NEW JERSEY ADULT MOSQUITO SURVEILLANCE Report

September 12 to September 18, CDC Week 37

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.

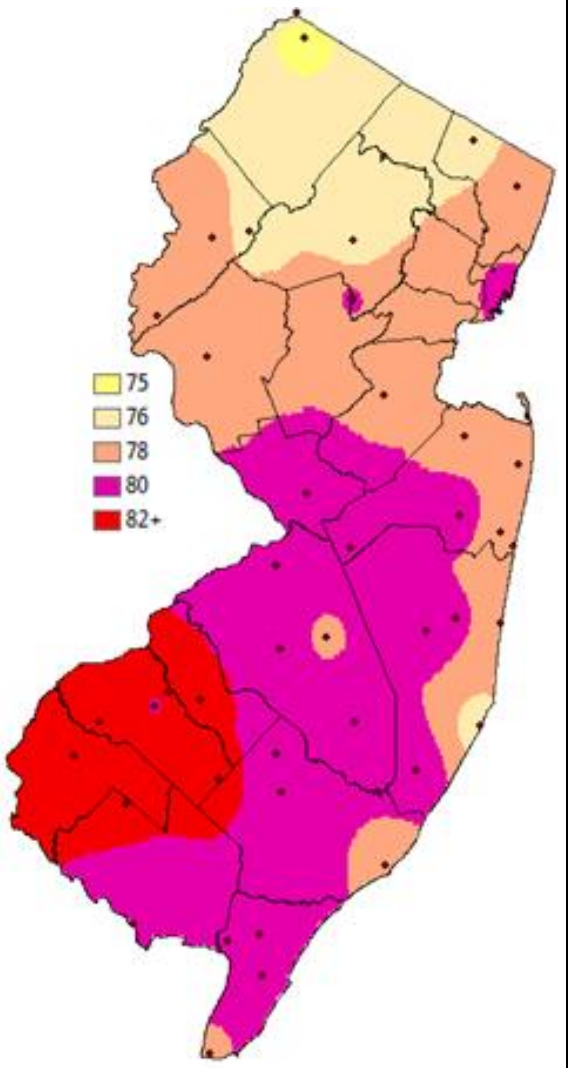
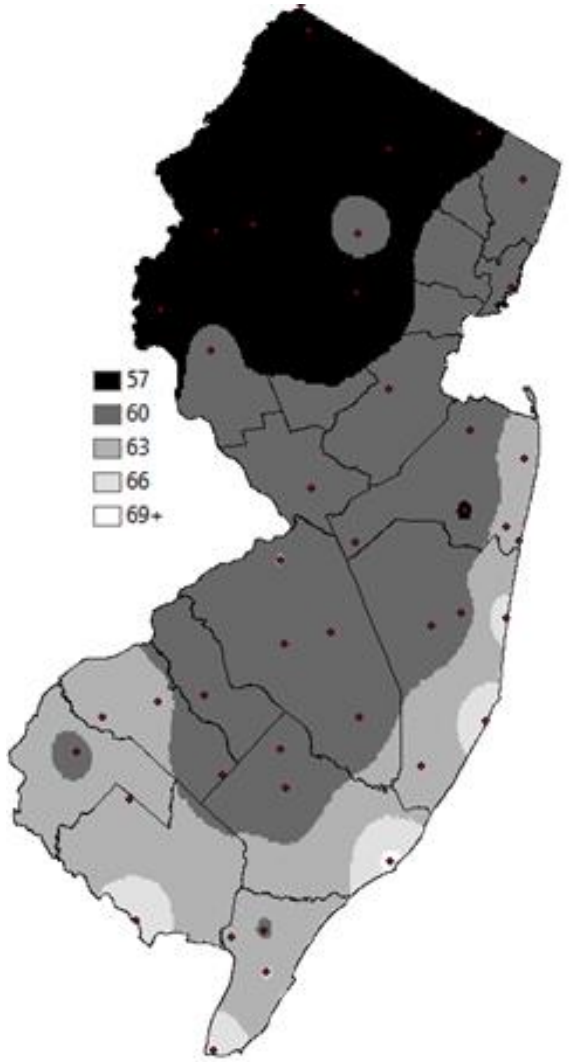
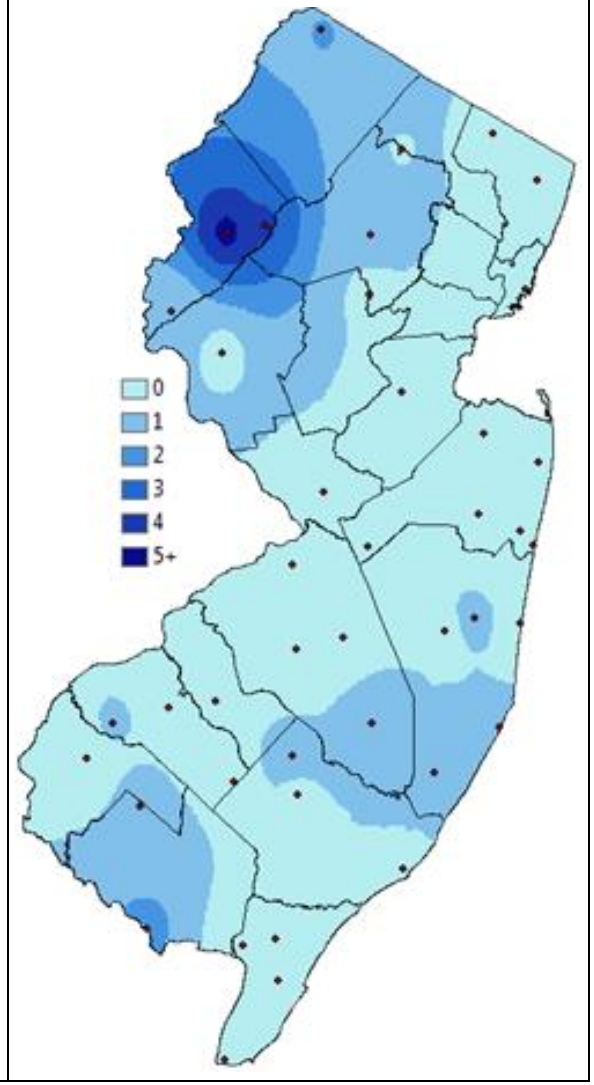
Summary Table – Week 37

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	7.62	2.89	4	6.83	29.32	0	0.00	0.02	0	0.38	0.43	0
Coastal	3.40	1.43	3	8.02	6.27	1	0.00	0.02	0	0.25	0.68	0
Delaware Bayshore	4.57	1.16	4	14.00	9.11	2	0.00	0.11	0	1.37	1.47	0
Delaware River Basin	2.14	9.16	0	2.86	30.92	0	0.00	0.49	0	0.07	0.06	1
New York Metro	1.86	0.52	4	0.81	5.71	0	0.03	0.11	0	0.00	0.11	0
North Central Rural	0.00	0.20	0	0.00	0.71	0	0.00	0.05	0	0.00	0.00	0
Northwest Rural	0.00	2.71	0	0.00	5.60	0	0.00	0.09	0	0.00	0.00	0
Philadelphia Metro	16.00	2.46	4	2.57	3.73	0	1.14	0.28	4	0.00	0.00	0
Pinelands	1.01	0.87	1	1.99	3.09	0	0.00	0.14	0	0.00	0.15	0
Suburban Corridor	0.67	0.76	0	0.27	1.31	0	0.00	0.01	0	0.00	0.01	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 with last week, floodwater species responded with significant increases in populations in response to increased precipitation and flooding. *Aedes vexans* populations increased in the Agricultural, Coastal, Delaware Bayshore, New York Metropolitan and Philadelphia Metropolitan regions, with a smaller emergence occurring in the Pinelands. Likewise, *Aedes sollicitans* also had a continued mild response in the Delaware River Basin. *Culex* Mix showed mild increases in the Coastal and Delaware Bayshore regions. And, as previously noted, despite a seasonally decreasing population, *Coquillettidia perturbans* displayed a significant increase, this time in the Philadelphia Metropolitan region.

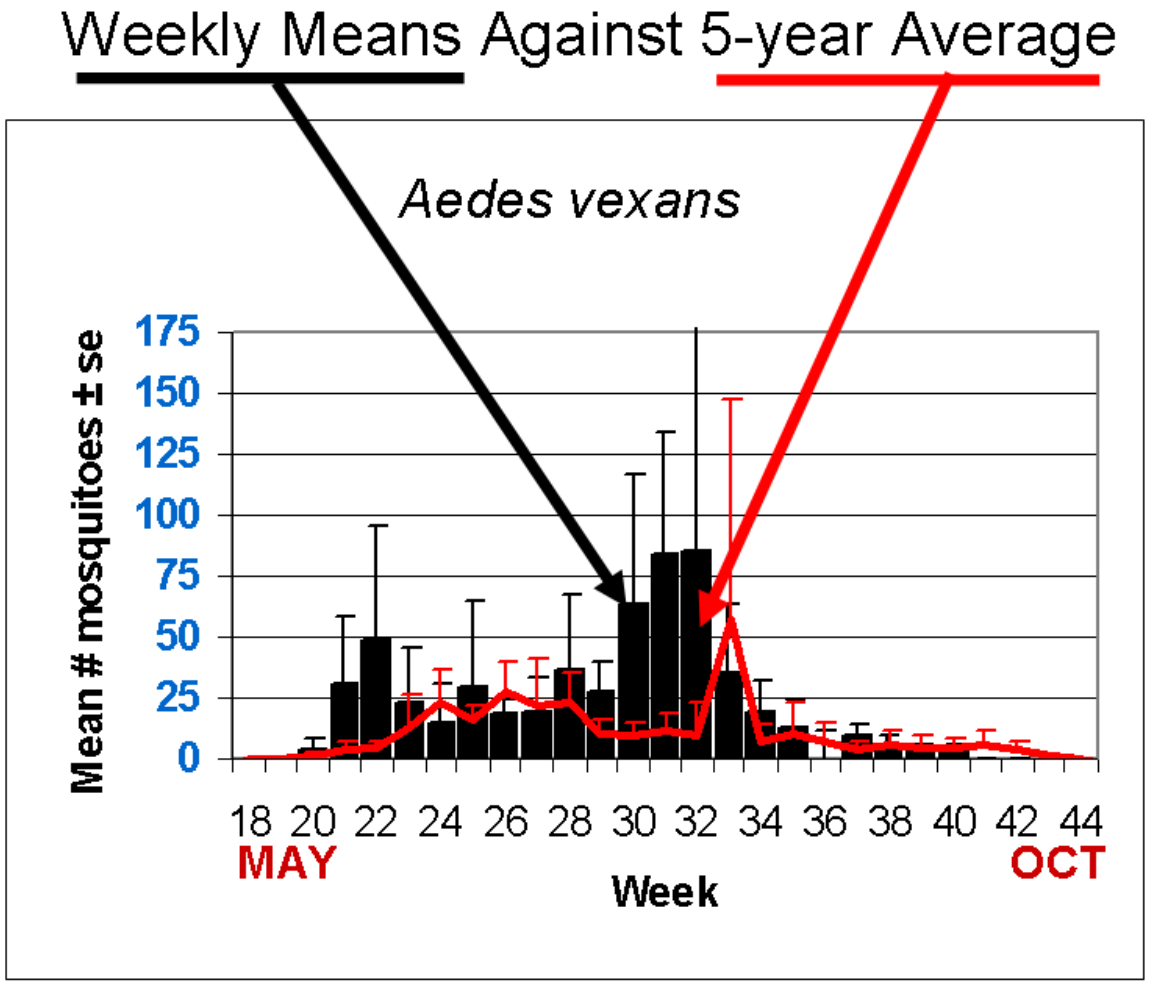
Climate Factors

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 14 days prior to 21 September 2021 in New Jersey. Data points are from about 45 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

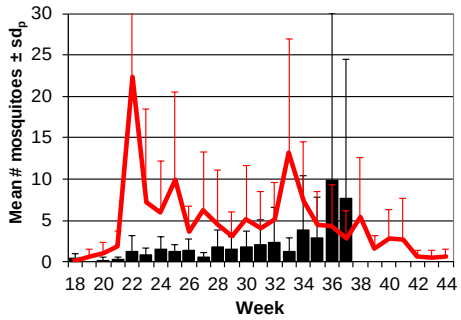
ONJSC at Rutgers University NJ Weather & Climate NETWORK

The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example of one graph from one species within one region. The bar plot show the average number of mosquitoes per trap within the region (weekly means) and line plots show the historical trend as the average number of mosquitoes from the previous 5 years (5-year average). In general, historical data are running means from the previous 5 years, but on occasion, will include data from fewer years. Adjustments are made to account for year discrepancies. Data for this week are from Atlantic, Burlington, Cumberland Hudson, Salem, and Somerset counties. Data for the previous week are from Atlantic, Cape May, Cumberland, Hudson, Hunterdon, Middlesex, Morris, Ocean, Passaic, Salem, Somerset, and Union counties.

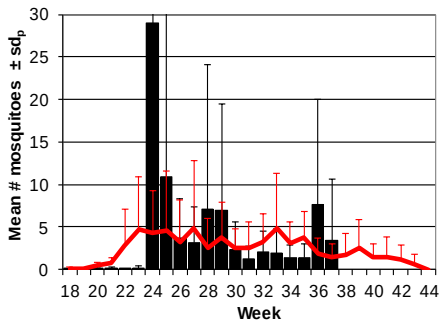


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

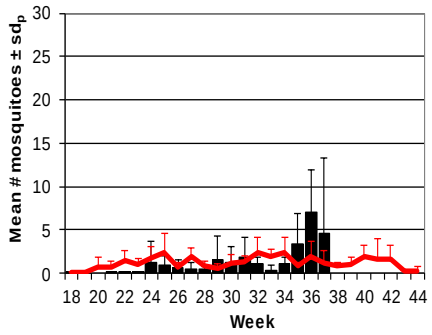
Agricultural



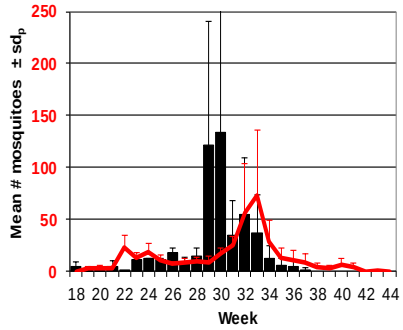
Coastal



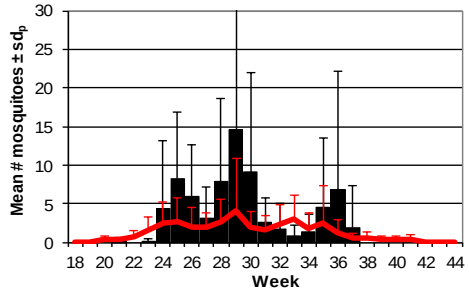
Delaware Bayshore



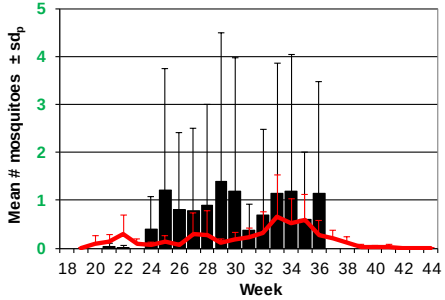
Delaware River Basin



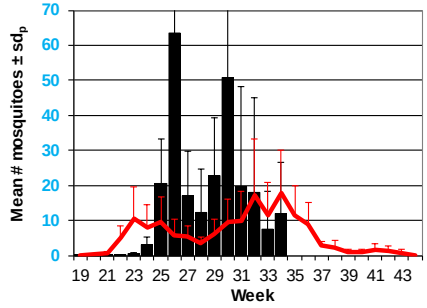
New York Metro



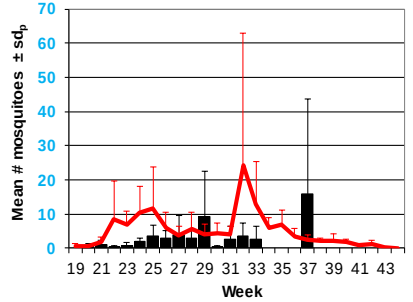
North Central Rural



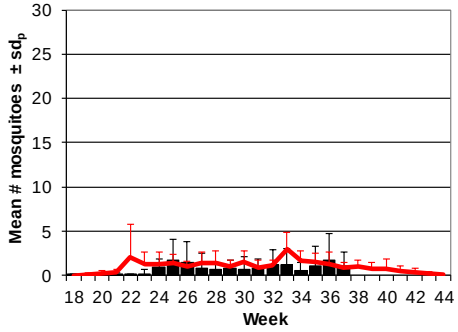
Northwestern Rural



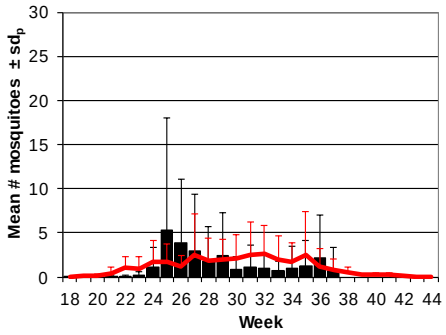
Philadelphia Metro



Pinelands



Suburban Corridor



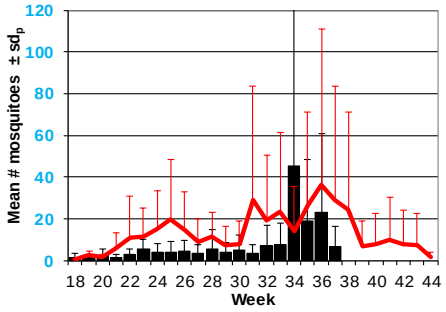
Comments

Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. Effects of flooding continue. *Aedes vexans* populations increased in the Agricultural, Coastal, Delaware Bayshore, New York Metropolitan and Philadelphia Metropolitan regions, with a smaller emergence occurring in the Pinelands.

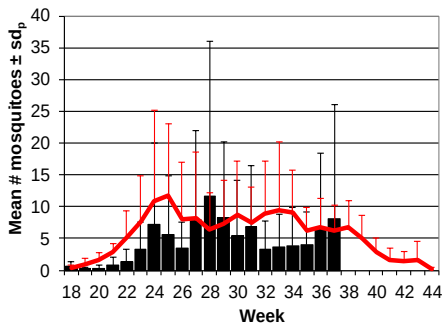
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NJ

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

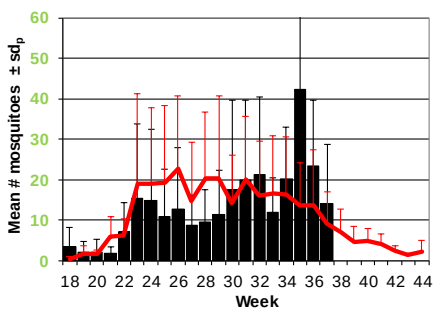
Agricultural



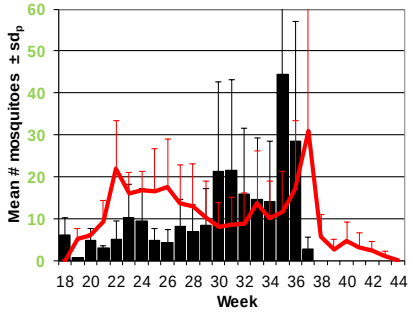
Coastal



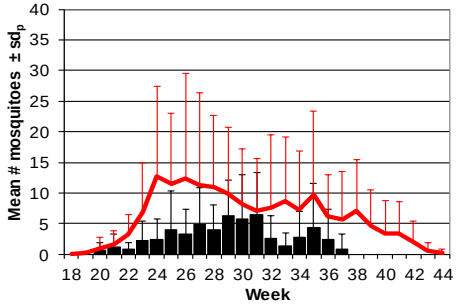
Delaware Bayshore



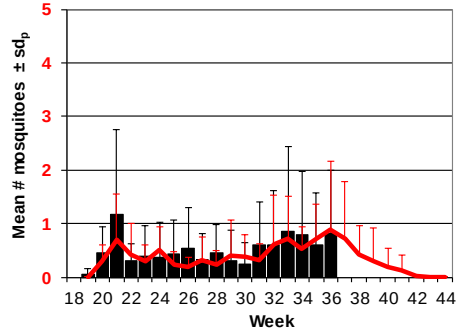
Delaware River Basin



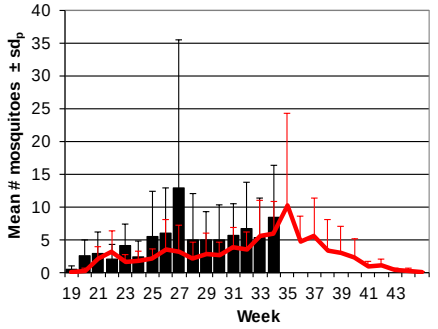
New York Metro



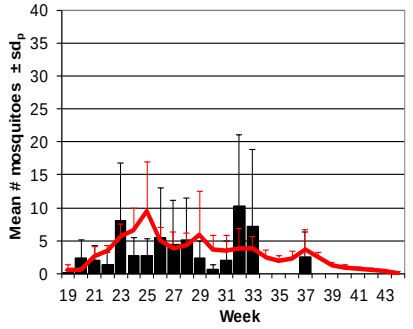
North Central Rural



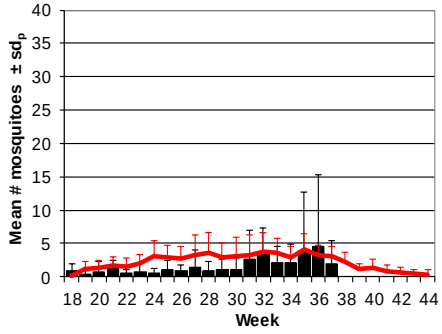
Northwestern Rural



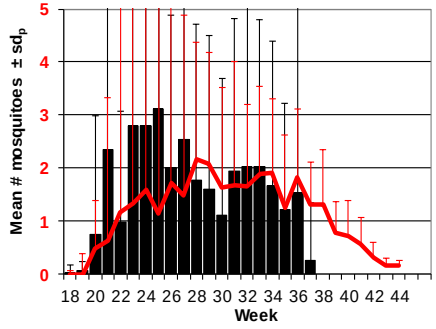
Philadelphia Metro



Pinelands



Suburban Corridor

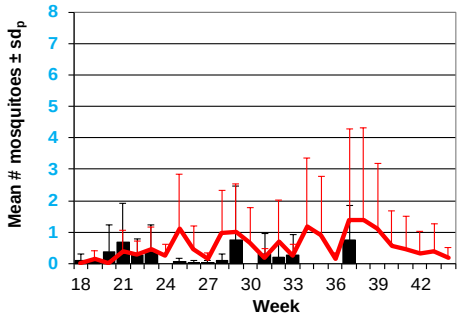


Comments

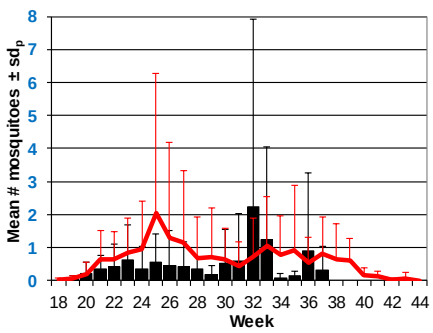
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. *Culex* Mix showed mild increases in the Coastal and Delaware Bayshore regions. As temperatures begin to drop, mated females will find hibernaculae to overwinter in and populations will begin to decrease shortly.

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

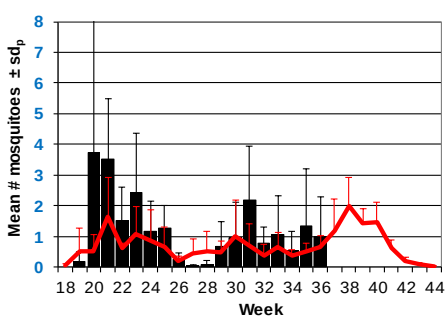
Agricultural



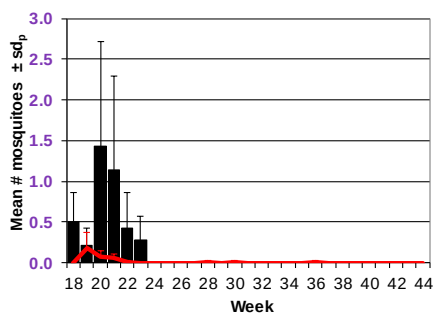
Coastal



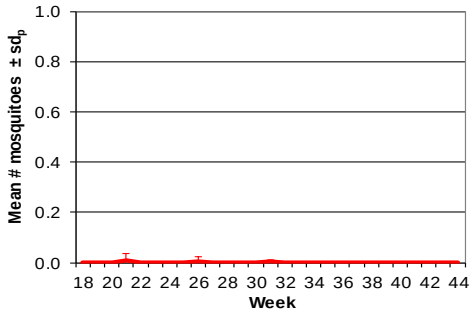
Delaware Bayshore



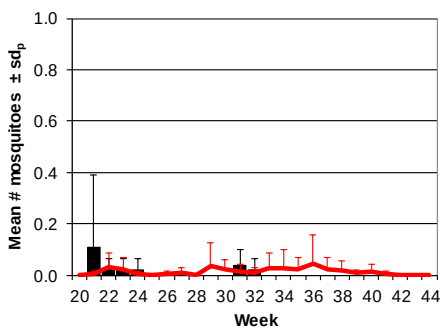
Delaware River Basin



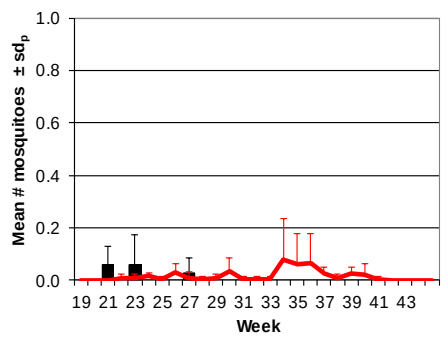
New York Metro



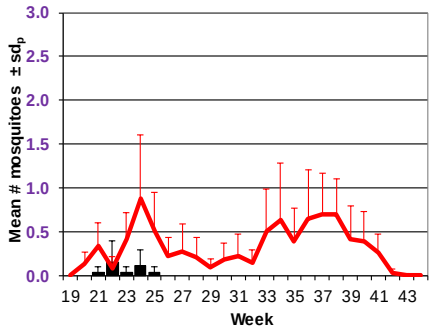
North Central Rural



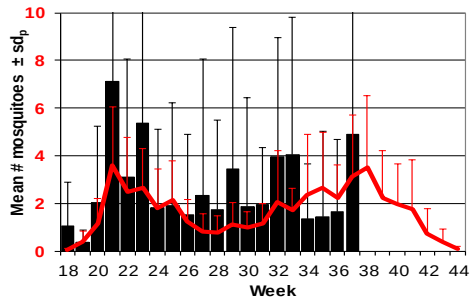
Northwestern Rural



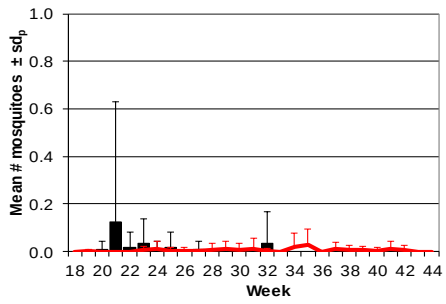
Philadelphia Metro



Pinelands



Suburban Corridor

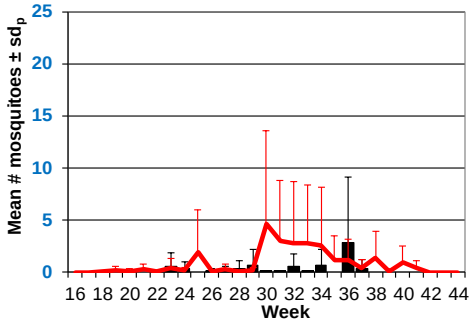
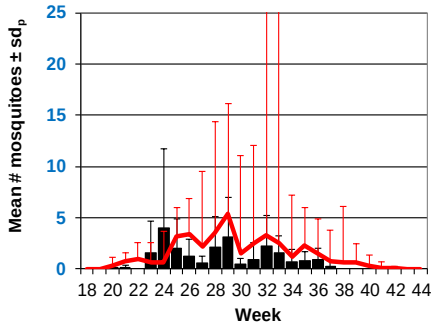
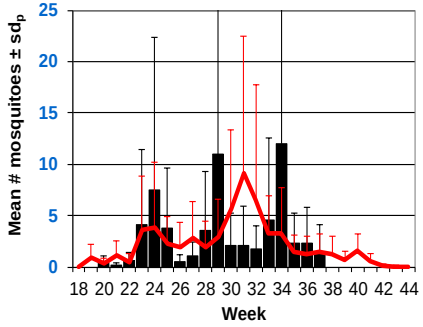
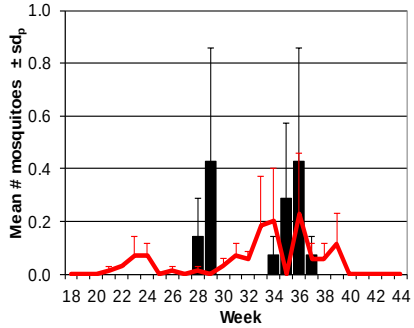
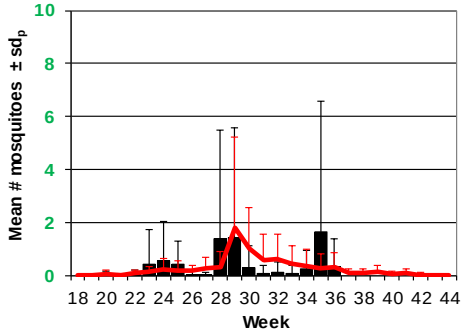
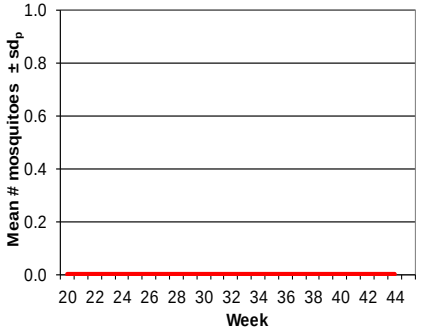
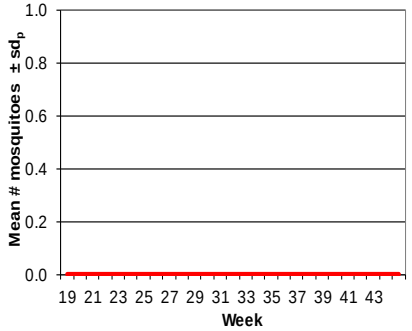
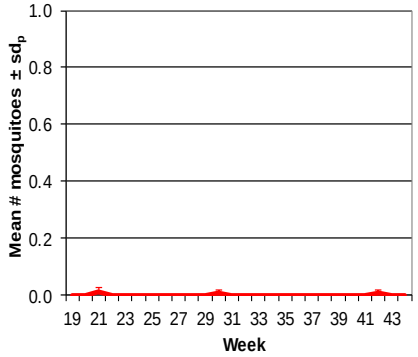
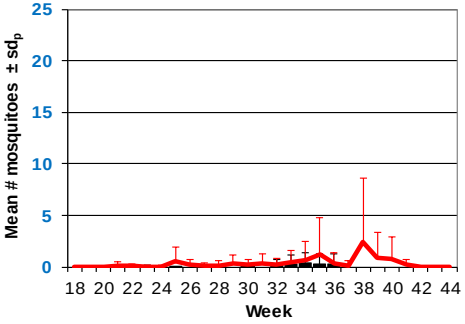
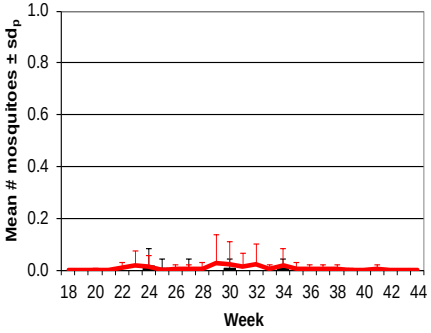


Comments

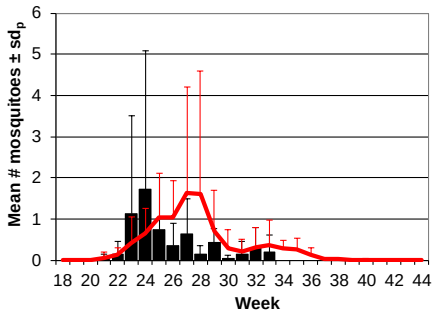
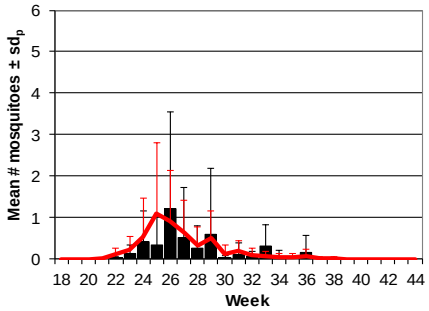
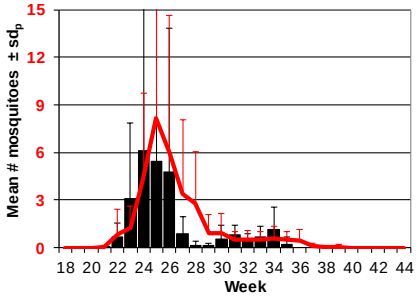
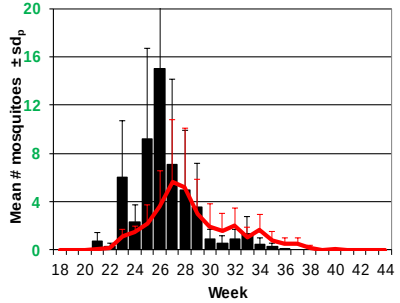
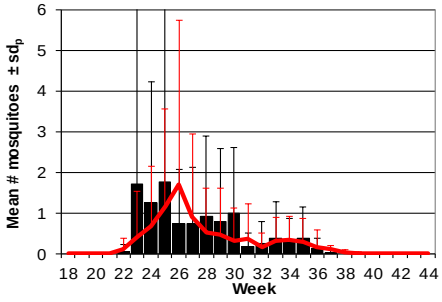
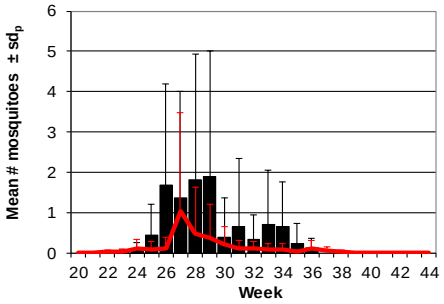
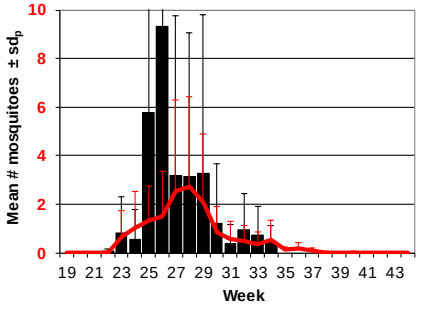
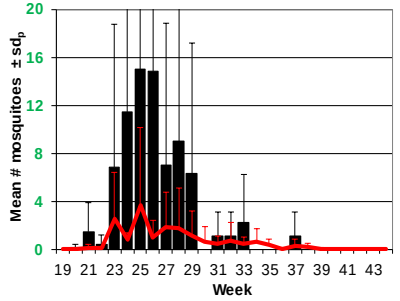
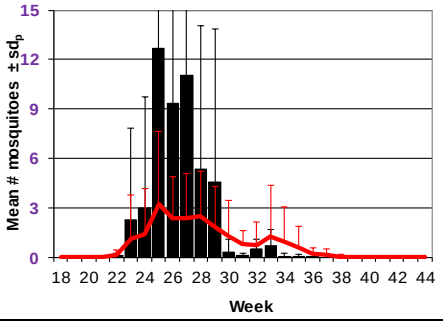
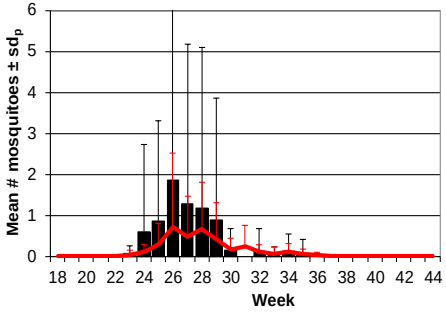
Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. This cold-hearty species can emerge early in the season as well as staying active later. Elevated numbers were observed in the Pinelands and with continued EEE activity, due diligence in monitoring this species should continue.

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

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

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. Like freshwater species (*Ae. vexans*), *Aedes sollicitans* continued a response to flooding that occurred after Ida passed through. *Aedes sollicitans* had a continued mild population increase in the Delaware River Basin. Clear, definitive 3 major emergences have occurred with this species. Next full moon on 20 October. Salt line on the Delaware River is within expected values along the Basin region: https://www.nj.gov/drbc/programs/flow/salt-front.html	

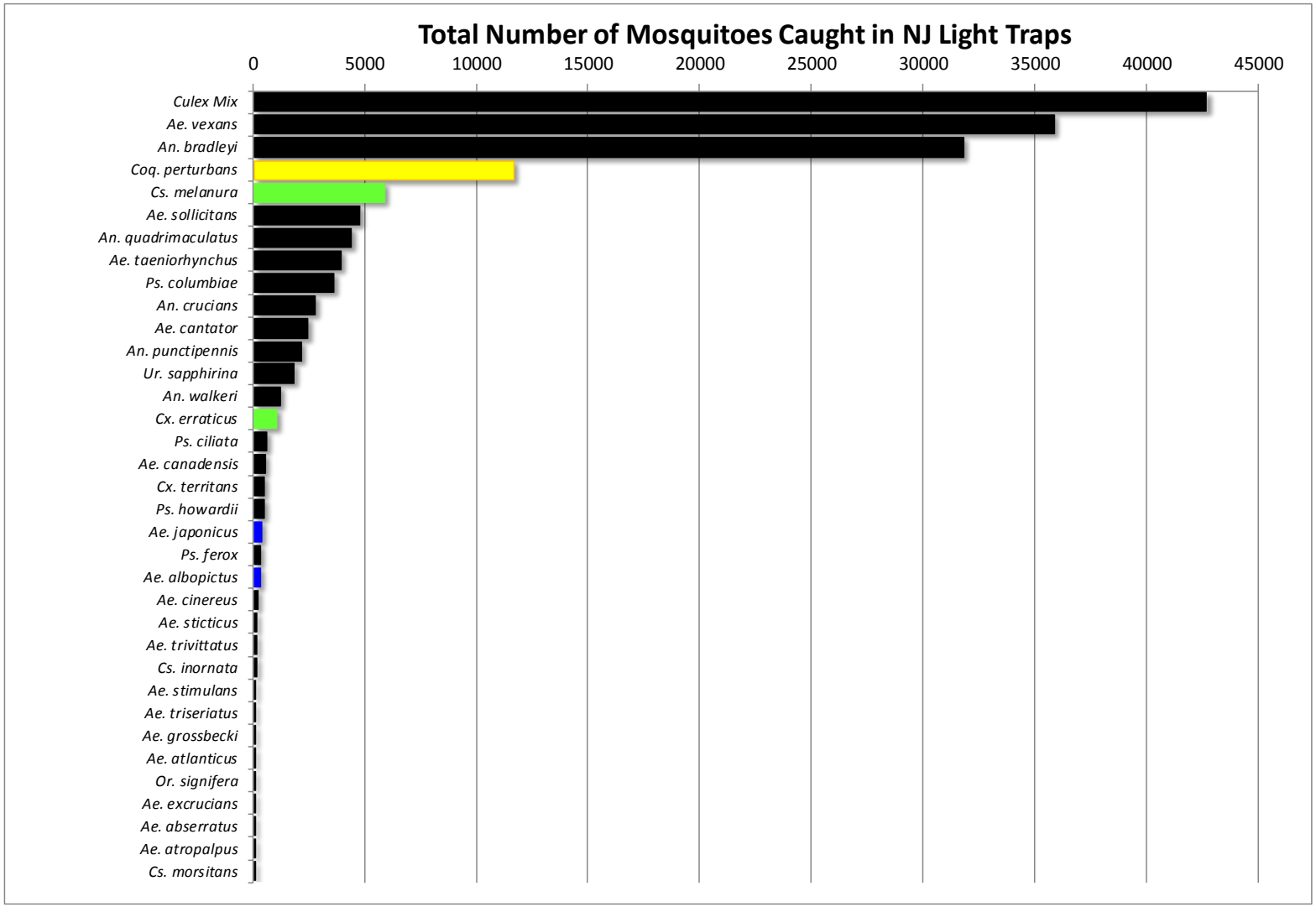
Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

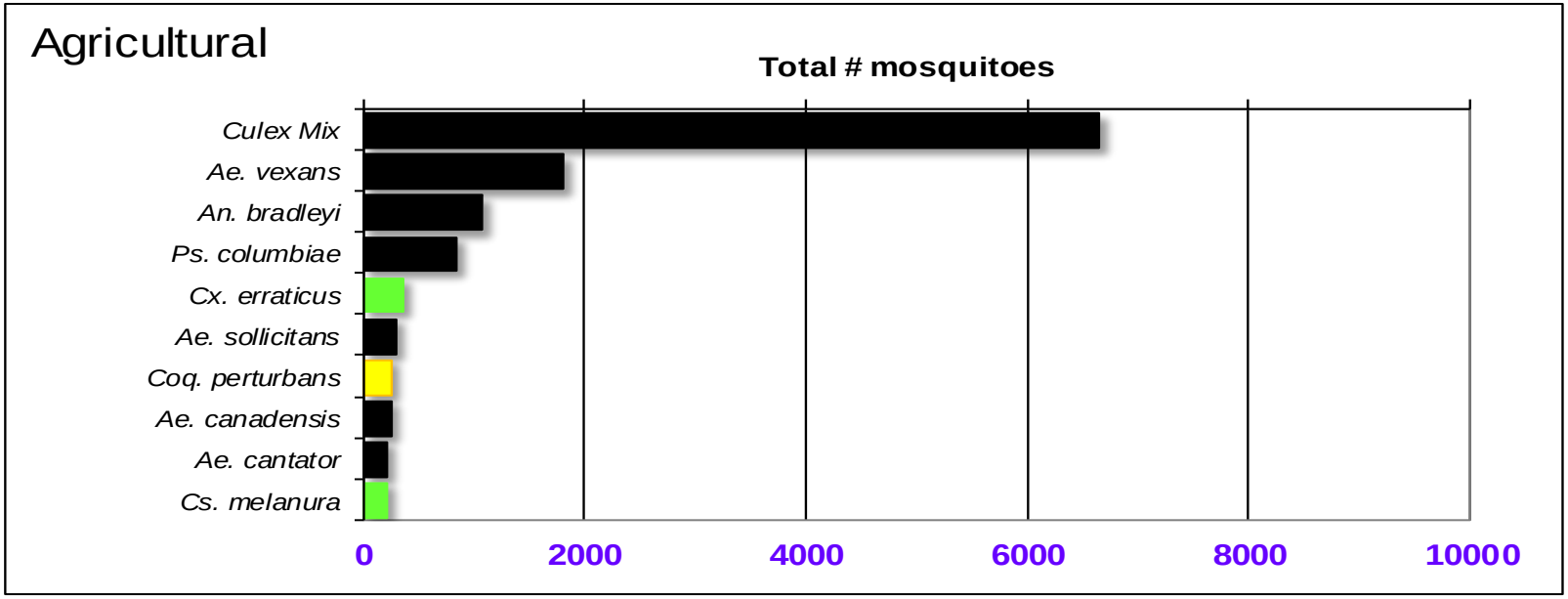
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. As previously noted, despite a seasonally decreasing population, *Coquillettidia perturbans* displayed a significant increase, this time in the Philadelphia Metropolitan region. EEE has been detected in the state and as such, due diligence should be taken with the monitoring of the endemic vector (*Cs. melanura*) and this bridge vector (*Coq. perturbans*).	

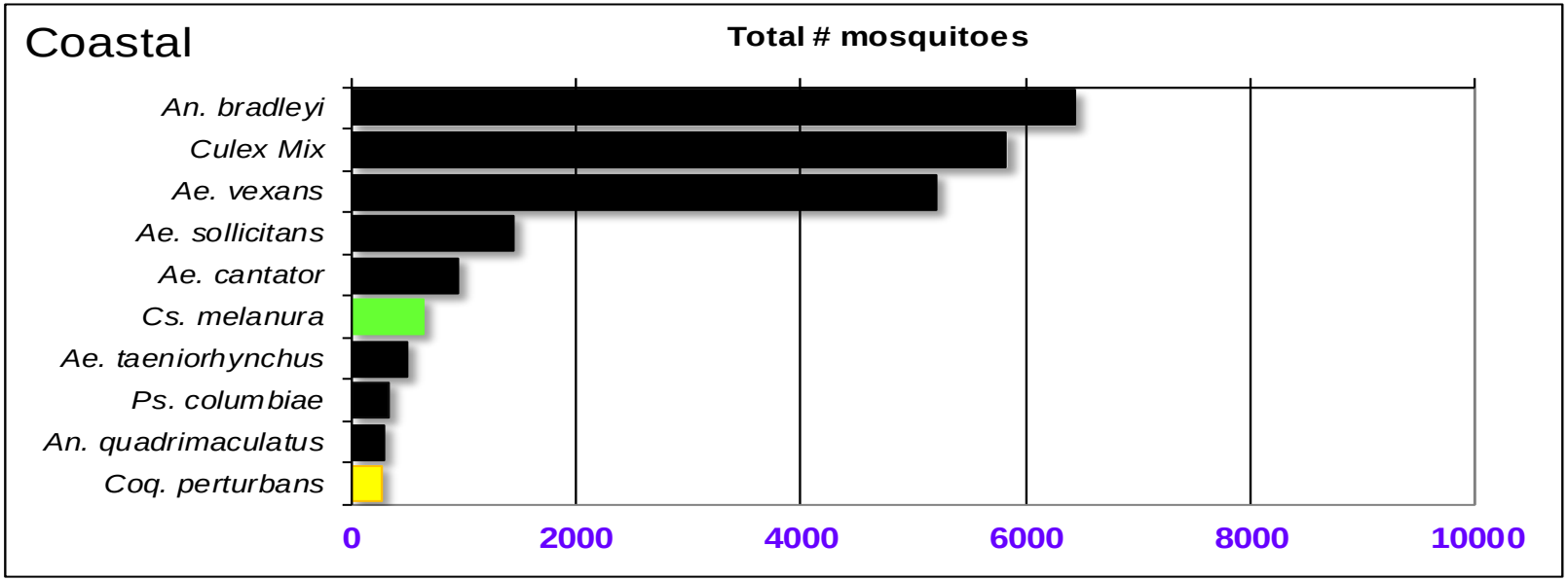
WNV *EEE*

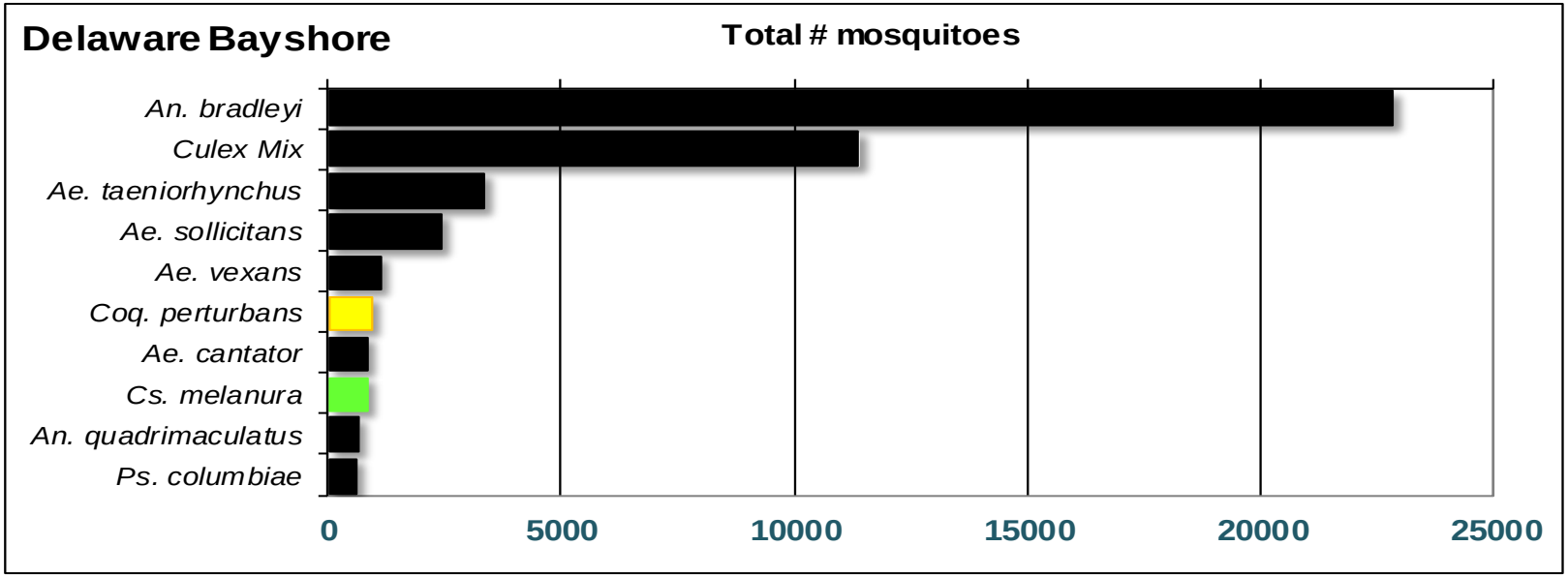
Top Ten Mosquito Species/Region - *Ae. albopictus, Ae. japonicus (invasives); Cs. melanura or Cx. erraticus Coq. perturbans*

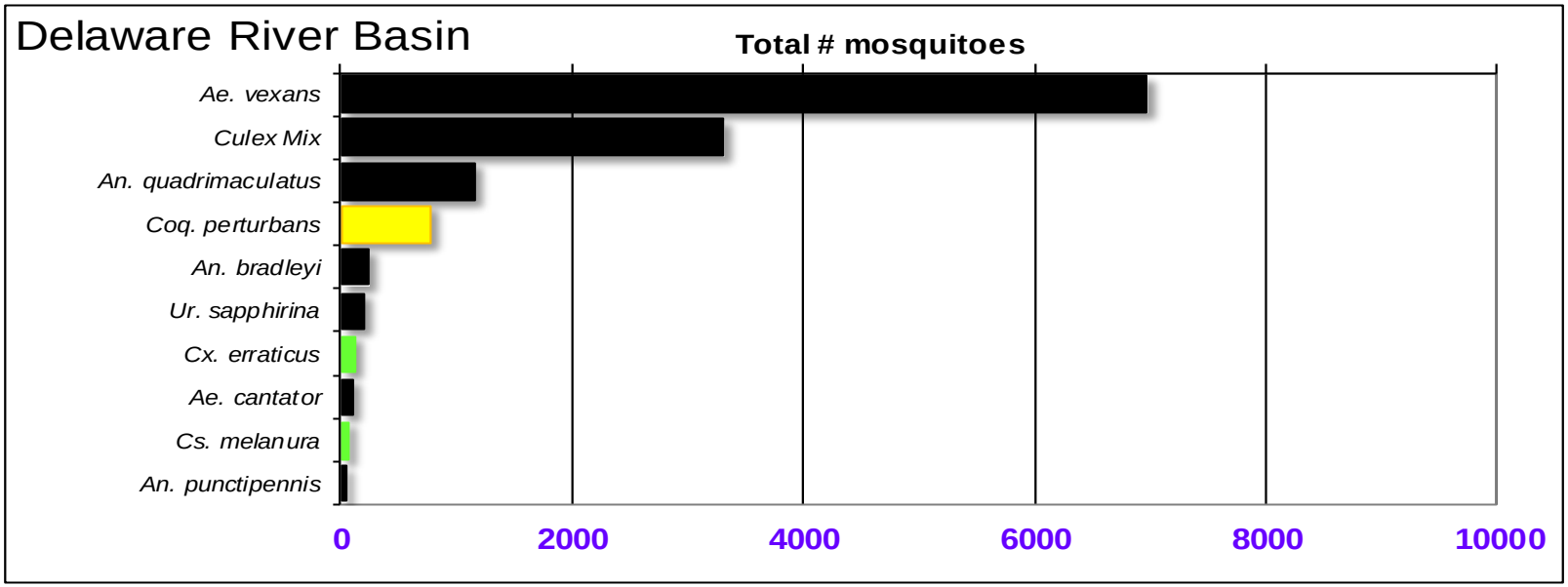
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

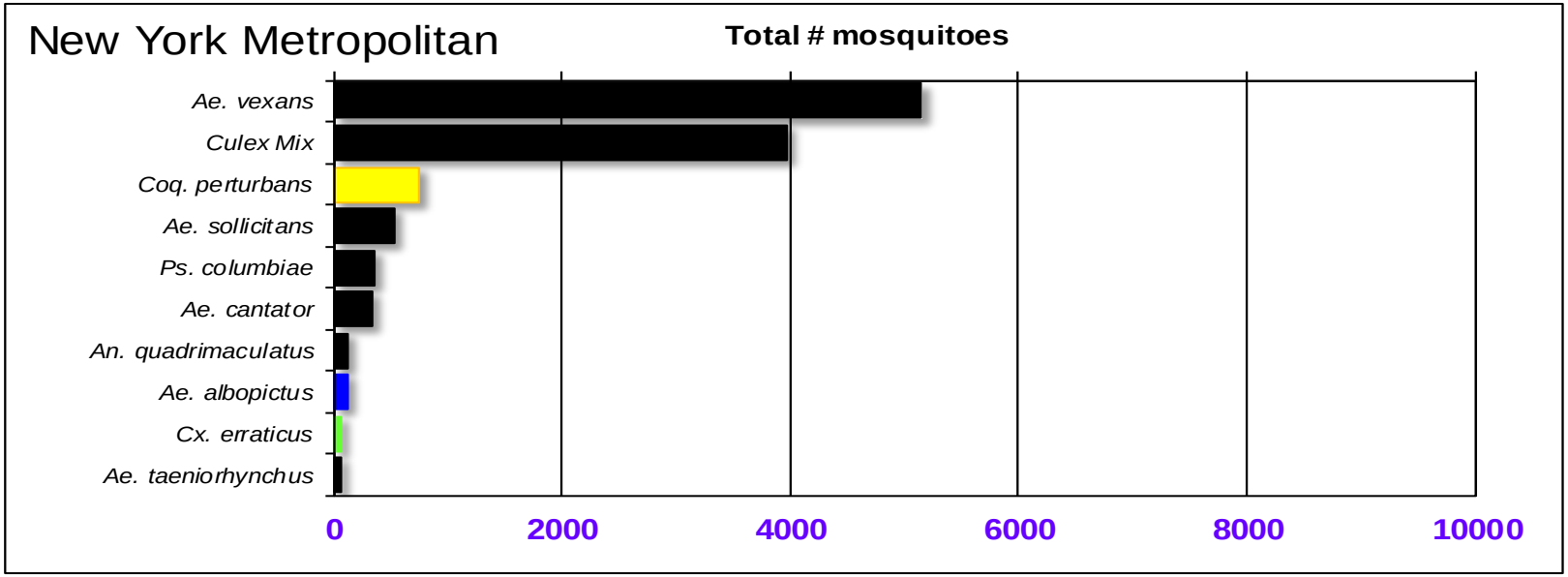


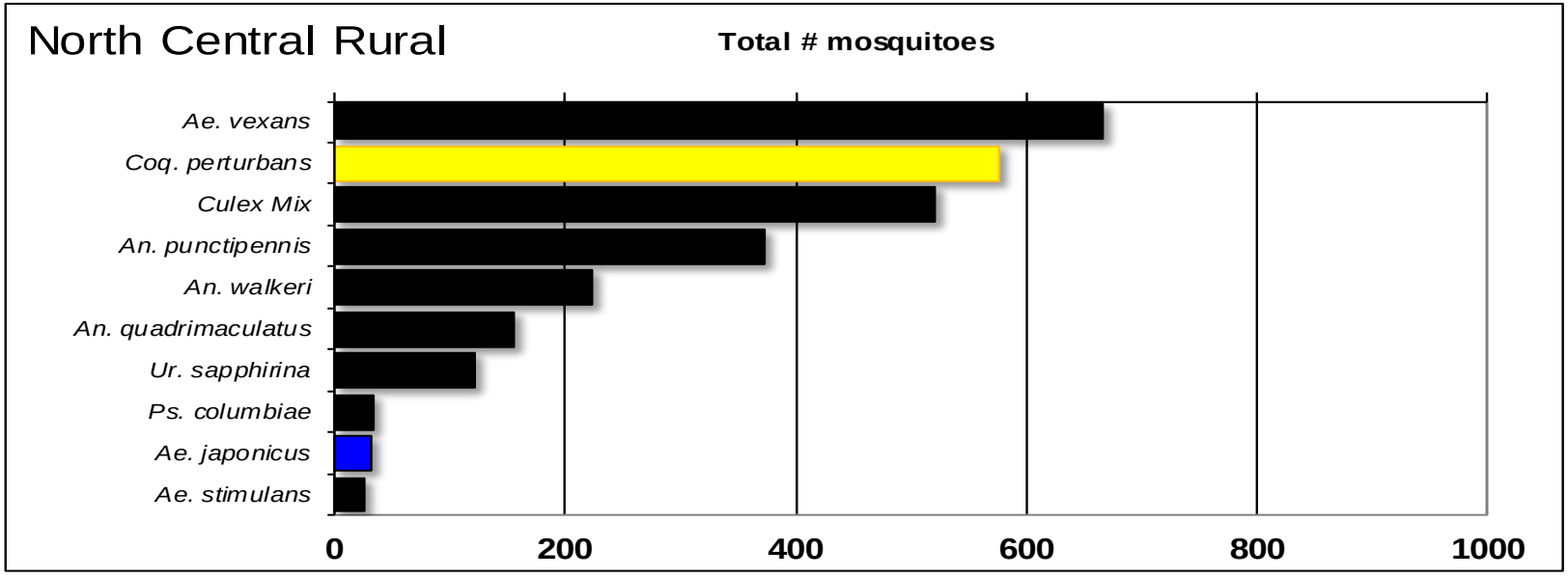

Agricultural
Total # mosquitoes
Culex Mix
Ae. vexans
An. bradleyi
Ps. columbiae
Cx. erraticus
Ae. sollicitans
Coq. perturbans
Ae. canadensis
Ae. cantator
Cs. melanura
0
2000
4000
6000
8000
10000

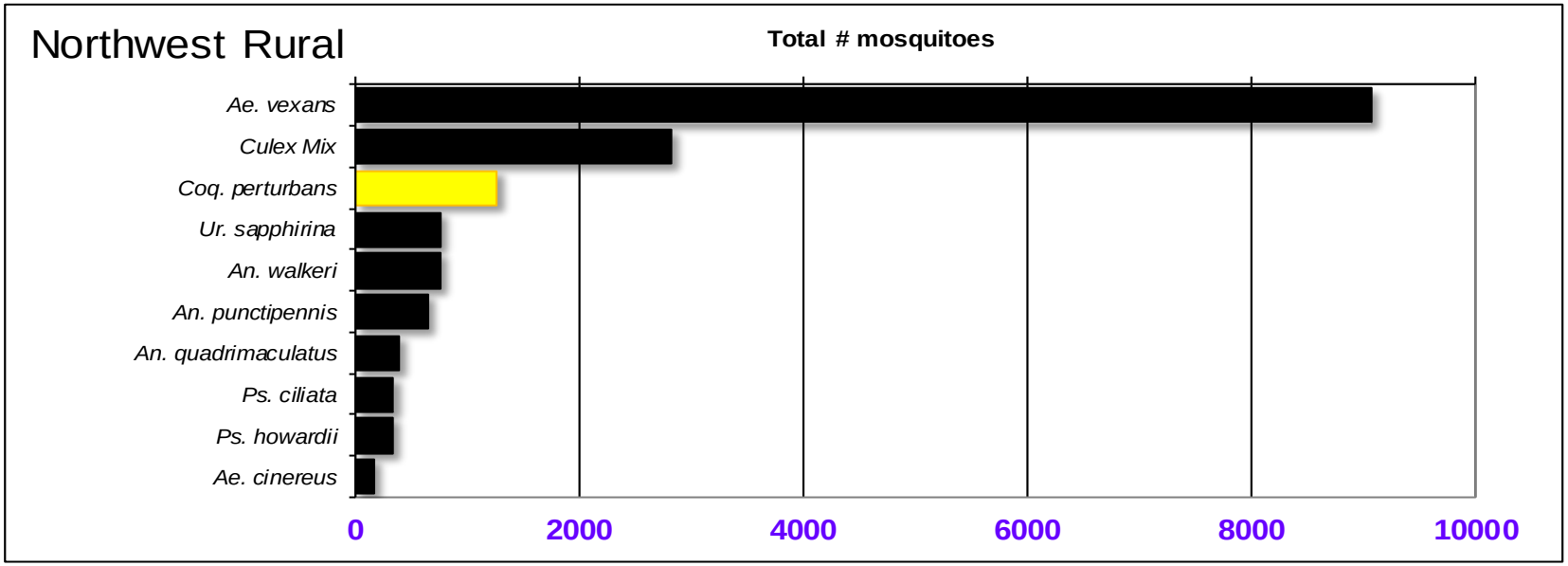

Coastal
Total # mosquitoes
An. bradleyi
Culex Mix
Ae. vexans
Ae. sollicitans
Ae. cantator
Cs. melanura
Ae. taeniorhynchus
Ps. columbiae
An. quadrimaculatus
Coq. perturbans
0
2000
4000
6000
8000
10000

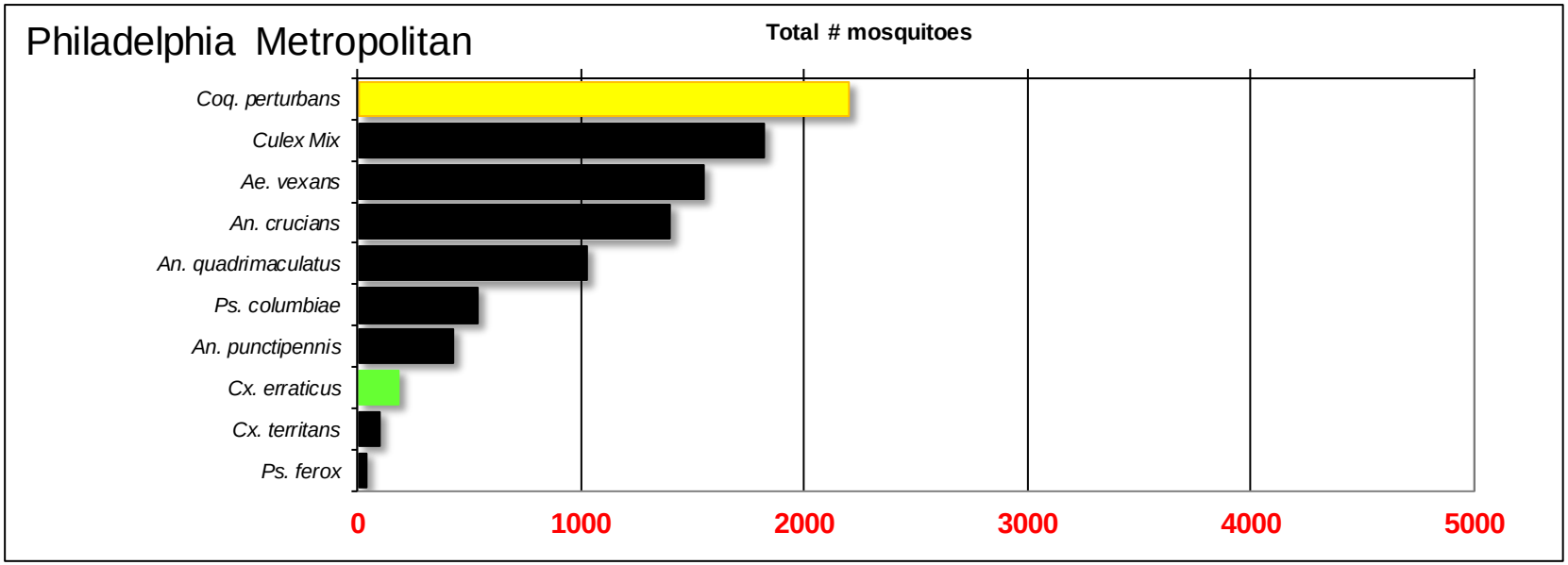

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
Ae. taeniorhynchus
Ae. sollicitans
Ae. vexans
Coq. perturbans
Ae. cantator
Cs. melanura
An. quadrimaculatus
Ps. columbiae
0
5000
10000
15000
20000
25000

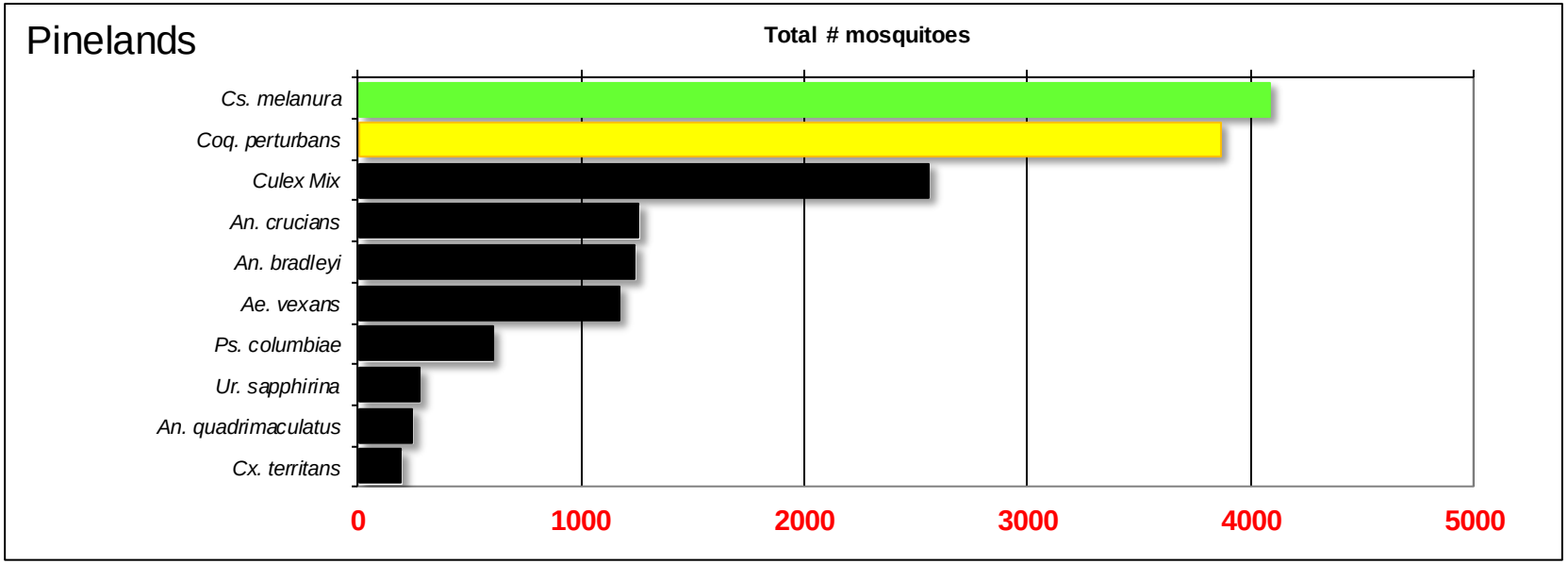

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
Coq. perturbans
An. bradleyi
Ur. sapphirina
Cx. erraticus
Ae. cantator
Cs. melanura
An. punctipennis
0
2000
4000
6000
8000
10000

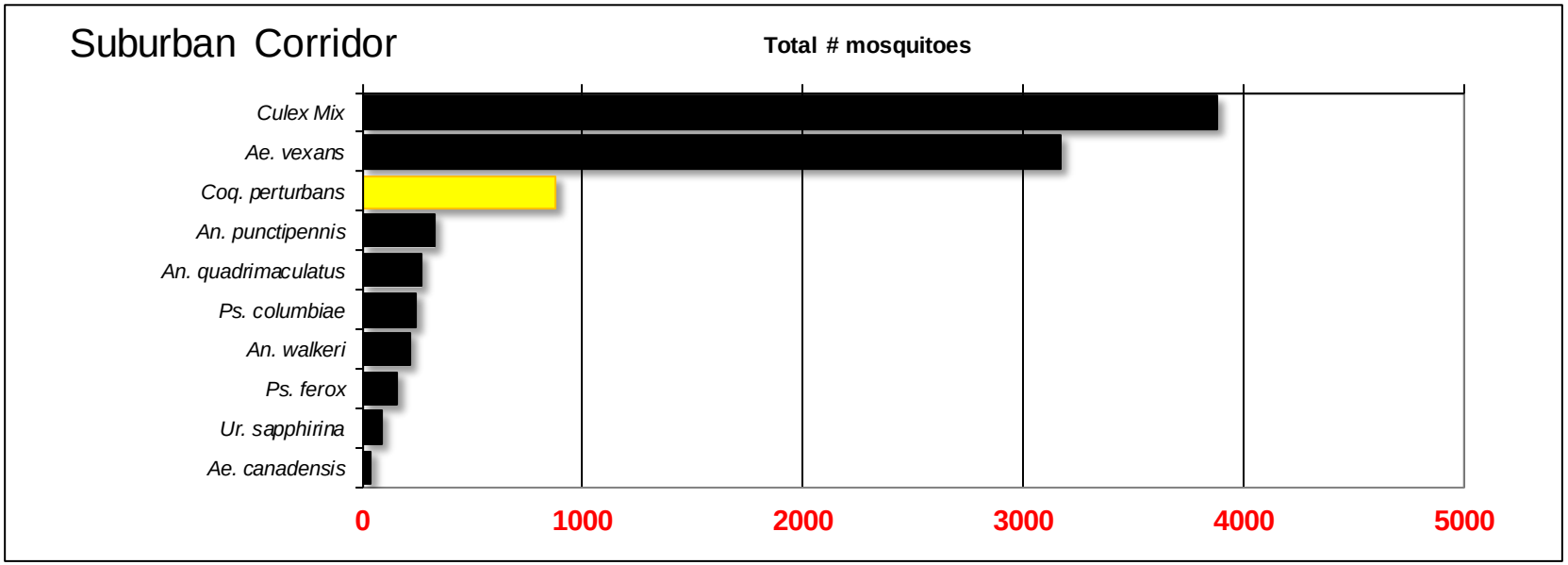

New York Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
Ae. sollicitans
Ps. columbiae
Ae. cantator
An. quadrimaculatus
Ae. albopictus
Cx. erraticus
Ae. taeniorhynchus
0
2000
4000
6000
8000
10000


North Central Rural
Total # mosquitoes
Ae. vexans
Coq. perturbans
Culex Mix
An. punctipennis
An. walkeri
An. quadrimaculatus
Ur. sapphirina
Ps. columbiae
Ae. japonicus
Ae. stimulans
0
200
400
600
800
1000


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


Philadelphia Metropolitan
Total # mosquitoes
Coq. perturbans
Culex Mix
Ae. vexans
An. crucians
An. quadrimaculatus
Ps. columbiae
An. punctipennis
Cx. erraticus
Cx. territans
Ps. ferox
0
1000
2000
3000
4000
5000


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


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