NEW JERSEY ADULT MOSQUITO SURVEILLANCE Report

Begin to June 6, CDC Week 22

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.

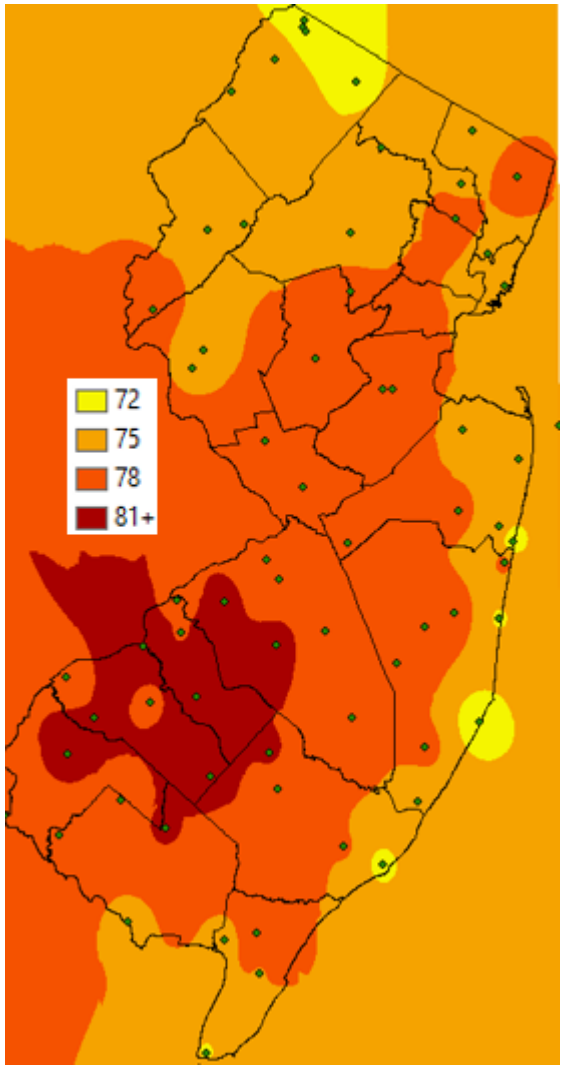
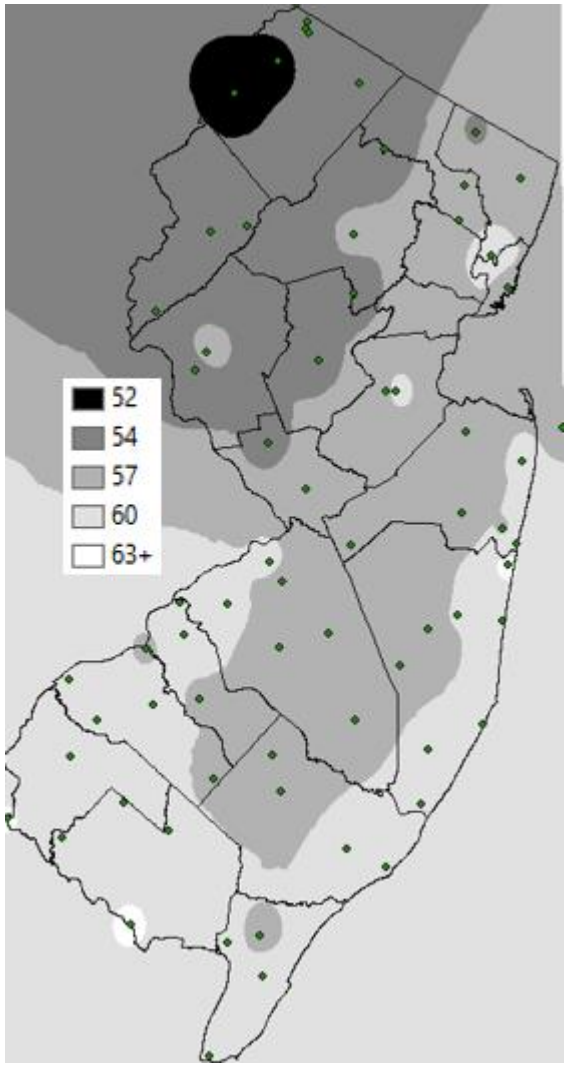
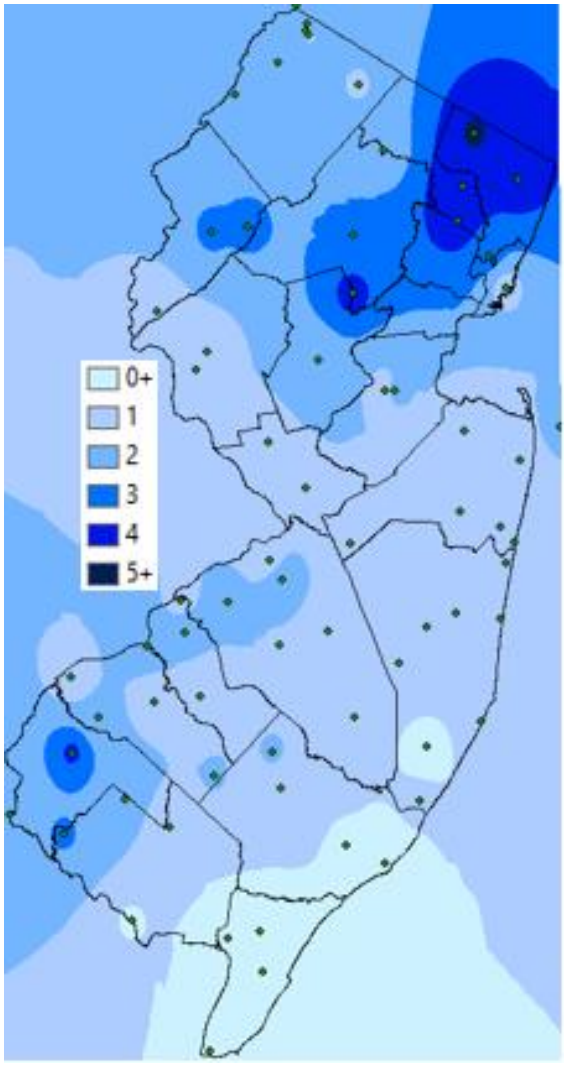
Summary Table – Week 22

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	1.10	20.69	0	0.00	10.10	0	0.10	0.15	0	0.29	0.04	4
Coastal	0.25	2.46	0	0.22	4.56	0	0.00	0.12	0	1.11	0.96	1
Delaware Bayshore	0.36	1.24	0	1.24	13.80	0	0.74	0.93	0	9.37	0.29	4
Delaware River Basin	11.86	19.81	0	3.07	19.86	0	0.07	0.18	0	0.07	0.03	3
New York Metro	0.43	0.66	0	0.01	2.48	0	0.00	0.09	0	0.00	0.08	0
North Central Rural	nd	0.12	0	nd	0.40	0	nd	0.03	0	nd	0.00	0
Northwest Rural	1.06	3.97	0	1.00	1.49	0	0.00	0.02	0	0.00	0.00	0
Philadelphia Metro	nd	5.64	0	nd	2.51	0	nd	0.15	0	nd	0.00	0
Pinelands	0.13	2.04	0	0.12	1.28	0	0.00	0.15	0	0.00	0.07	0
Suburban Corridor	0.01	0.92	0	0.00	1.85	0	0.00	0.00	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: This is the first report of the season. Currently, only populations of *Aedes sollicitans* are above the historical average (running 6 year means) in the Agricultural, Delaware Bayshore and the Delaware River Basin, with smaller numbers also in the Coastal region. Population levels for *Aedes vexans, Culex* Mix, and *Coquillettidia perturbans* are near or below historical averages. Counties are currently putting data into JerseySurv and data will be updated continuously through the season.

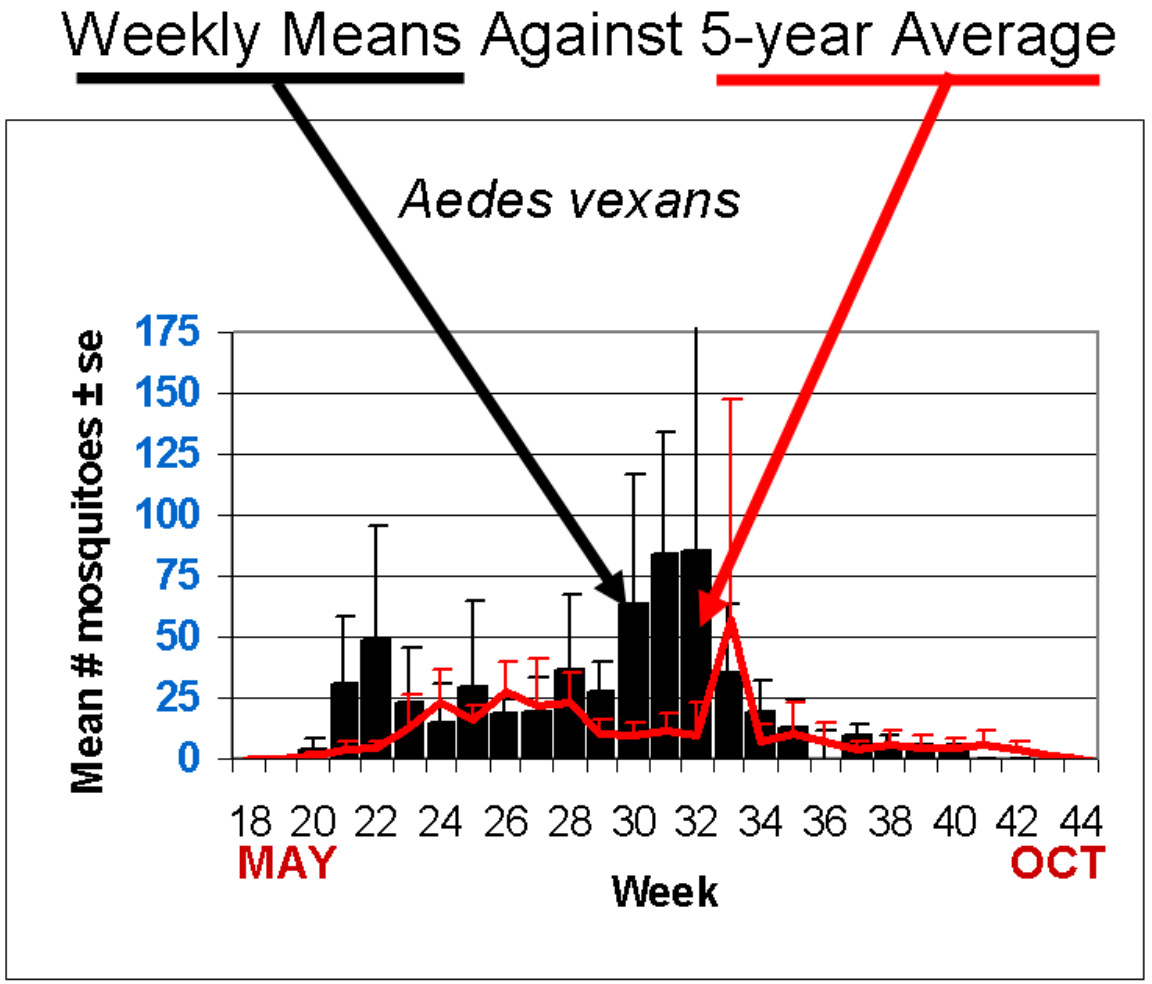
Climate Factors

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 5 June 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.

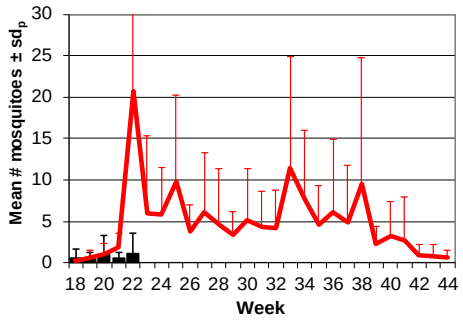
ONJSC at Rutgers University NJ Weather & Climate NETWORK

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

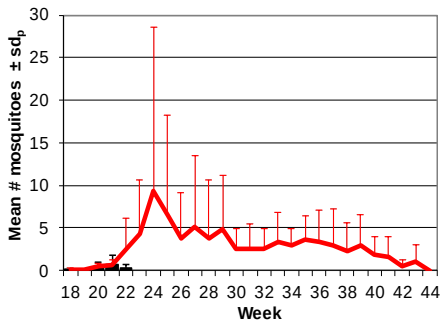


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

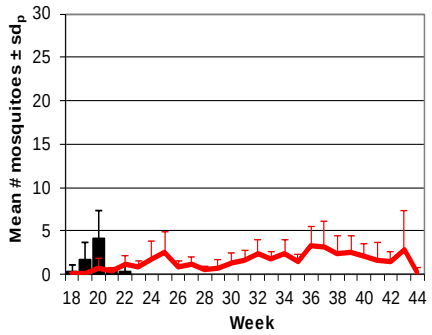
Agricultural



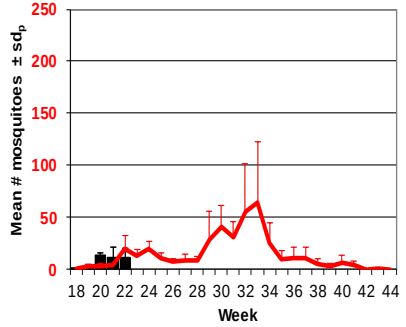
Coastal



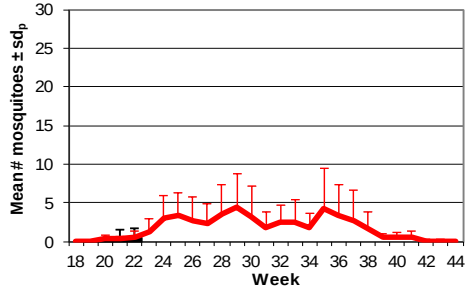
Delaware Bayshore



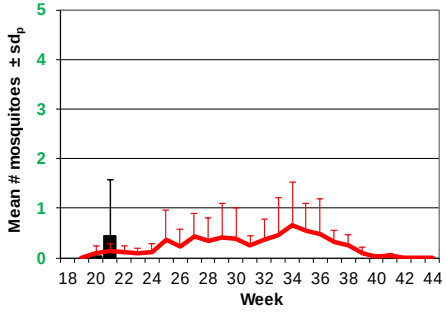
Delaware River Basin



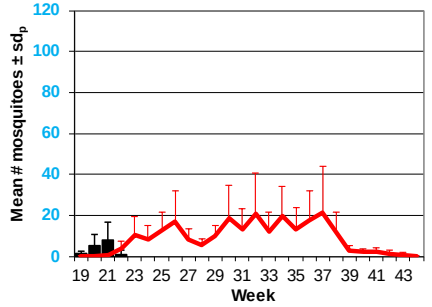
New York Metro



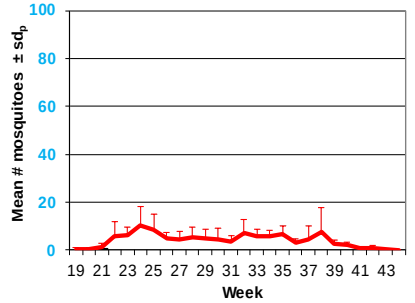
North Central Rural



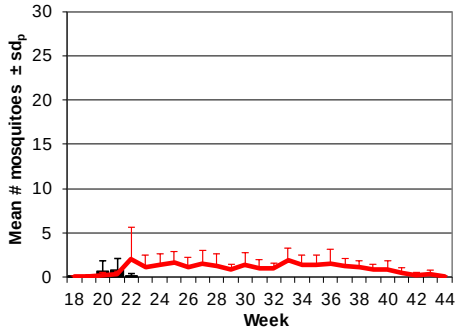
Northwestern Rural



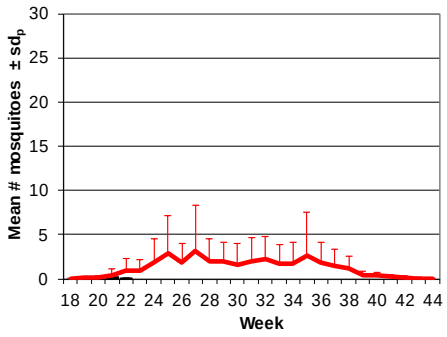
Philadelphia Metro



Pinelands



Suburban Corridor



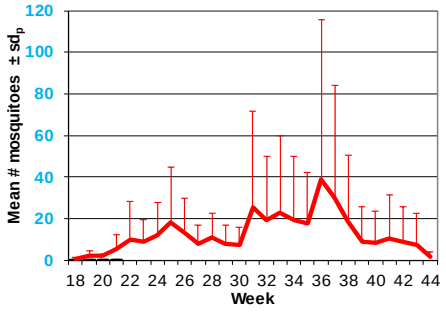
Comments

Aedes vexans is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. *Aedes vexans* populations currently are near or below historical average. Some populations (Delaware Bayshore) show earlier elevated populations.

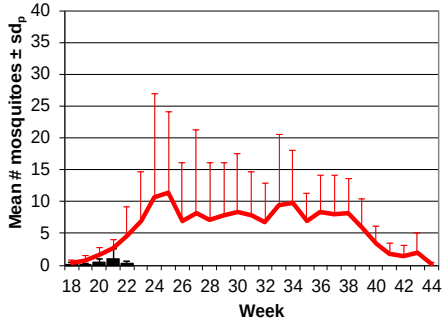
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?NJ

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

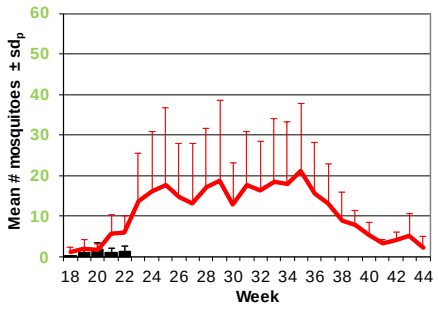
Agricultural



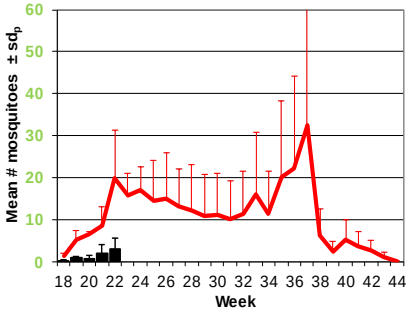
Coastal



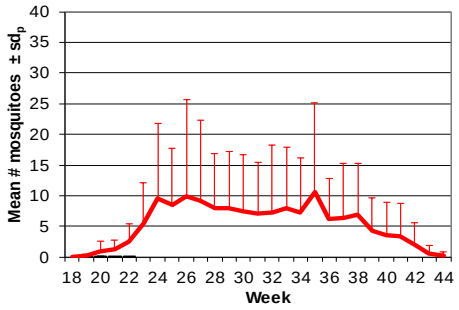
Delaware Bayshore



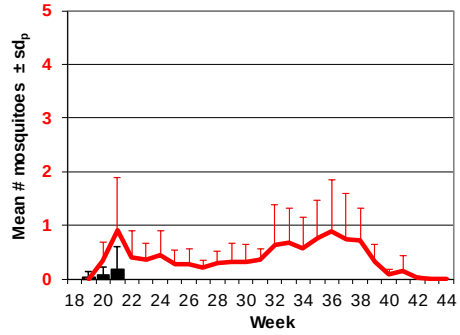
Delaware River Basin



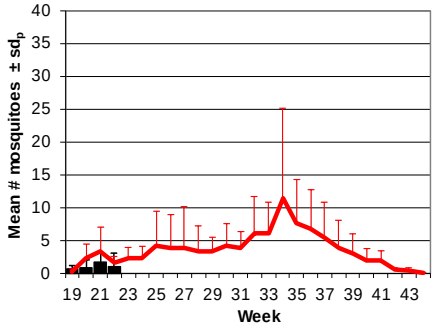
New York Metro



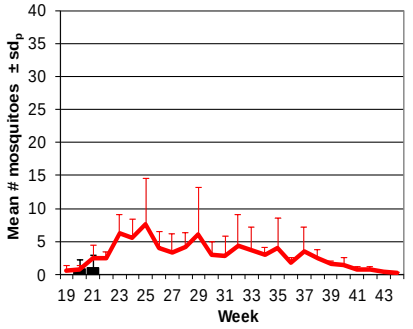
North Central Rural



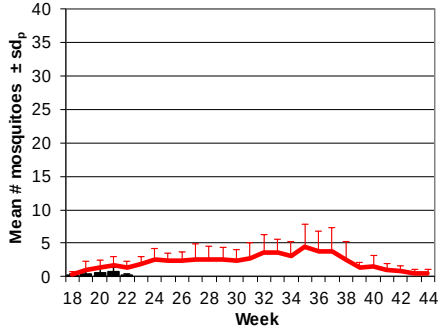
Northwestern Rural



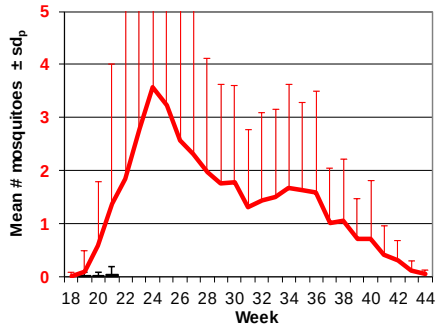
Philadelphia Metro



Pinelands



Suburban Corridor

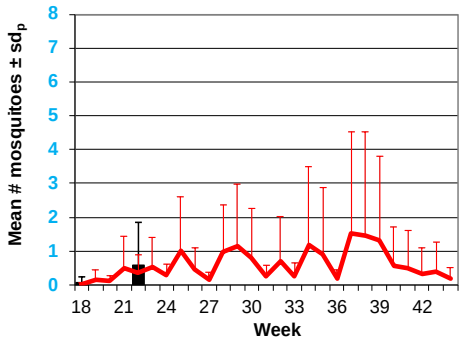


Comments

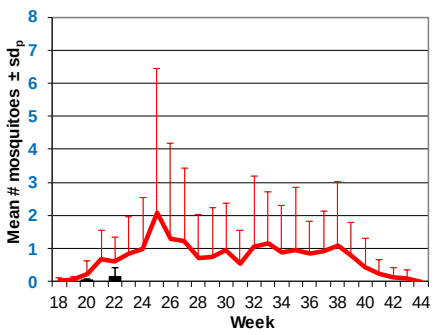
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. Significant population numbers have not yet been seen, with reported populations modest at best. Updated numbers should bring current averages closer to the running historical means. These ornithophilic species are primary enzootic vectors for West Nile and other viruses.

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

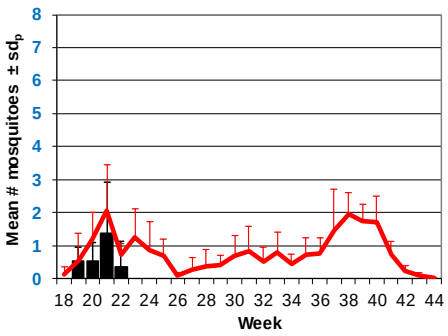
Agricultural



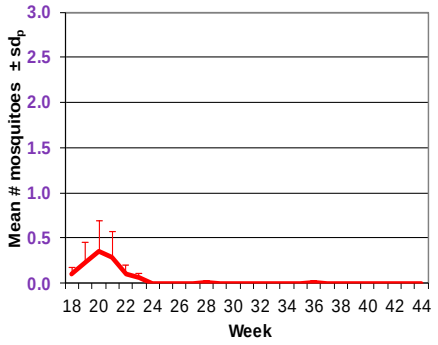
Coastal



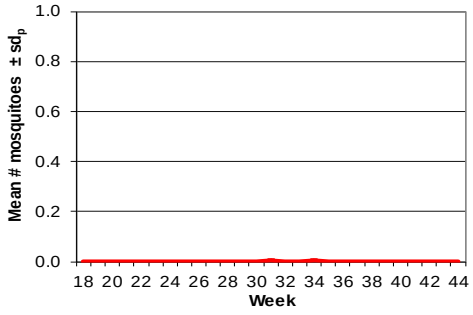
Delaware Bayshore



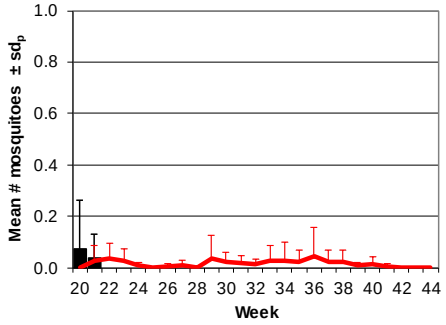
Delaware River Basin



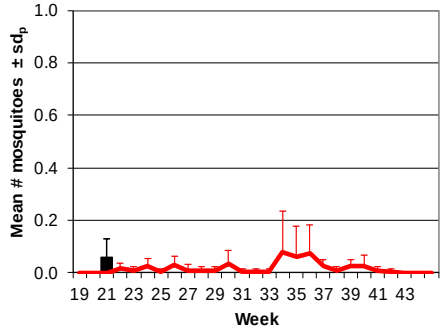
New York Metro



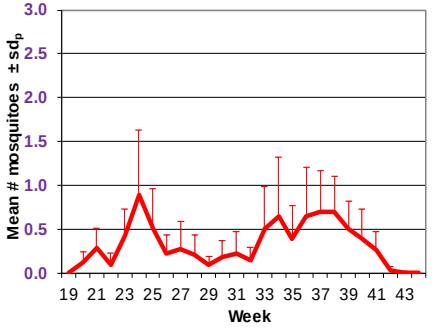
North Central Rural



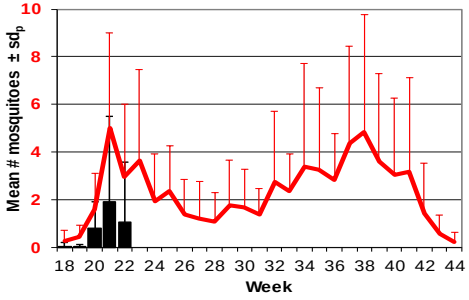
Northwestern Rural



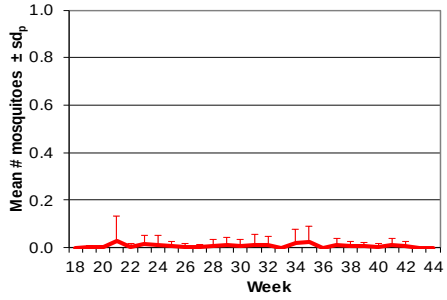
Philadelphia Metro



Pinelands



Suburban Corridor

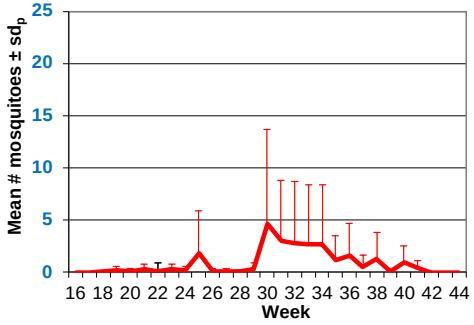
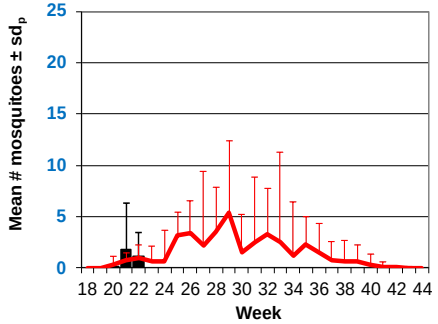
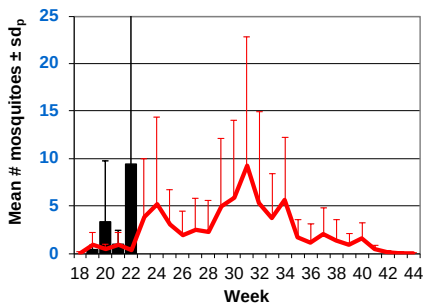
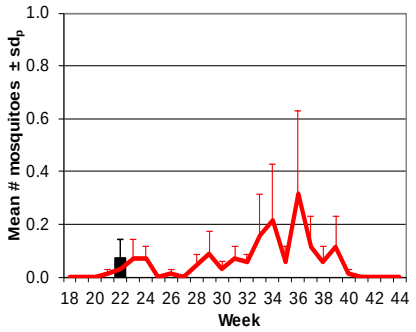
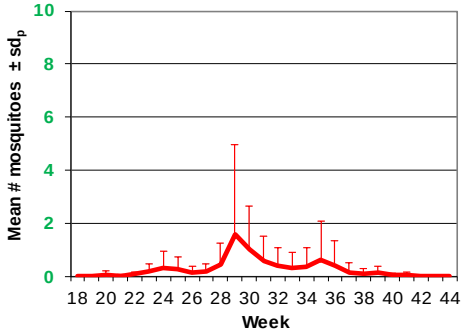
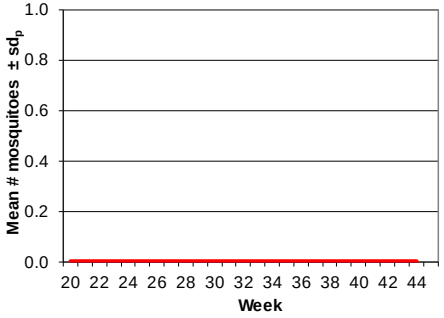
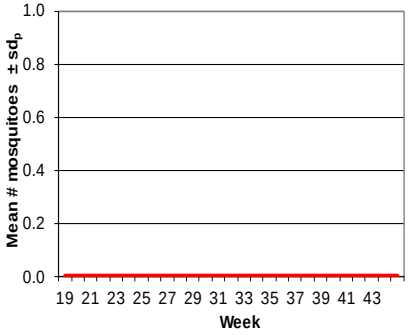
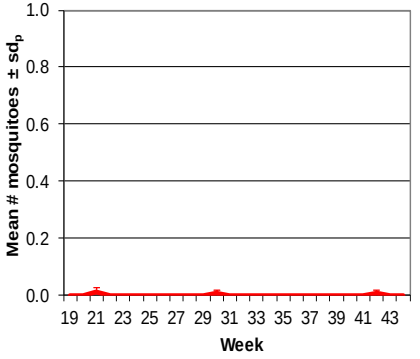
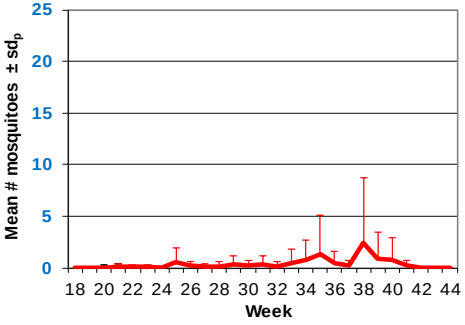
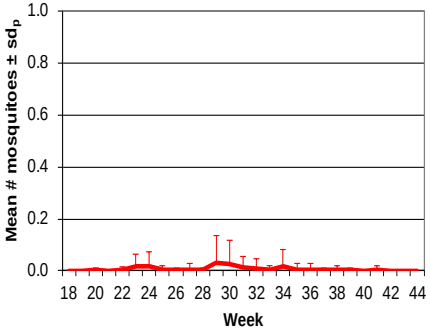


Comments

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 appear at or below the 5 year running mean. Early numbers were seen in the North Central Rural region before light trap collections began showing the cold-tolerance of this species.

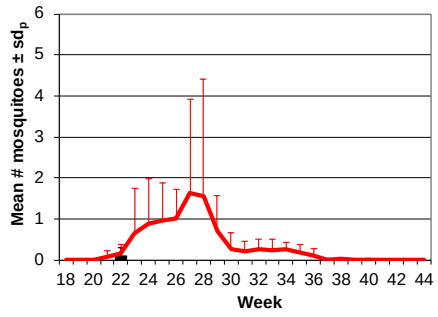
All horse owners should make sure their horses are up to date on their EEE/WNV vaccination schedules:
http://www.aaep.org/custdocs/adultvaccinationchart.pdf

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

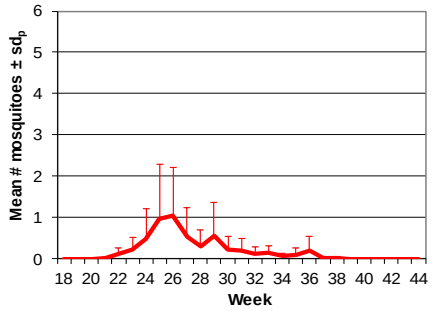
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. *Aedes sollicitans* populations currently are well above historical means in the Agricultural (small absolute numbers), Delaware Bayshore and the Delaware River Basin regions, with smaller numbers still above the historical values in the Coastal region. This species is thought to be the coastal vector for EEE, although positive pools have been few. 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)

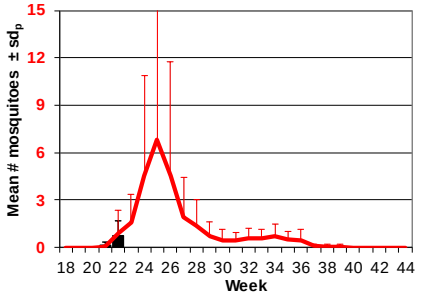
Agricultural



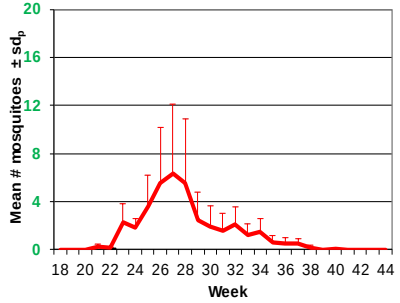
Coastal



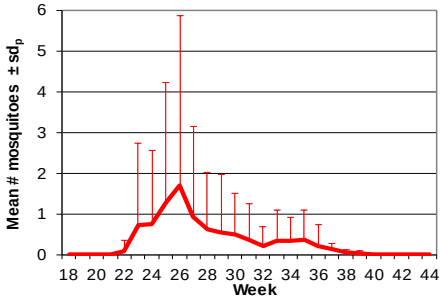
Delaware Bayshore



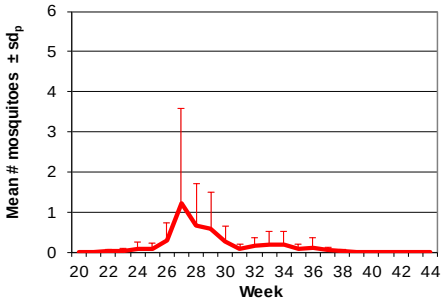
Delaware River Basin



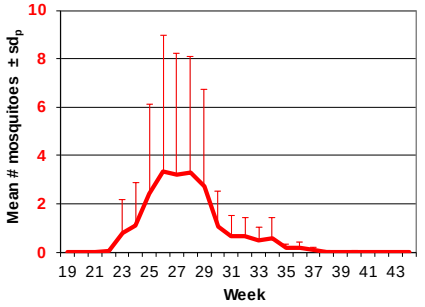
New York Metro



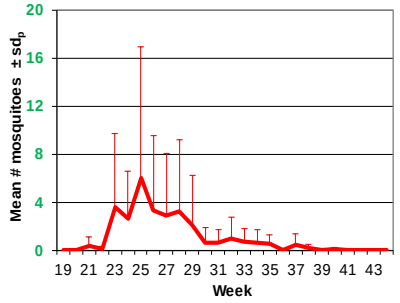
North Central Rural



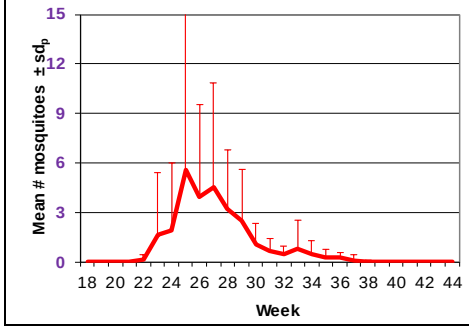
Northwestern Rural



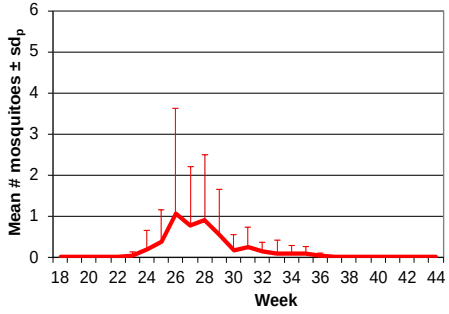
Philadelphia Metro



Pinelands



Suburban Corridor



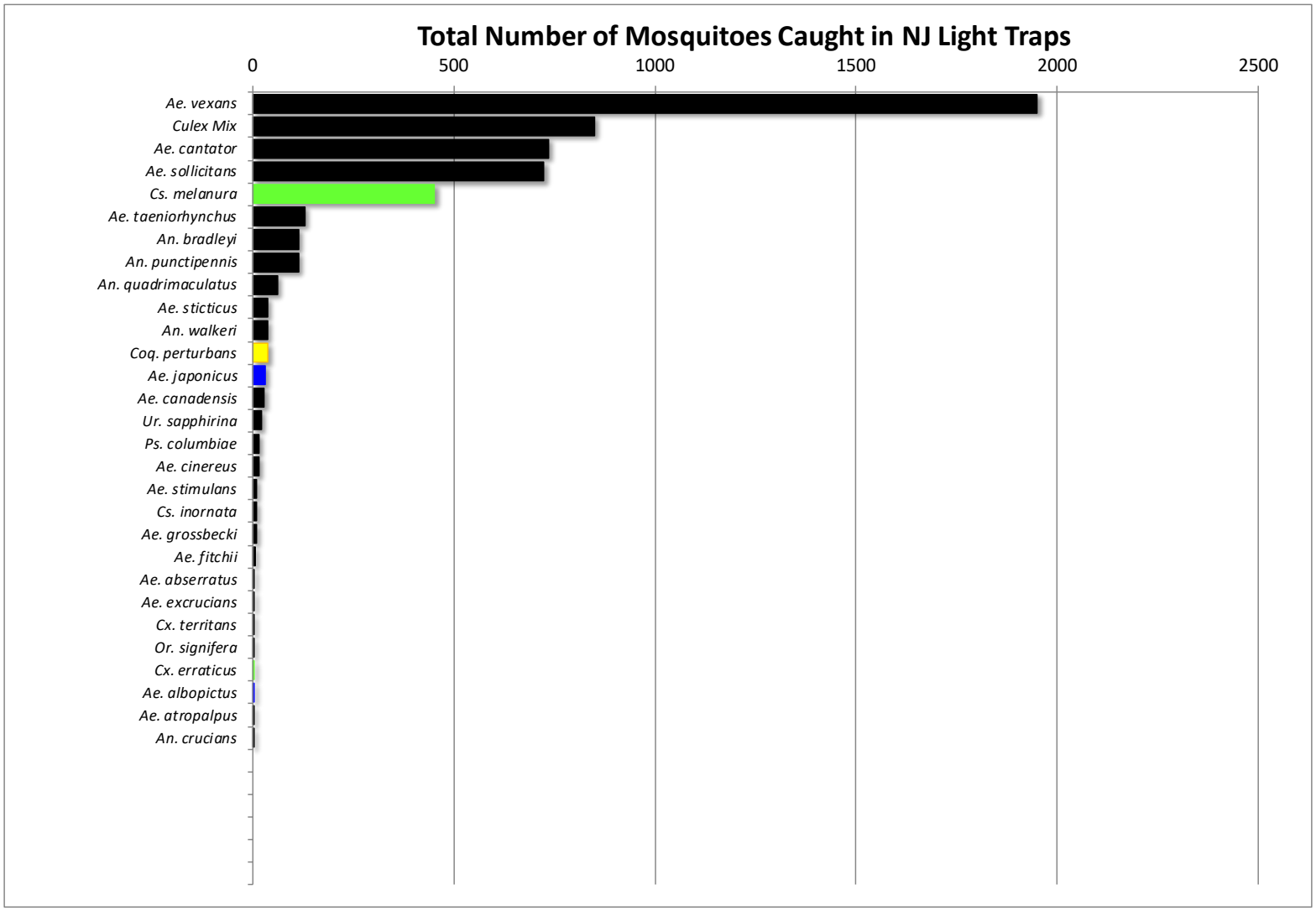
Comments

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. *Coquillettidia perturbans* numbers are just beginning for this mid-season species. 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*).

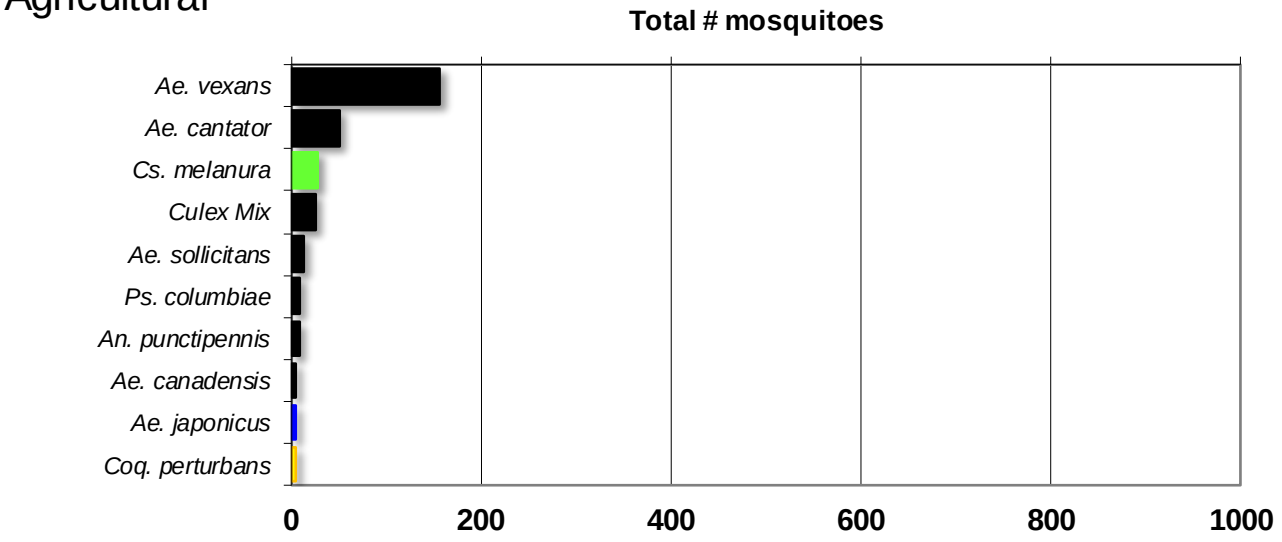
WNV *EEE*

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

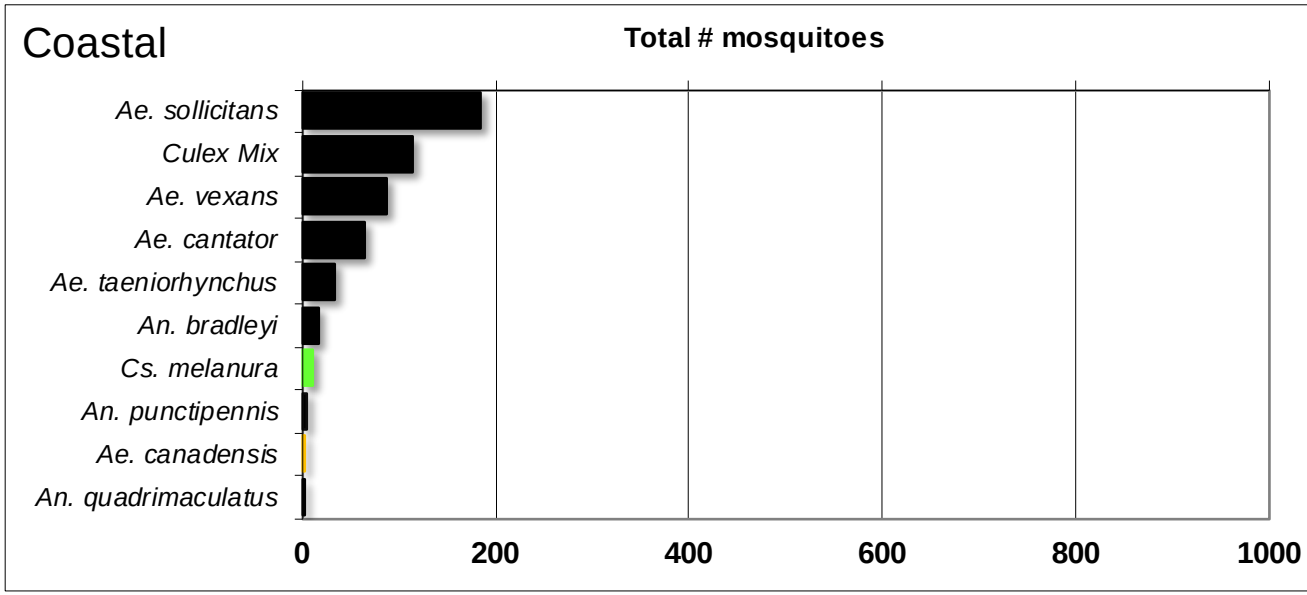
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

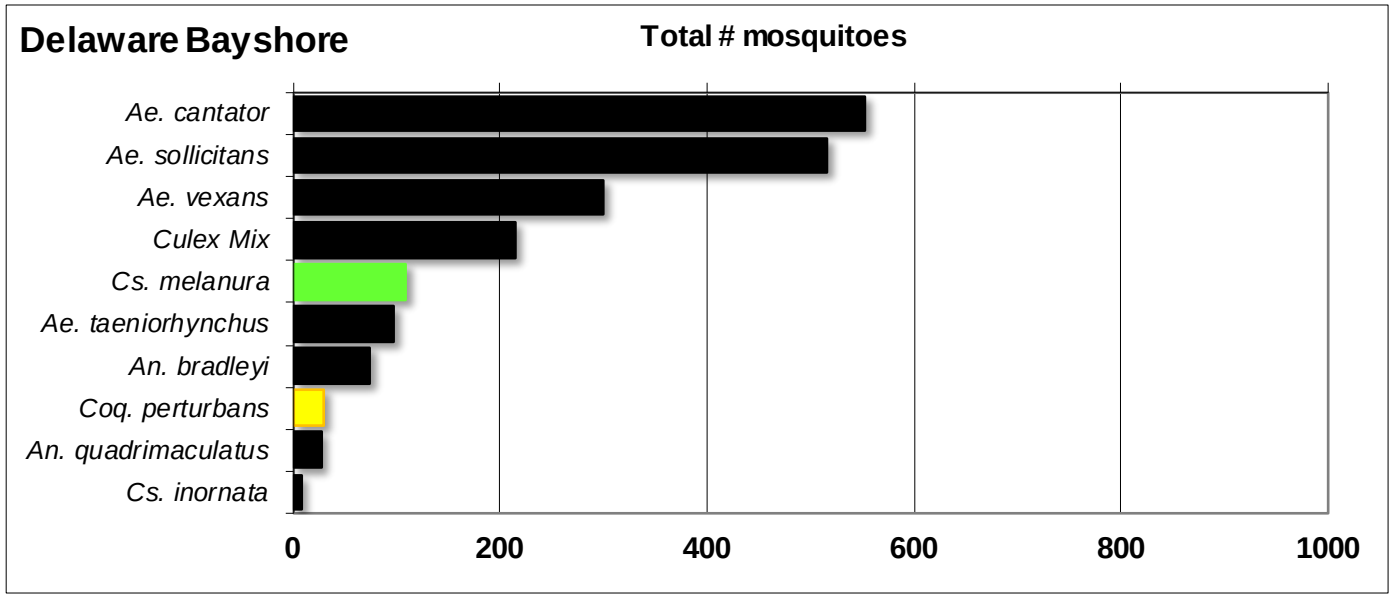


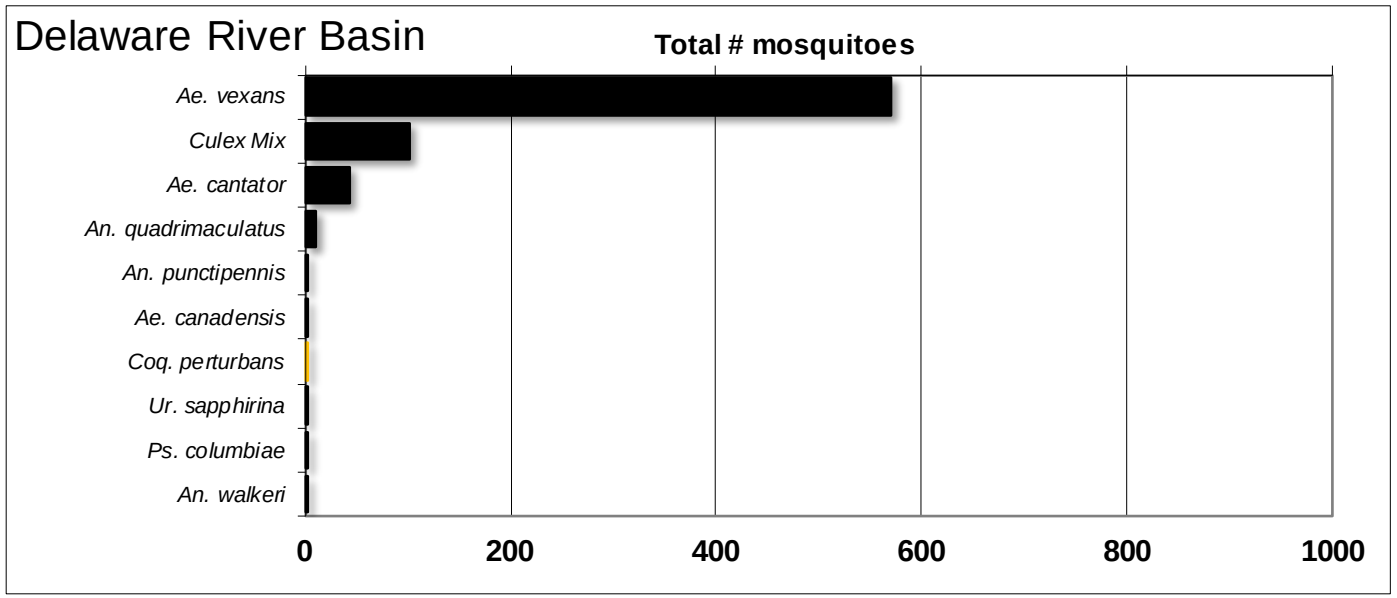
Agricultural

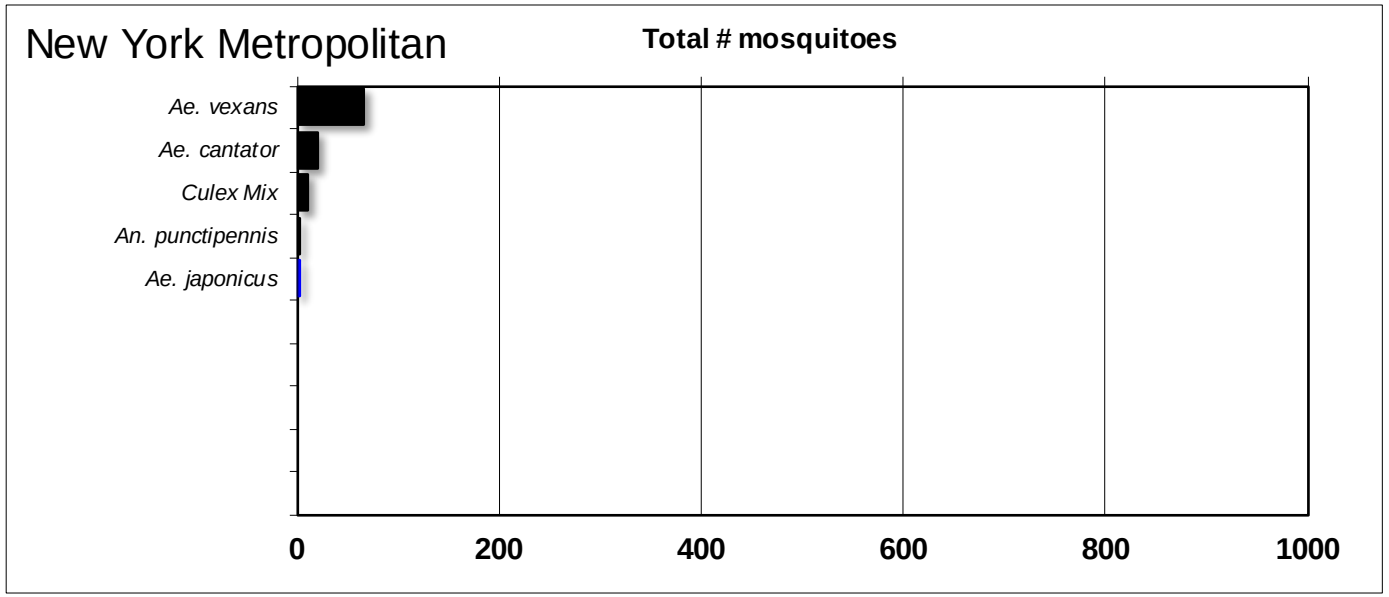


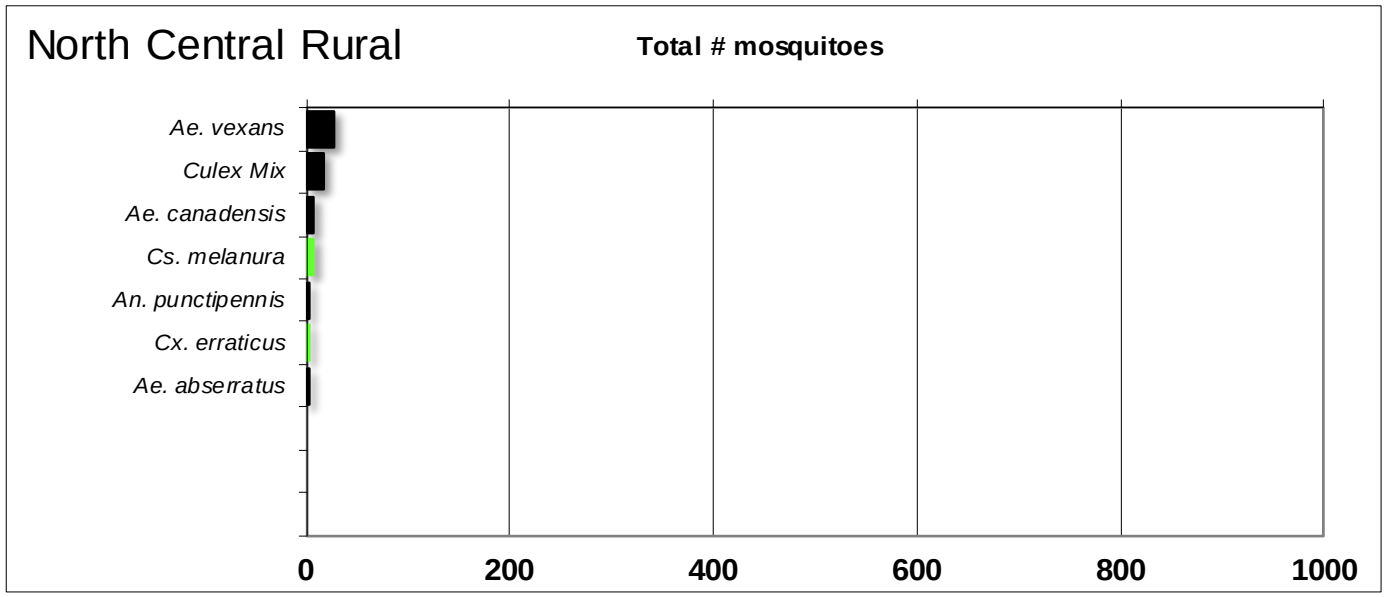
Coastal

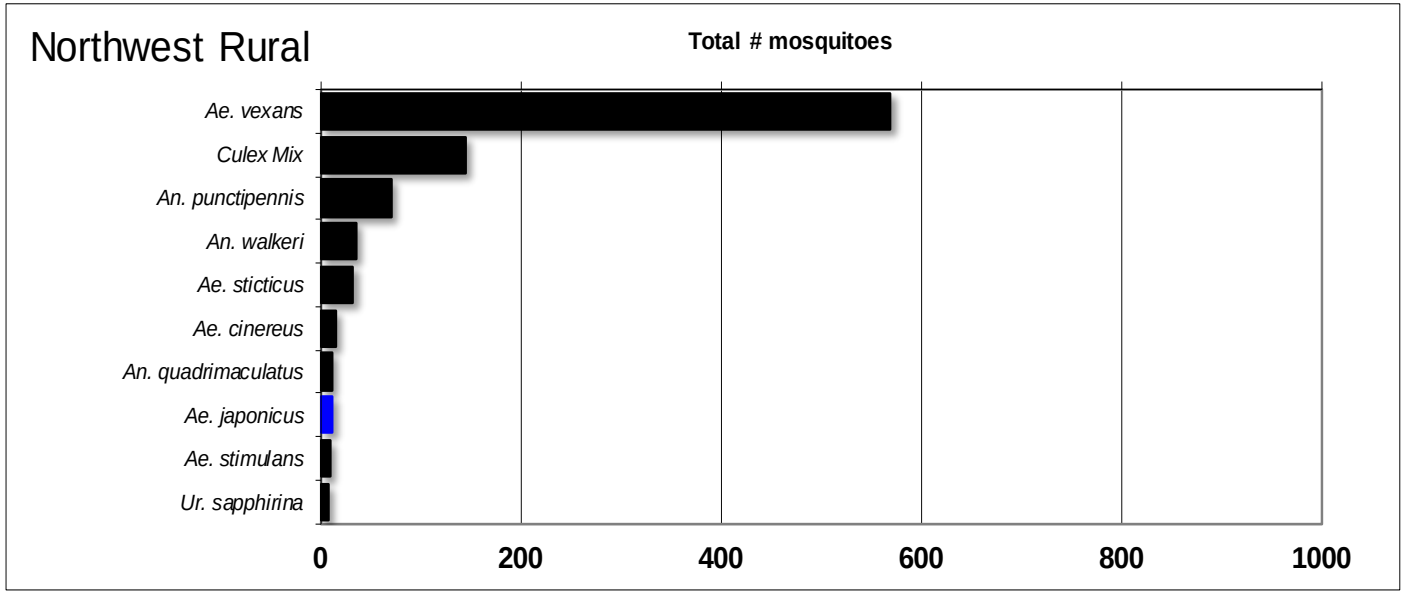


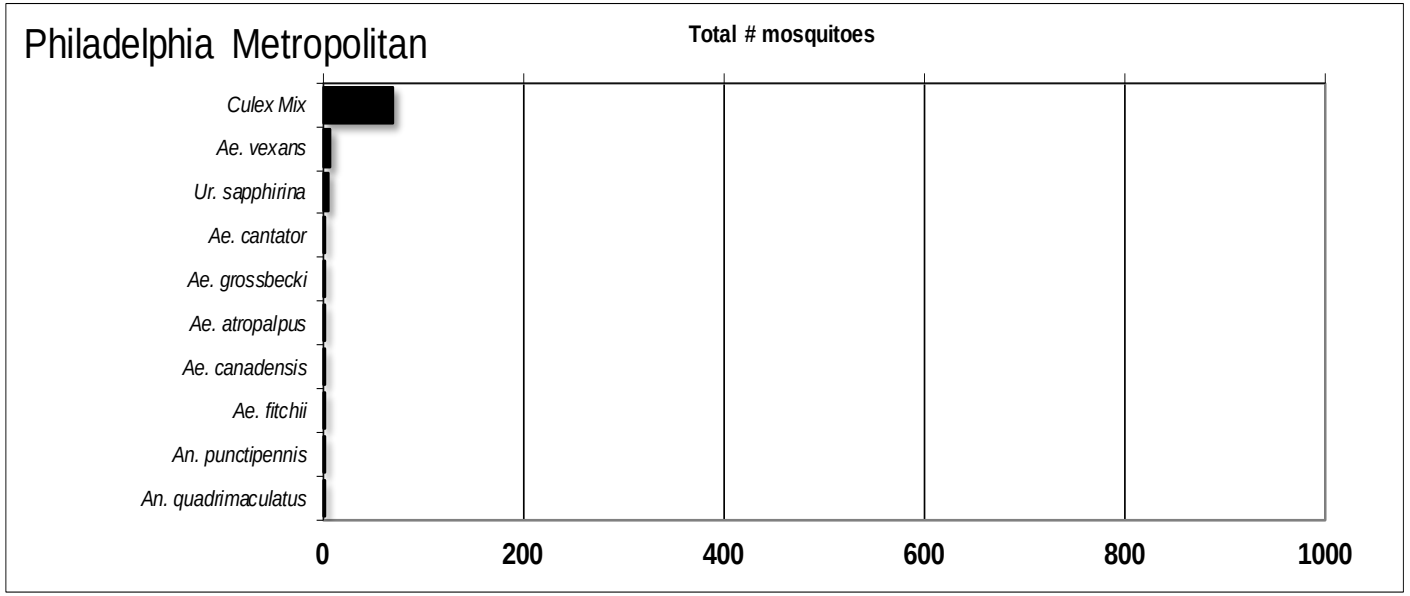

Delaware Bayshore
Total # mosquitoes
Ae. cantator
Ae. sollicitans
Ae. vexans
Culex Mix
Cs. melanura
Ae. taeniorhynchus
An. bradleyi
Coq. perturbans
An. quadrimaculatus
Cs. inornata
0
200
400
600
800
1000

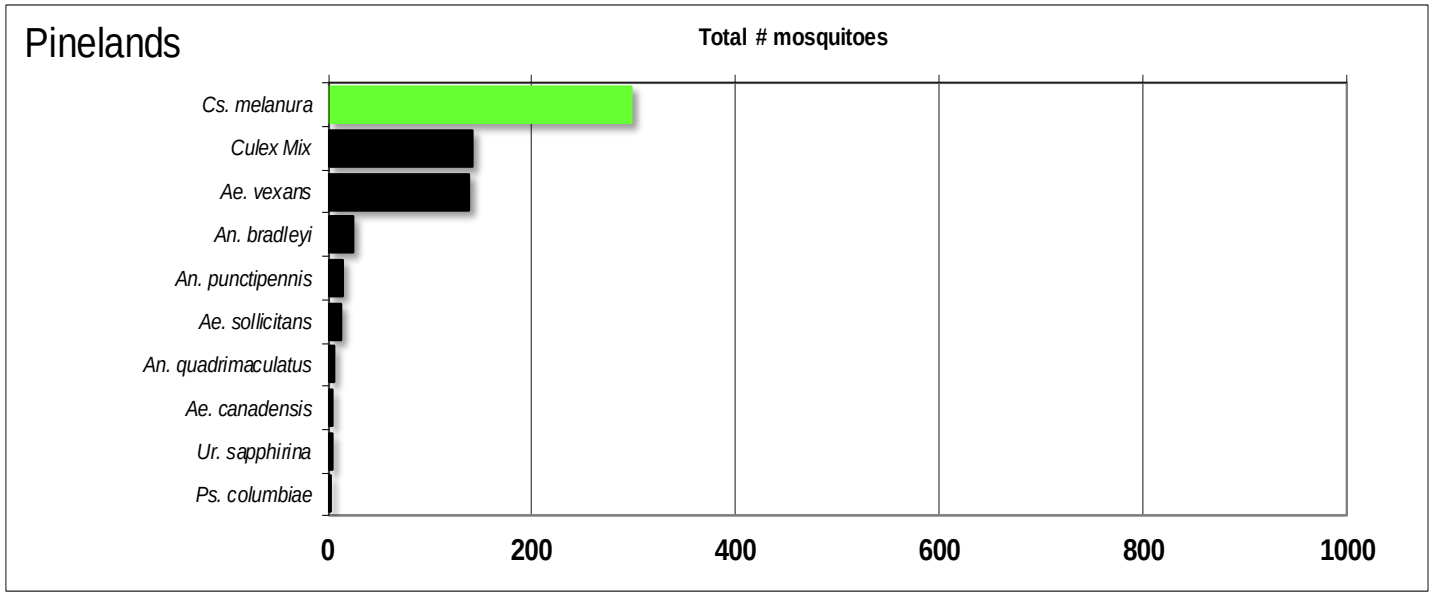

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. cantator
An. quadrimaculatus
An. punctipennis
Ae. canadensis
Coq. perturbans
Ur. sapphirina
Ps. columbiae
An. walkeri
0
200
400
600
800
1000

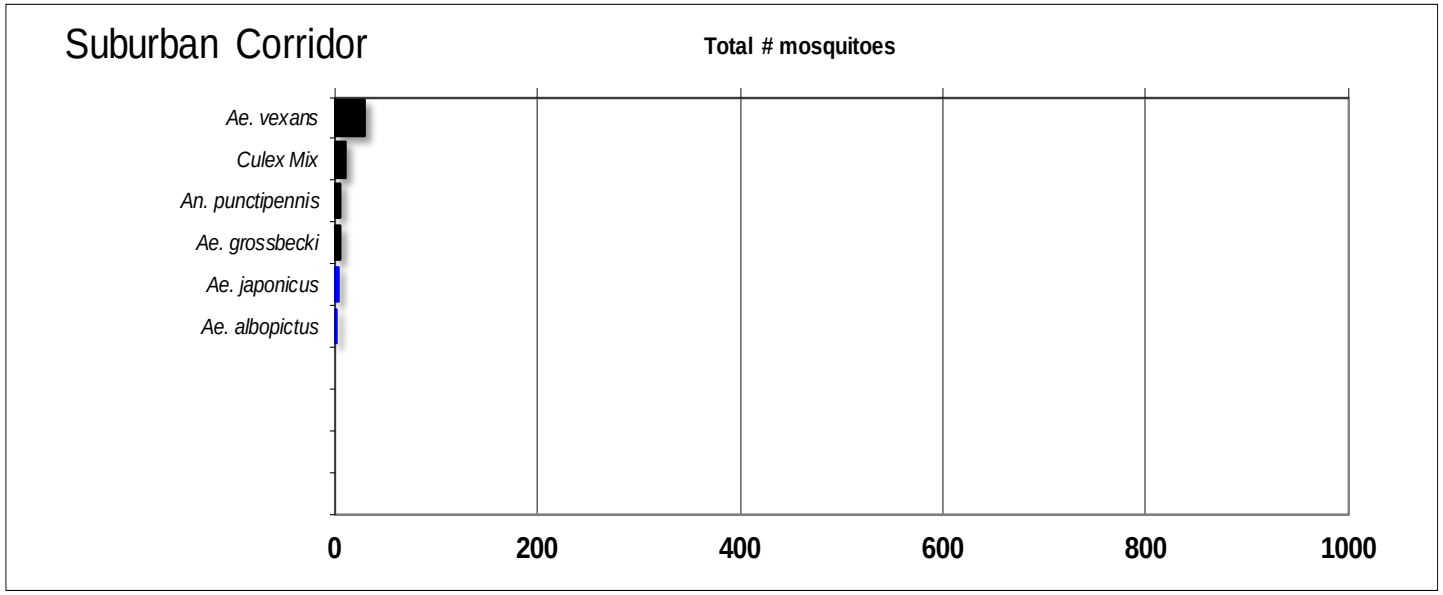

New York Metropolitan
Total # mosquitoes
Ae. vexans
Ae. cantator
Culex Mix
An. punctipennis
Ae. japonicus
0
200
400
600
800
1000


North Central Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. canadensis
Cs. melanura
An. punctipennis
Cx. erraticus
Ae. abserratus
0
200
400
600
800
1000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
An. walkeri
Ae. sticticus
Ae. cinereus
An. quadrimaculatus
Ae. japonicus
Ae. stimulans
Ur. sapphirina
0
200
400
600
800
1000


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ur. sapphirina
Ae. cantator
Ae. grossbecki
Ae. atropalpus
Ae. canadensis
Ae. fitchii
An. punctipennis
An. quadrimaculatus
0
200
400
600
800
1000


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Ae. vexans
An. bradleyi
An. punctipennis
Ae. sollicitans
An. quadrimaculatus
Ae. canadensis
Ur. sapphirina
Ps. columbiae
0
200
400
600
800
1000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
Ae. grossbecki
Ae. japonicus
Ae. albopictus
0
200
400
600
800
1000