NEW JERSEY ADULT MOSQUITO SURVEILLANCE Report

October 23 to October 29 CDC Week 43

Prepared by Lisa M. Reed and Dina Fonseca
Center for Vector Biology

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funding from the NJ State Mosquito Control Commission and with the participation of the 21 county mosquito control agencies of New Jersey.

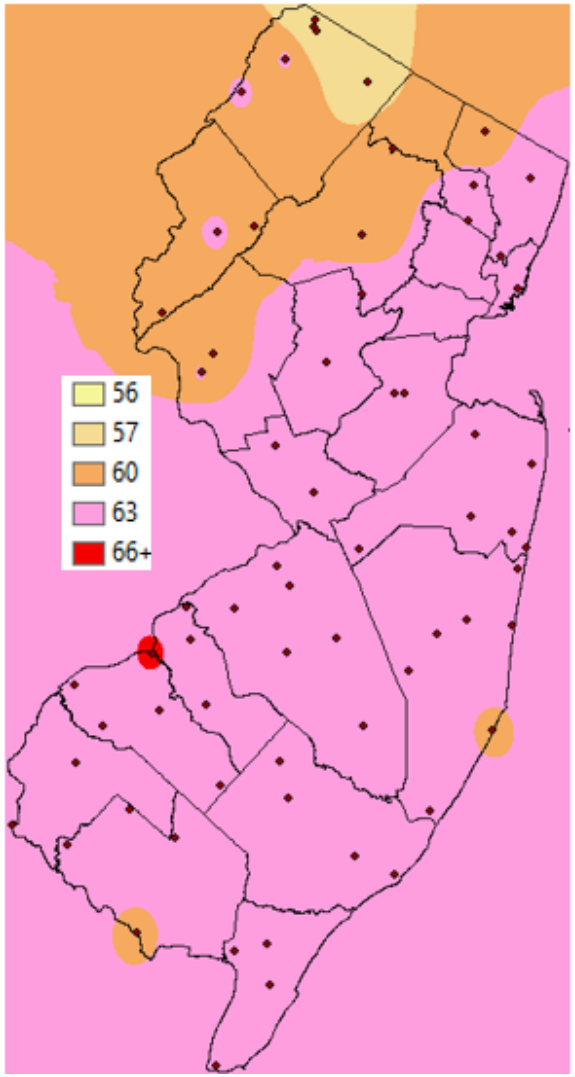
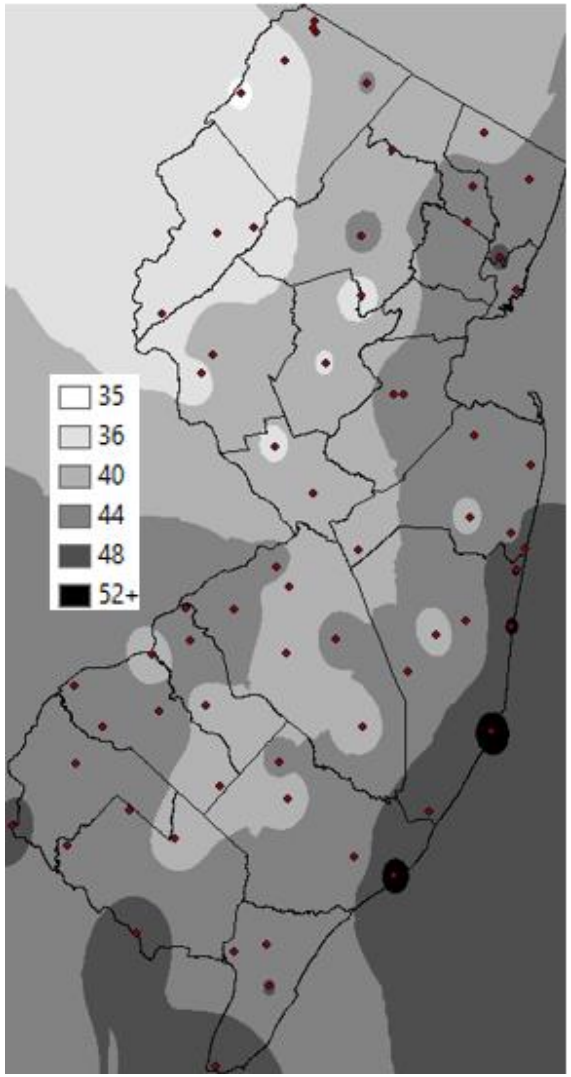
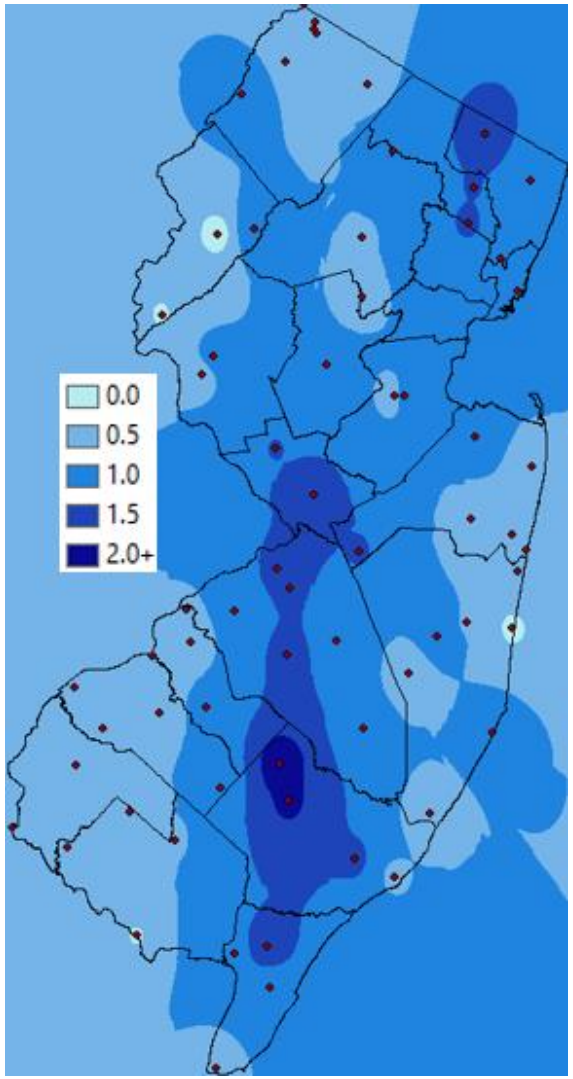
Summary Table – Week 43

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	0.00	0.81	0	1.79	7.59	0	0.00	0.00	0	0.00	<0.01	0
Coastal	0.24	1.09	0	0.21	2.00	0	0.00	0.00	0	0.00	<0.01	0
Delaware Bayshore	0.43	2.83	0	0.79	5.05	0	0.00	0.00	0	0.00	0.05	0
Delaware River Basin	0.14	0.64	0	5.64	1.09	4	0.00	0.00	0	0.00	0.00	0
New York Metro	0.00	0.09	0	0.00	0.57	0	0.00	0.00	0	0.00	0.00	0
North Central Rural	0.00	<0.01	0	0.04	<0.01	4	0.00	0.00	0	0.00	0.00	0
Northwest Rural	0.00	0.61	0	0.00	0.33	0	0.00	0.00	0	0.00	0.00	0
Philadelphia Metro	0.00	0.27	0	0.00	0.35	0	0.00	0.00	0	0.00	0.00	0
Pinelands	0.14	0.30	0	0.17	0.56	0	0.00	0.00	0	0.12	0.00	0
Suburban Corridor	0.00	0.06	0	0.00	0.12	0	0.00	0.00	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.

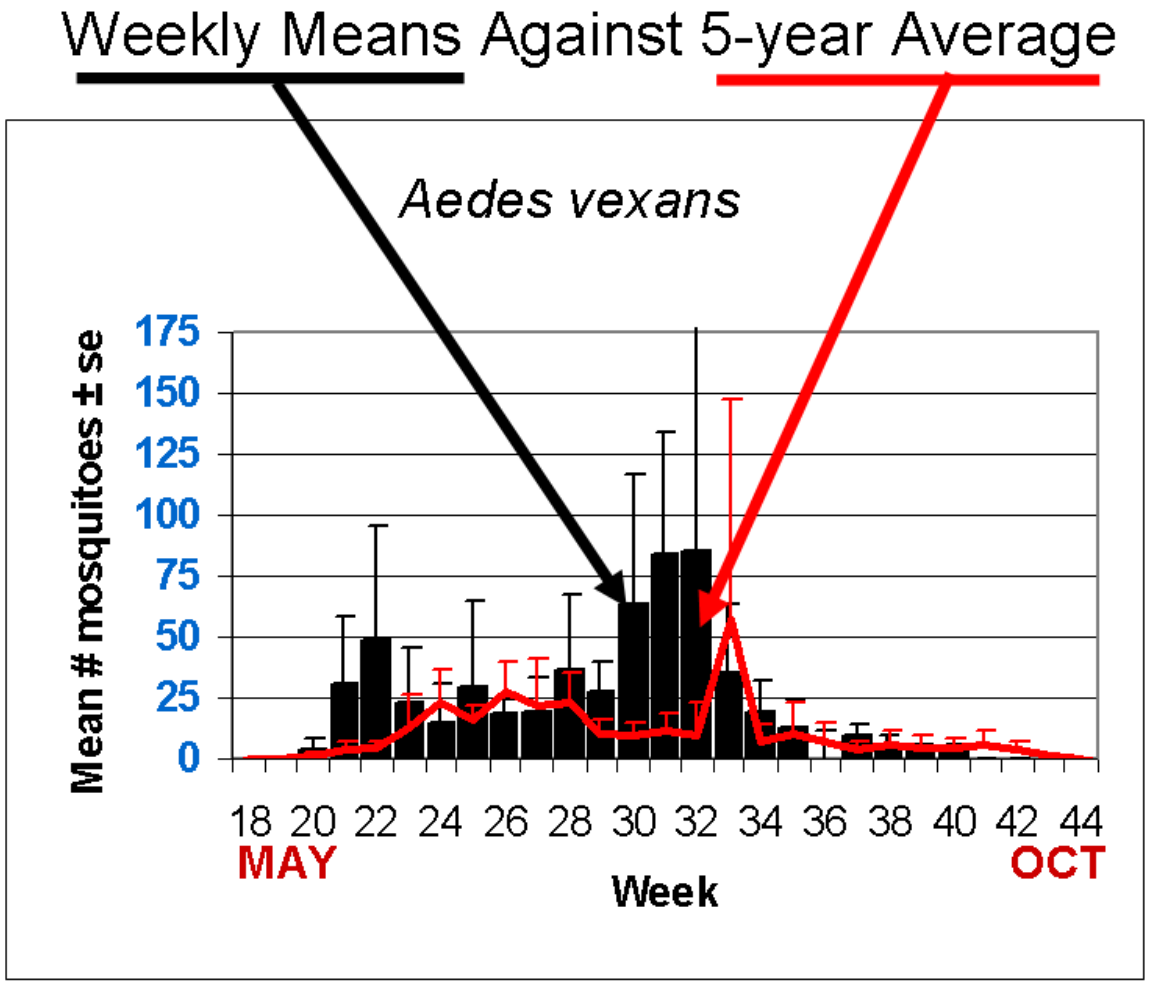
State Summary: *Culex* Mix abundances in the Delaware River Basin and the North Central Rural regions were significantly above the historical trends. *Coquillettidia perturbans* and *Aedes sollicitans* are through for the season. Since numbers (mostly) continue to fall and northern counties are bringing their traps in, this is the last report for the 2022 season.
Aedes albopictus trends in light trap and BG Sentinel traps are also presented, on pages 9 and 10.

Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

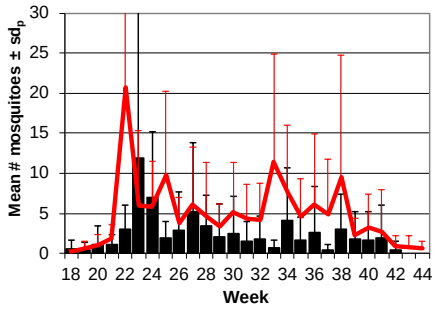
The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) for 14 days prior to 30 October 2022 in New Jersey. Data points are from about 45 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

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 shows 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, Hudson, Mercer, Middlesex, Morris, Passaic, Salem, and Sussex counties. Data for the previous week are from Atlantic, Bergen, Cape May, Cumberland, Hudson, Mercer, Middlesex, Morris, Ocean, Passaic, Salem, Somerset, Sussex, Union, and Warren counties.
Northern counties are bringing traps in.

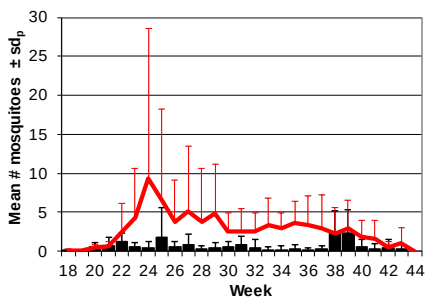


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

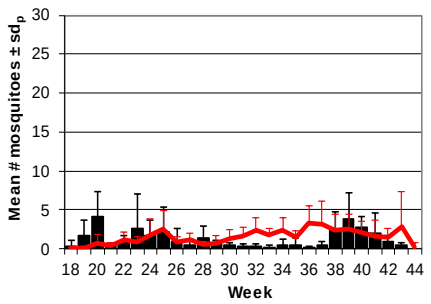
Agricultural



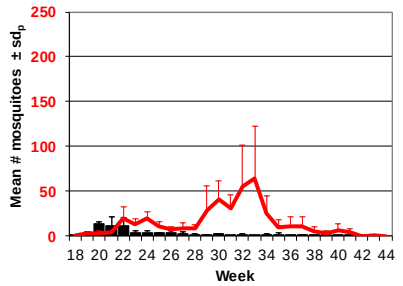
Coastal



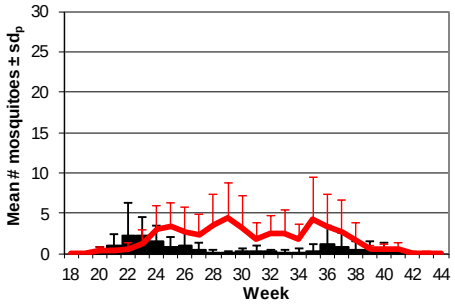
Delaware Bayshore



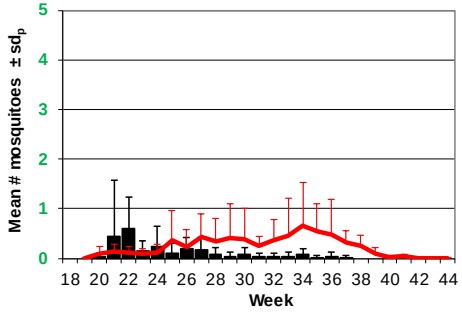
Delaware River Basin



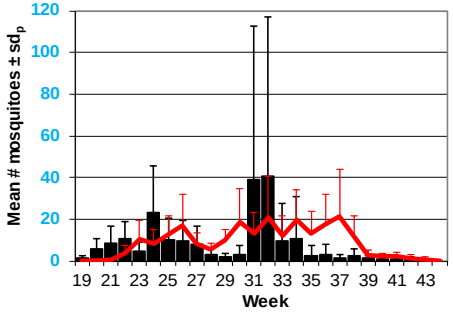
New York Metro



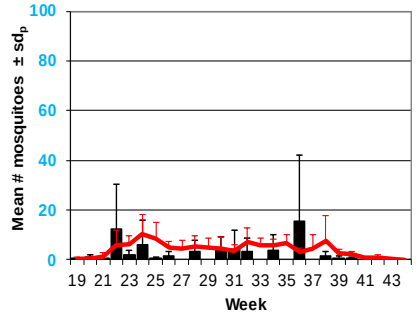
North Central Rural



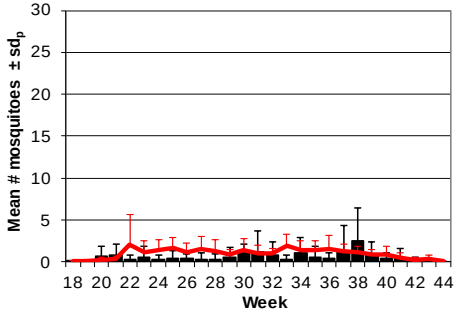
Northwestern Rural



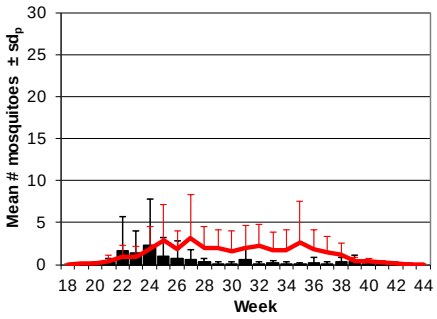
Philadelphia Metro



Pinelands



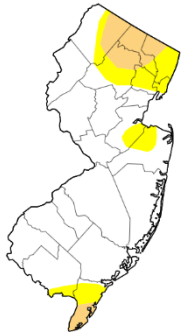
Suburban Corridor



Comments

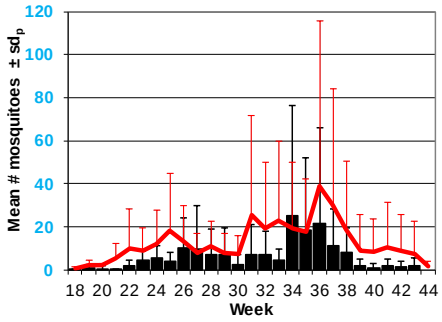
Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. Drought conditions continued to ease significantly from the previous week with recent precipitation. No populations of *Aedes vexans* were above historical trends.

Drought areas are classified as “abnormally dry” in yellow or “moderately dry” in orange.
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NJ

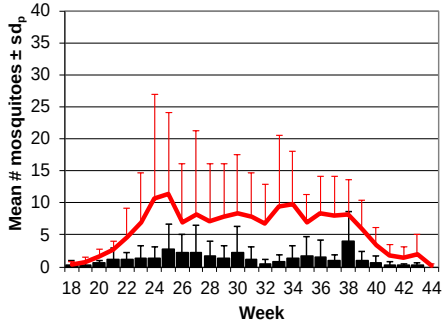


Culex Mix – Permanent Water Species
Multivoltine *Culex*/*Anopheles* (*Cx. pipiens* Type)

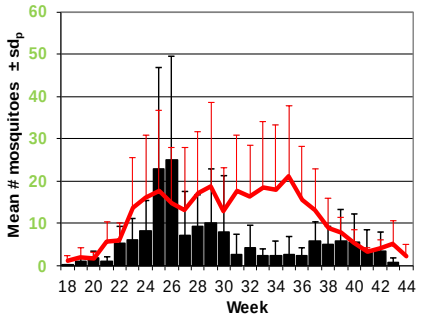
Agricultural



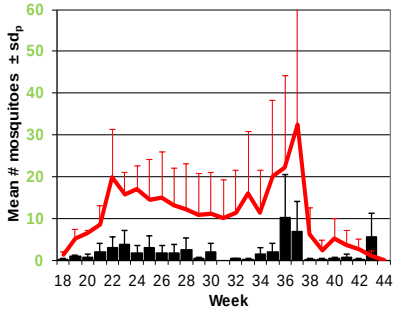
Coastal



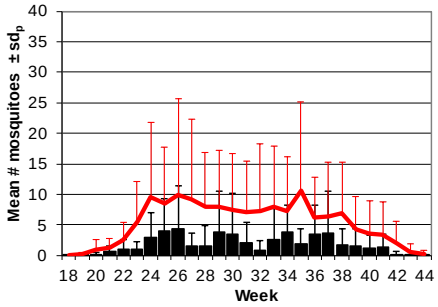
Delaware Bayshore



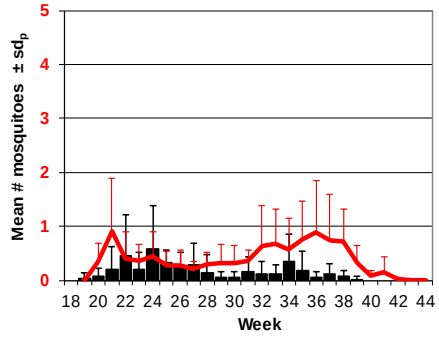
Delaware River Basin



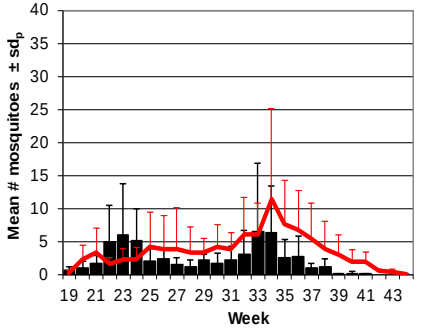
New York Metro



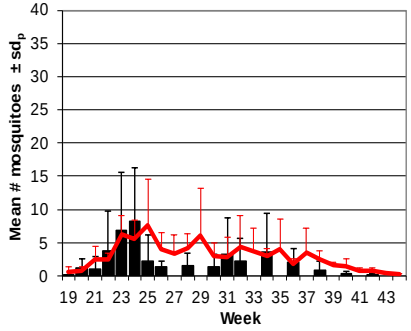
North Central Rural



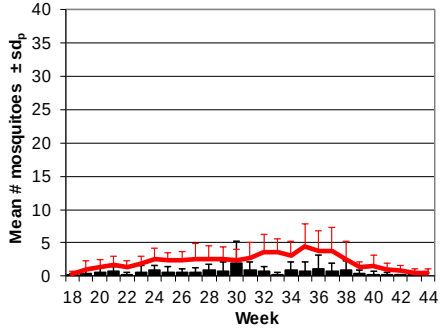
Northwestern Rural



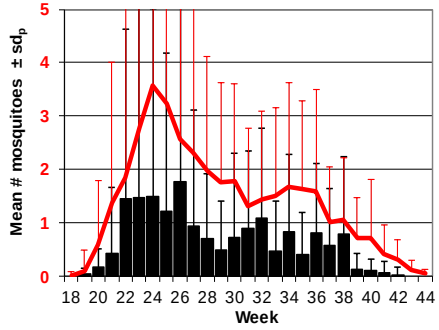
Philadelphia Metro



Pinelands



Suburban Corridor



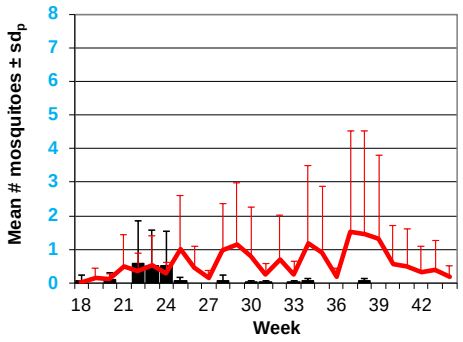
Comments

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. While most populations of *Culex* continue to be below the historical 5-year running means, abundances in the Delaware River Basin and North Central Rural regions were significantly above those trends (although the latter were of very small absolute values). West Nile activity trends have slowed down significantly.

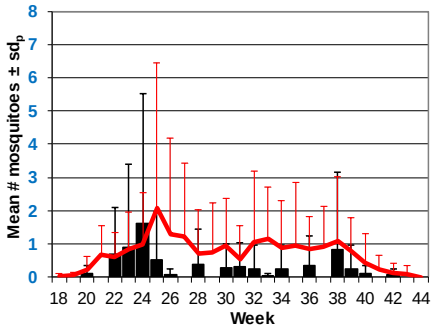
These ornithophilic species are primary enzootic vectors for West Nile and other viruses. West Nile virus has been detected in the state. Last year was a high activity year, with initial *Culex* populations in some regions reported with smaller numbers.

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

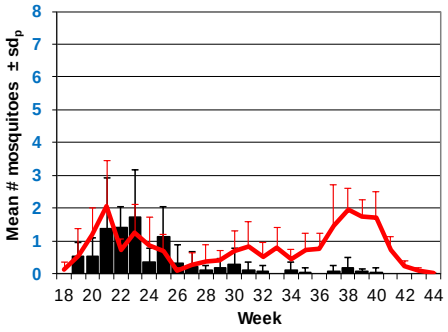
Agricultural



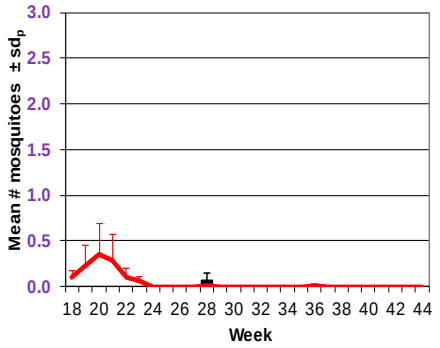
Coastal



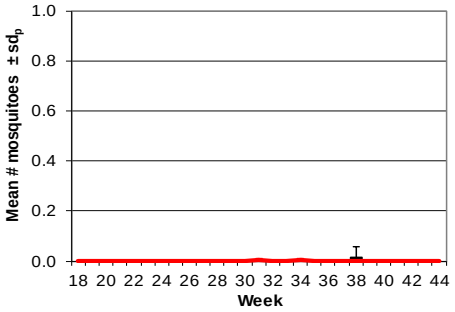
Delaware Bayshore



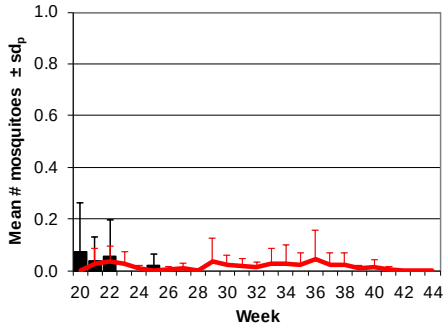
Delaware River Basin



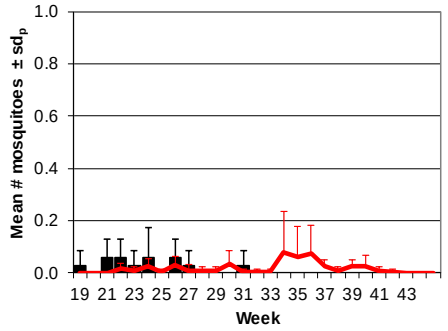
New York Metro



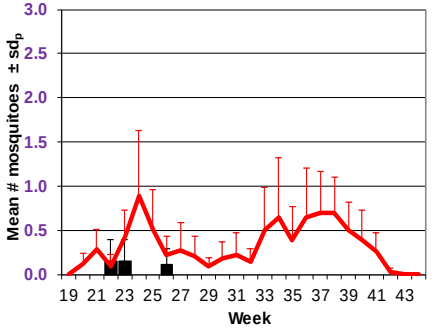
North Central Rural



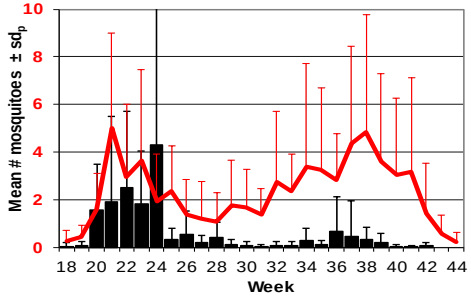
Northwestern Rural



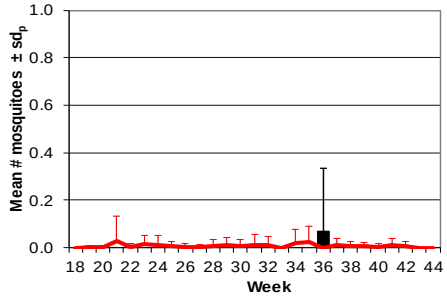
Philadelphia Metro



Pinelands



Suburban Corridor

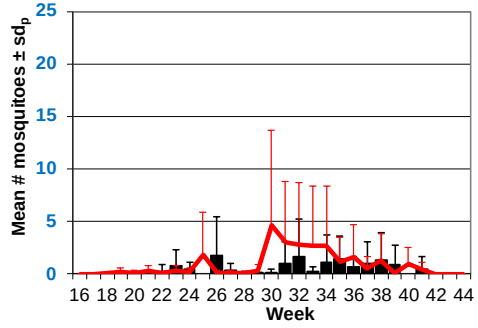
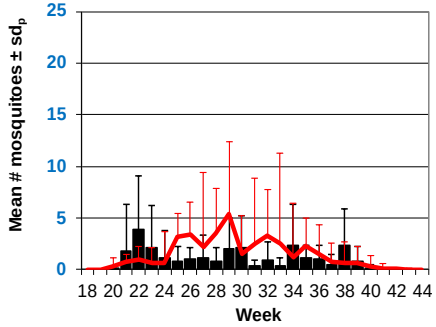
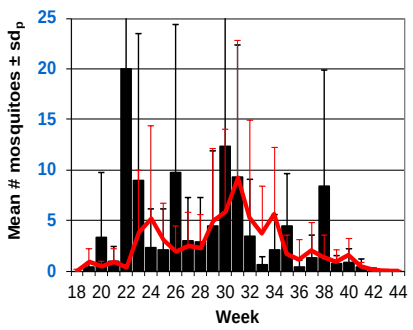
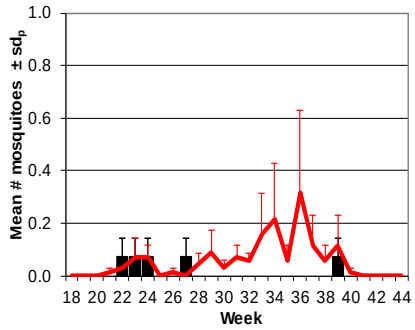
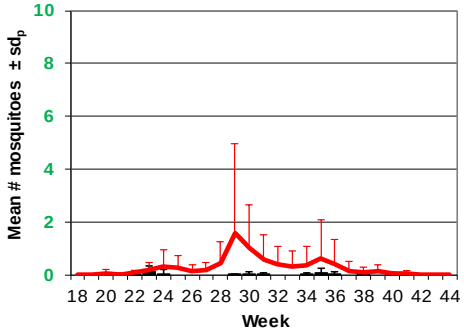
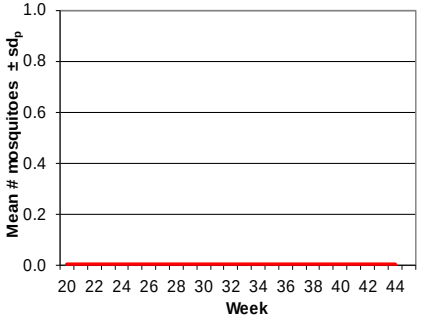
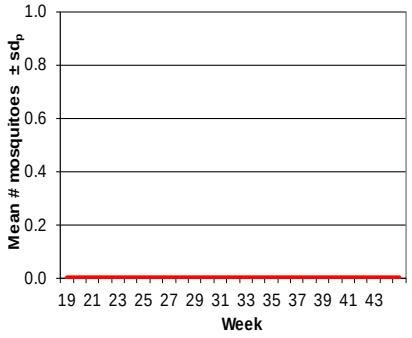
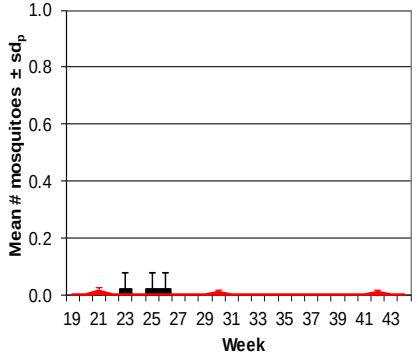
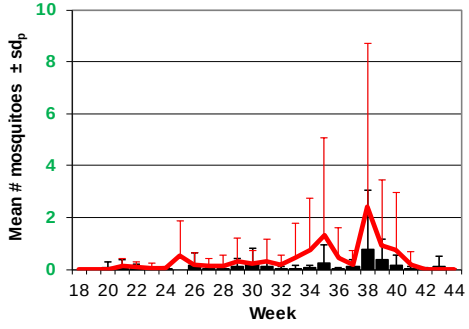
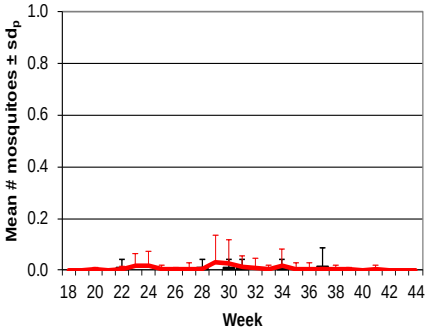


Comments

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 late into fall. EEE activity has recently been found in two pools of *Cs, melanura* in the southern half of the state. But no populations of this species were found to above the historical trends during the current week. Recent warmer weather suggests that this cold-hardy species could be on the wing for a little while longer and it should be noted that horse cases of EEE have occurred in November.

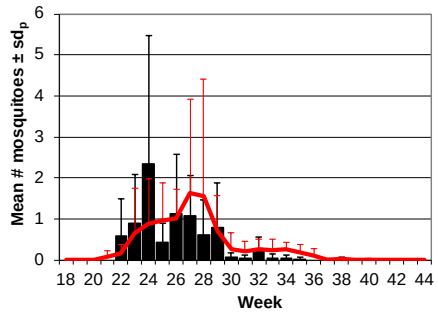
All horse owners should make sure their horses are up to date on their EEE/WNV vaccination schedules:
http://www.aaep.org/custdocs/adultvaccinationchart.pdf

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

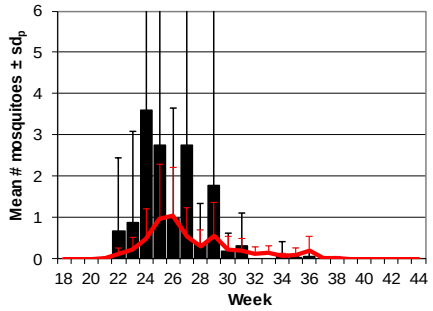
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. *Aedes sollicitans* have dropped to zero and this species is effectively done for the season. Next full moon is November 8th. 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)

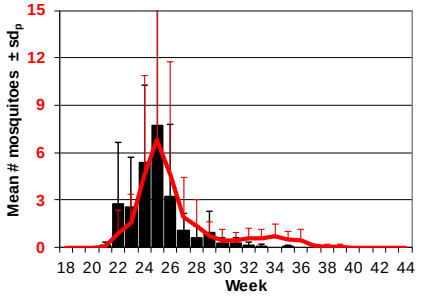
Agricultural



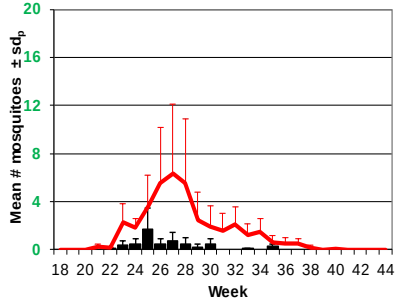
Coastal



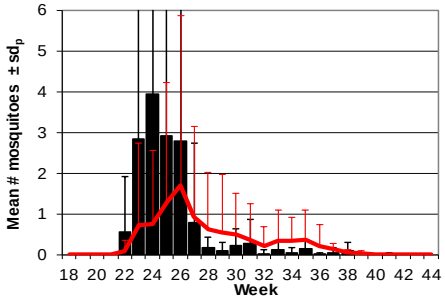
Delaware Bayshore



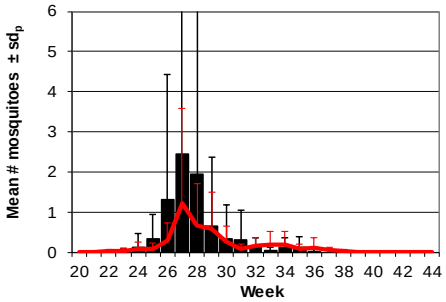
Delaware River Basin



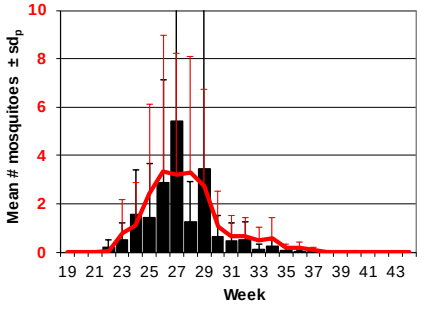
New York Metro



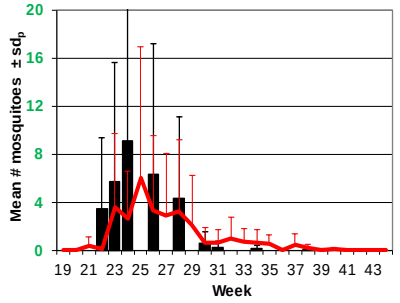
North Central Rural



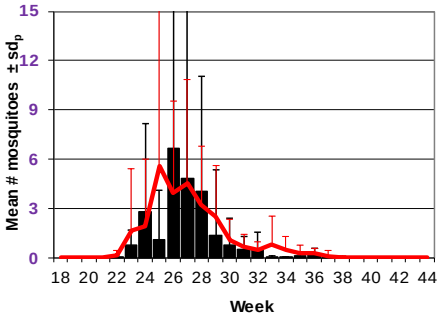
Northwestern Rural



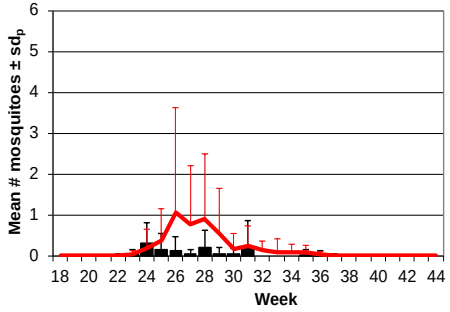
Philadelphia Metro



Pinelands



Suburban Corridor



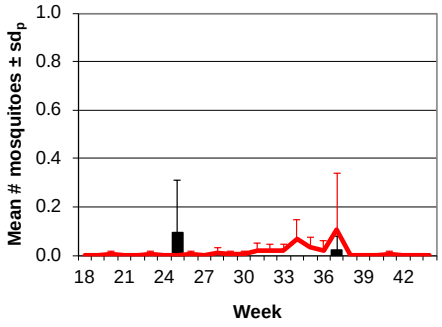
Comments

Coquillettidia perturbans populations are in cattail swamps and other wetlands with emergent vegetation, often making population control dependent on controlling water depth. *Coquillettidia perturbans* populations have finished for the season.

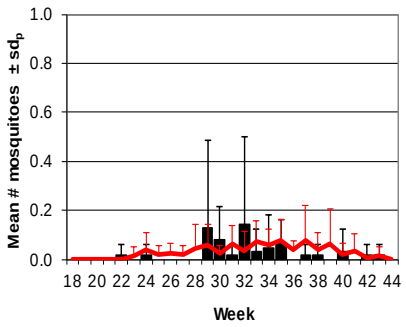
This species is considered a potential inland vector for EEE, and positive pools are often detected and as such, due diligence should be taken with the monitoring of the endemic vector (*Cs. melanura*) and this bridge vector (*Coq. perturbans*).

Aedes albopictus – Multivoltine Aedine (*Aedes triseriatus* Type)

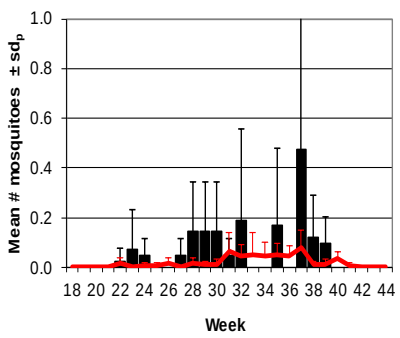
Agricultural



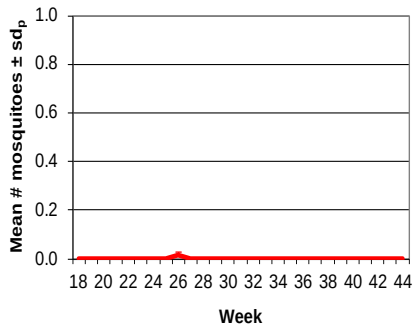
Coastal



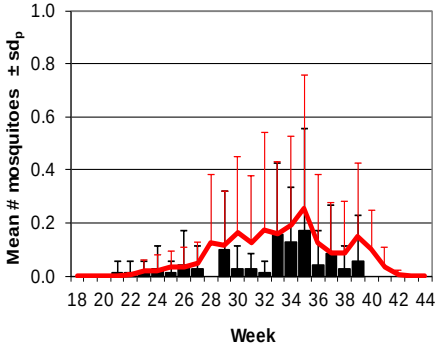
Delaware Bayshore



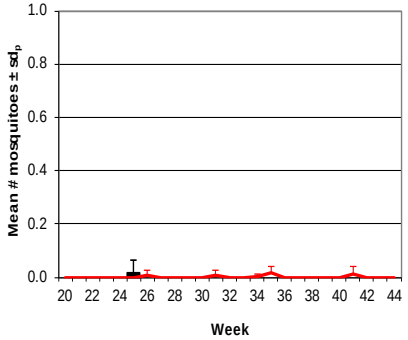
Delaware River Basin



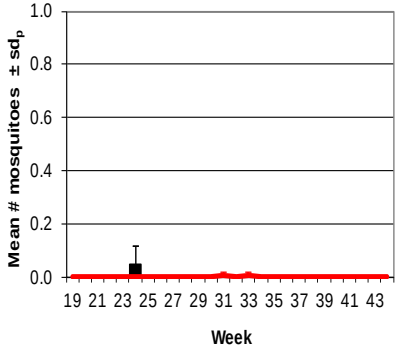
New York Metro



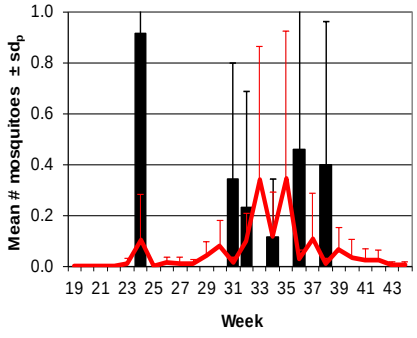
North Central Rural



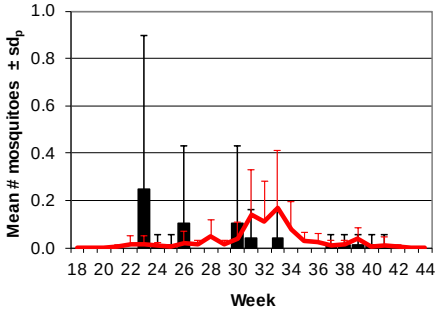
Northwestern Rural



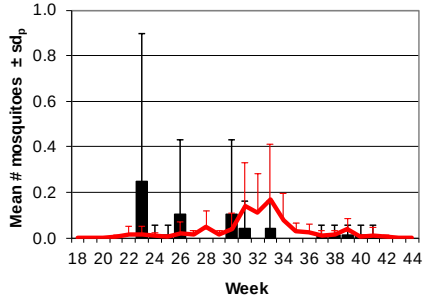
Philadelphia Metro



Pinelands



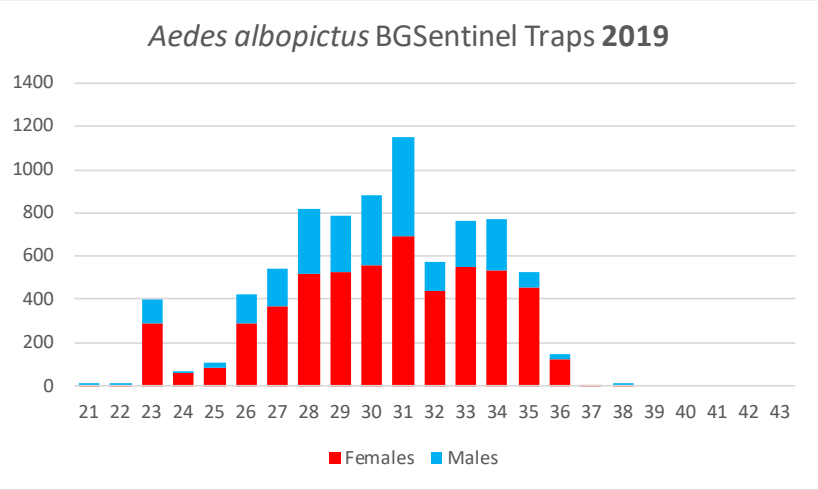
Suburban Corridor

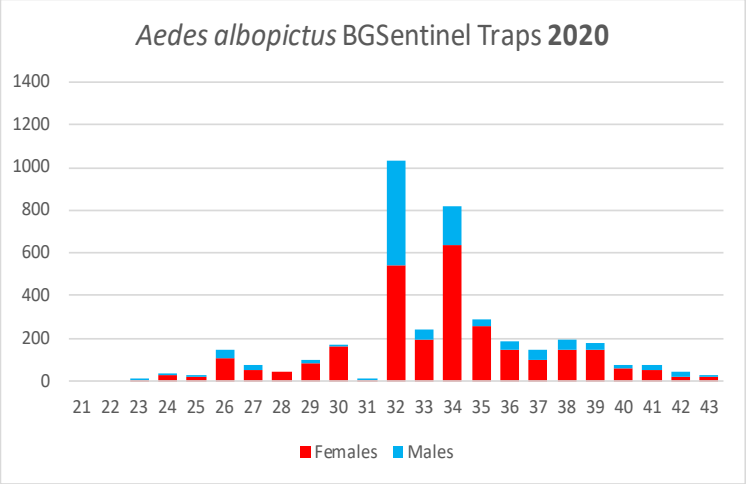


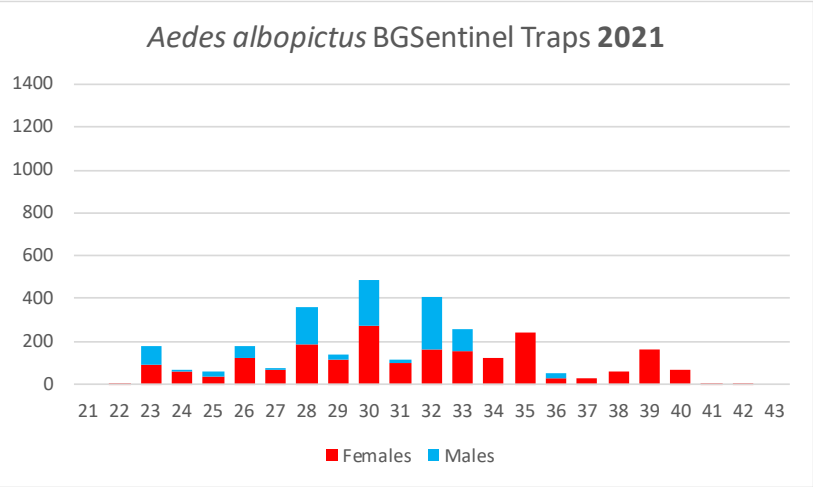
Comments

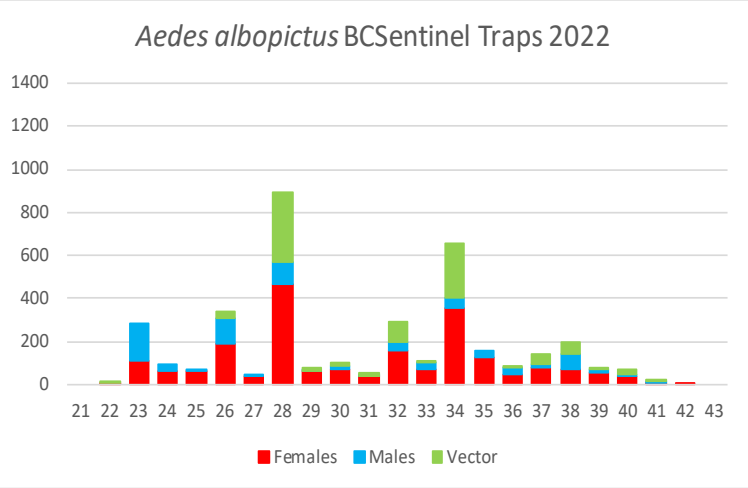
Aedes albopictus is an invasive species first detected in New Jersey in 1995 and is now found throughout the state. This species is the source of numerous resident complaints and is nearly every year found with pools positive for WNV. Because of the rising significance of this species in the state, monitoring populations have become a priority. Light traps will find specimens, but other traps may provide a more complete picture of their numbers. On the next page is the results for BG Sentinel traps, which are particularly attractive to this species. Counties were given two traps each and data is reported in JerseySurv. BGS traps are denoted statewide.

BGSentinel trapping of *Aedes albopictus*. Although data is limited, trends suggest that populations decreased during the past two years. *Note: 2022 also include numbers from vector-submitted samples (all identified as female).
2019 include data from Bergen, Mercer, Monmouth, and Salem counties.
2020 include data from Bergen, Cape May, Mercer, Middlesex, Monmouth, and Salem counties.
2021 include data from Atlantic, Bergen, Mercer, Monmouth, Salem, and Warren counties,
2022 include data from Atlantic, Bergen, Mercer, Monmouth, Salem, and Warren counties.





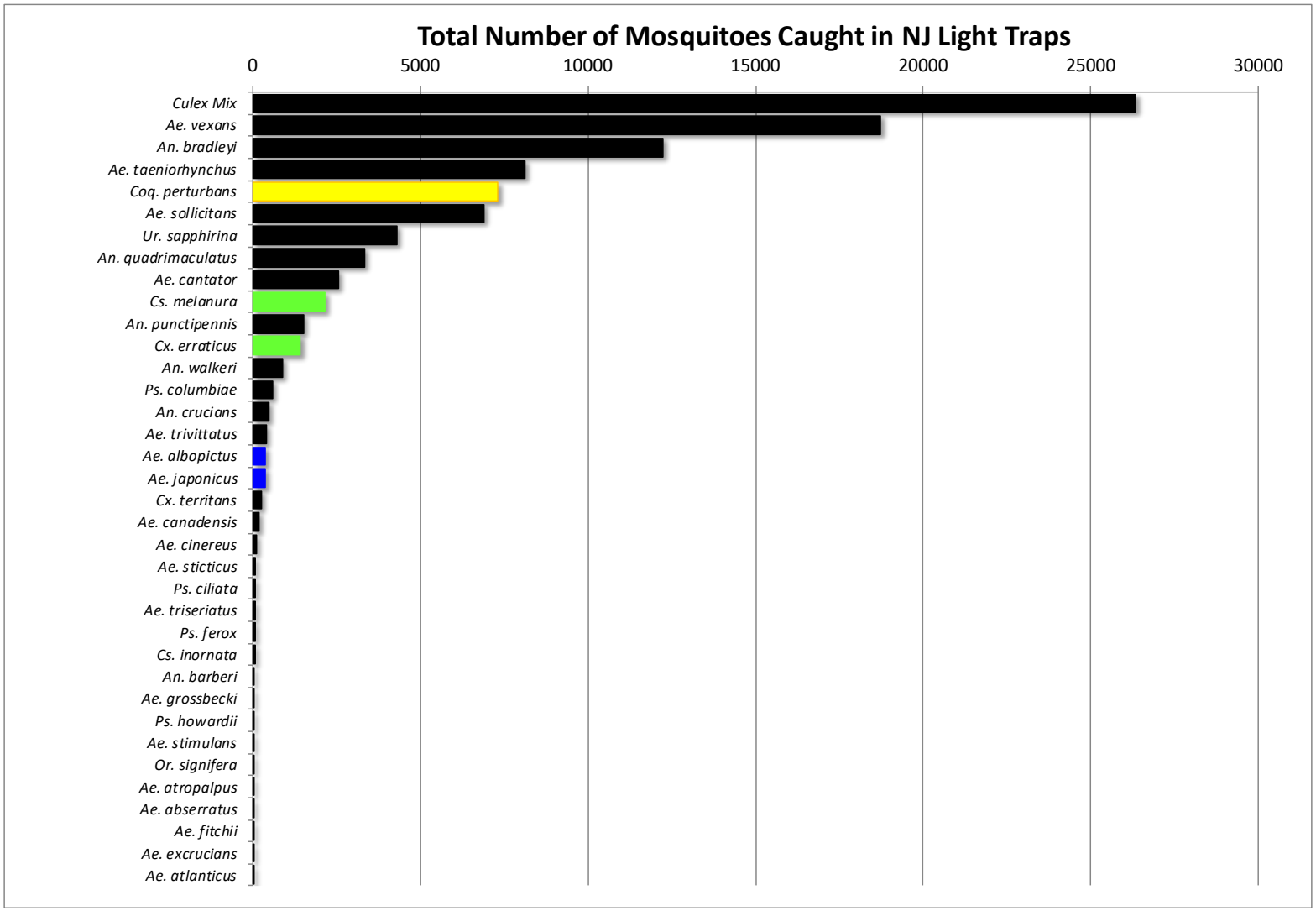




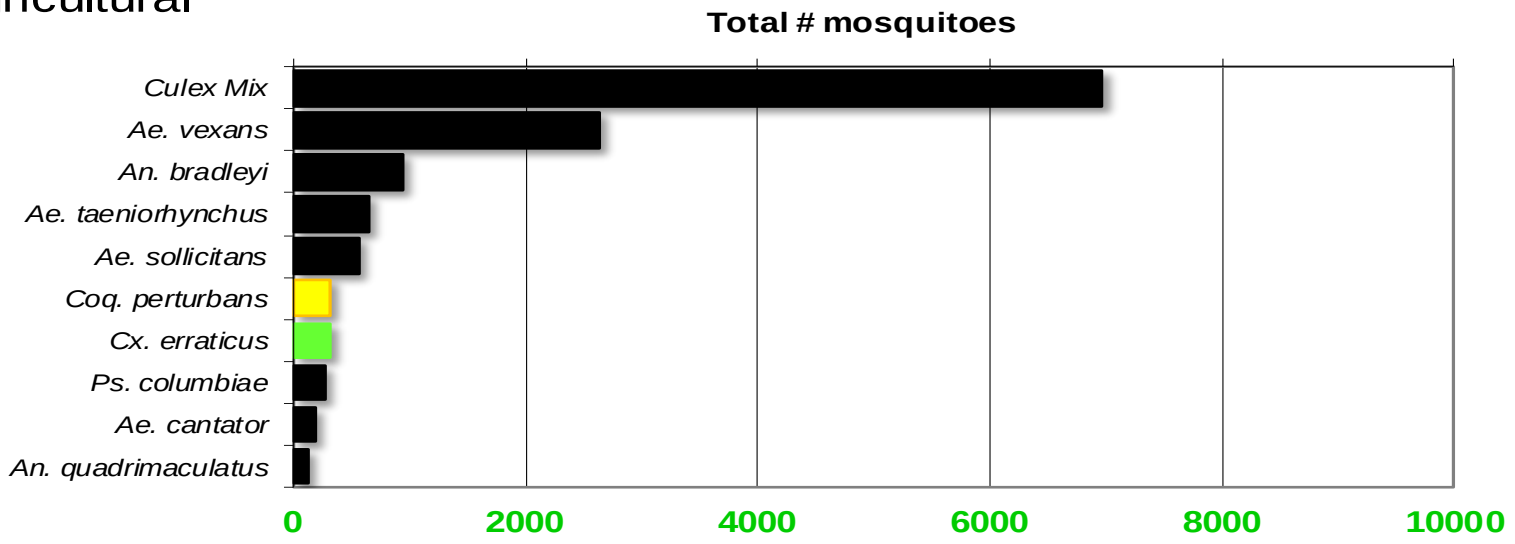
WNV *EEE*

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

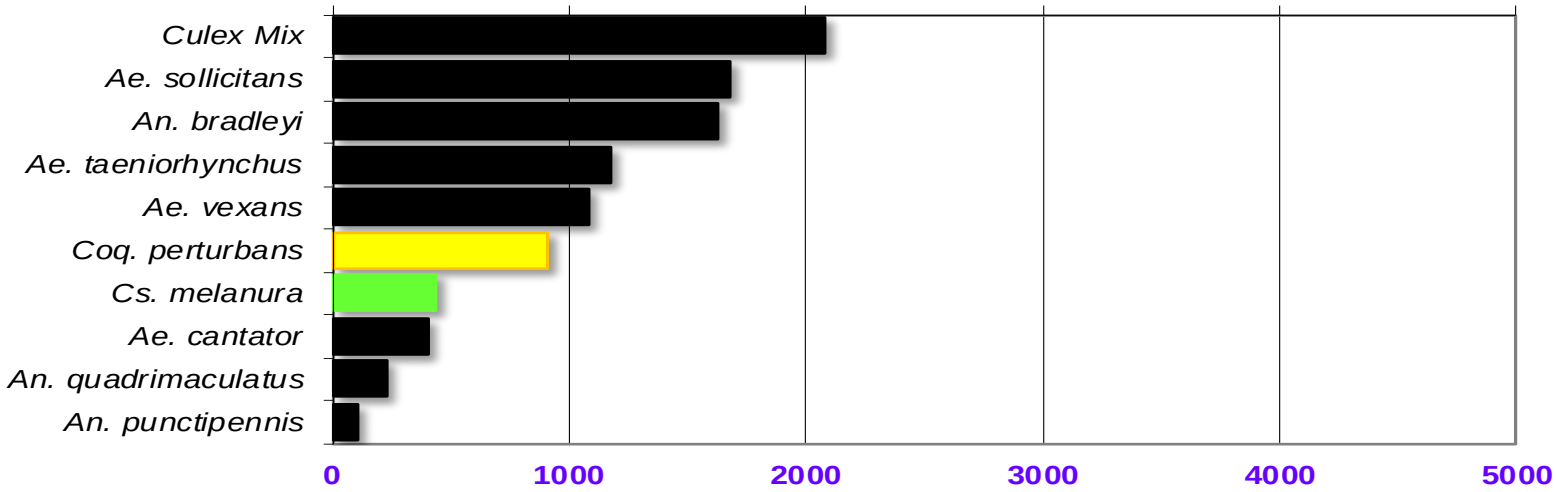
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

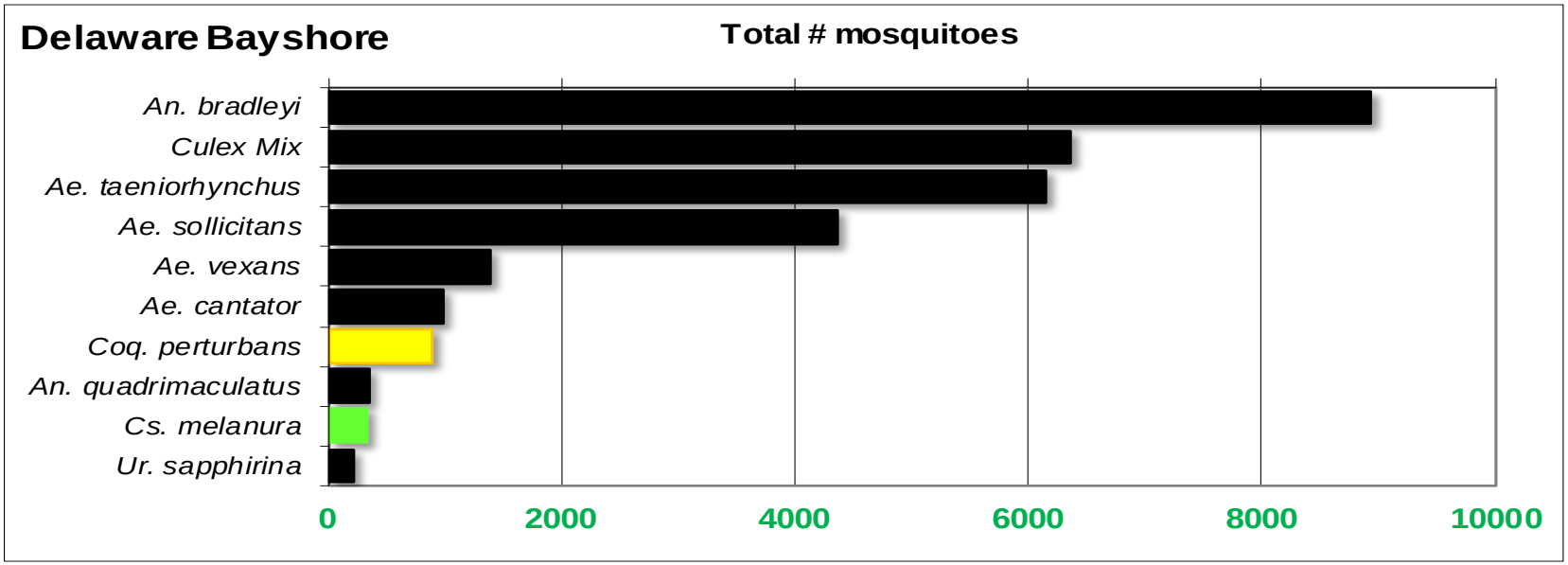


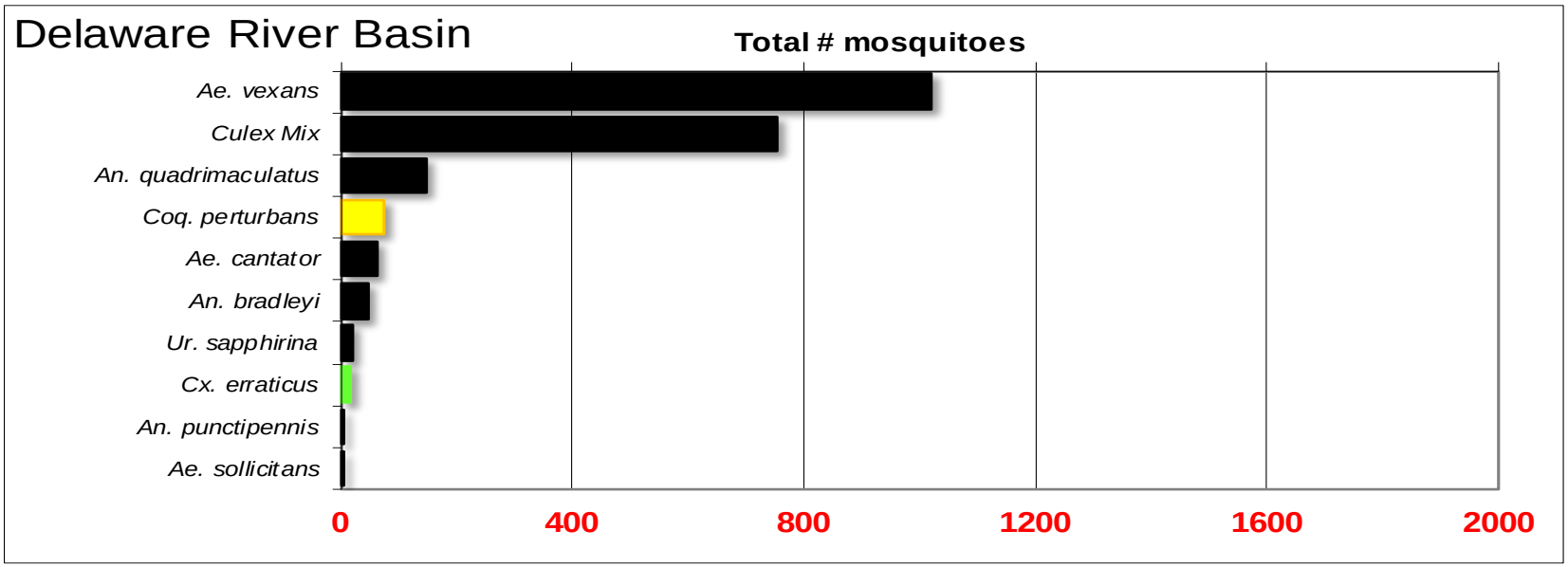
Agricultural

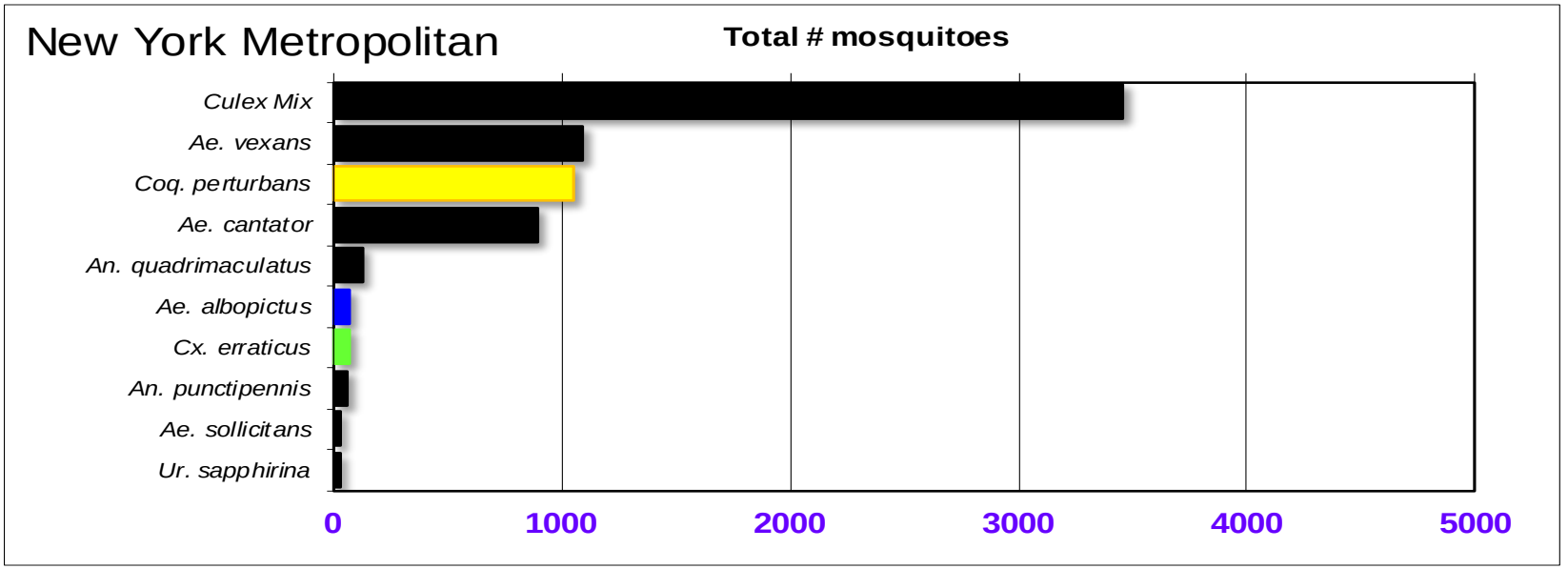


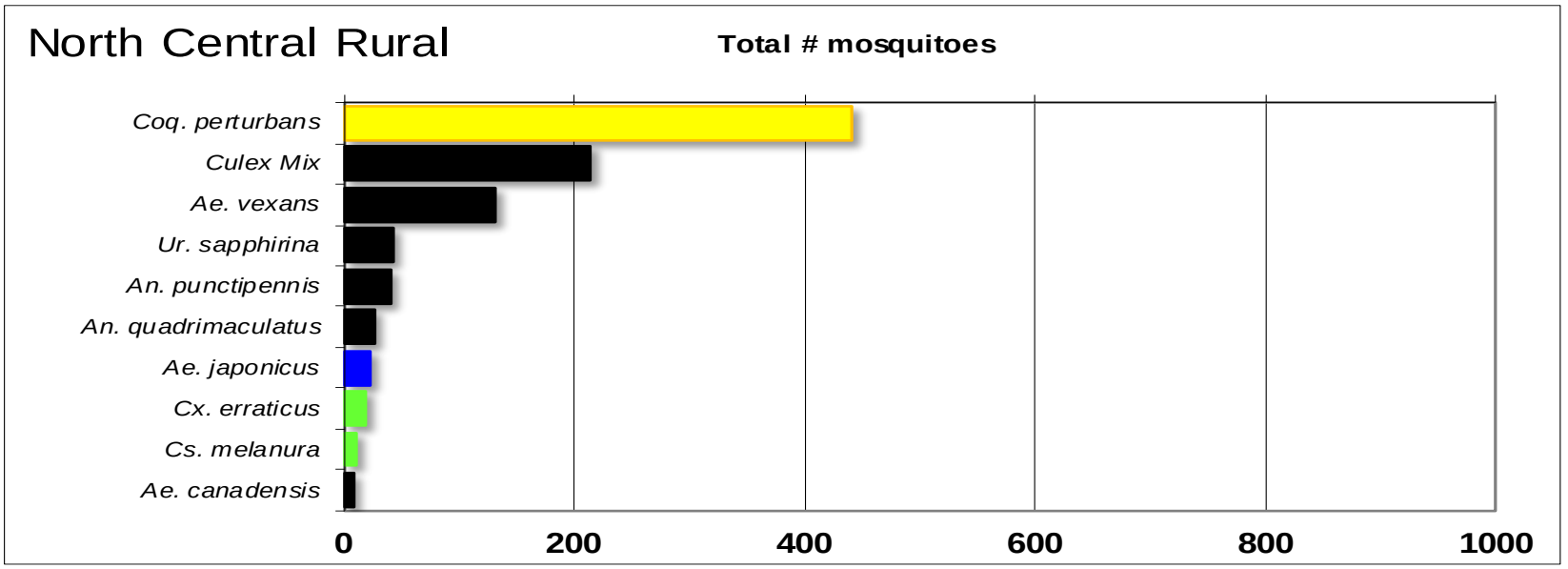
Coastal

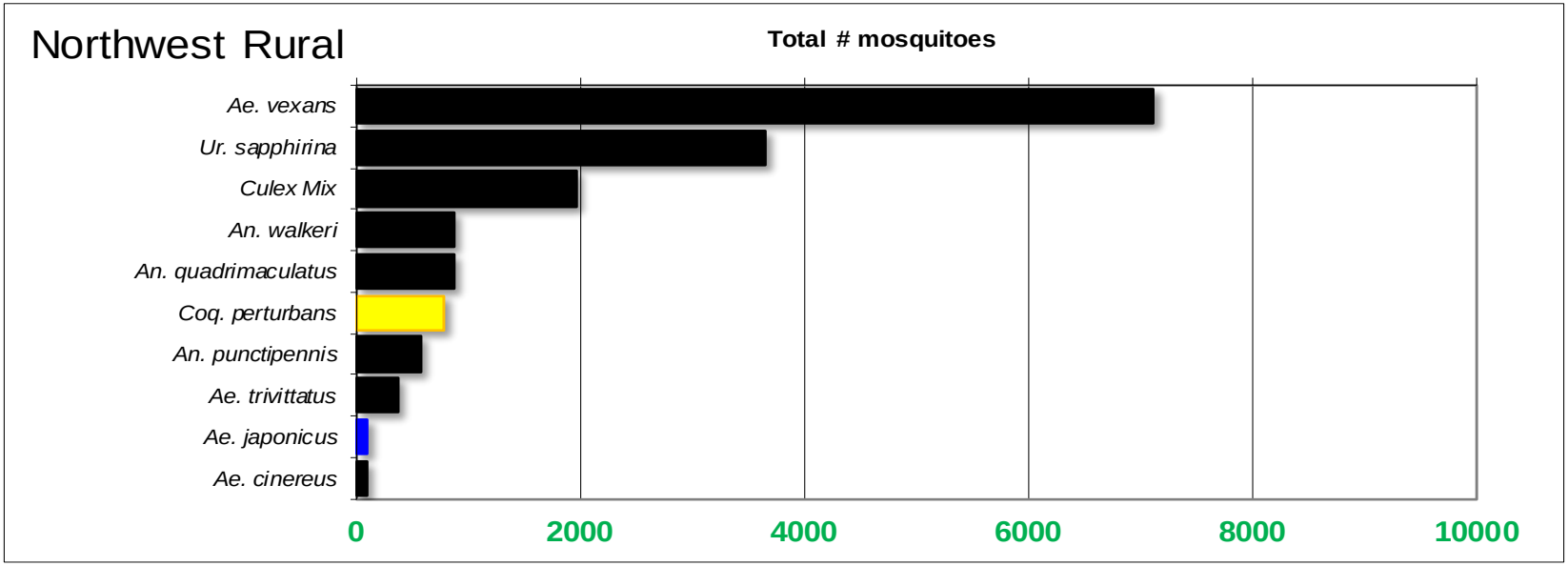


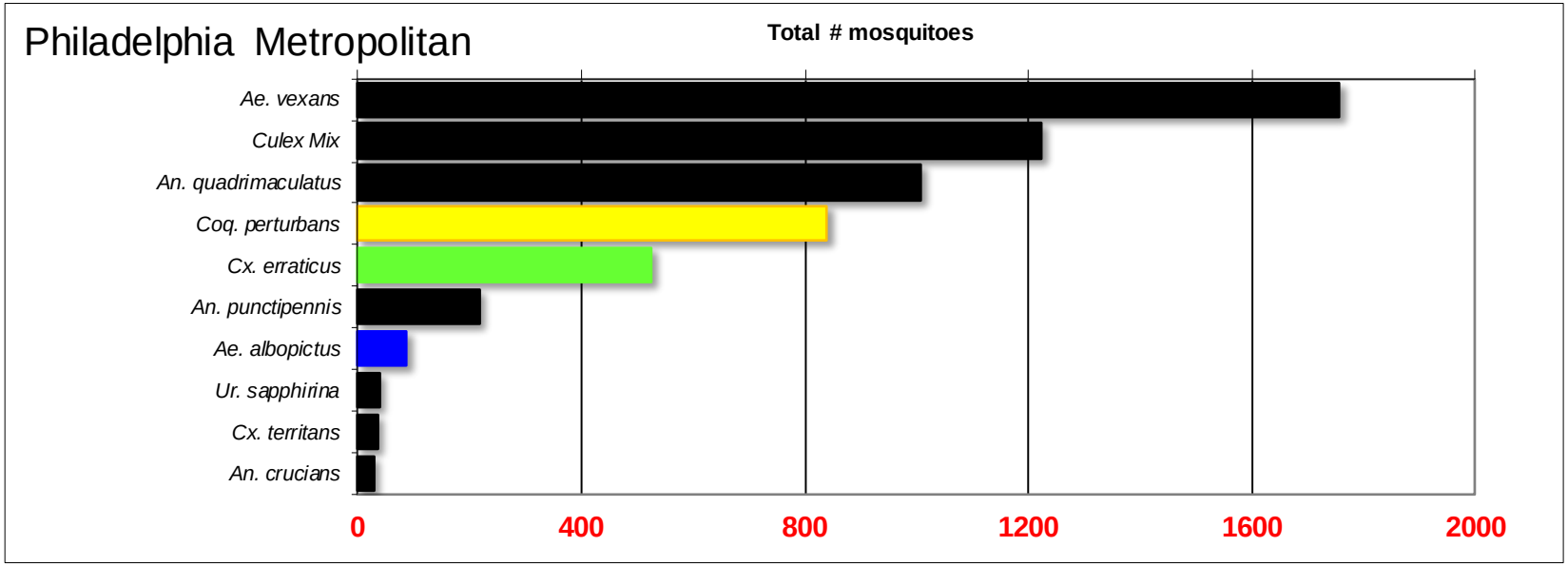

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
Ae. taeniorhynchus
Ae. sollicitans
Ae. vexans
Ae. cantator
Coq. perturbans
An. quadrimaculatus
Cs. melanura
Ur. sapphirina
0
2000
4000
6000
8000
10000

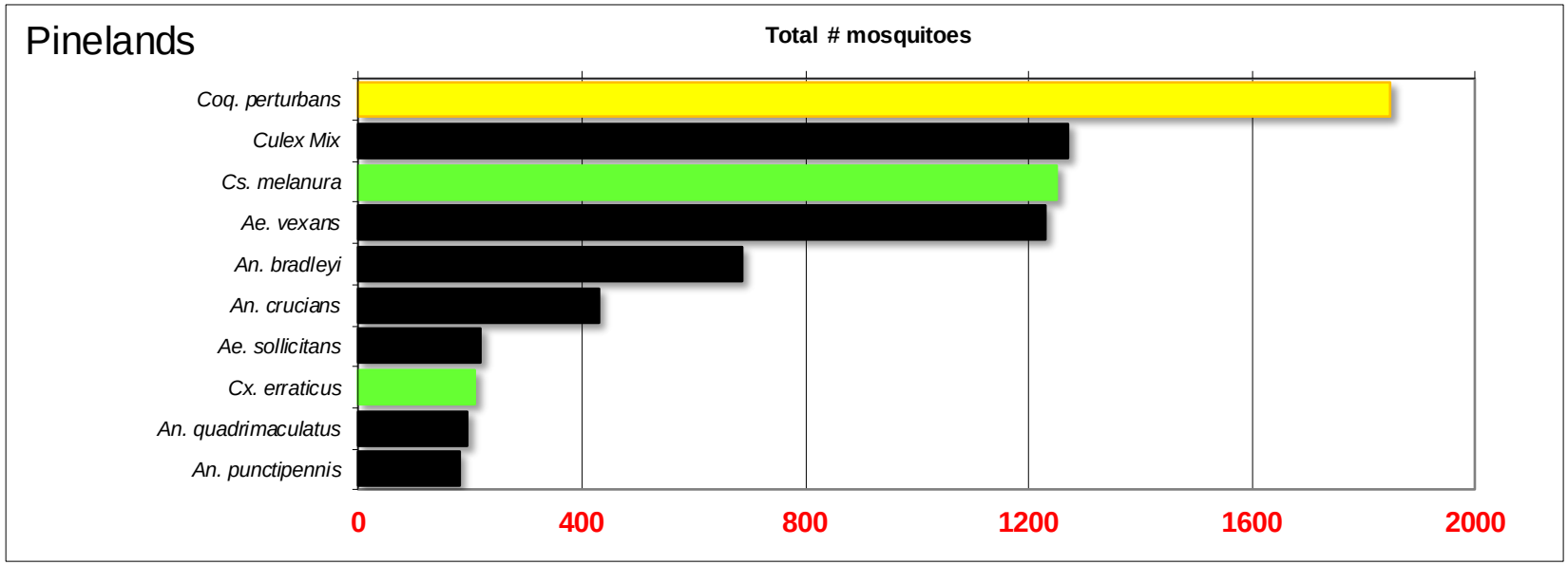

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
Coq. perturbans
Ae. cantator
An. bradleyi
Ur. sapphirina
Cx. erraticus
An. punctipennis
Ae. sollicitans
0
400
800
1200
1600
2000

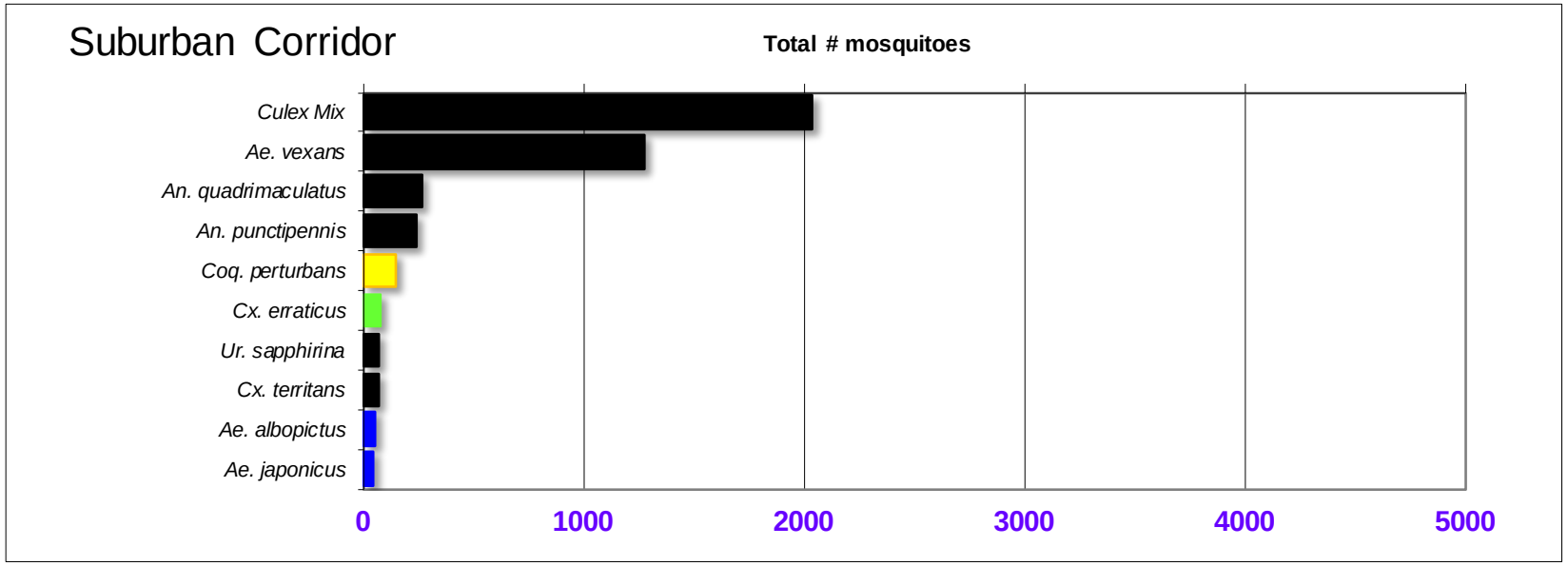

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ae. cantator
An. quadrimaculatus
Ae. albopictus
Cx. erraticus
An. punctipennis
Ae. sollicitans
Ur. sapphirina
0
1000
2000
3000
4000
5000


North Central Rural
Total # mosquitoes
Coq. perturbans
Culex Mix
Ae. vexans
Ur. sapphirina
An. punctipennis
An. quadrimaculatus
Ae. japonicus
Cx. erraticus
Cs. melanura
Ae. canadensis
0
200
400
600
800
1000


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


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
Coq. perturbans
Cx. erraticus
An. punctipennis
Ae. albopictus
Ur. sapphirina
Cx. territans
An. crucians
0
400
800
1200
1600
2000


Pinelands
Total # mosquitoes
Coq. perturbans
Culex Mix
Cs. melanura
Ae. vexans
An. bradleyi
An. crucians
Ae. sollicitans
Cx. erraticus
An. quadrimaculatus
An. punctipennis
0
400
800
1200
1600
2000


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