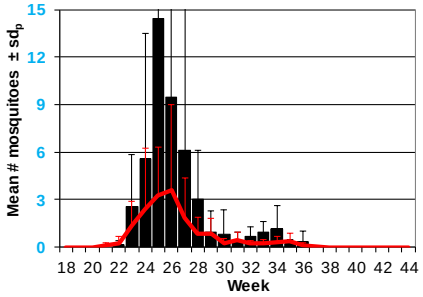
Agricultural



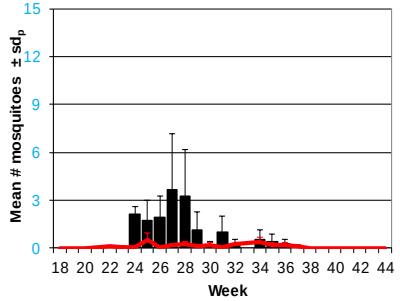
Coastal



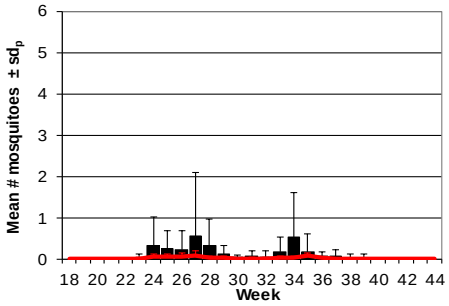
Delaware Bayshore



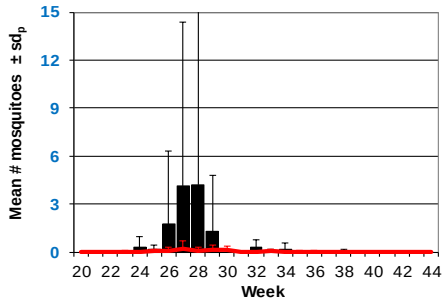
Delaware River Basin



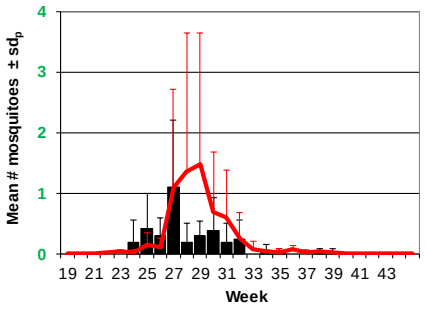
New York Metro



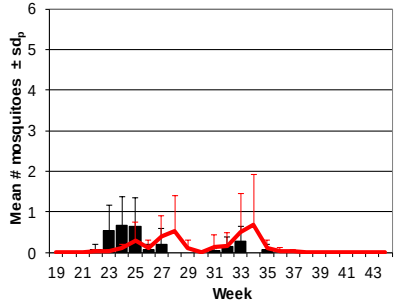
North Central Rural



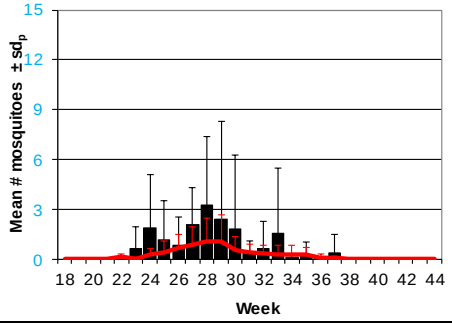
Northwestern Rural



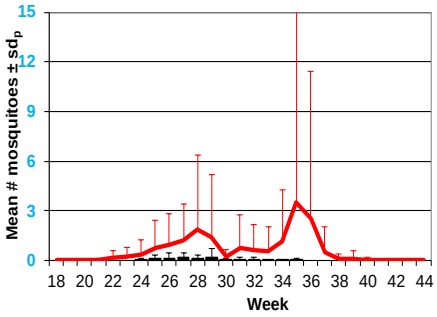
Philadelphia Metro



Pinelands



Suburban Corridor



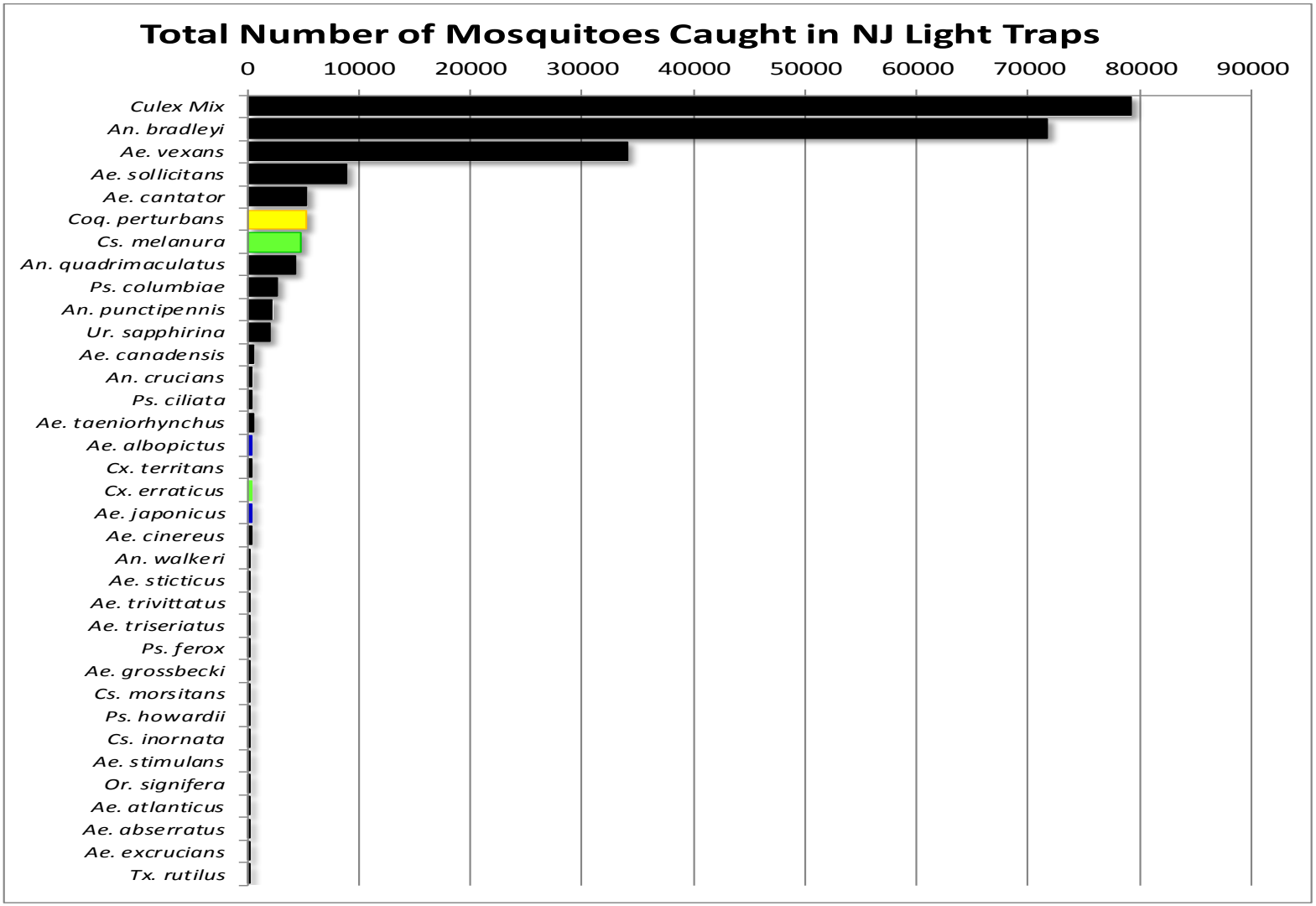
Comments

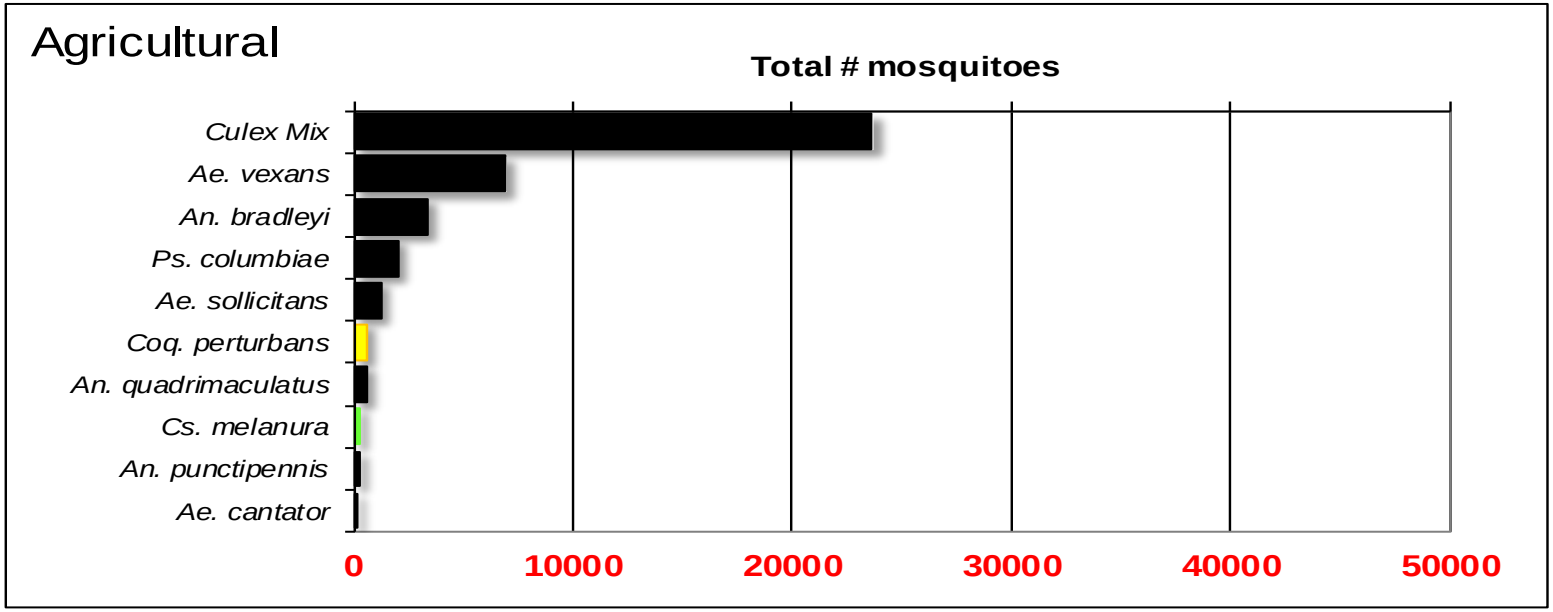
Coquillettidia perturbans populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. This mid-season species is a potential inland vector of EEE and should be monitored closely when the arbovirus is present. As with last week, the only population to show above average activity were in the Northwest Rural region but the absolute value of these numbers are low.

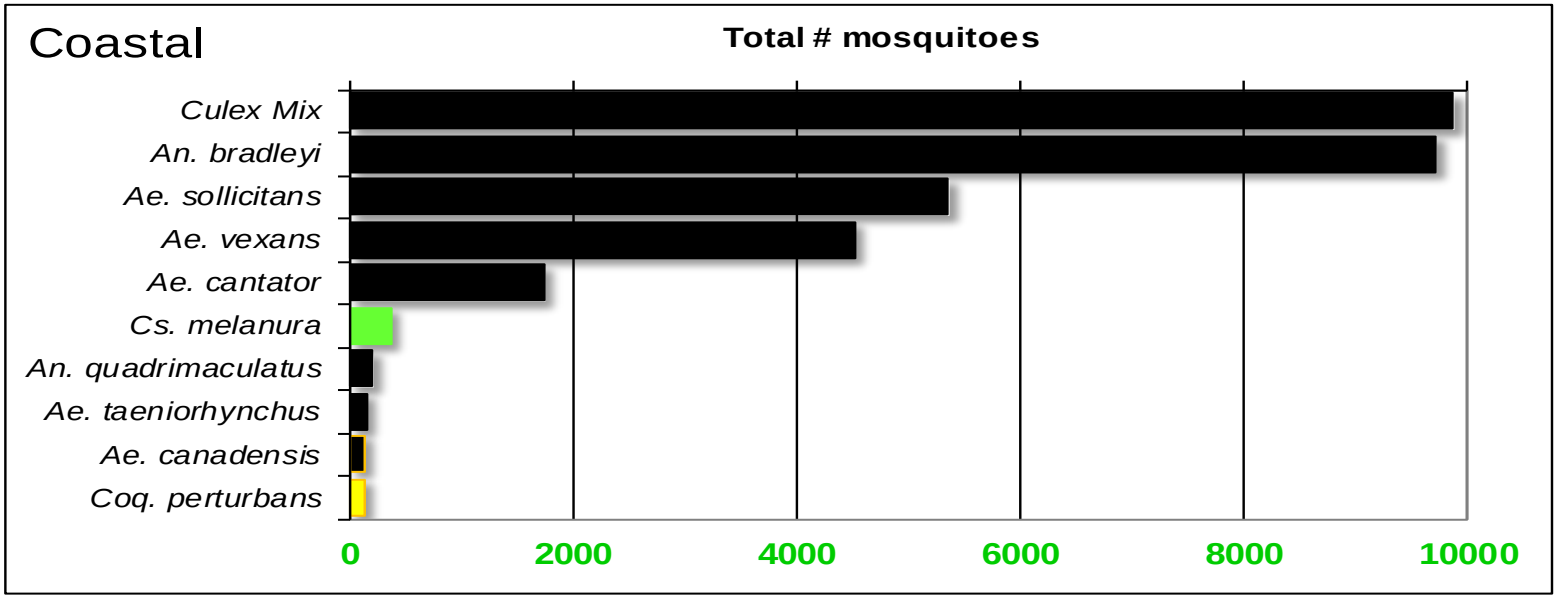
WNV *EEE*

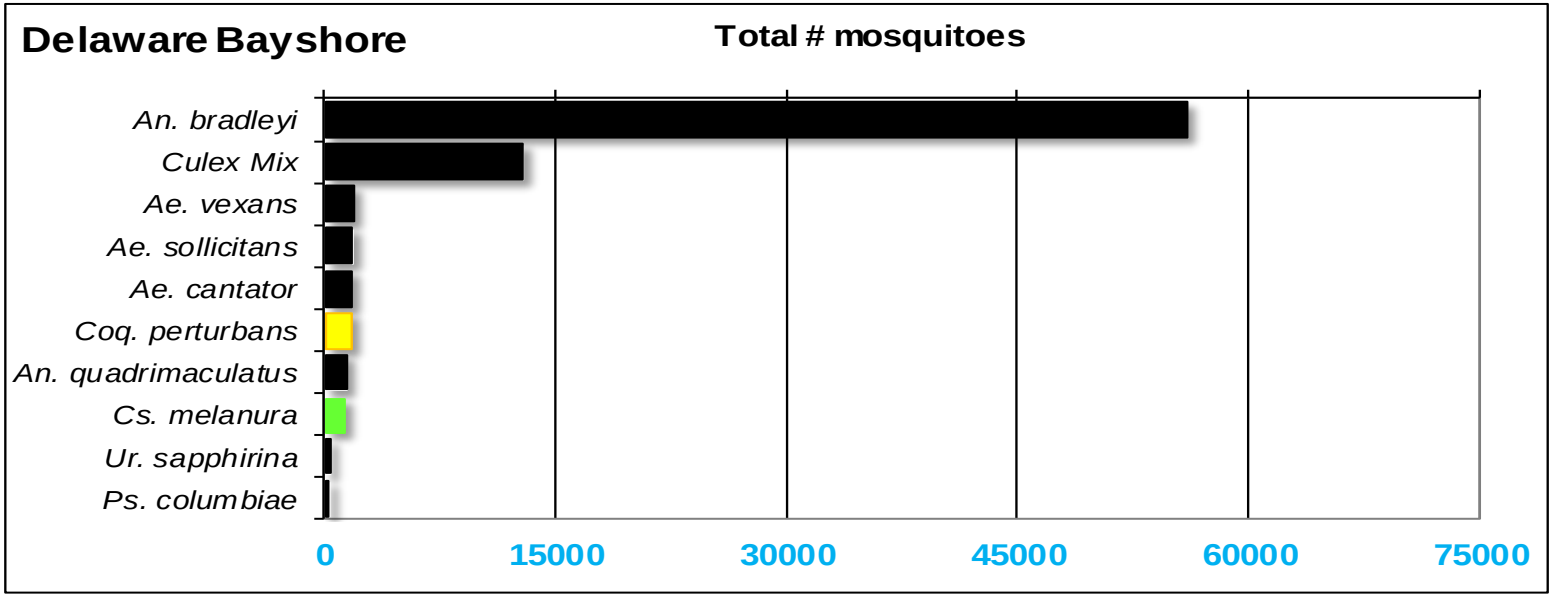
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

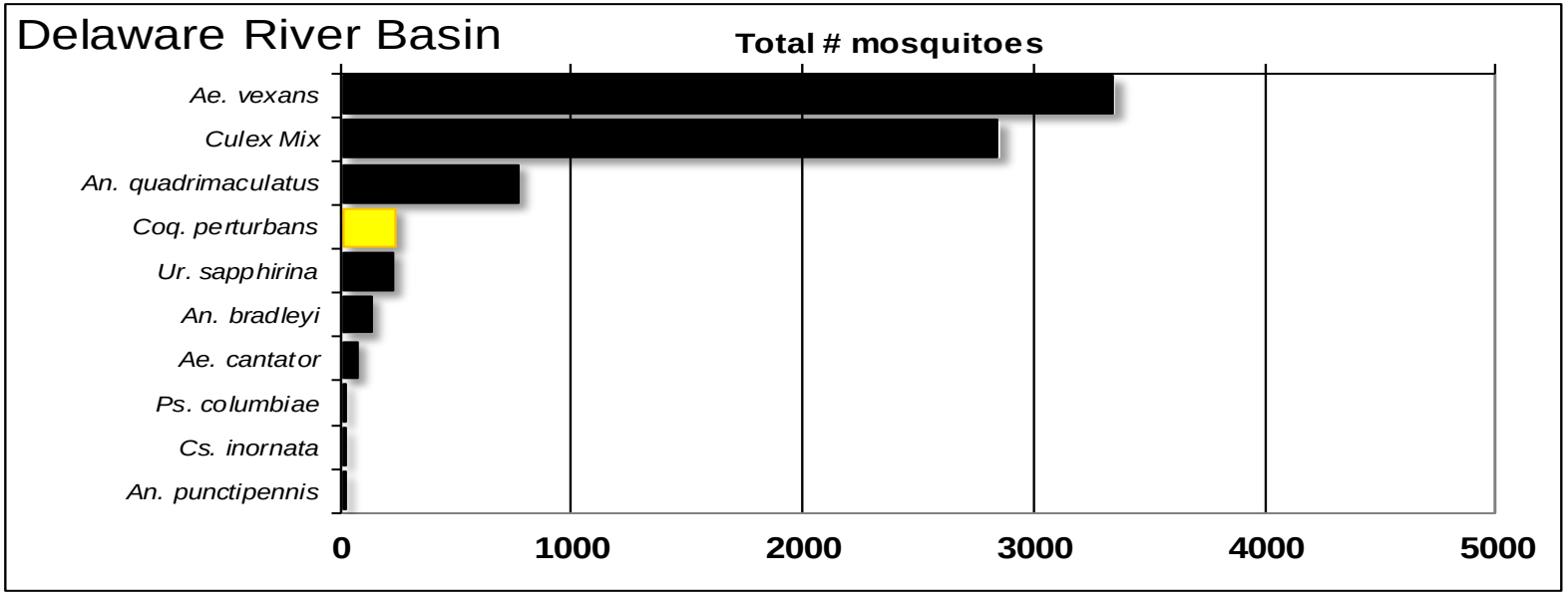
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

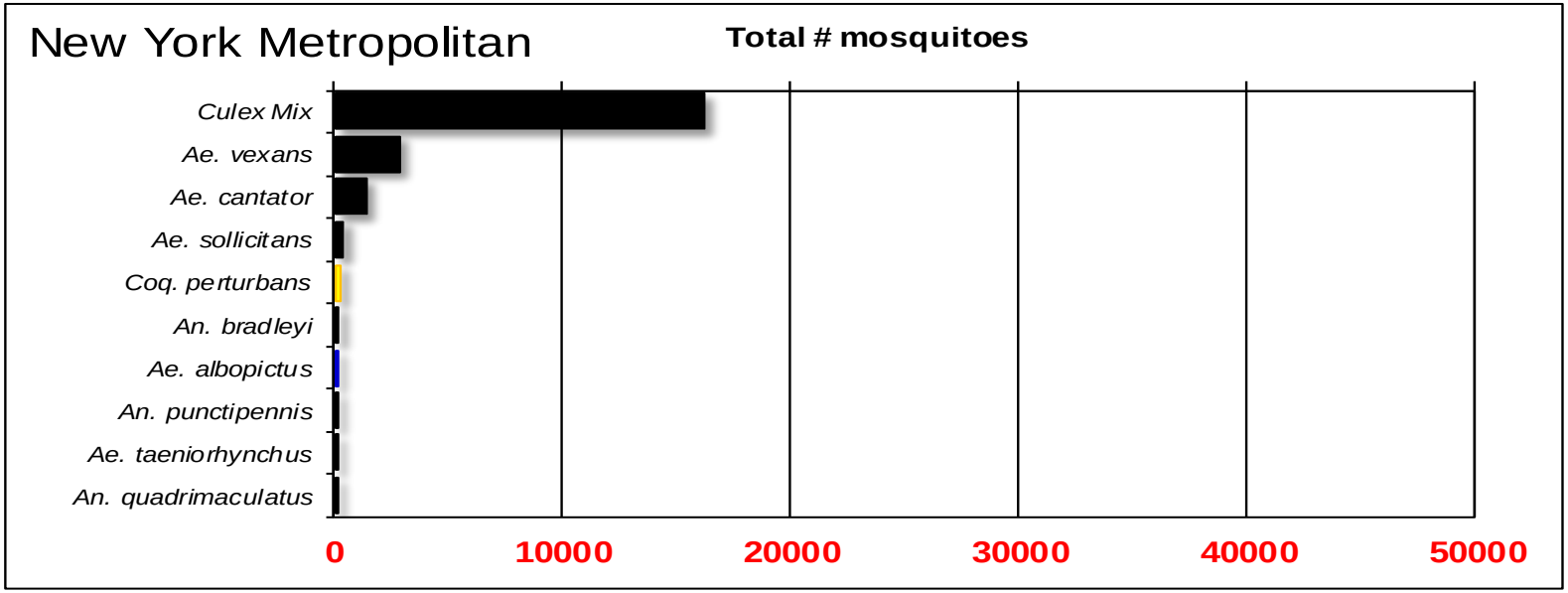


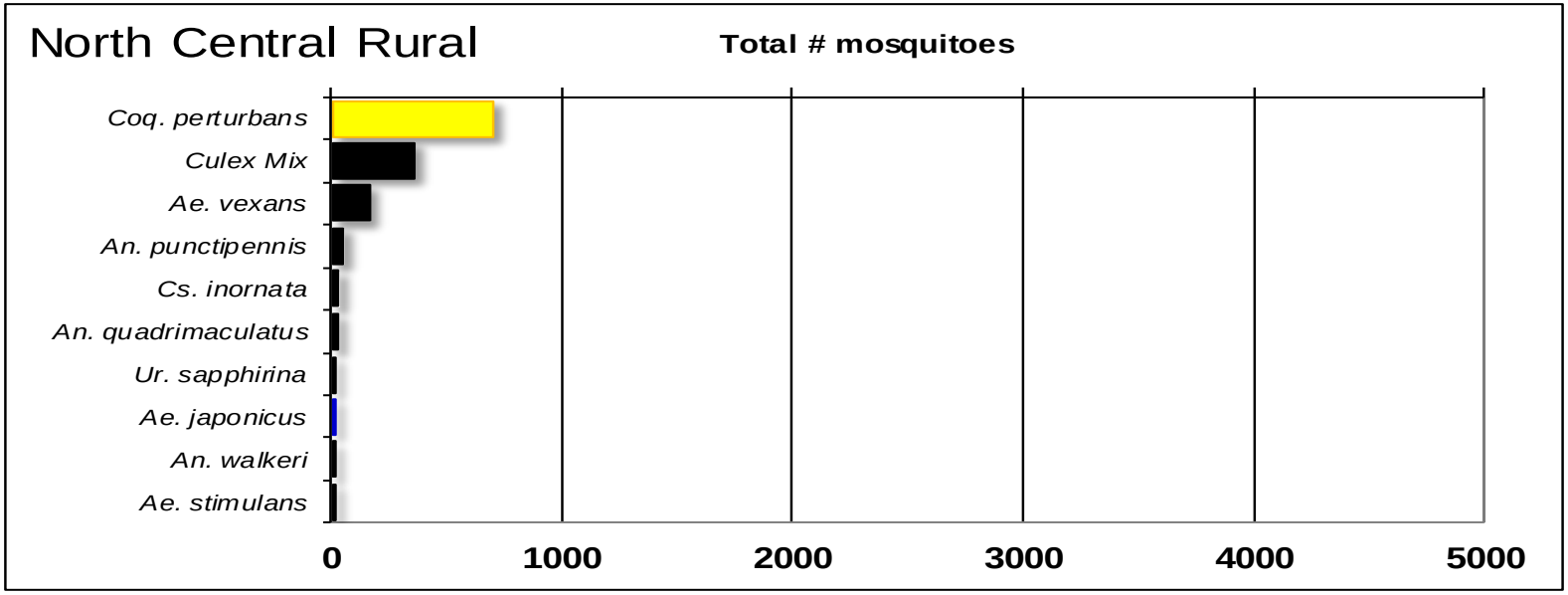

Agricultural
Total # mosquitoes
Culex Mix
Ae. vexans
An. bradleyi
Ps. columbiae
Ae. sollicitans
Coq. perturbans
An. quadrimaculatus
Cs. melanura
An. punctipennis
Ae. cantator
0
10000
20000
30000
40000
50000

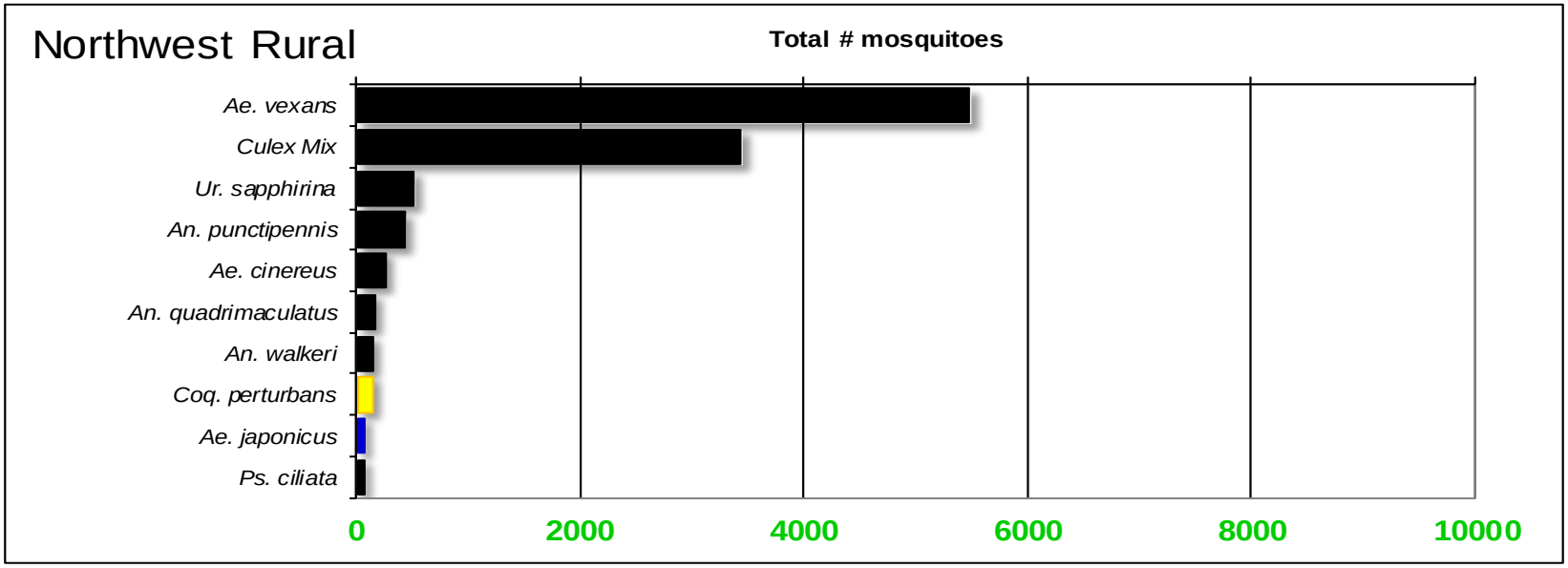

Coastal
Total # mosquitoes
Culex Mix
An. bradleyi
Ae. sollicitans
Ae. vexans
Ae. cantator
Cs. melanura
An. quadrimaculatus
Ae. taeniorhynchus
Ae. canadensis
Coq. perturbans
0
2000
4000
6000
8000
10000

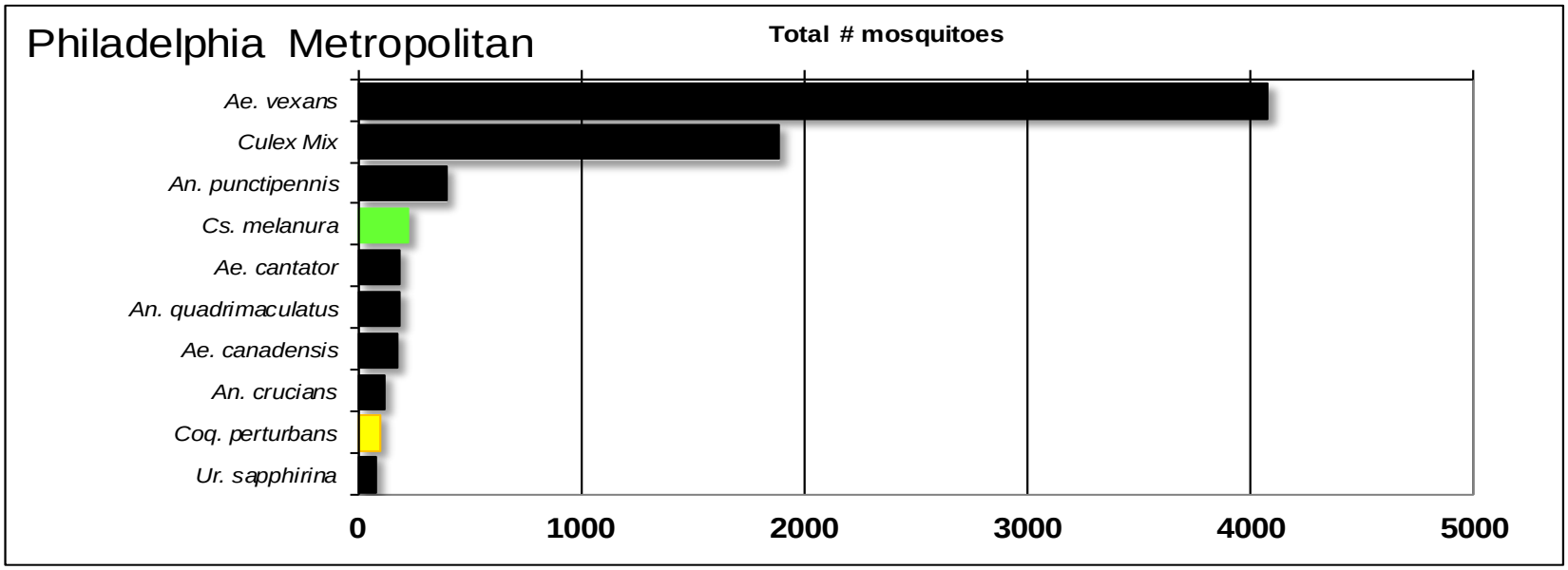

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
Ae. vexans
Ae. sollicitans
Ae. cantator
Coq. perturbans
An. quadrimaculatus
Cs. melanura
Ur. sapphirina
Ps. columbiae
0
15000
30000
45000
60000
75000

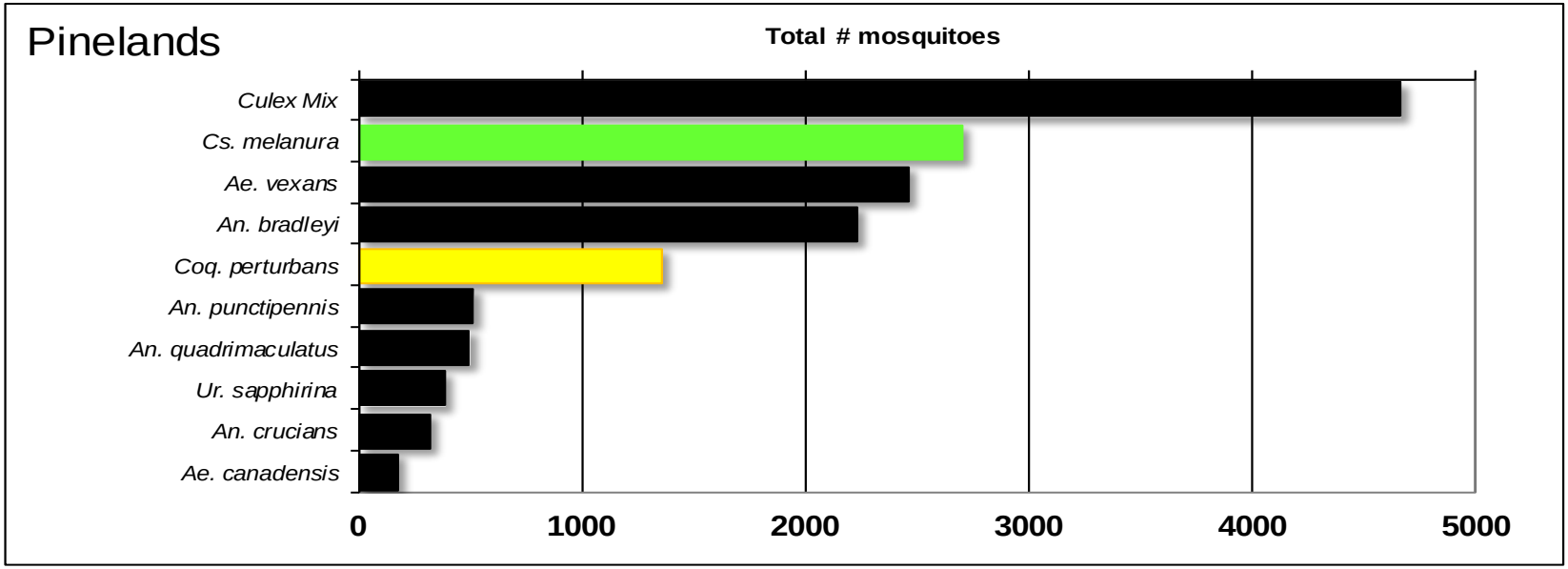

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
Coq. perturbans
Ur. sapphirina
An. bradleyi
Ae. cantator
Ps. columbiae
Cs. inornata
An. punctipennis
0
1000
2000
3000
4000
5000

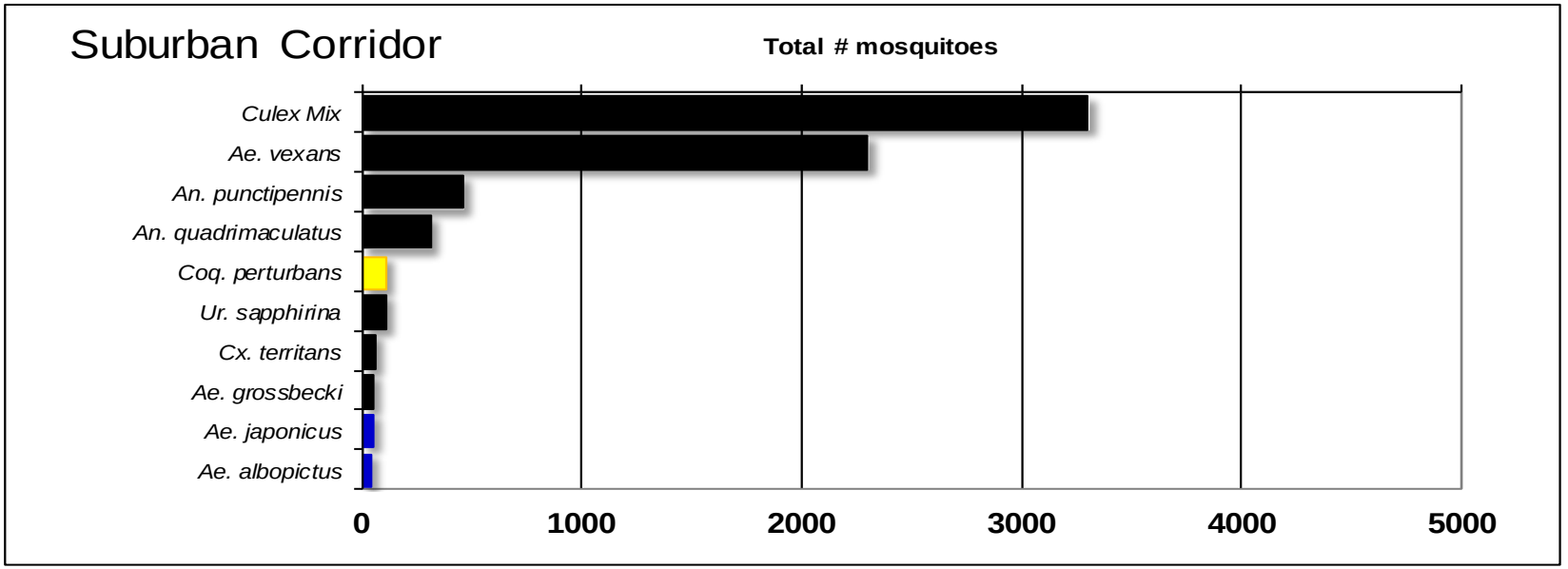

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
An. bradleyi
Ae. albopictus
An. punctipennis
Ae. taeniorhynchus
An. quadrimaculatus
0
10000
20000
30000
40000
50000


North Central Rural
Total # mosquitoes
Coq. perturbans
Culex Mix
Ae. vexans
An. punctipennis
Cs. inornata
An. quadrimaculatus
Ur. sapphirina
Ae. japonicus
An. walkeri
Ae. stimulans
0
1000
2000
3000
4000
5000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ur. sapphirina
An. punctipennis
Ae. cinereus
An. quadrimaculatus
An. walkeri
Coq. perturbans
Ae. japonicus
Ps. ciliata
0
2000
4000
6000
8000
10000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
Cs. melanura
Ae. cantator
An. quadrimaculatus
Ae. canadensis
An. crucians
Coq. perturbans
Ur. sapphirina
0
1000
2000
3000
4000
5000


Pinelands
Total # mosquitoes
Culex Mix
Cs. melanura
Ae. vexans
An. bradleyi
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Ur. sapphirina
An. crucians
Ae. canadensis
0
1000
2000
3000
4000
5000


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Coq. perturbans
Ur. sapphirina
Cx. territans
Ae. grossbecki
Ae. japonicus
Ae. albopictus
0
1000
2000
3000
4000
5000