NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 20 August to 26 August 2017, CDC Week 34

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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.

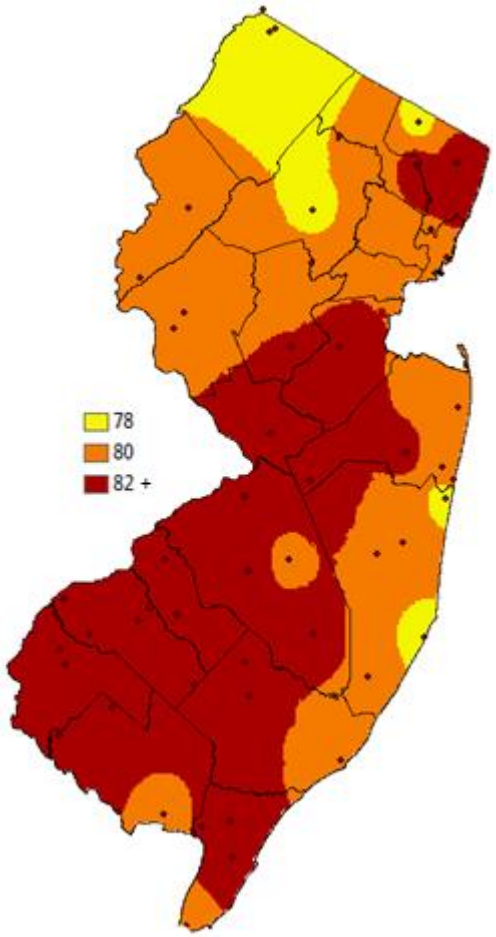
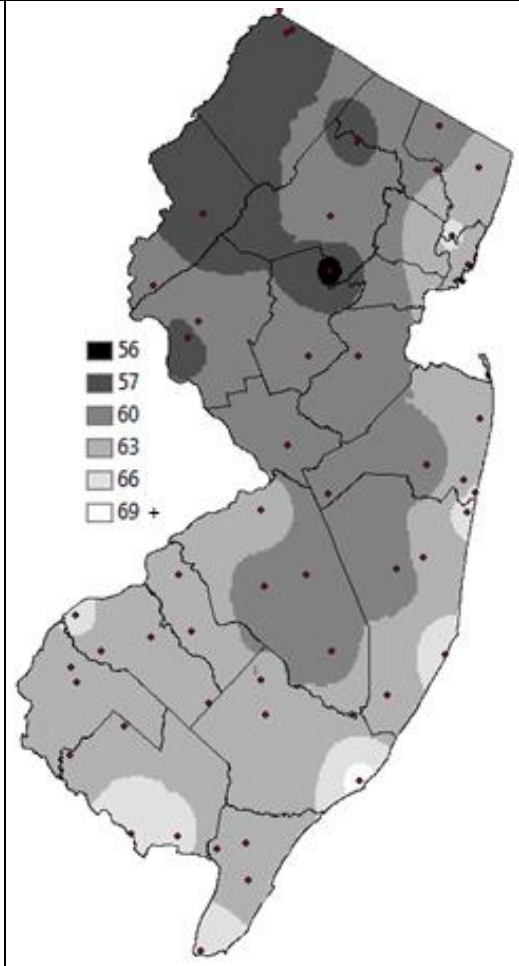
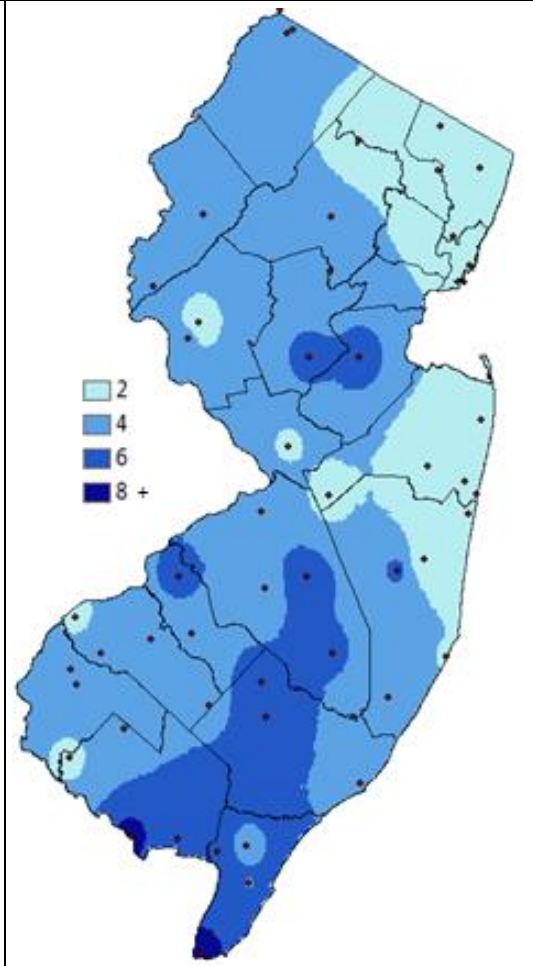
Summary Table – Week 34

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	9.40	1.33	4	3.76	4.37	0	0.31	0.01	4	4.86	0.04	4
Coastal	5.68	1.70	4	8.08	6.08	1	0.13	0.11	1	2.43	1.14	3
Delaware Bayshore	1.47	1.51	0	8.01	6.93	1	0.97	0.31	4	0.46	0.27	2
Delaware River Basin	9.14	3.51	4	10.86	4.57	3	0.57	0.37	2	0.00	0.00	0
New York Metro	1.90	0.38	4	18.51	2.88	4	0.44	0.04	4	0.36	0.25	1
North Central Rural	0.00	0.18	0	0.04	0.34	0	0.00	0.01	0	0.00	0.00	0
Northwest Rural	1.80	0.92	2	0.83	2.23	0	0.00	0.03	0	0.00	0.00	0
Philadelphia Metro	0.00	3.47	0	0.00	1.93	0	0.00	0.67	0	0.00	0.00	0
Pinelands	2.31	0.48	4	2.19	2.07	1	0.06	0.26	0	0.00	0.07	0
Suburban Corridor	0.19	2.35	0	1.04	0.71	1	0.01	1.16	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: Numerous populations were significantly above recent historical averages, including *Aedes vexans* in the Agricultural, Coastal, Delaware River Basin, New York Metropolitan and the Pinelands; *Culex* Mix in the New York Metropolitan; *Coquillettidia perturbans* in the Agricultural, Delaware Bayshore and the New York Metropolitan and *Aedes sollicitans* in the Agricultural region. Several other populations were also either moderately or mildly above historical means.

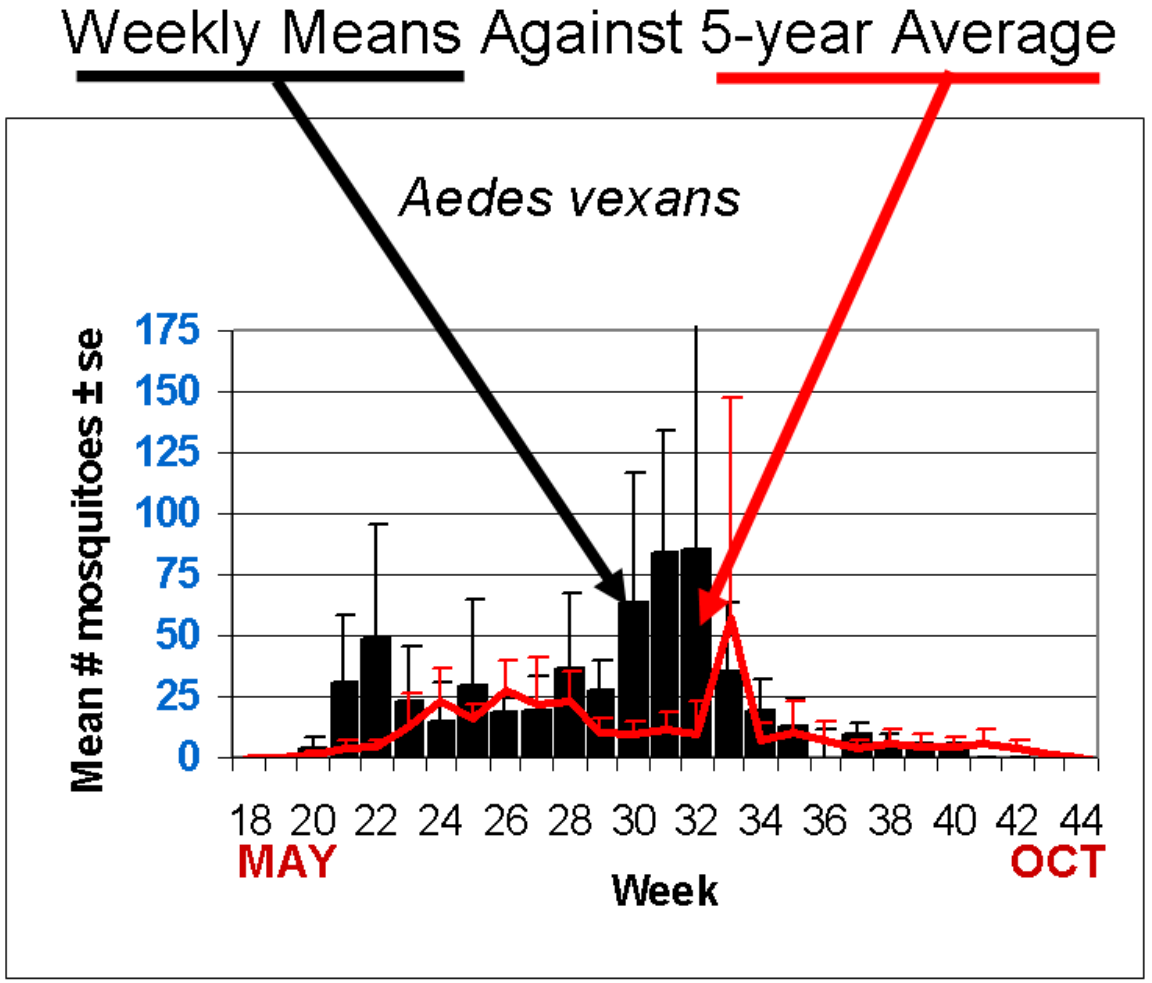
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

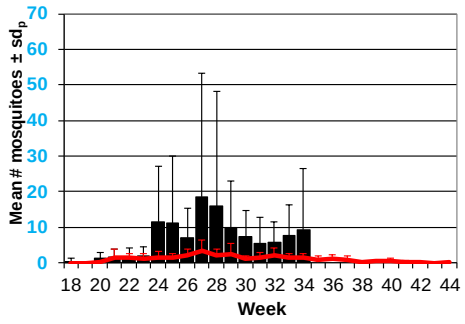
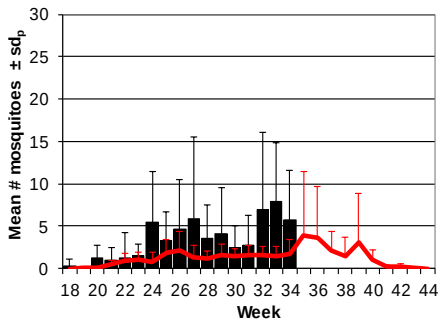
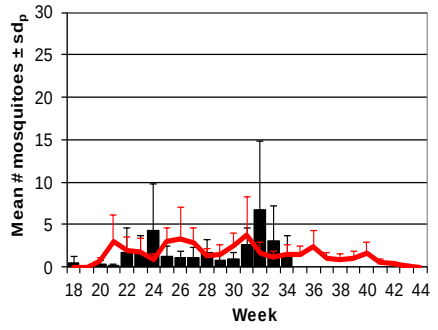
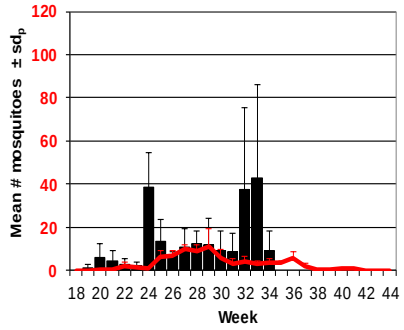
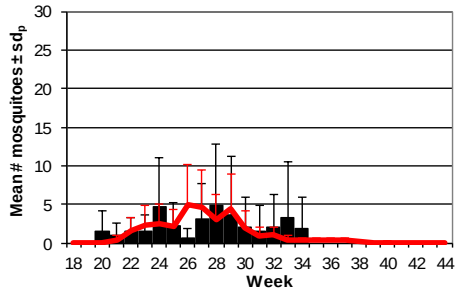
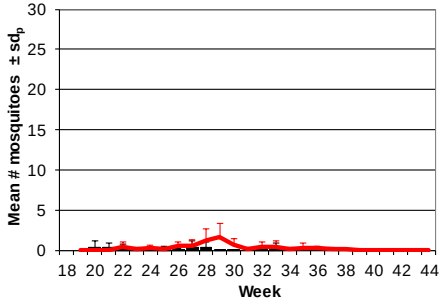
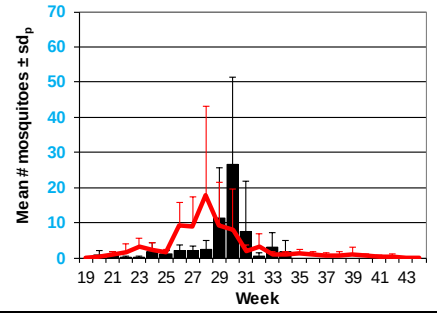
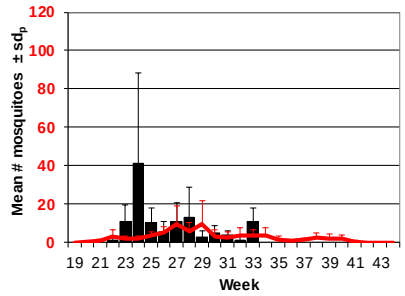
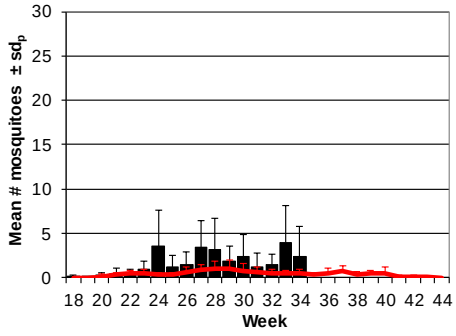
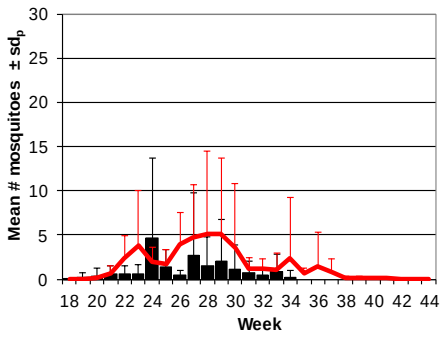
The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) for 30 days prior to 26 August 2017 in New Jersey. Data points are from about 55 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

ONJSC at Rutgers University NJ Weather & Climate NETWORK

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

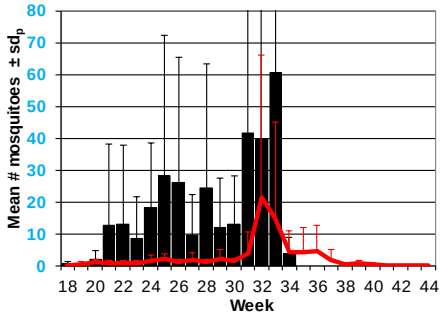


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

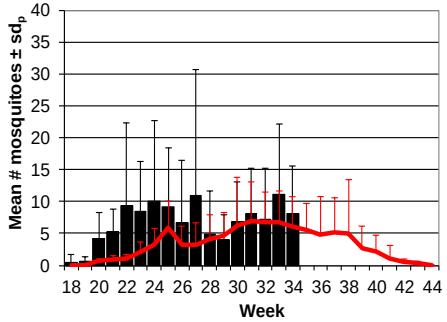
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. Significantly higher populations over recent historical averages were seen in the Agricultural, Coastal, Delaware River Basin, New York Metropolitan and the Pinelands regions. Numbers overall through the season for this species has been elevated particularly in the Agricultural and Coastal regions, with significant emergences also in the Delaware River Basin and Philadelphia Metropolitan regions.	

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

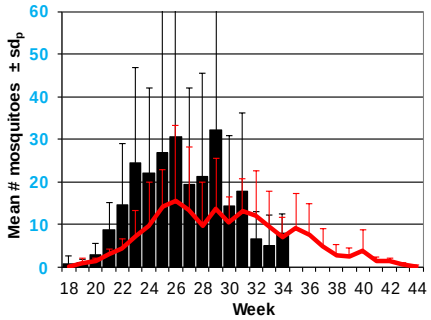
Agricultural



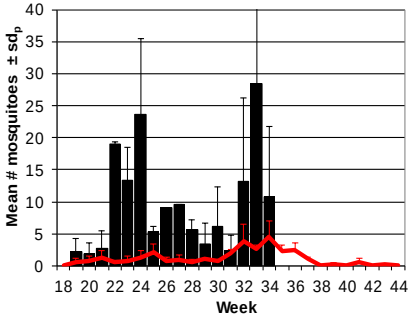
Coastal



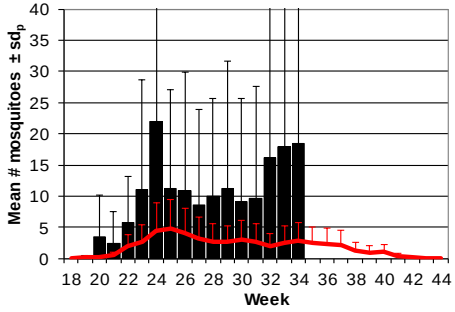
Delaware Bayshore



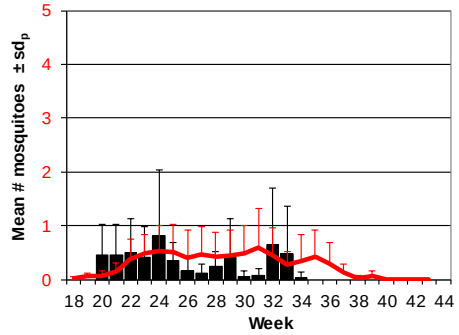
Delaware River Basin



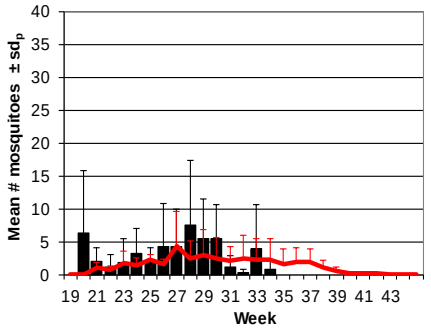
New York Metro



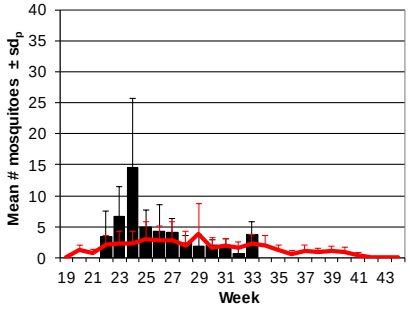
North Central Rural



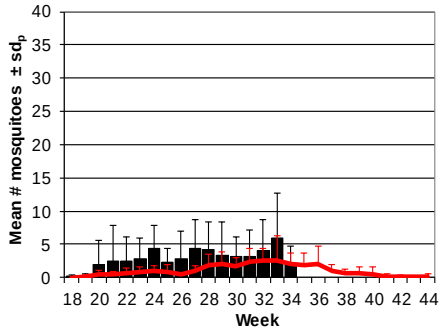
Northwestern Rural



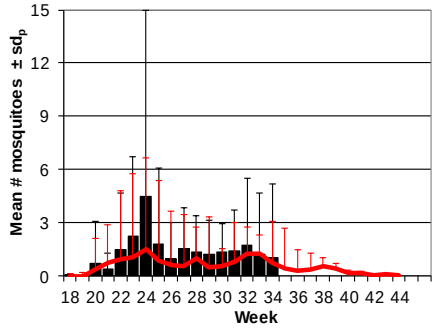
Philadelphia Metro



Pinelands



Suburban Corridor

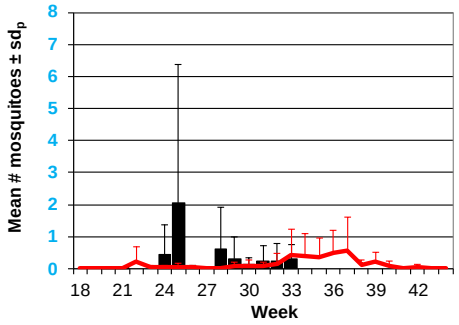


Comments

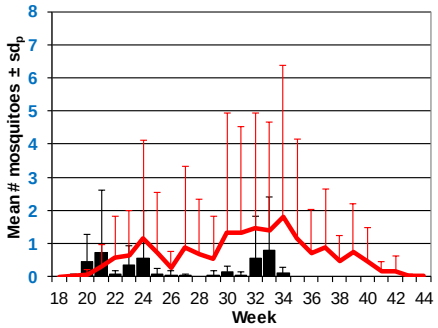
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. As with last week, high population levels continued to be seen in the New York Metropolitan region. Moderately elevated numbers also see in the Delaware River Basin and minor elevations were also seen in the Coastal, Delaware Bayshore, Pinelands and Suburban Corridor. WNV appears to be about at average activity currently, in comparison to the past several years.

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

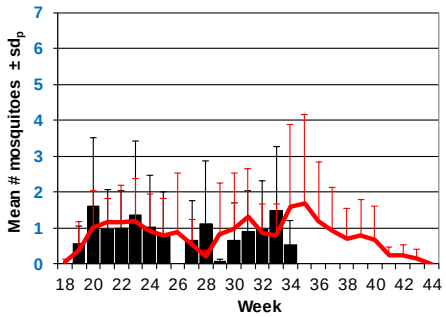
Agricultural



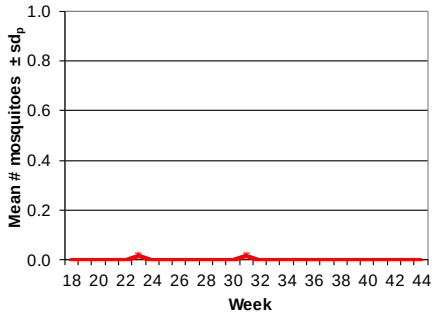
Coastal



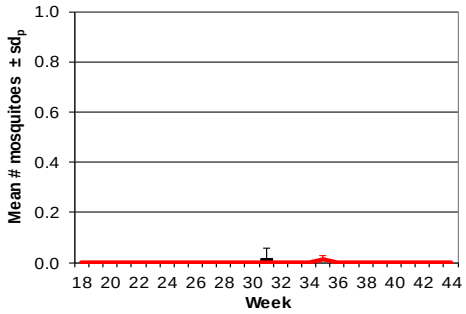
Delaware Bayshore



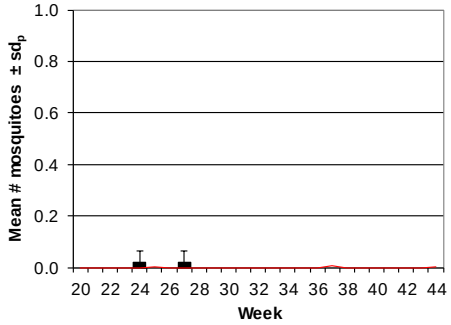
Delaware River Basin



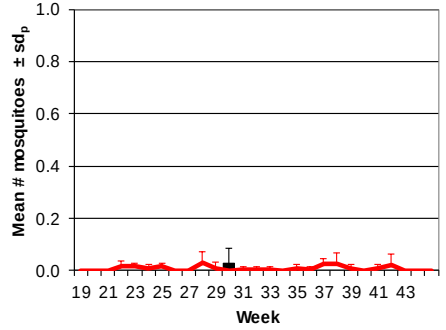
New York Metro



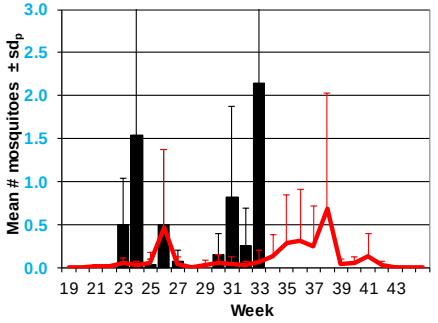
North Central Rural



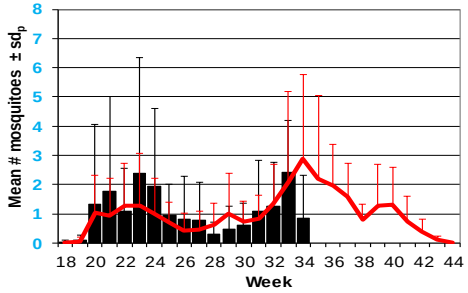
Northwestern Rural



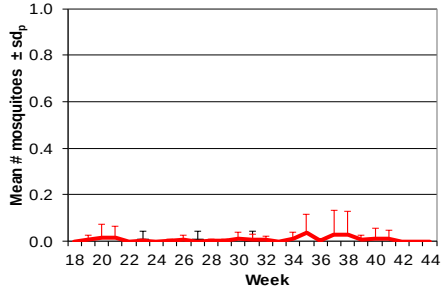
Philadelphia Metro



Pinelands



Suburban Corridor



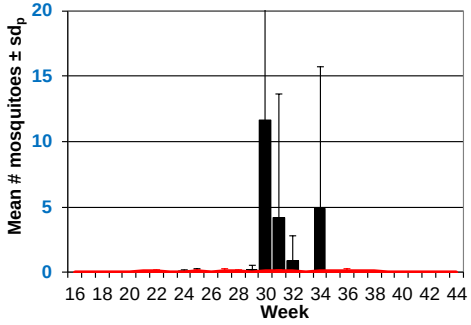
Comments

Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. Last year, EEE activity was recorded not only in southern NJ where it is typically found, but also in the northern half of the state. One human case occurred in the latter area. In 2017, the first positive pool for EEE in *Cs. melanura* was detected in a pool from the eastern side of Burlington County, from a Coastal site. Currently there are 4 positive pools, all in *Cs. melanura*.

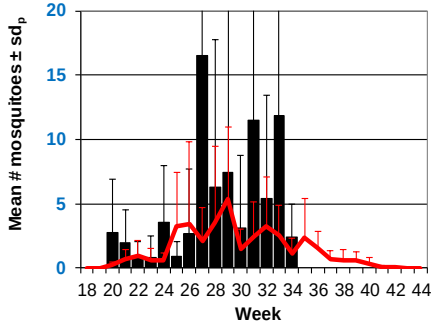
All horse owners should make sure their horses are up to date on the vaccination schedules: http://www.aaep.org/custdocs/adultvaccinationchart.pdf

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

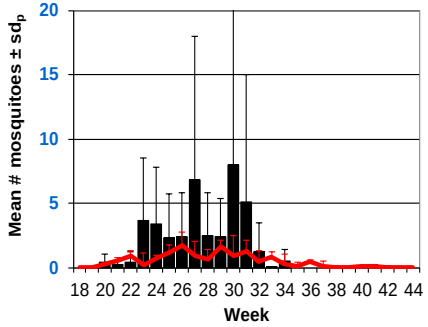
Agricultural



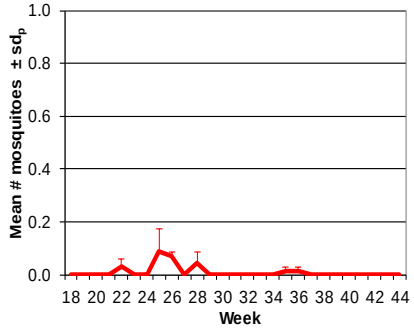
Coastal



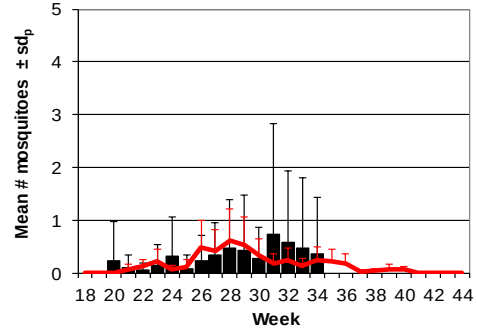
Delaware Bayshore



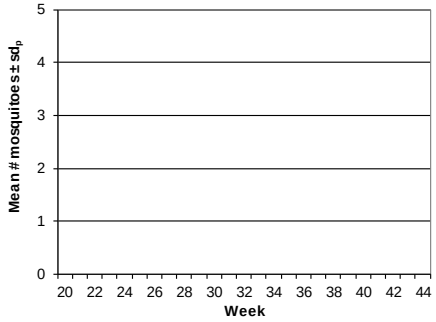
Delaware River Basin



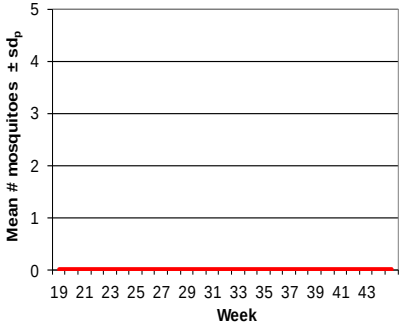
New York Metro



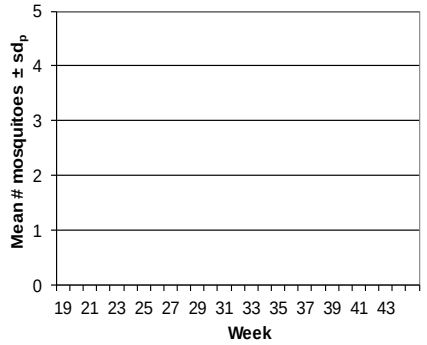
North Central Rural



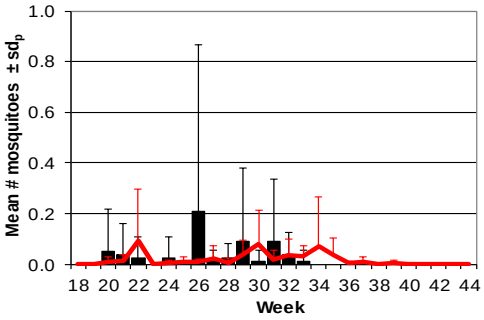
Northwestern Rural



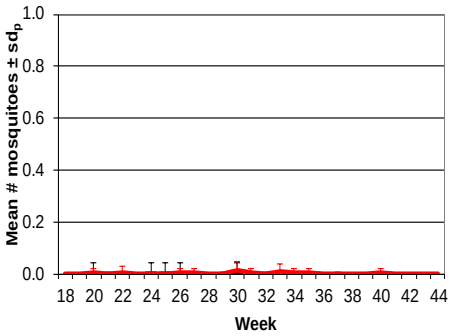
Philadelphia Metro



Pinelands



Suburban Corridor

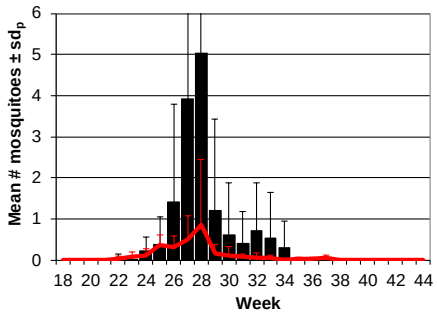
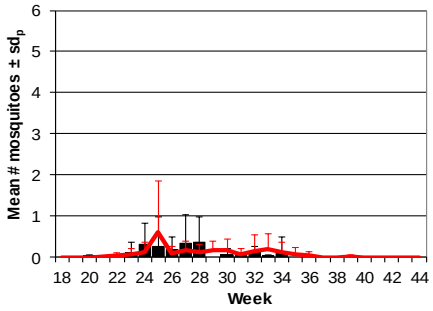
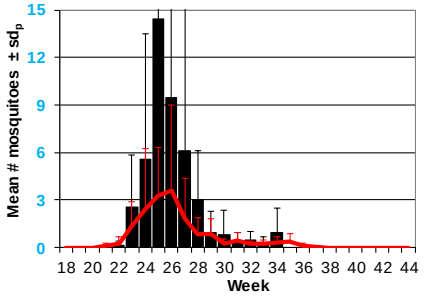
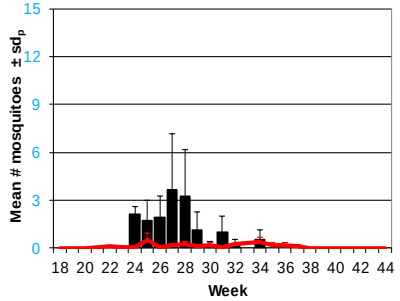
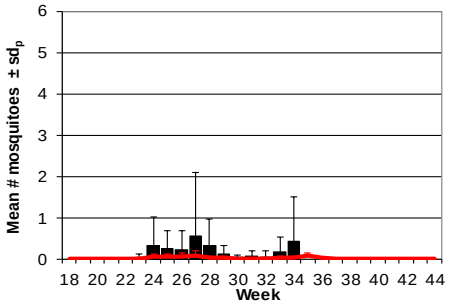
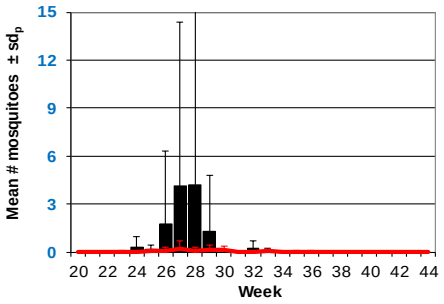
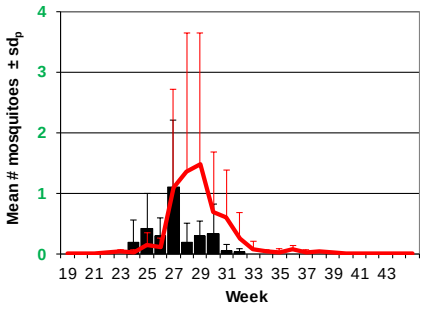
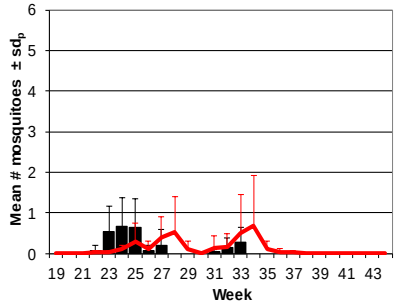
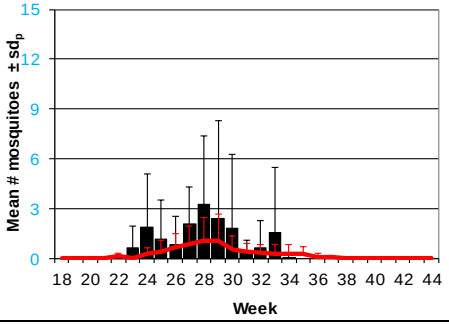
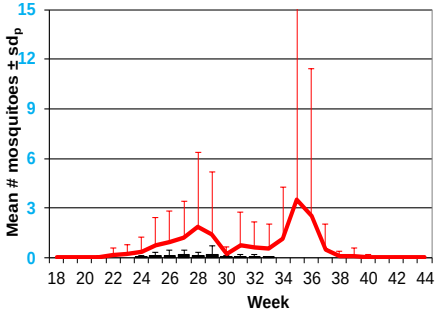


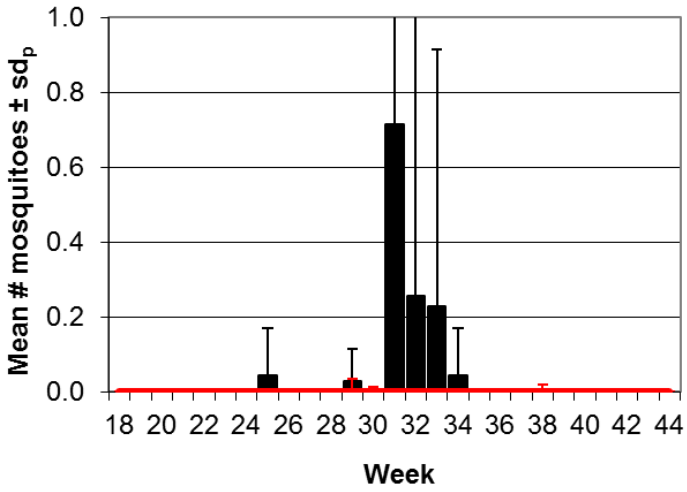
Comments

Aedes sollicitans is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. Significant populations that were higher than recent historical averages were seen in the Agricultural region. All other populations appear to be at the nadir of the cycle. As the season progresses, there should be enough time for one more emergence, albeit smaller than earlier emergences.

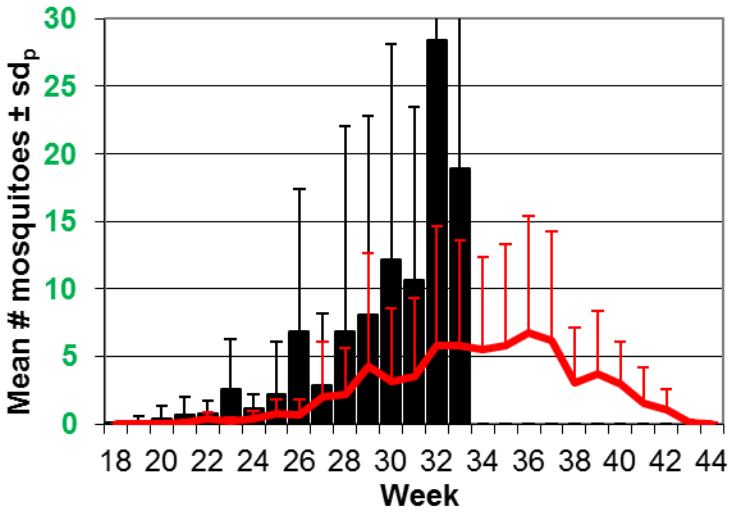
Next full moon is on the 6th September.

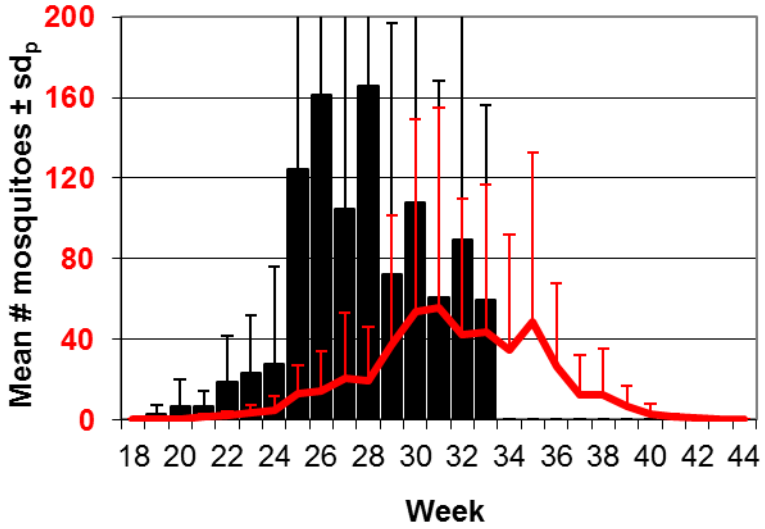
Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. This mid-season species is a potential inland vector of EEE and should be monitored closely when the arbovirus is present. Despite being on the downward trend for this mid-season species, populations were significantly higher in the Agricultural, Delaware Bayshore and the New York Metropolitan regions, with smaller increases also seen in the Coastal and Delaware River Basin..	



Aedes taeniorhynchus: The black salt marsh mosquito is generally tightly associated with the salt marsh, responding to flood conditions. This year, numbers appear to be up, and noticeable for this fierce biter. This is *Ae. taeniorhynchus* in the New York Metropolitan region. This species is capable of transmitting EEE as well as dog heartworm. According to Apperson, females mate when they are about 12 days old!
Apperson, C. 1991. The black salt marsh mosquito, Aedes taeniorhynchus Wing Beats, Vol. 2(4):9.



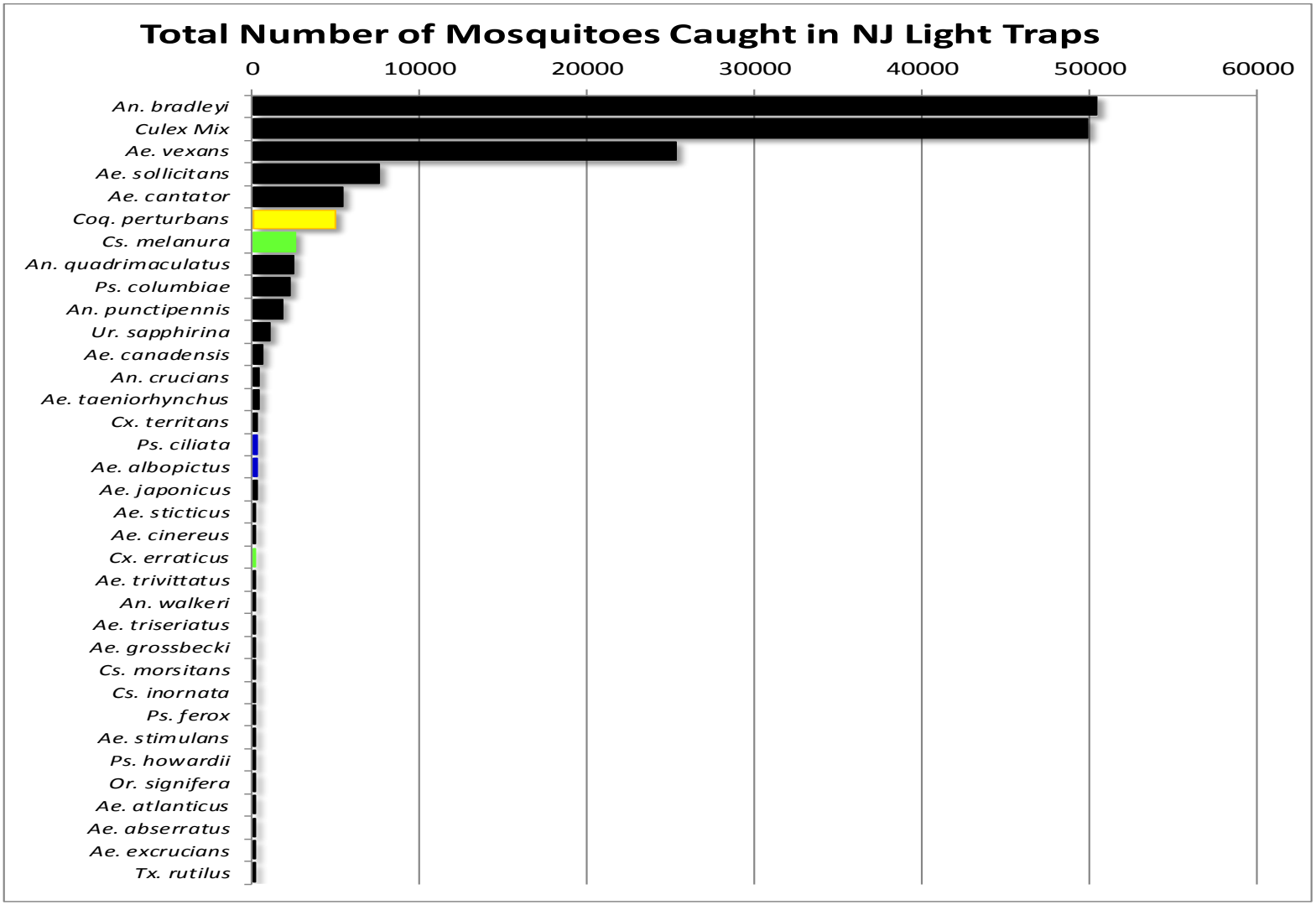


Anopheles bradleyi have also been seen in significant numbers, although this has been the case for the past several years along the Coast and the Delaware Bayshore (respectively, above). This salt tolerant species prefers brackish water but its tolerance has a wide range and can also inhabit fresher waters where *An. crucians* may also occur – and where mis-identification is a possibility for these two species. This species overwinters as mated females.

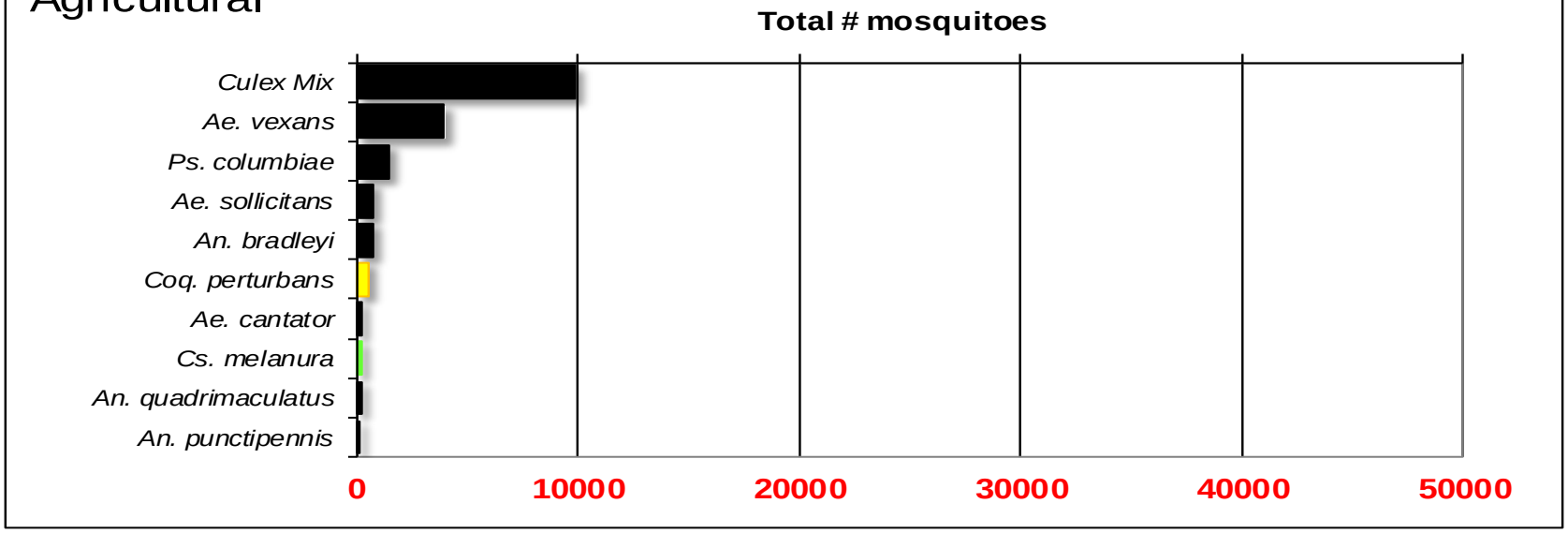
WNV *EEE*

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

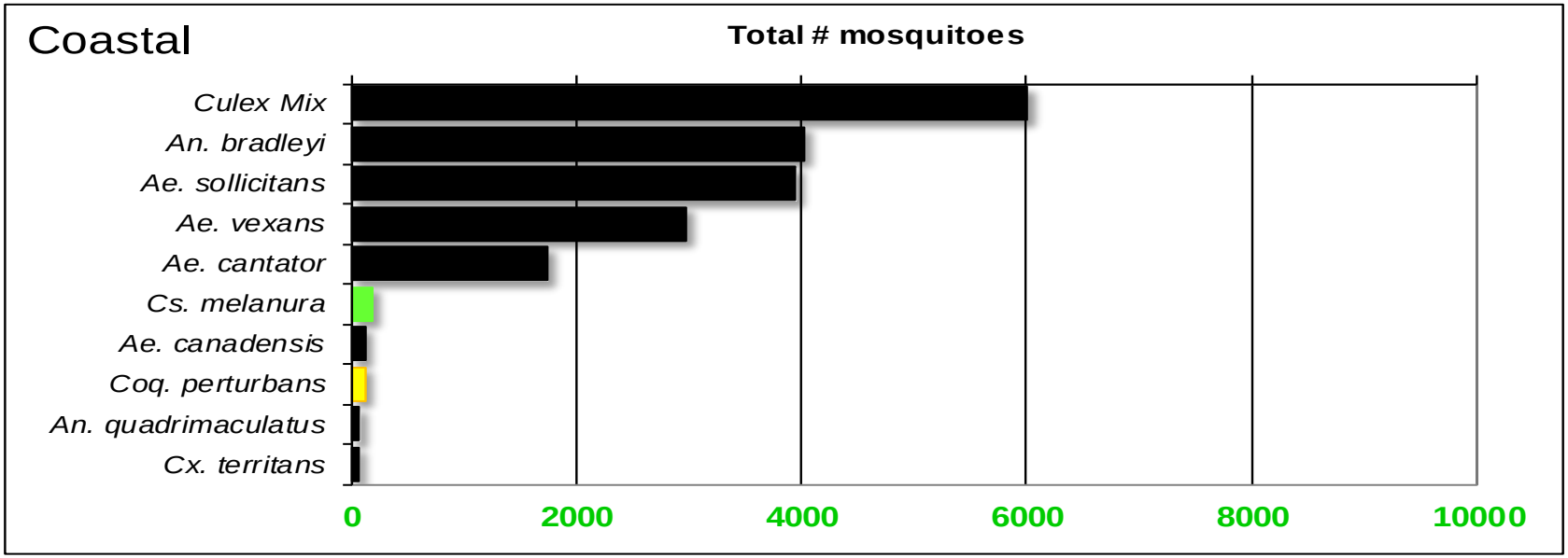
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

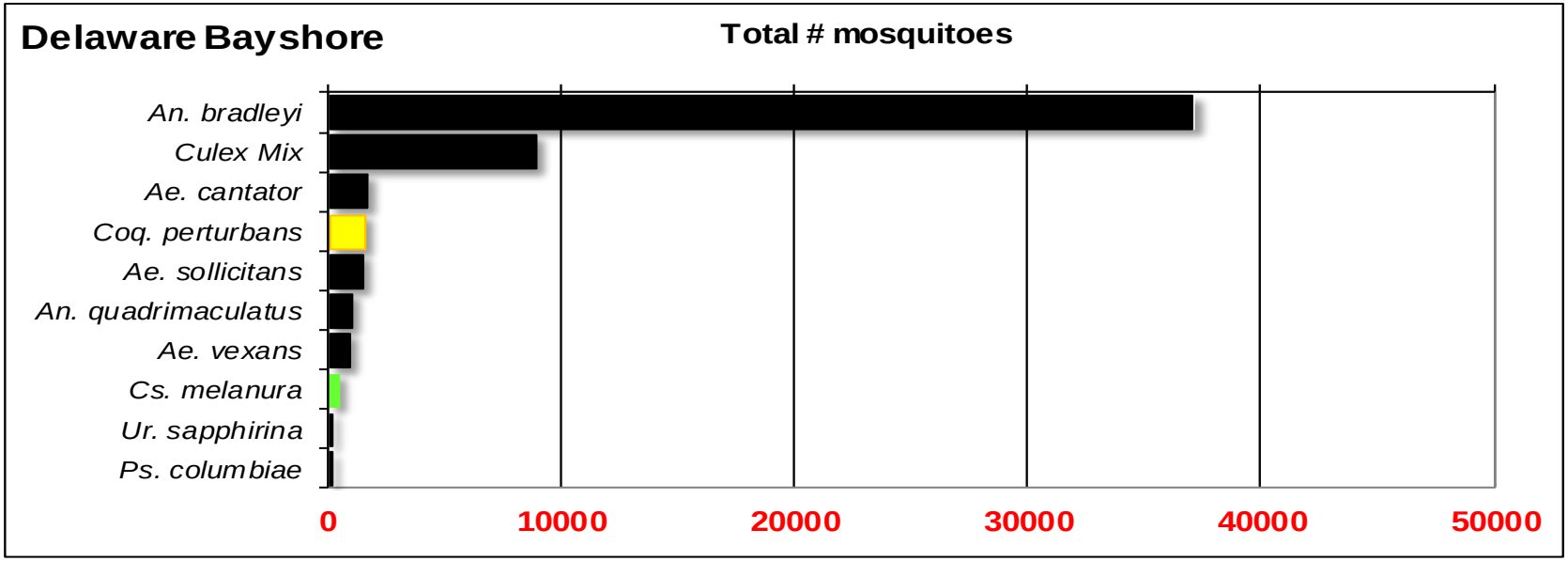


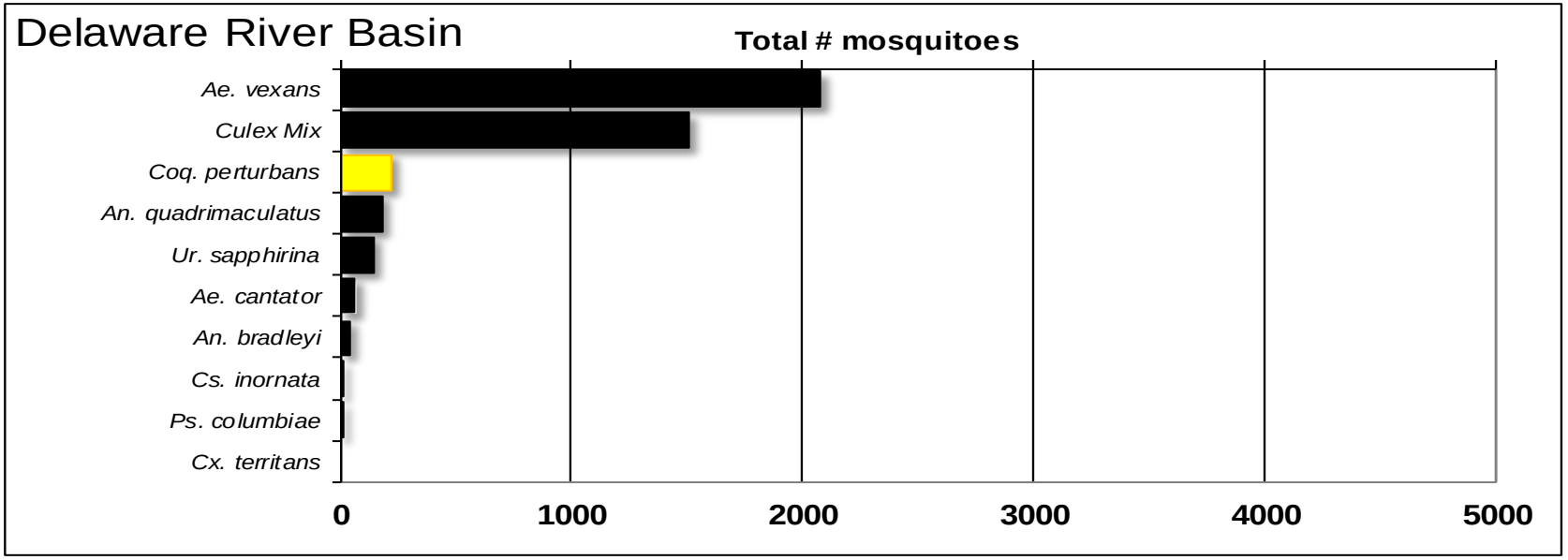
Agricultural

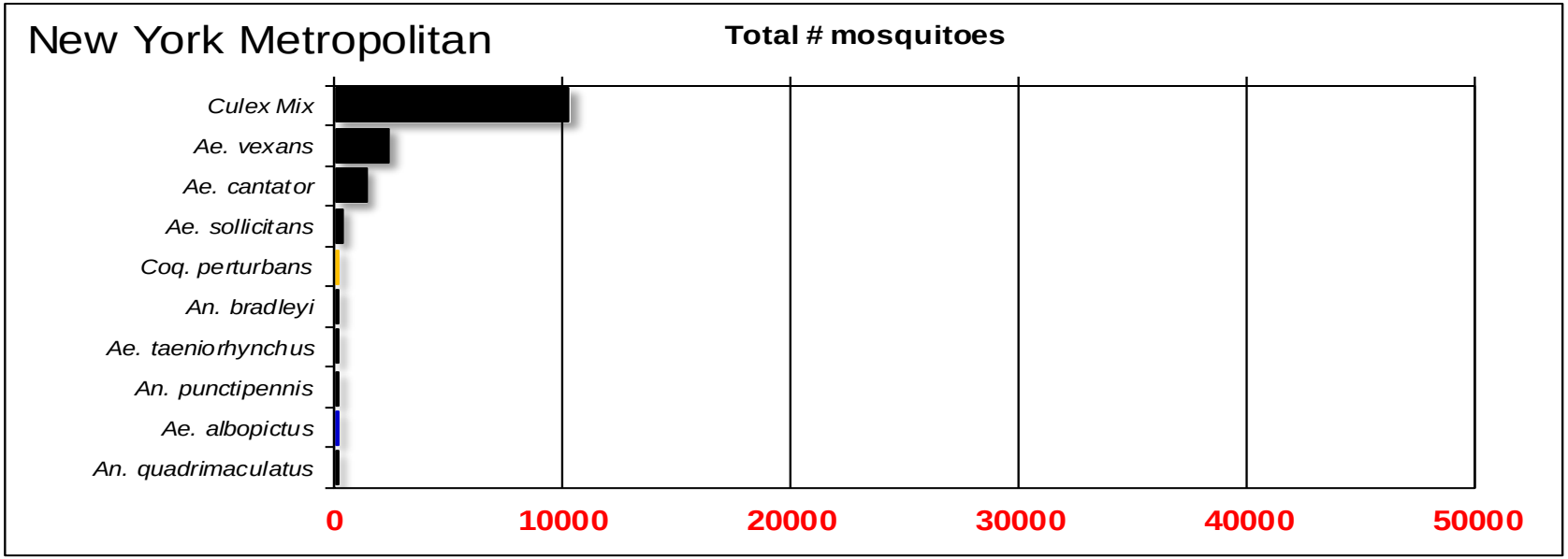


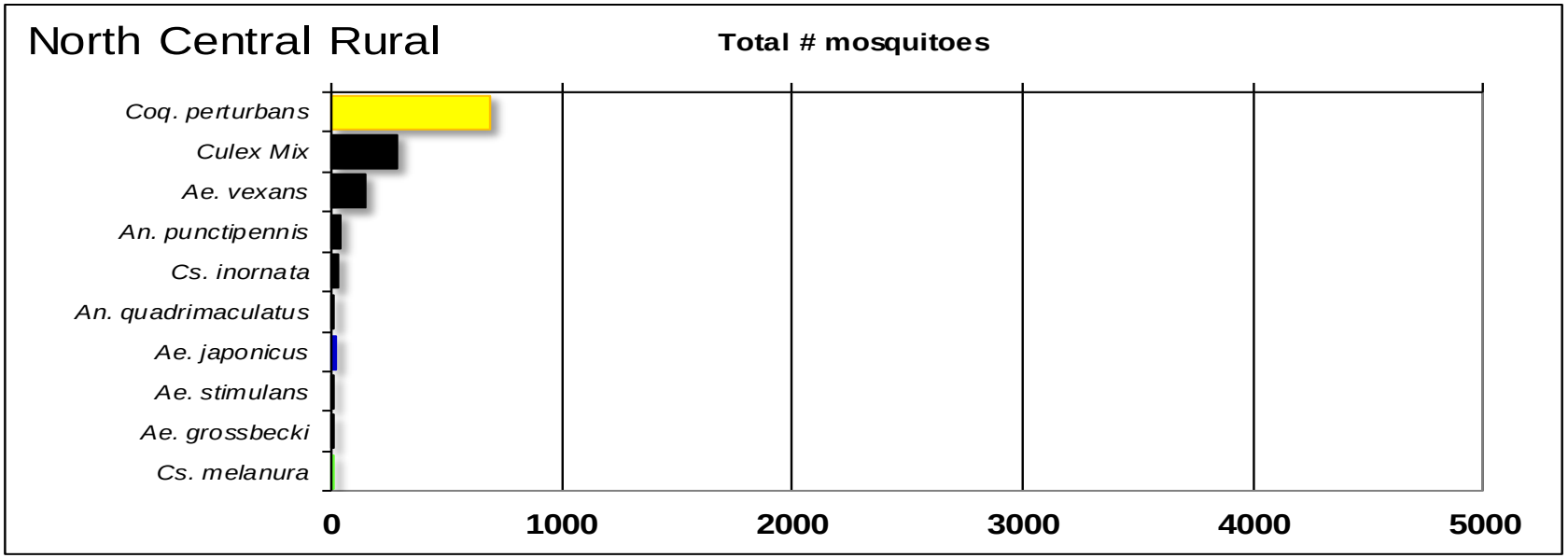
Coastal

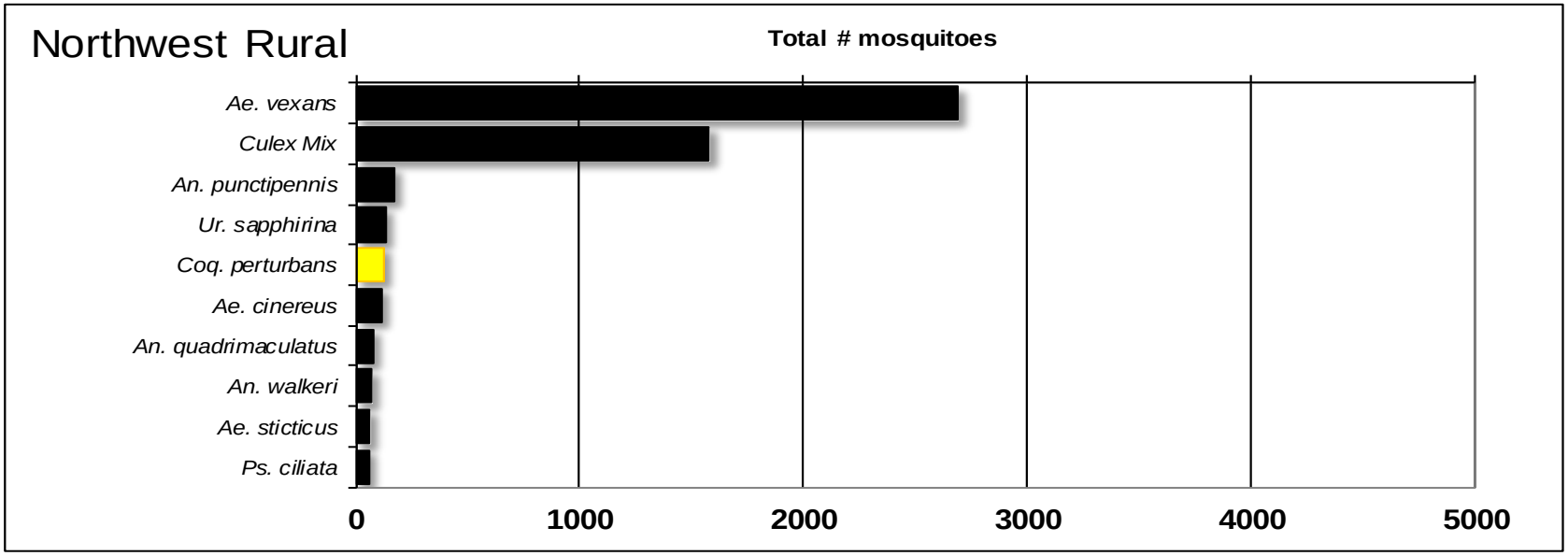


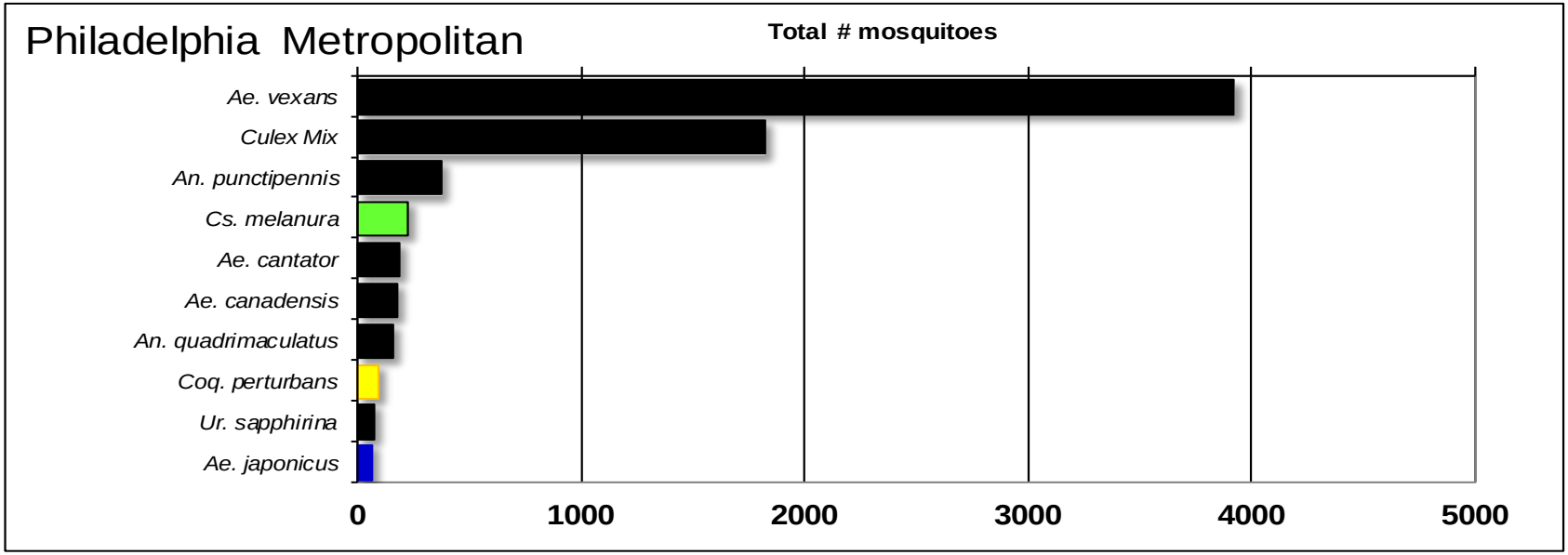

Delaware Bayshore
Total # mosquitoes
An. bradleyi
Culex Mix
Ae. cantator
Coq. perturbans
Ae. sollicitans
An. quadrimaculatus
Ae. vexans
Cs. melanura
Ur. sapphirina
Ps. columbiae
0
10000
20000
30000
40000
50000

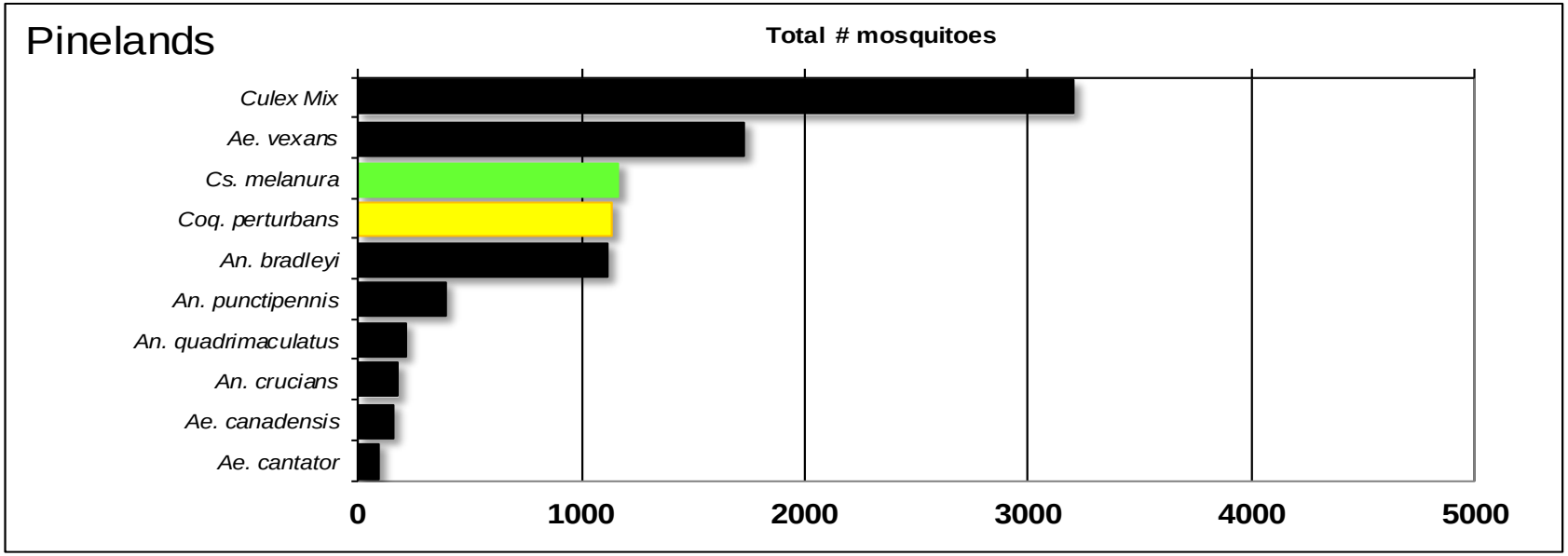

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
Ur. sapphirina
Ae. cantator
An. bradleyi
Cs. inornata
Ps. columbiae
Cx. territans
0
1000
2000
3000
4000
5000

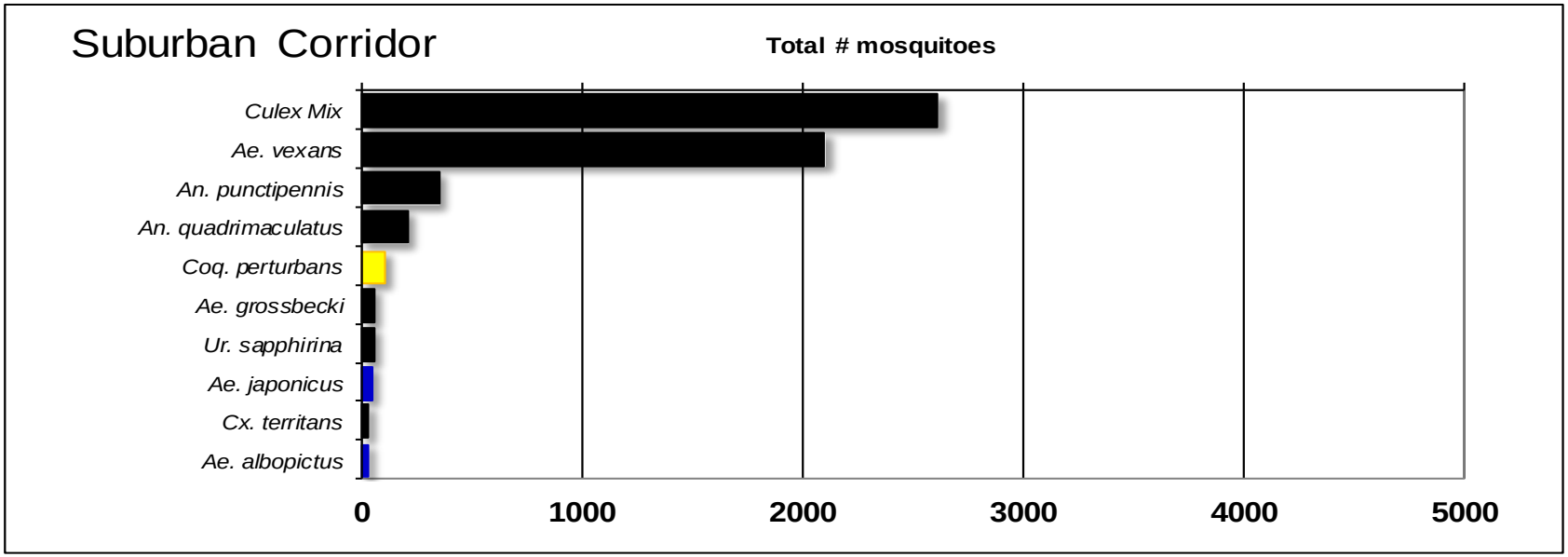

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
An. bradleyi
Ae. taeniorhynchus
An. punctipennis
Ae. albopictus
An. quadrimaculatus
0
10000
20000
30000
40000
50000


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


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
Ur. sapphirina
Coq. perturbans
Ae. cinereus
An. quadrimaculatus
An. walkeri
Ae. sticticus
Ps. ciliata
0
1000
2000
3000
4000
5000


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


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


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