NEW JERSEY ADULT MOSQUITO SURVEILLANCE Report

August 7 to August 13 CDC Week 32

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.

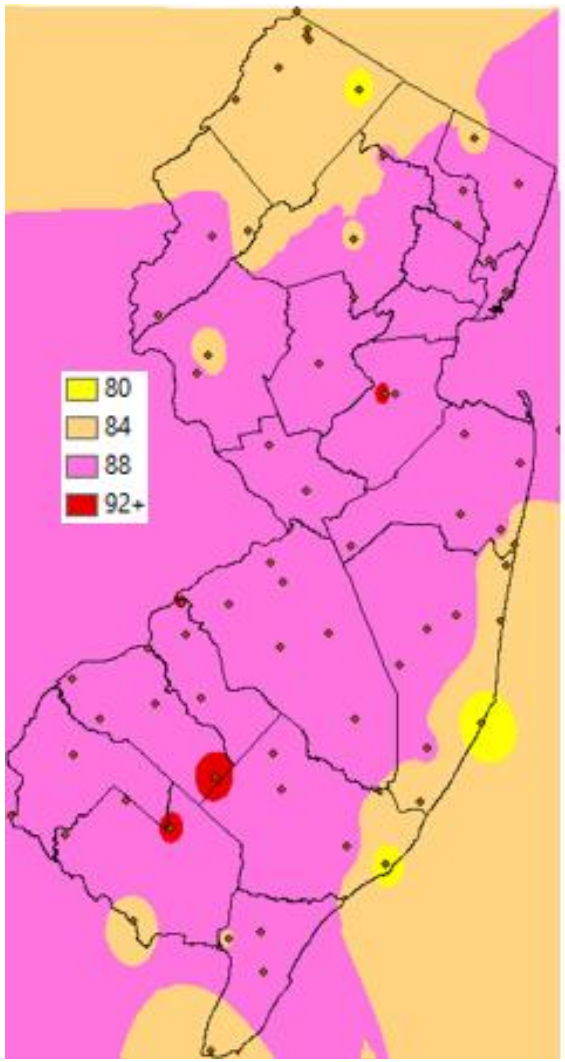
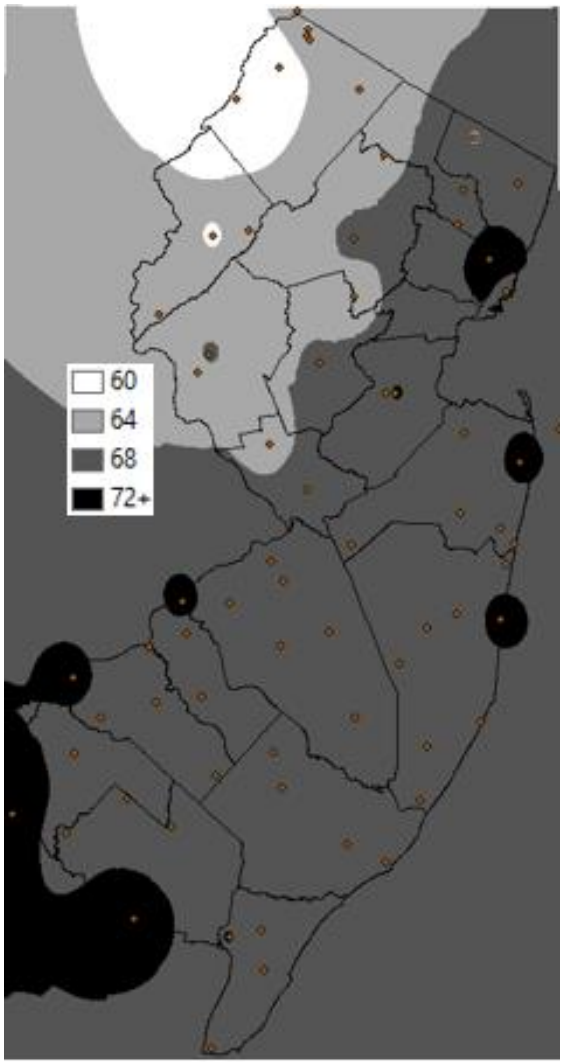
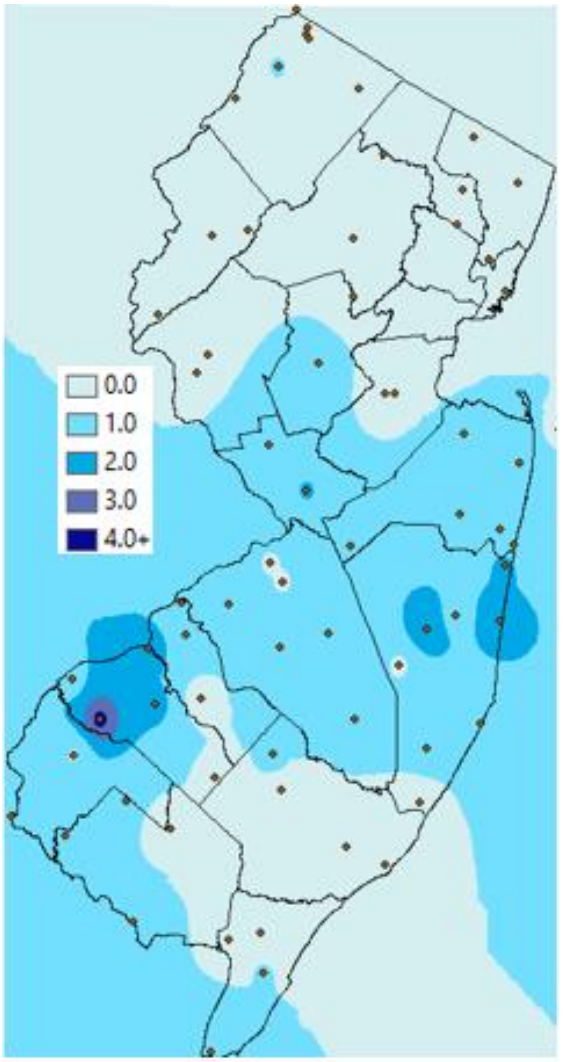
Summary Table – Week 32

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	0.05	4.16	0	0.19	19.20	0	0.07	0.25	0	0.00	2.77	0
Coastal	0.41	2.60	0	0.29	6.69	0	0.00	0.13	0	0.63	3.23	0
Delaware Bayshore	0.00	2.40	0	0.00	16.38	0	0.00	0.56	0	0.00	5.33	0
Delaware River Basin	0.00	55.01	0	0.00	11.34	0	0.00	2.06	0	0.00	0.06	0
New York Metro	0.07	2.50	0	0.60	7.31	0	0.00	0.22	0	0.00	0.39	0
North Central Rural	0.02	0.37	0	0.02	0.63	0	0.00	0.15	0	0.00	0.00	0
Northwest Rural	35.17	20.49	2	2.46	5.98	0	0.14	0.65	0	0.00	0.00	0
Philadelphia Metro	3.14	7.06	0	2.29	4.33	0	0.00	0.96	0	0.00	0.00	0
Pinelands	0.57	0.97	0	1.35	3.51	0	0.70	0.48	1	0.13	0.16	0
Suburban Corridor	0.03	1.68	0	0.29	1.45	0	0.00	0.15	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: For the current week, the trend continues of lowered population numbers for most populations of pestiferous species. A few local populations are moderately above historical values (*Aedes vexans* in the Northwestern Rural region) and mildly above historical values (*Coquillettidia perturbans* in the Pinelands.
Aedes albopictus trends in light trap and BG Sentinel traps are also presented, on pages 9 and 10.

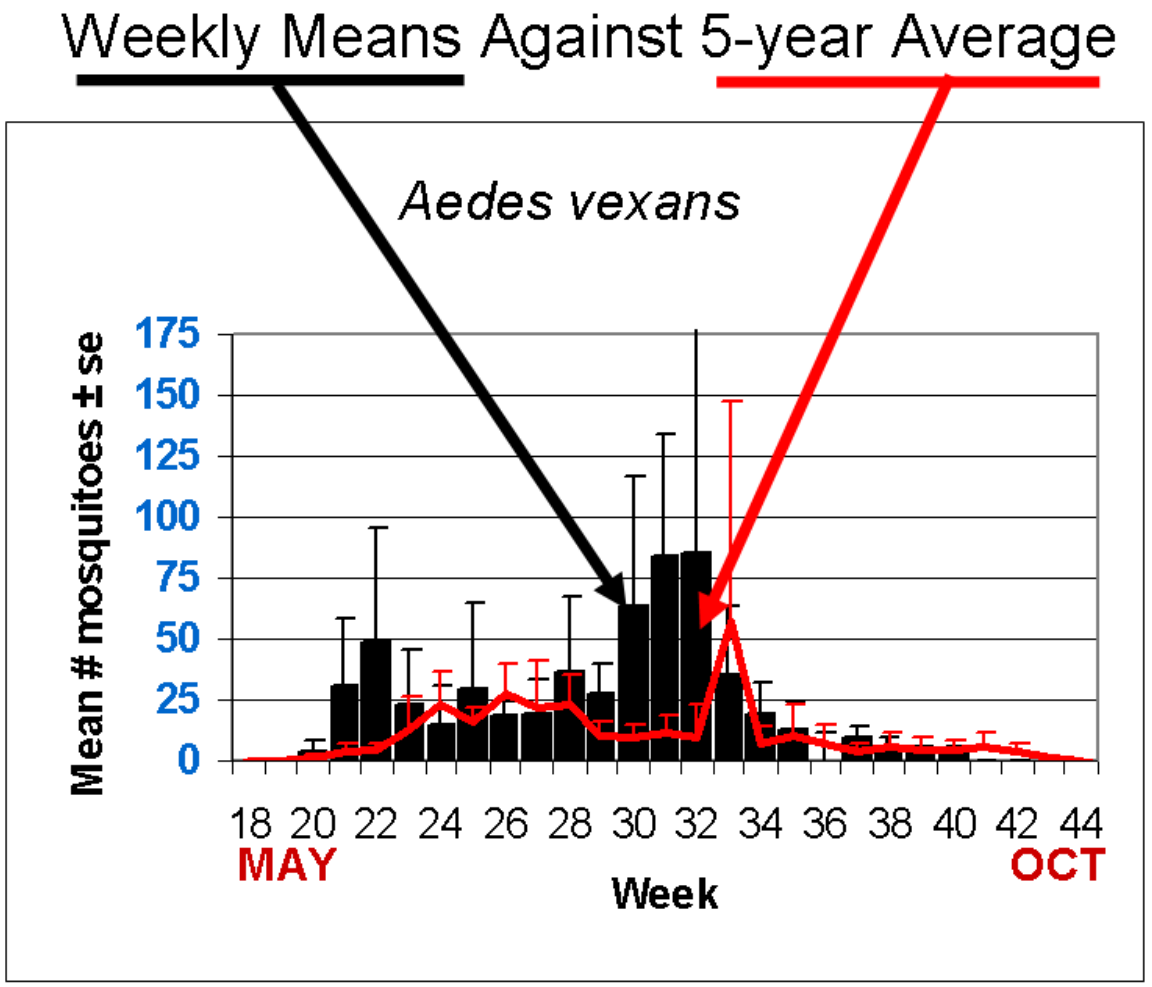
Climate Factors

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 14 August 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.

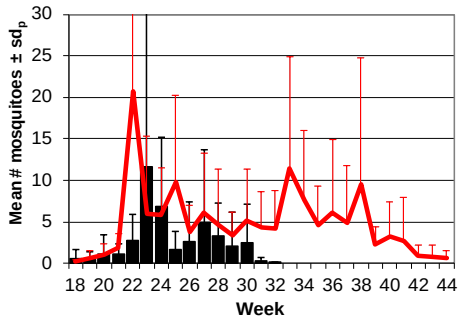
ONJSC at Rutgers University NJ Weather & Climate NETWORK

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

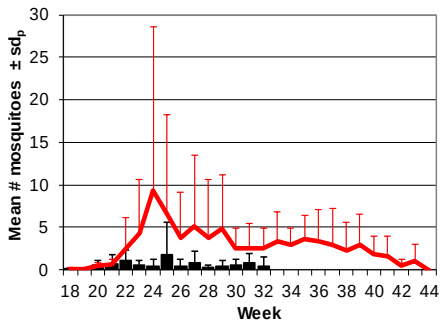


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

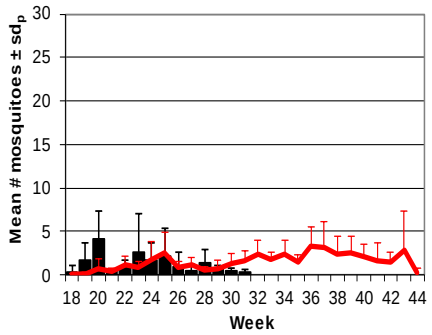
Agricultural



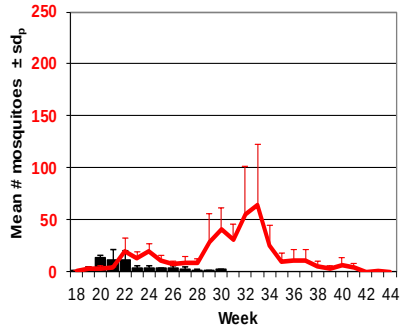
Coastal



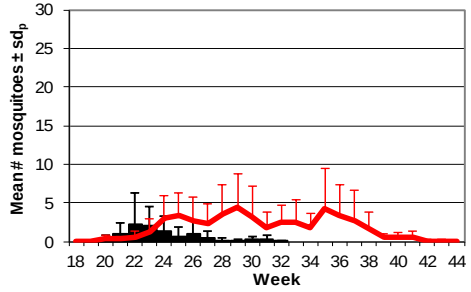
Delaware Bayshore



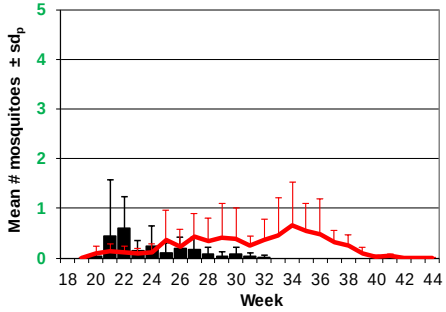
Delaware River Basin



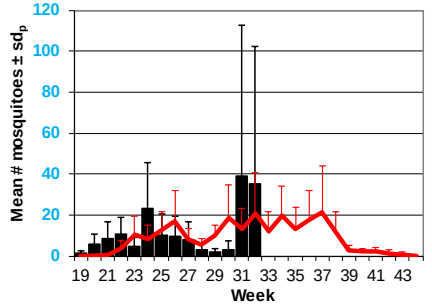
New York Metro



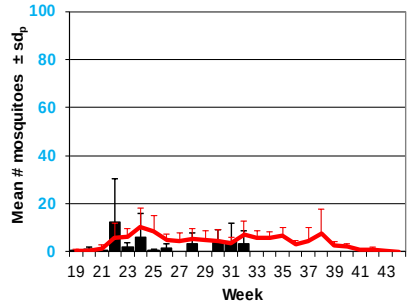
North Central Rural



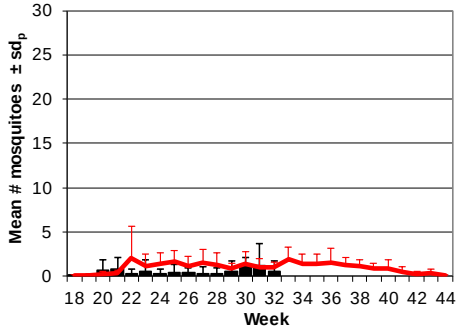
Northwestern Rural



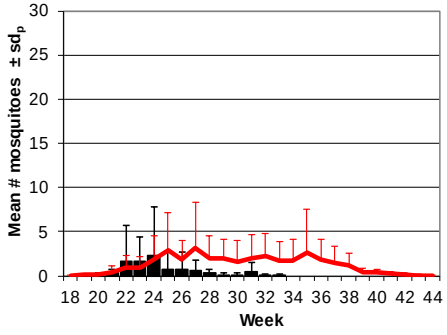
Philadelphia Metro



Pinelands



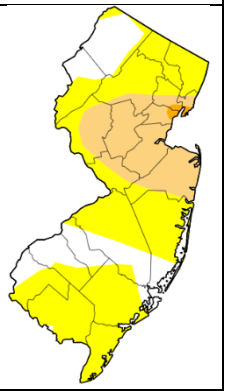
Suburban Corridor



Comments

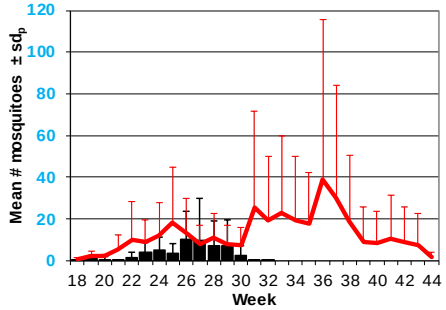
Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. Drought conditions continue to develop, with “severe drought” now being found Hudson, Essex, and Union counties. Seemingly contrary, populations of *Aedes vexans* are moderately elevated in the Northwestern Rural, but may have been the result of ffloodwaters with origins outside the state.

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

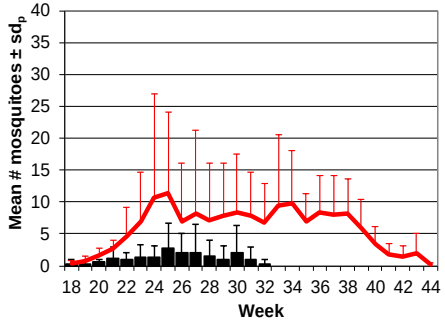


Culex Mix – Permanent Water Species
Multivoltine *Culex/Anopheles* (*Cx. pipiens* Type)

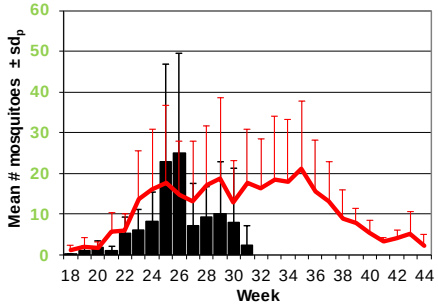
Agricultural



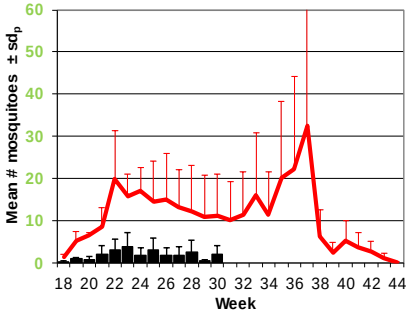
Coastal



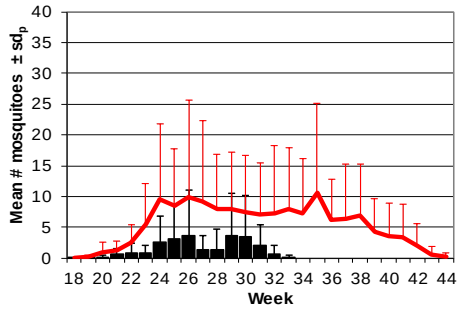
Delaware Bayshore



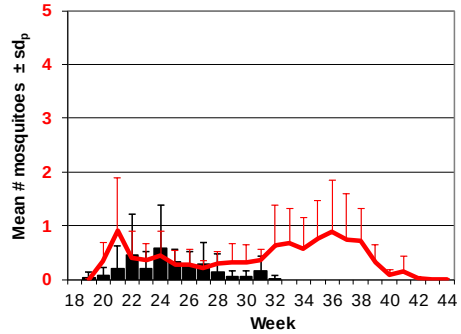
Delaware River Basin



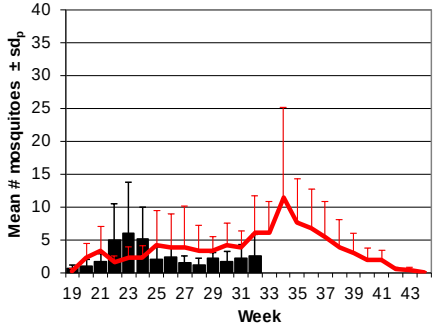
New York Metro



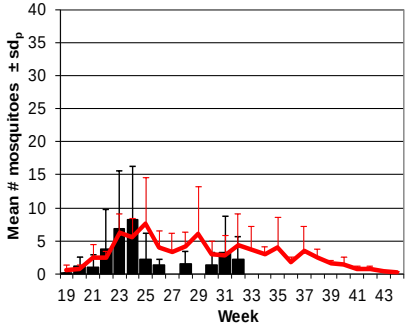
North Central Rural



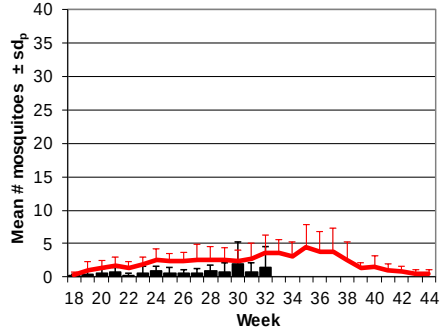
Northwestern Rural



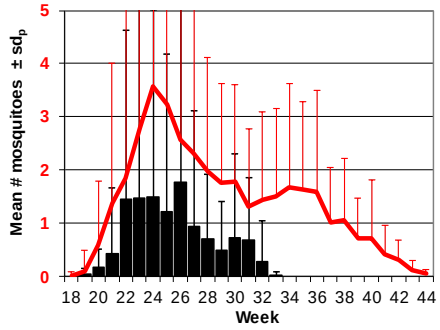
Philadelphia Metro



Pinelands



Suburban Corridor

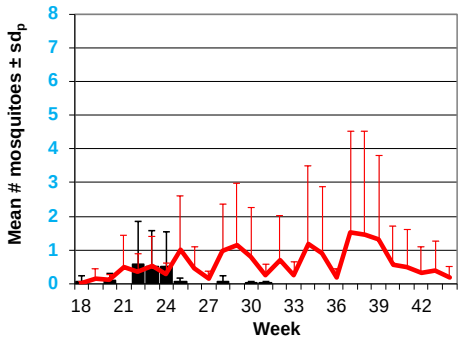
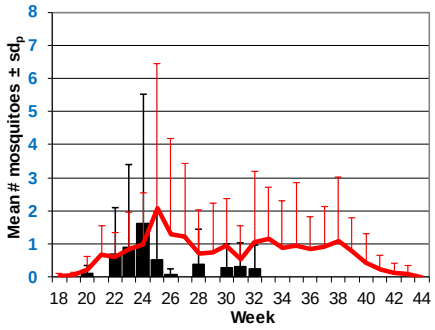
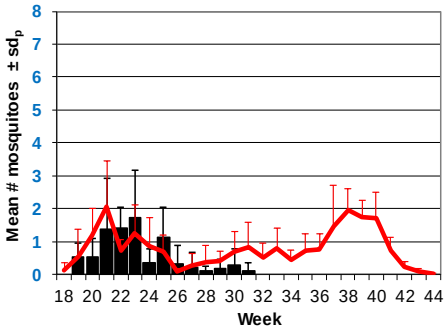
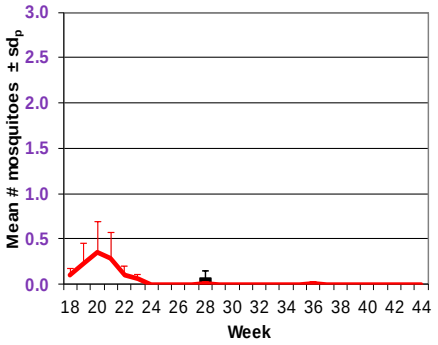
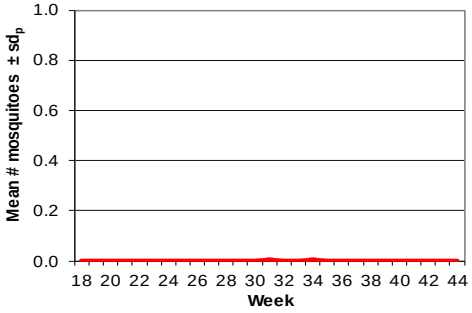
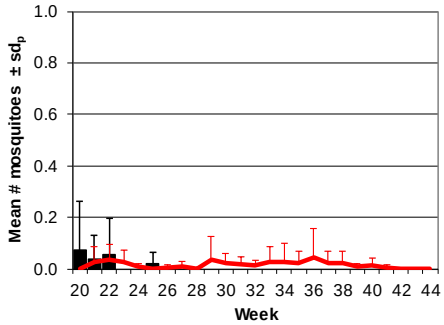
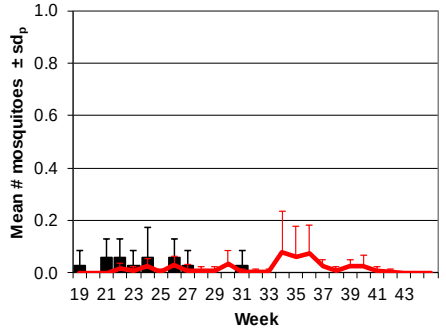
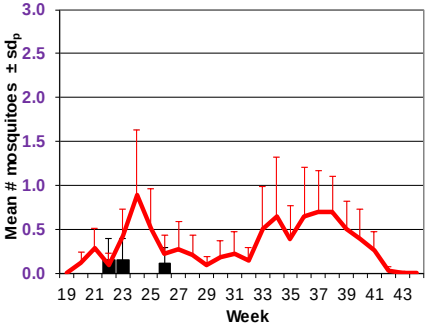
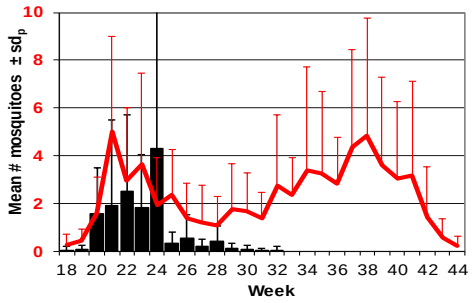
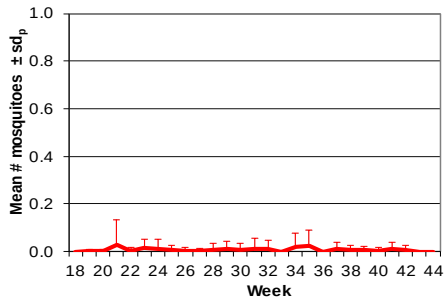


Comments

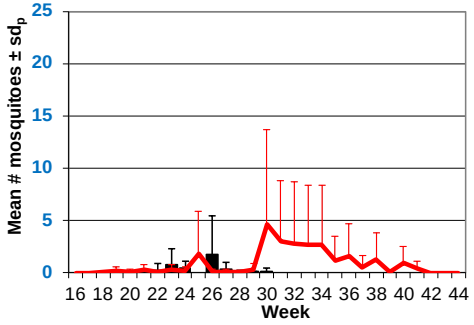
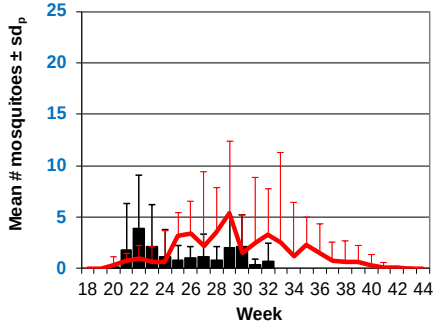
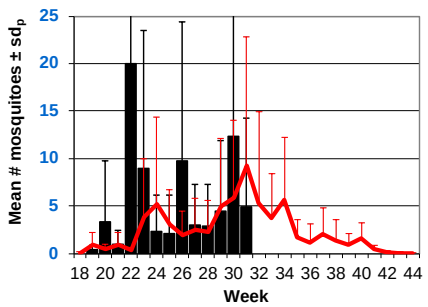
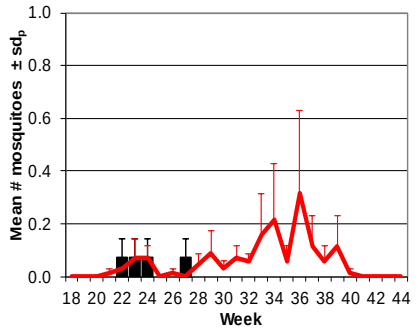
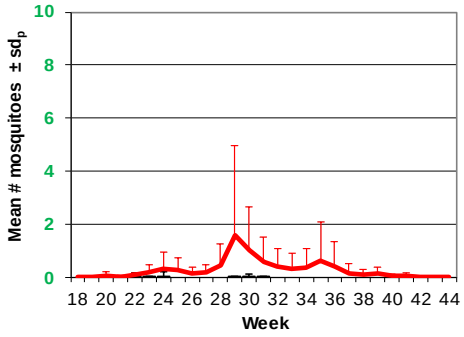
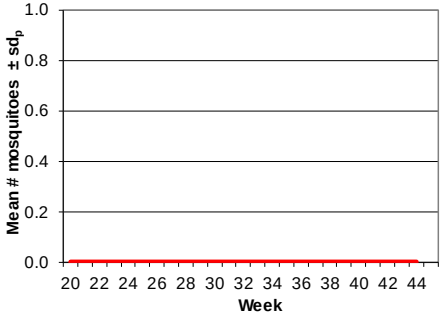
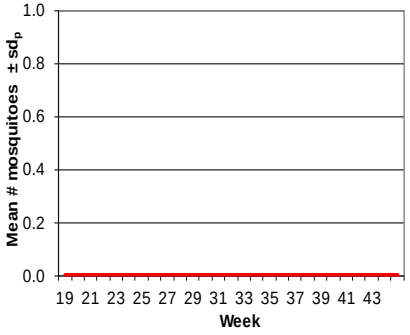
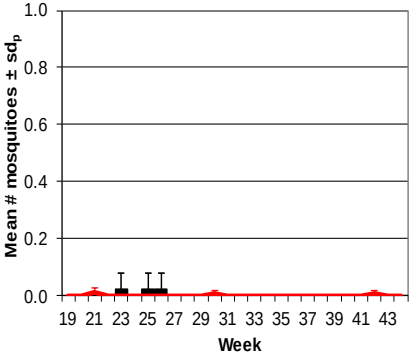
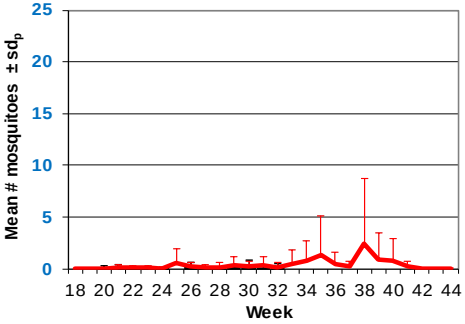
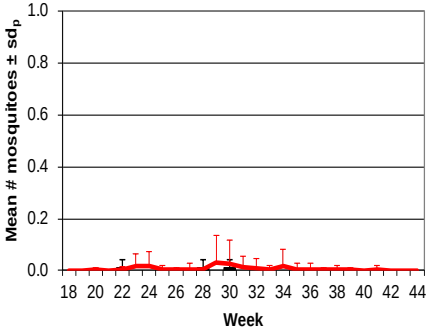
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. Low population numbers continue to be seen throughout the state. West Nile activity has increased.

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.

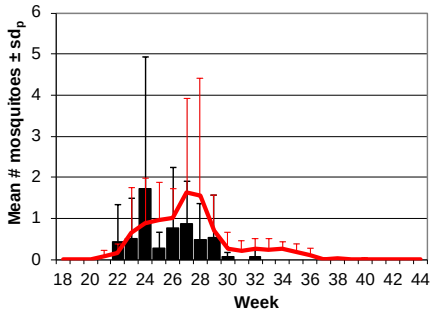
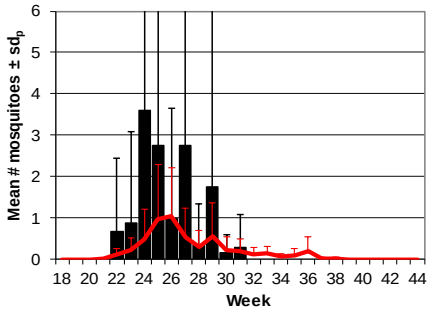
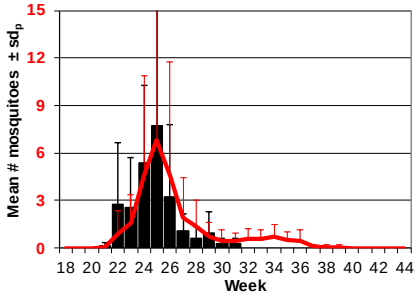
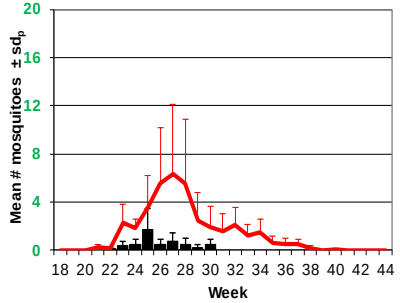
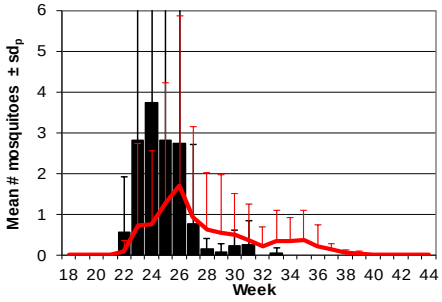
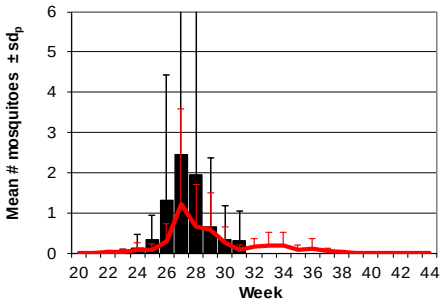
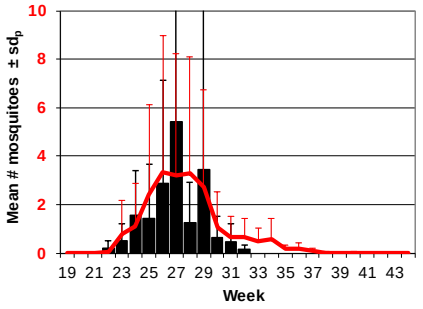
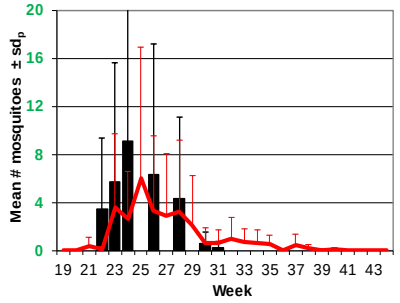
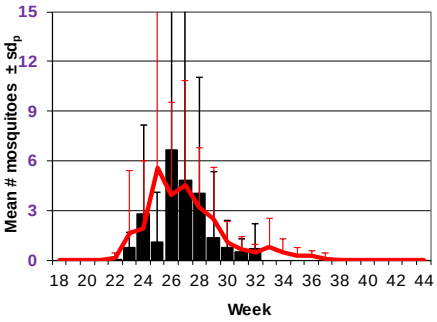
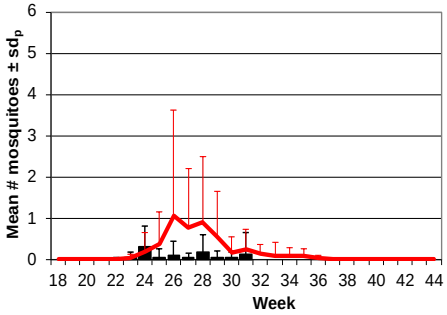
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

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. Current populations are still near or below the 5-year running mean, with populations in the Pinelands (where preferred habitat is found) have significantly dropped. The recent increase in drought conditions undoubtably lowered the water table, and likely affects survival of developing larvae. No EEE virus has been reported to date. 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)

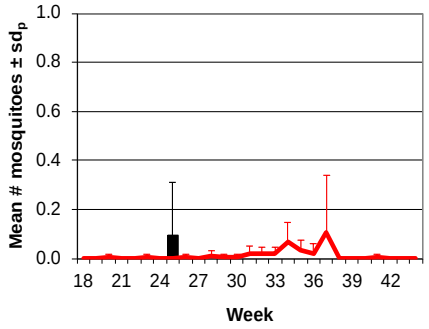
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. No *Aedes sollicitans* were above historic values. The third emergence appears over and the fourth emergence should begin in the next week or two. Next full moon is September 10th. 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)

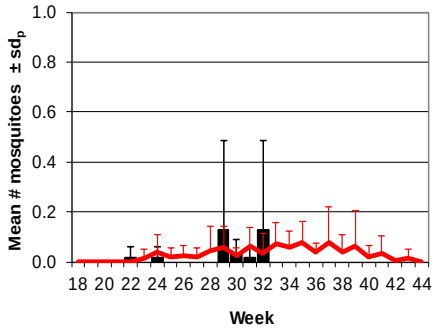
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are in cattail swamps and other wetlands with emergent vegetation, often making population control dependent on controlling water depth. *Coquillettidia perturbans* populations are waning throughout the state, but populations in the Pinelands were lidly above historical values (low absolute numbers). 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)

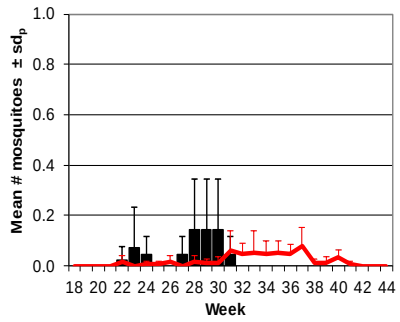
Agricultural



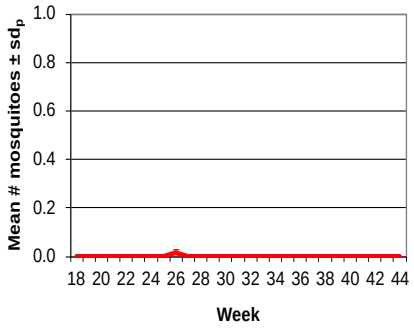
Coastal



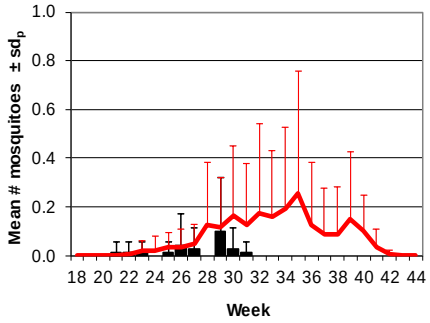
Delaware Bayshore



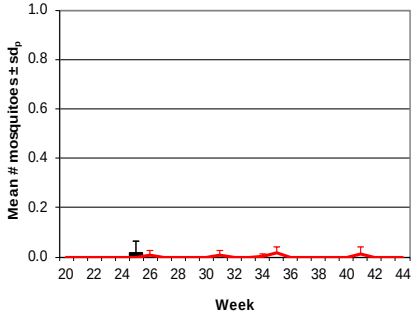
Delaware River Basin



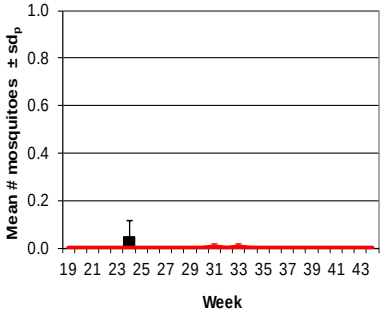
New York Metro



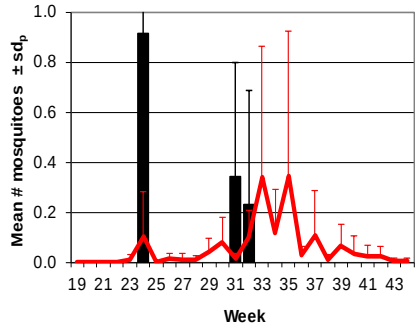
North Central Rural



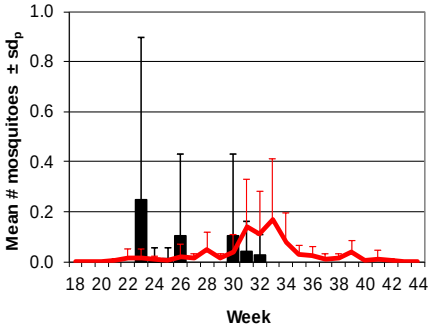
Northwestern Rural



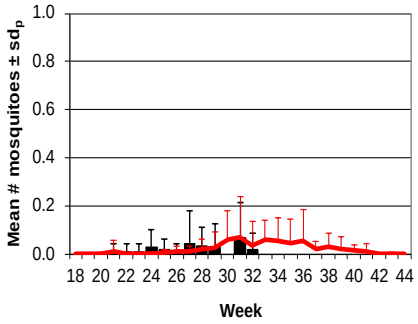
Philadelphia Metro



Pinelands



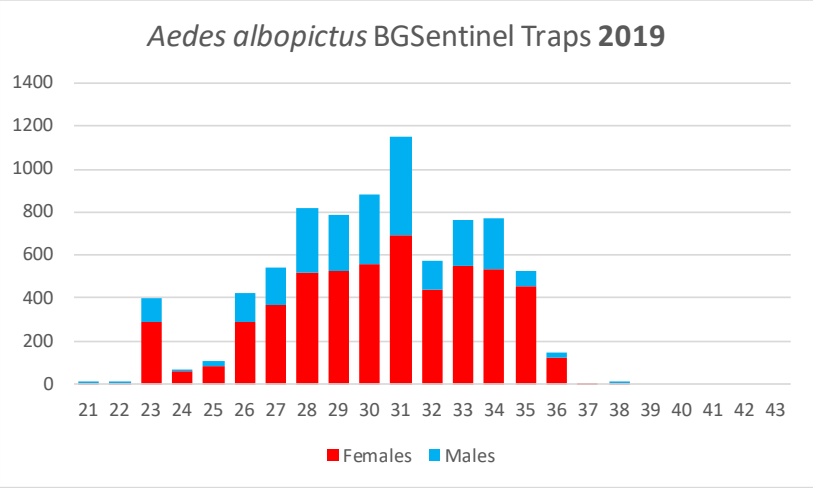
Suburban Corridor

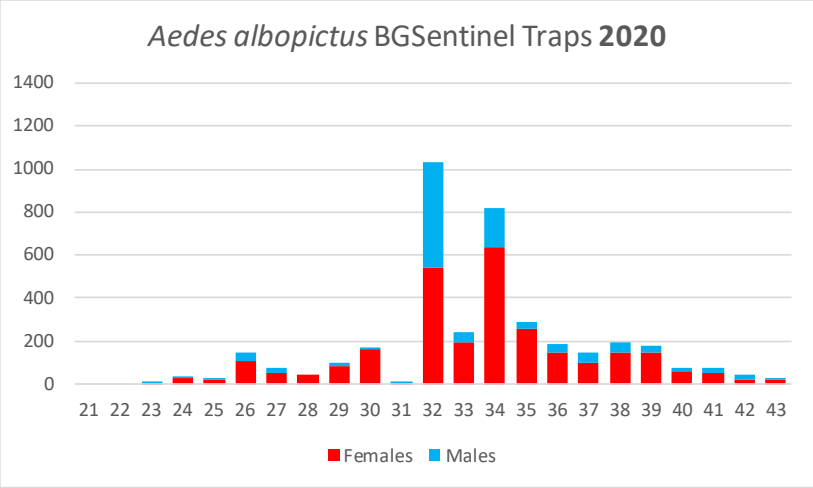


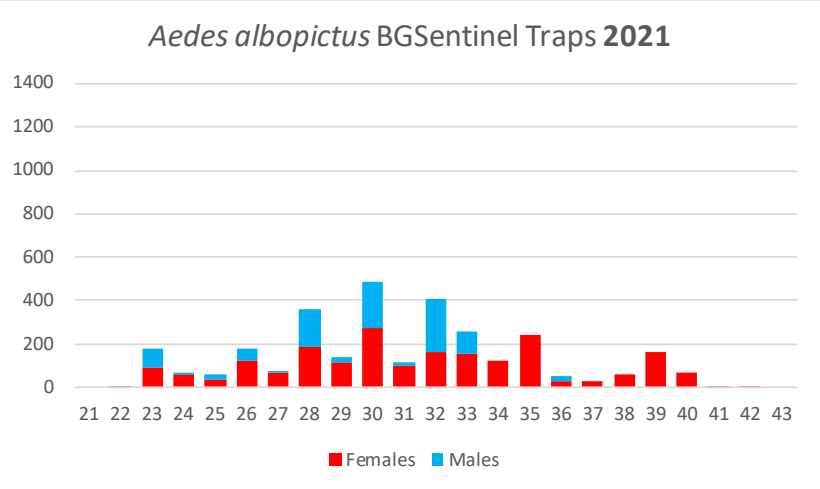
Comments

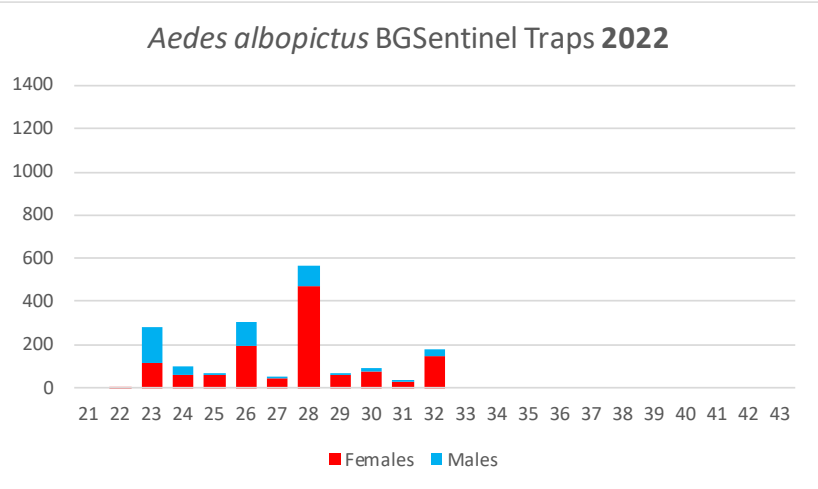
Aedes albopictus is an invasive species first detected in New Jersey in 1995 and is now found throughout the state. This species is the source of numerous resident complaints and is nearly every year found with pools positive for WNV. Because of the rising significance of this species in the state, monitoring 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.
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 Bergen, Mercer, Monmouth, and Warren counties.





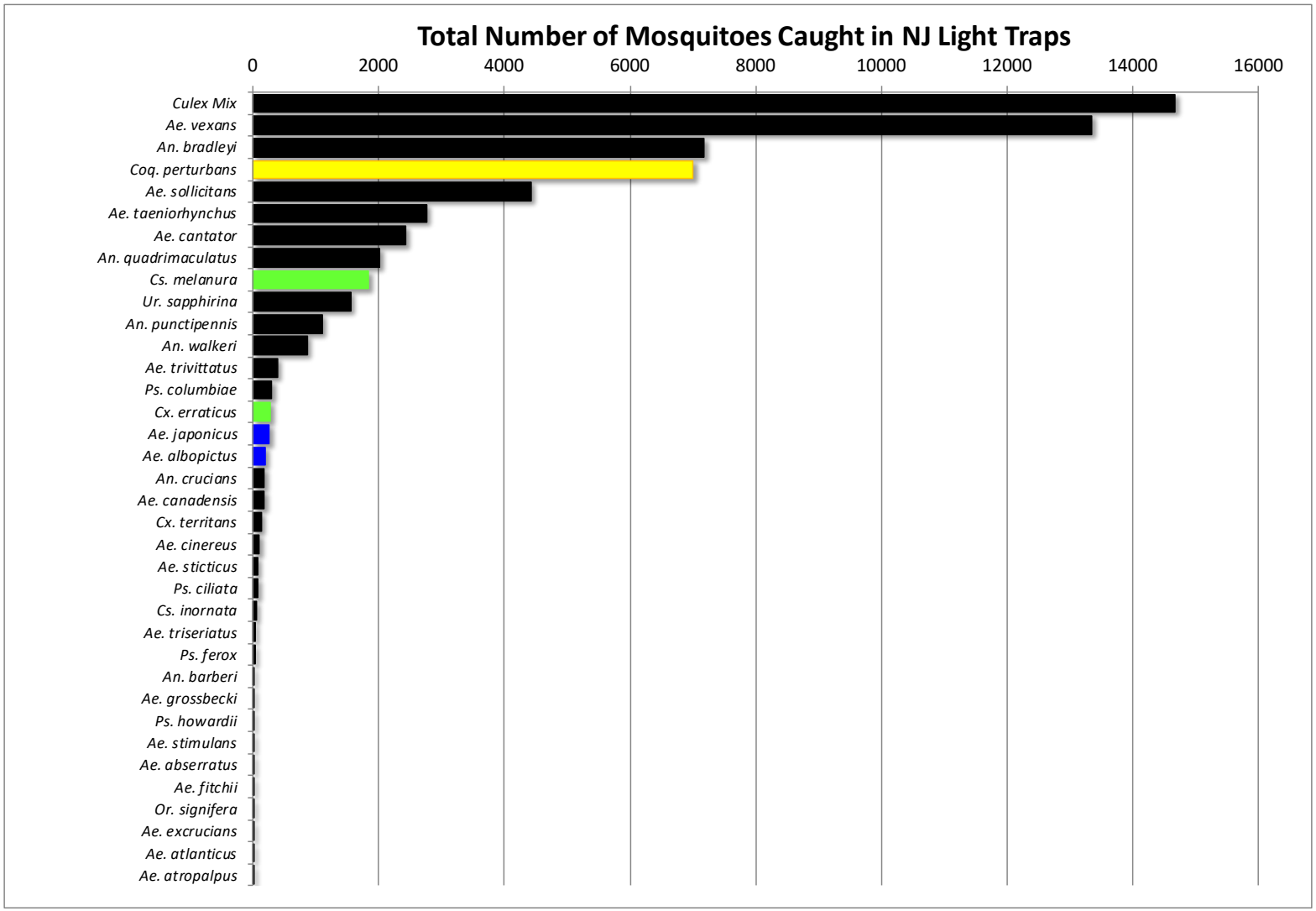




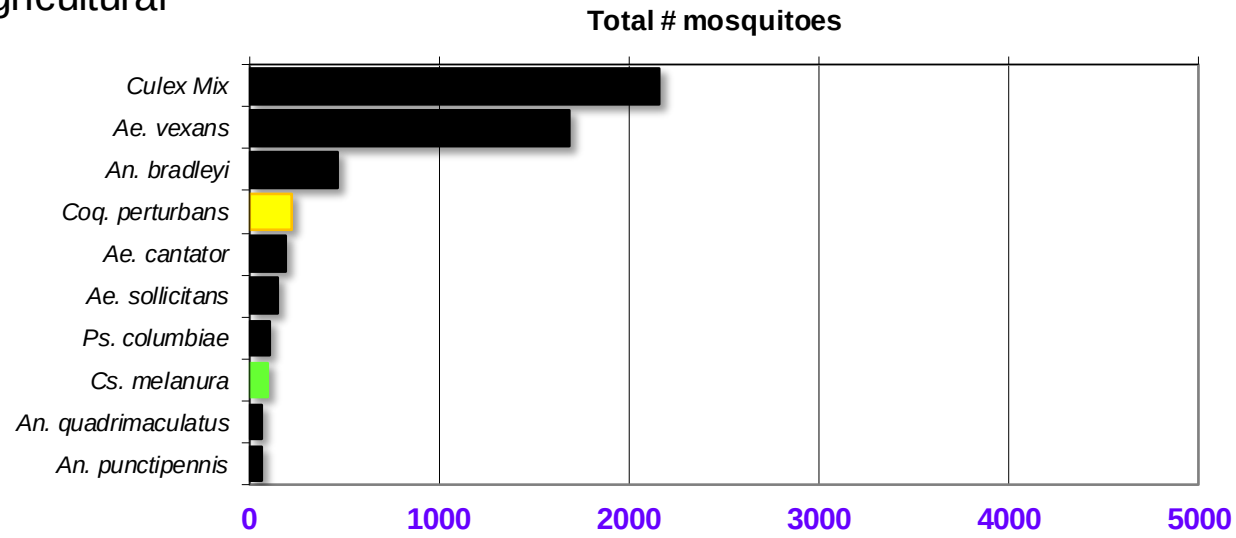
WNV *EEE*

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

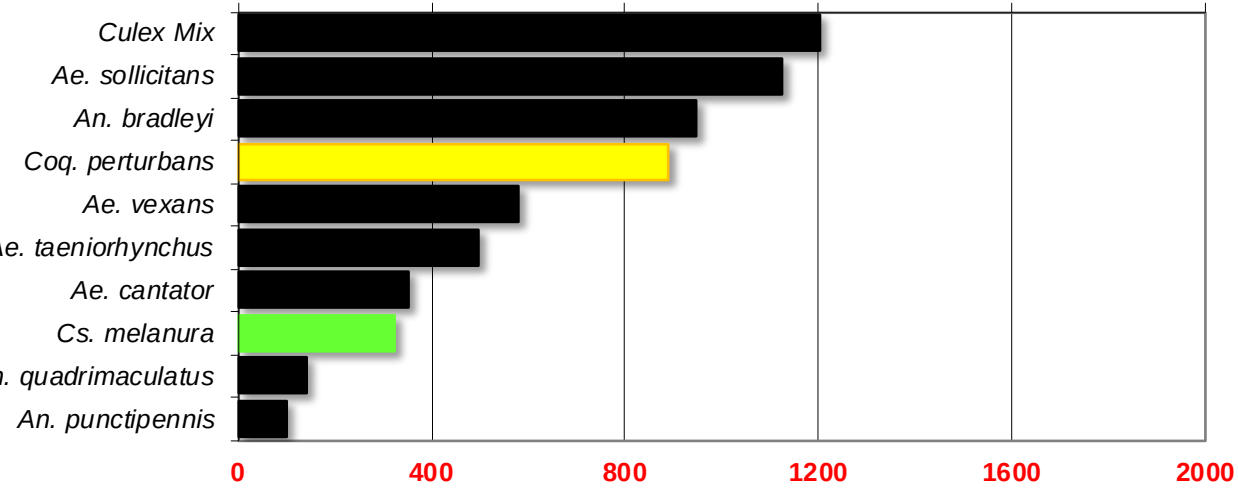
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

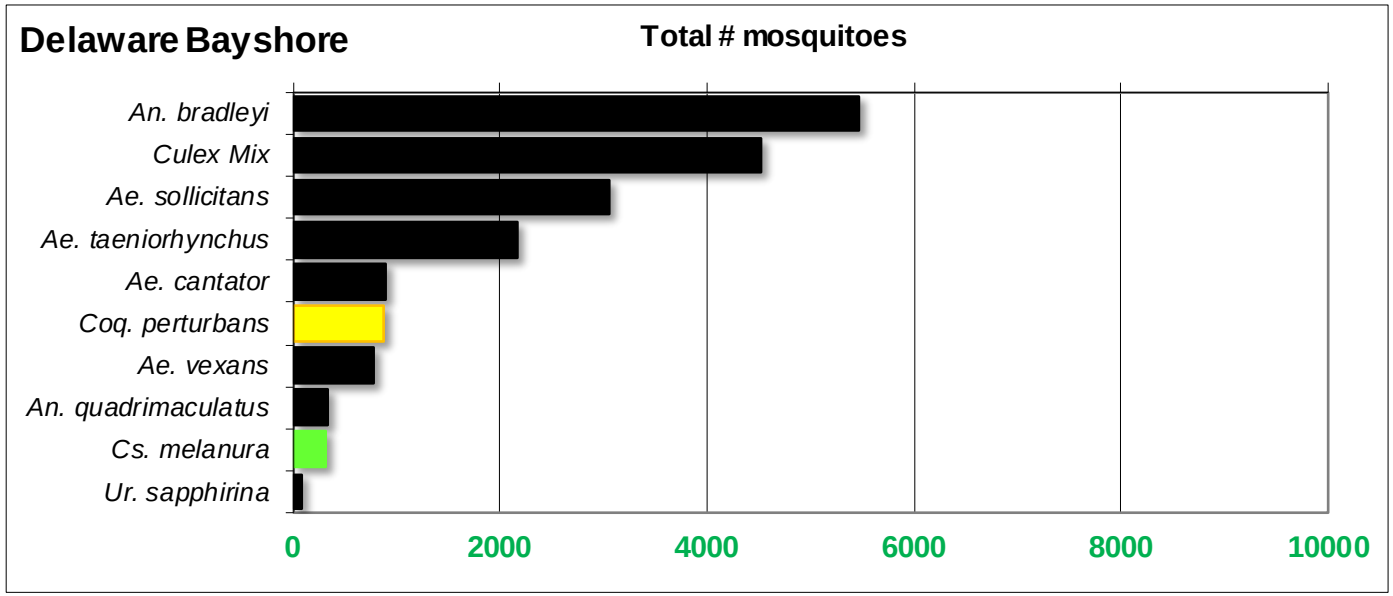


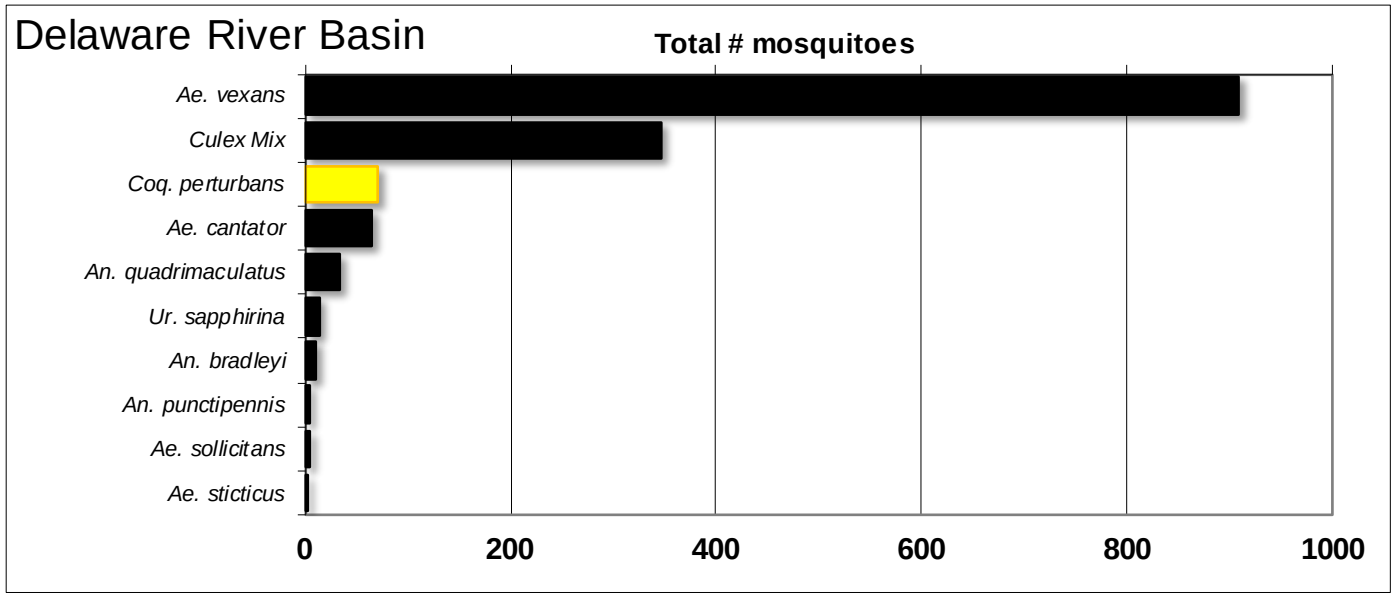
Agricultural

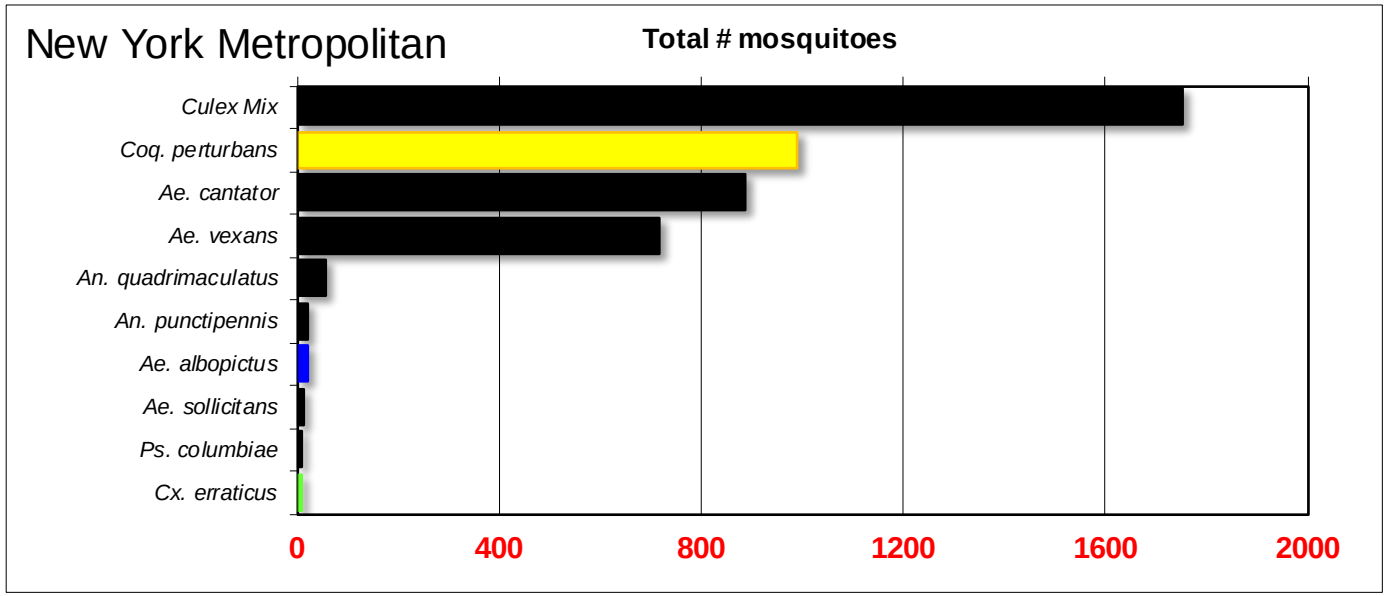


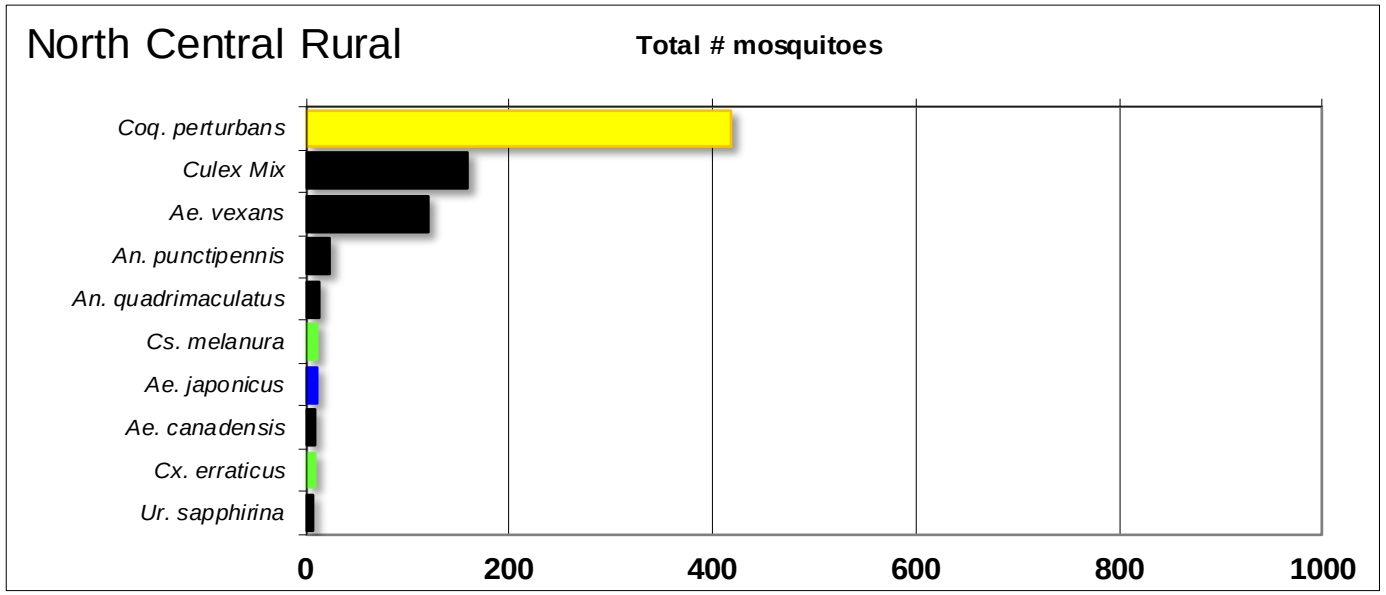
Coastal

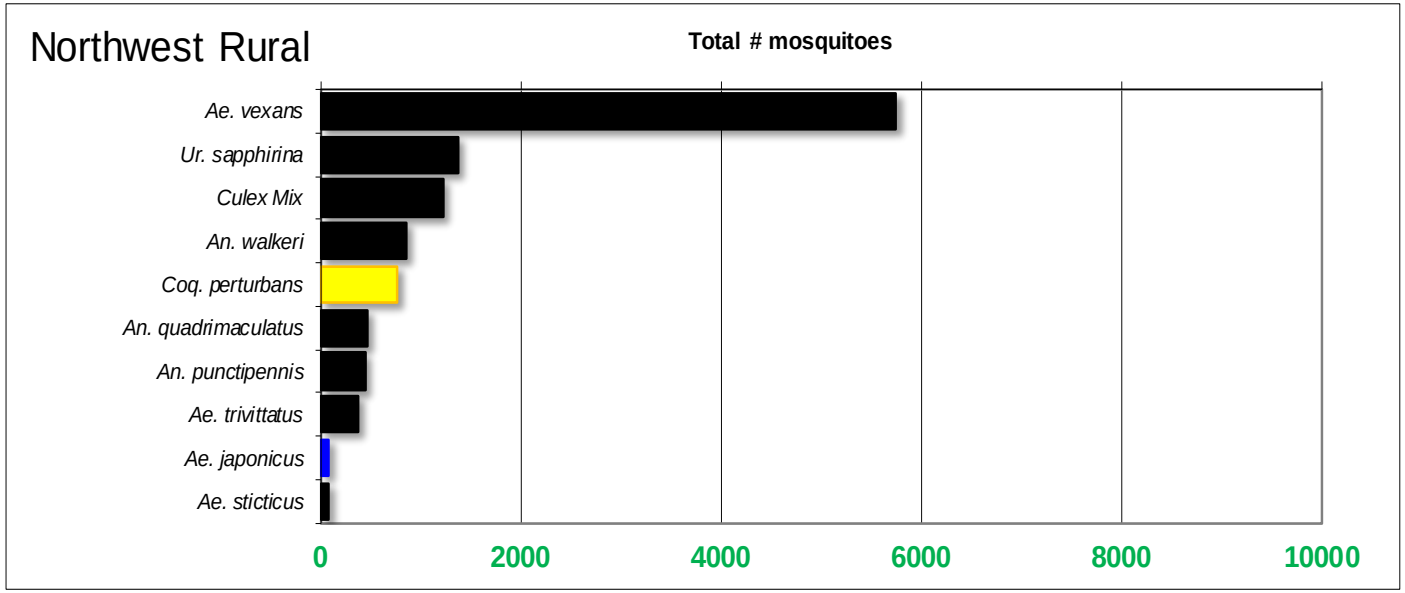


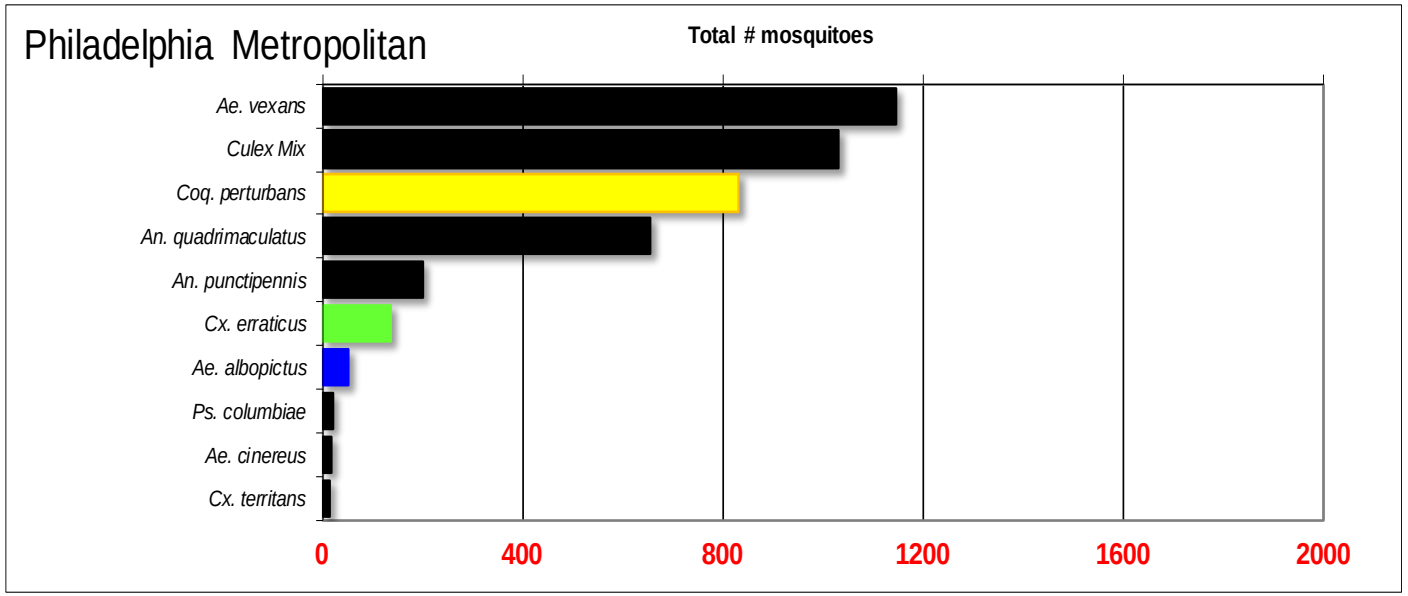

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
Ae. sollicitans
Ae. taeniorhynchus
Ae. cantator
Coq. perturbans
Ae. vexans
An. quadrimaculatus
Cs. melanura
Ur. sapphirina
0
2000
4000
6000
8000
10000

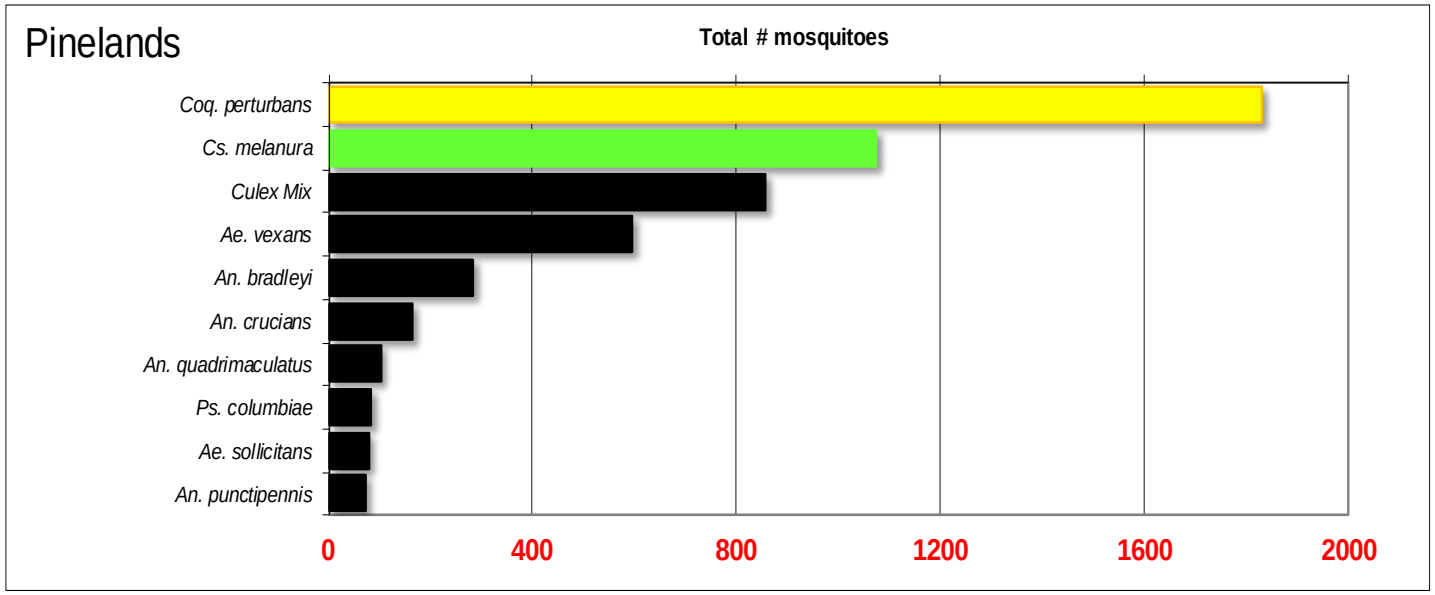

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
Ae. cantator
An. quadrimaculatus
Ur. sapphirina
An. bradleyi
An. punctipennis
Ae. sollicitans
Ae. sticticus
0
200
400
600
800
1000

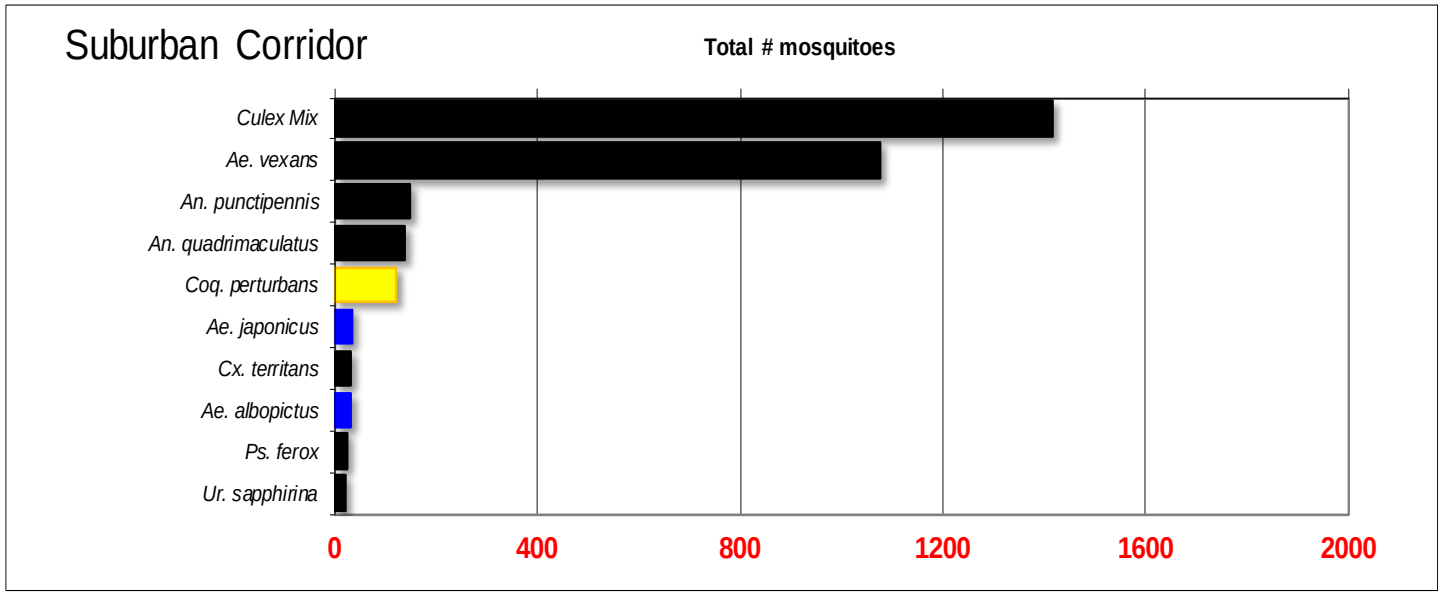

New York Metropolitan
Total # mosquitoes
Culex Mix
Coq. perturbans
Ae. cantator
Ae. vexans
An. quadrimaculatus
An. punctipennis
Ae. albopictus
Ae. sollicitans
Ps. columbiae
Cx. erraticus
0
400
800
1200
1600
2000


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


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


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


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


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Coq. perturbans
Ae. japonicus
Cx. territans
Ae. albopictus
Ps. ferox
Ur. sapphirina
0
400
800
1200
1600
2000