NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 19 June to 25 June 2016, beginning to CDC Week 25

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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.

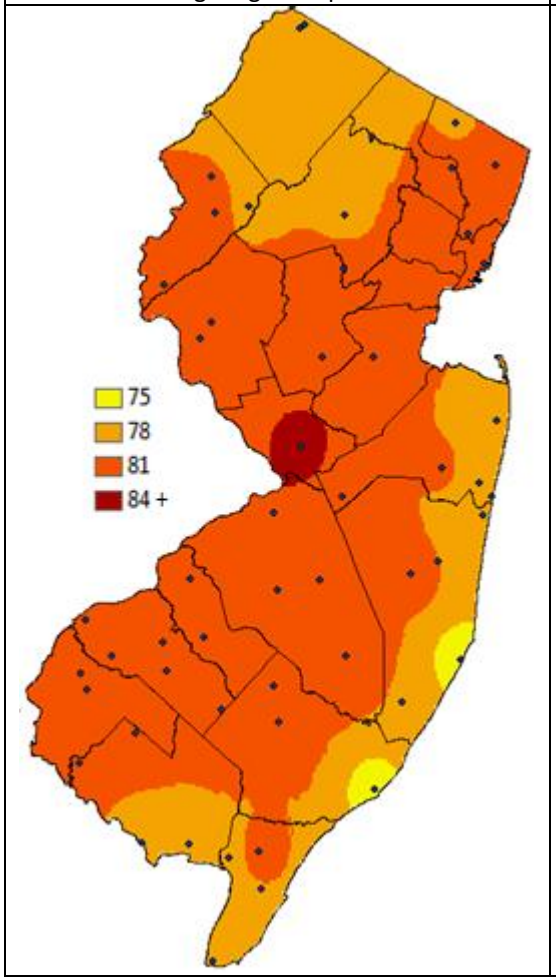
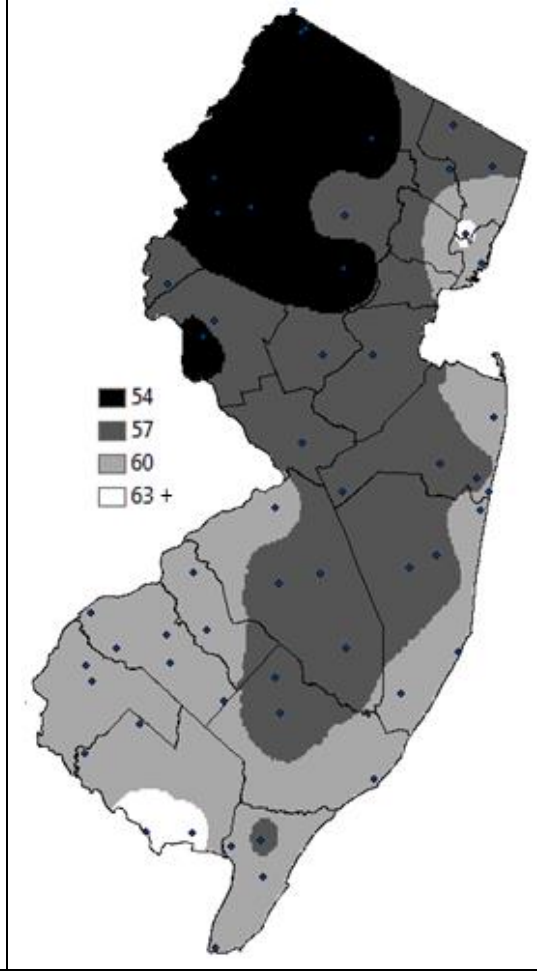
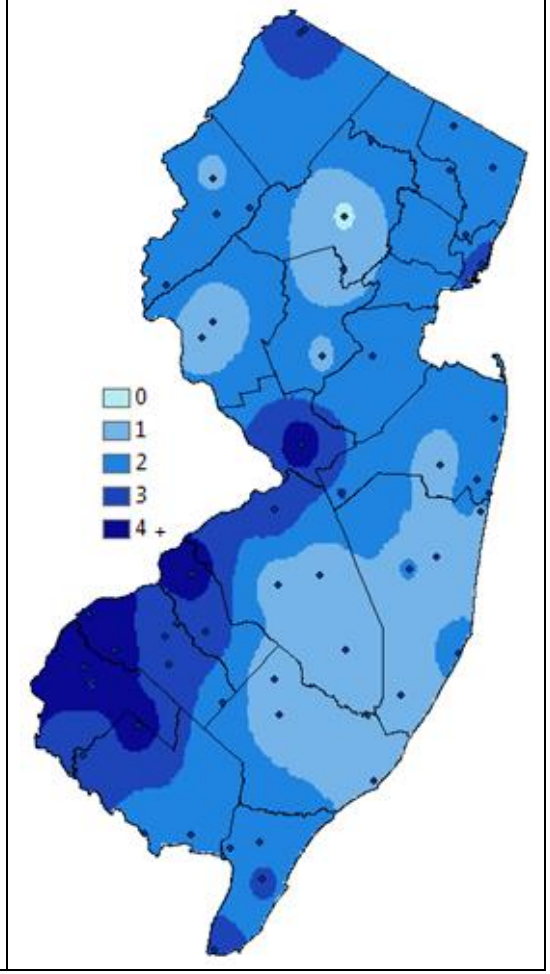
Summary Table – Week 25

	Aedes vexans			***Culex* Mix**			***Coquillettidia perturbans***			***Aedes sollicitans***		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**1.10**	**1.84**	**0**	**7.93**	**2.49**	**4**	**0.24**	**0.50**	**0**	**0.00**	**0.09**	**0**
Coastal	**0.24**	**2.18**	**0**	**0.86**	**7.88**	**0**	**0.00**	**0.75**	**0**	**0.11**	**8.35**	**0**
Delaware Bayshore	**1.34**	**1.12**	**1**	**3.97**	**23.39**	**0**	**0.00**	**5.14**	**0**	**0.09**	**3.18**	**0**
Delaware River Basin	**10.07**	**7.10**	**1**	**15.93**	**2.16**	**4**	**2.29**	**0.90**	**4**	**0.00**	**0.09**	**0**
New York Metro	**0.01**	**2.66**	**0**	**9.20**	**6.14**	**1**	**0.00**	**0.11**	**0**	**0.00**	**0.20**	**0**
North Central Rural	**0.06**	**0.21**	**0**	**0.24**	**0.57**	**0**	**0.14**	**0.05**	**4**	**0.00**	**0.00**	**0**
Northwest Rural	**nd**	**3.01**	**0**	**nd**	**3.69**	**0**	**nd**	**0.30**	**0**	**nd**	**0.00**	**0**
Philadelphia Metro	**nd**	**4.40**	**0**	**nd**	**4.51**	**0**	**nd**	**0.36**	**0**	**nd**	**0.00**	**0**
Pinelands	**0.10**	**0.47**	**0**	**0.51**	**1.36**	**0**	**0.39**	**0.56**	**0**	**0.00**	**0.11**	**0**
Suburban Corridor	**0.06**	**2.50**	**0**	**0.08**	**1.89**	**0**	**0.45**	**0.82**	**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: With the current dataset, several populations of pestiferous species are elevated, some significantly so. These include the *Culex* Mix populations in the Agricultural and Delaware River Basin regions as well as *Coquillettidia perturbans* in the Delaware River Basin and North Central Rural regions. Minor increased populations are found in *Aedes vexans* in the Delaware Bayshore and River Basin regions and for *Culex* Mix in the New York Metropolitan region.

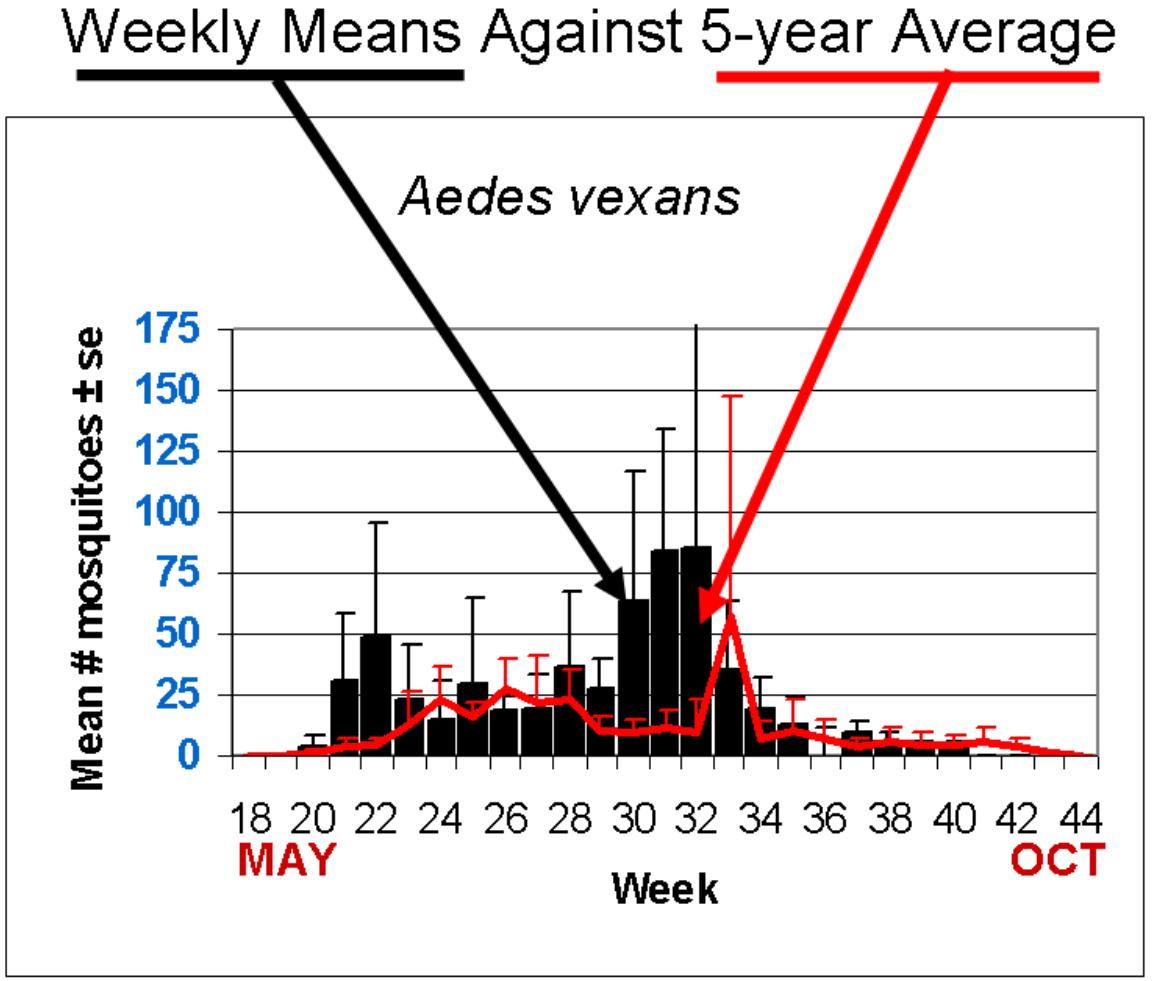
Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

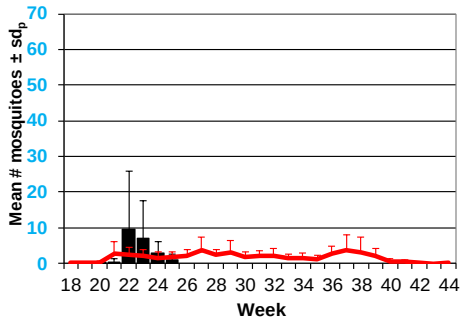
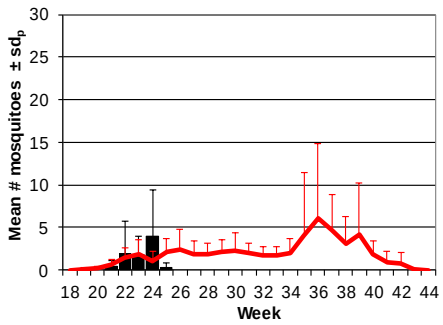
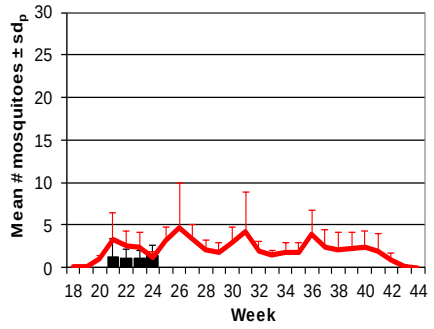
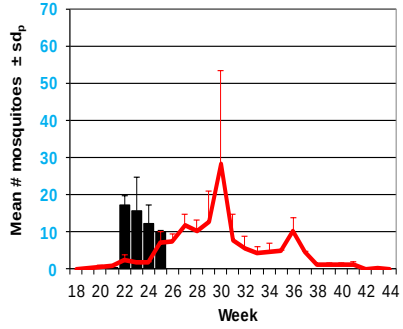
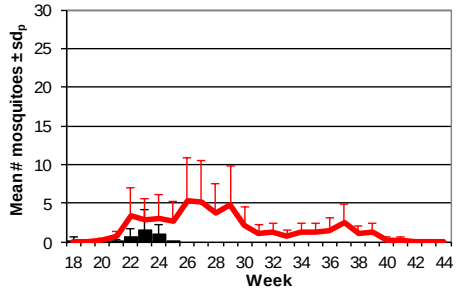
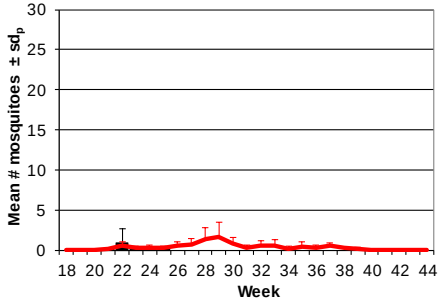
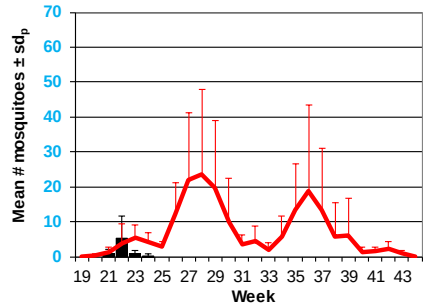
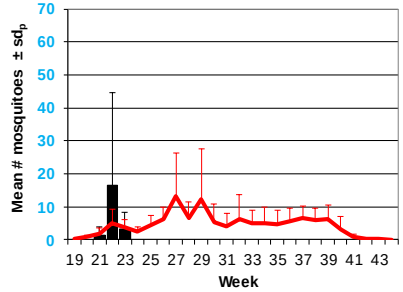
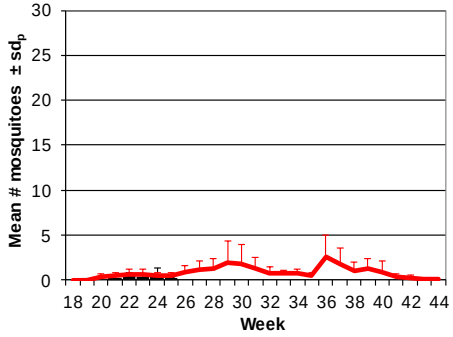
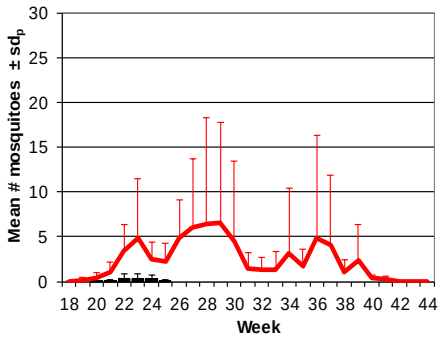
The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) for 30 days prior to 24 June 2016 in New Jersey. Data points are from about 58 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

NJ Weather & Climate NETWORK ONJSC at Rutgers University

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

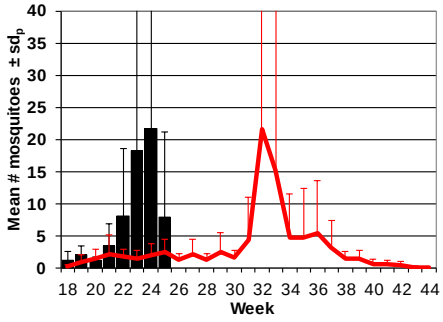


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

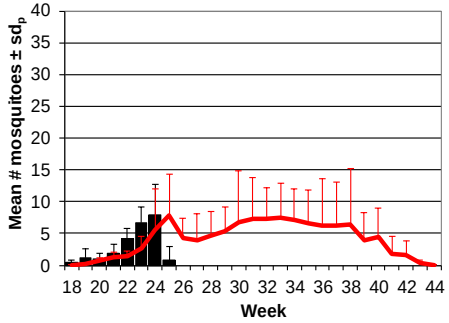
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Southern regions such as the Delaware Bayshore and the Delaware River Basin are showing moderately elevated populations of this fresh floodwater species. More northerly areas are showing lower populations, commensurate with drought/near drought conditions. Some drought portions of New Jersey have extended southward from last week into central New Jersey at abnormally dry conditions. http://droughtmonitor.unl.edu/Home/RegionalDroughtMonitor.aspx?northeast	

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

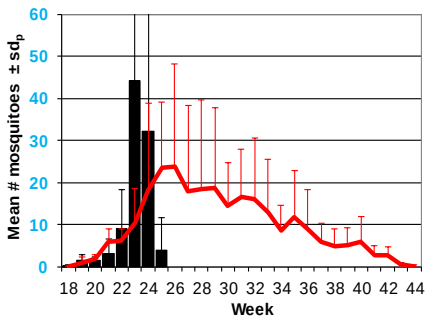
Agricultural



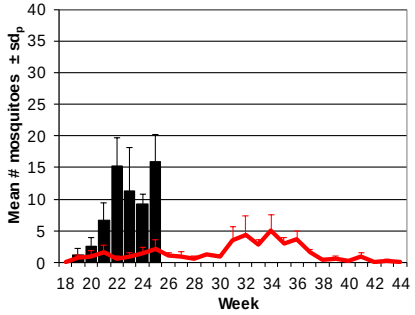
Coastal



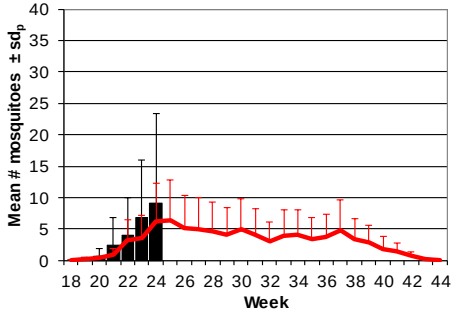
Delaware Bayshore



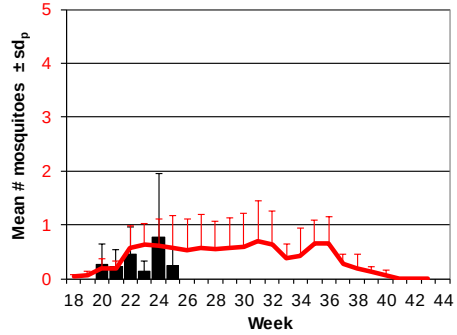
Delaware River Basin



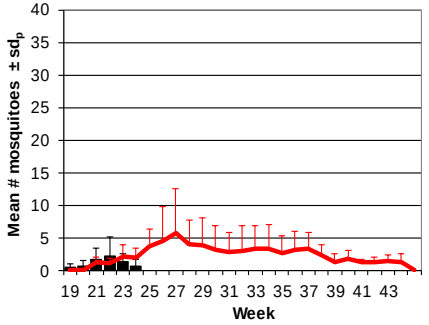
New York Metro



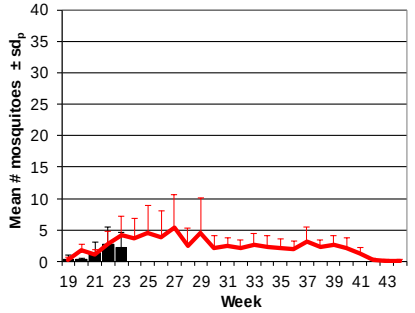
North Central Rural



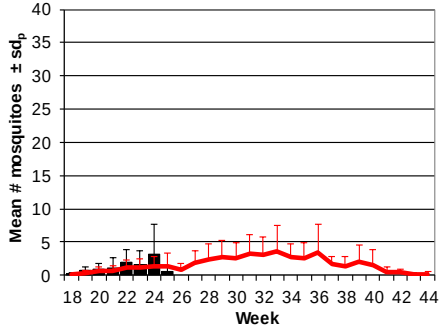
Northwestern Rural



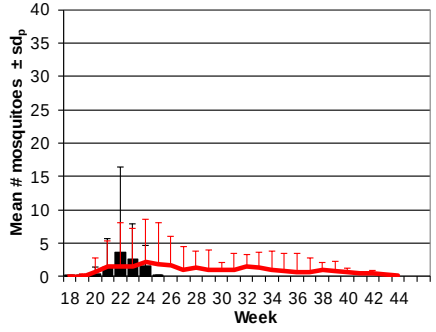
Philadelphia Metro



Pinelands



Suburban Corridor

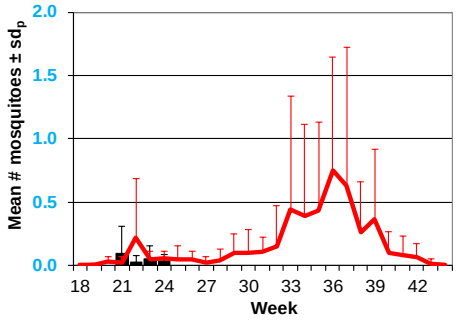
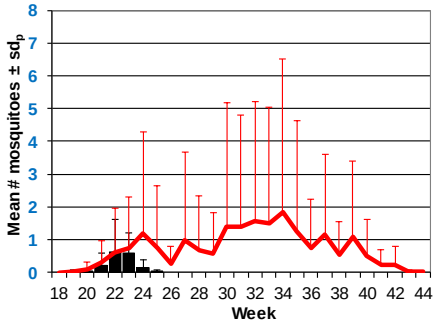
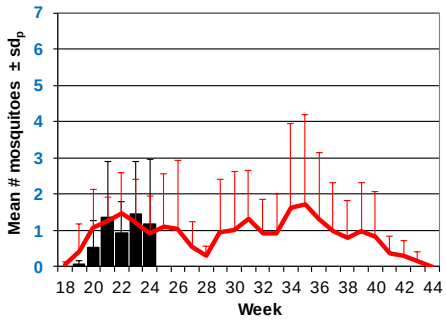
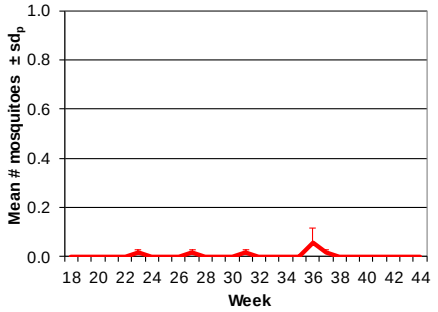
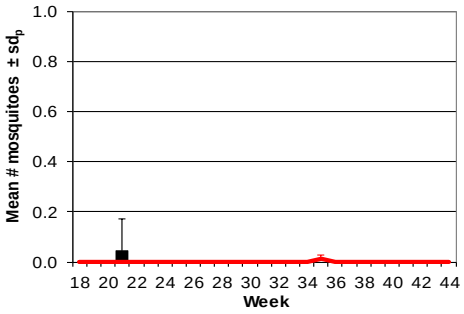
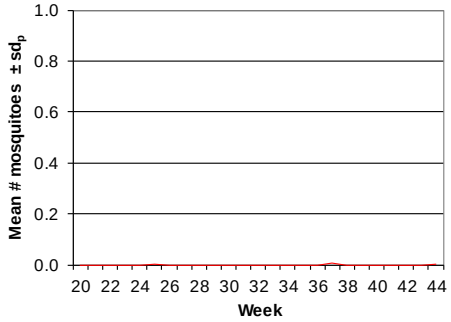
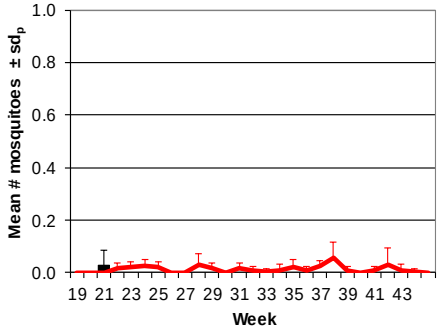
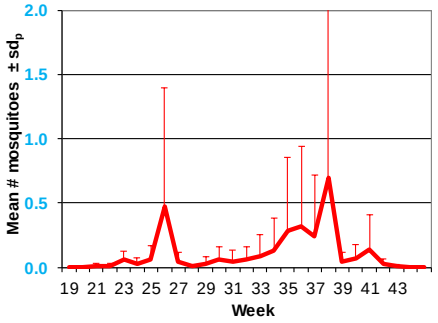
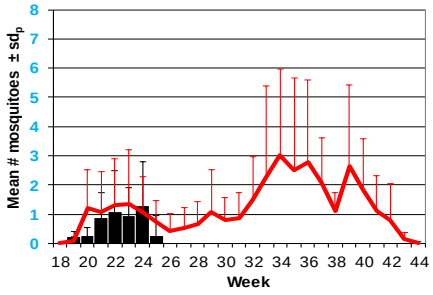
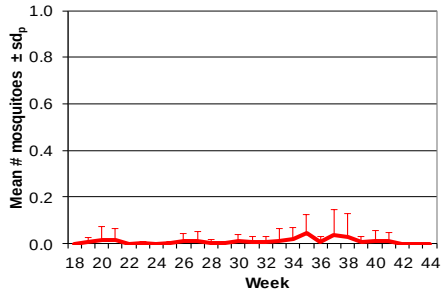


Comments

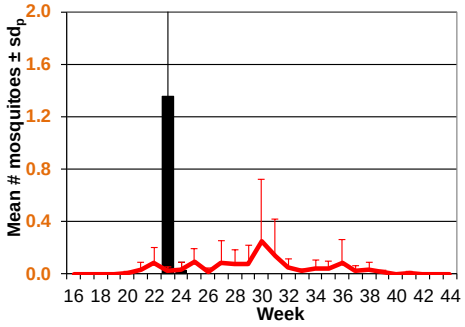
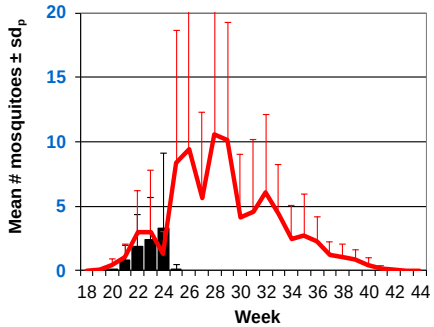
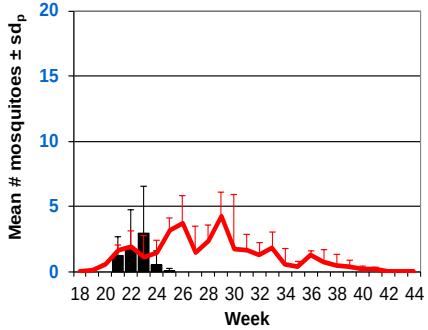
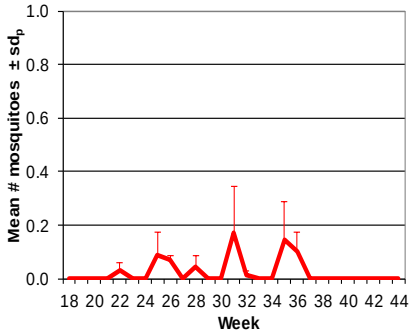
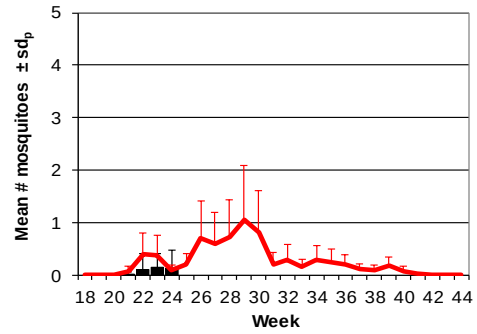
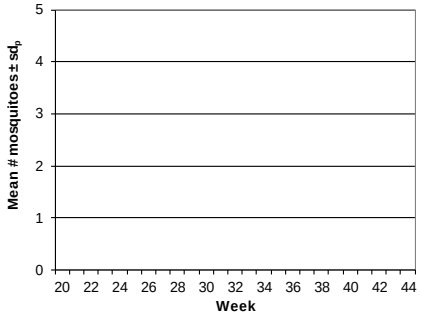
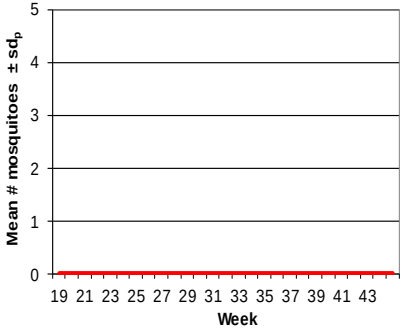
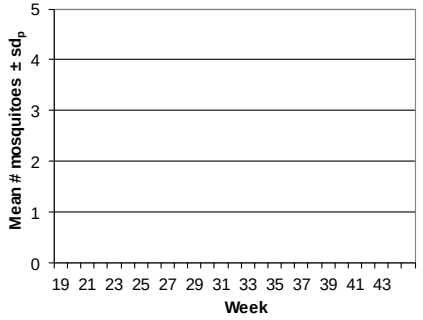
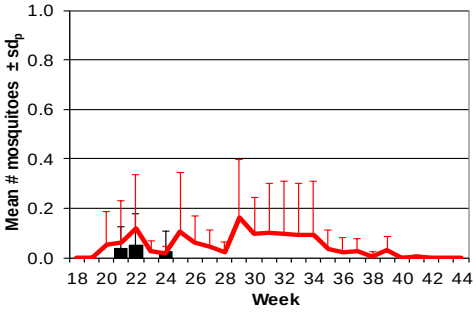
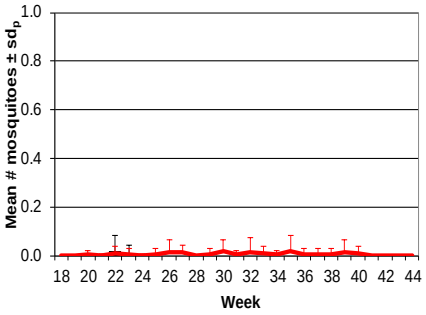
Culex Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. For the current dataset, *Culex* populations are significantly higher in the Agricultural and Delaware River Basin regions, as well as mildly elevated in the New York Metropolitan region. Other regions are well within historical averages.

First positive pools for West Nile virus was detected in a *Culex* Mix pool collected in the middle of June.

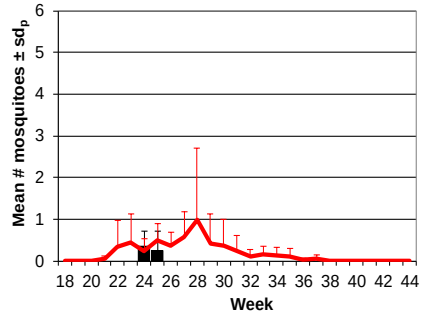
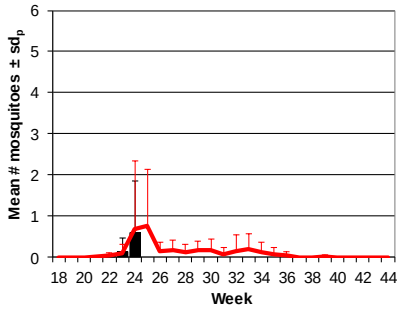
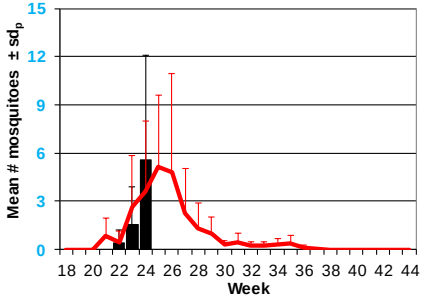
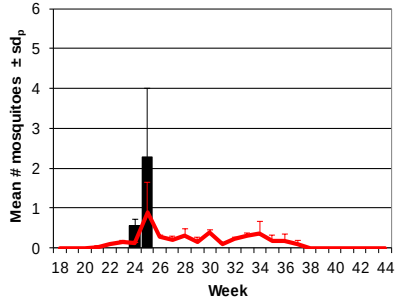
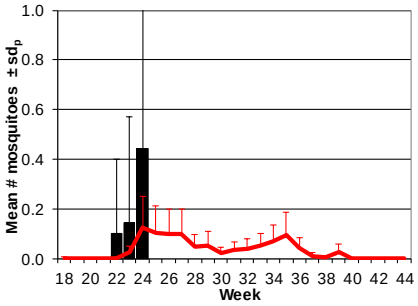
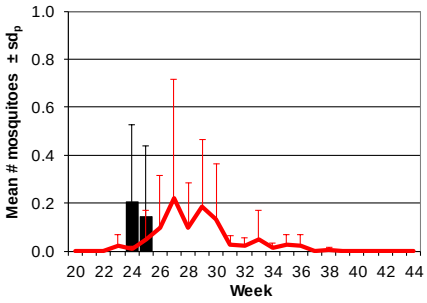
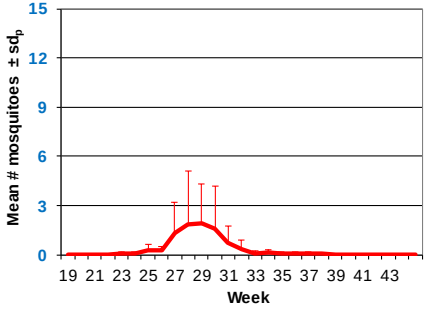
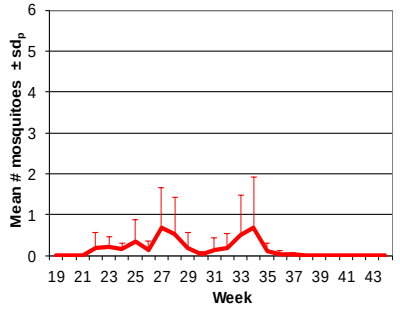
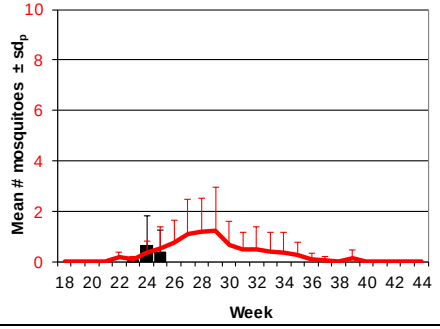
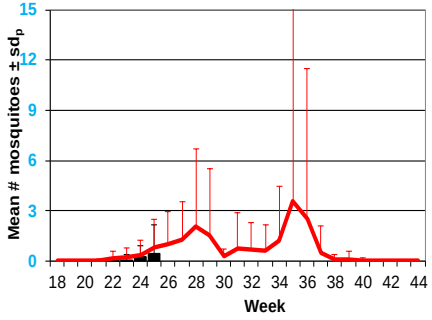
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

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. Populations for this species are tracking around historical values at this time. No positives have been detected – typically positive pools are found starting late July to early August.	

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

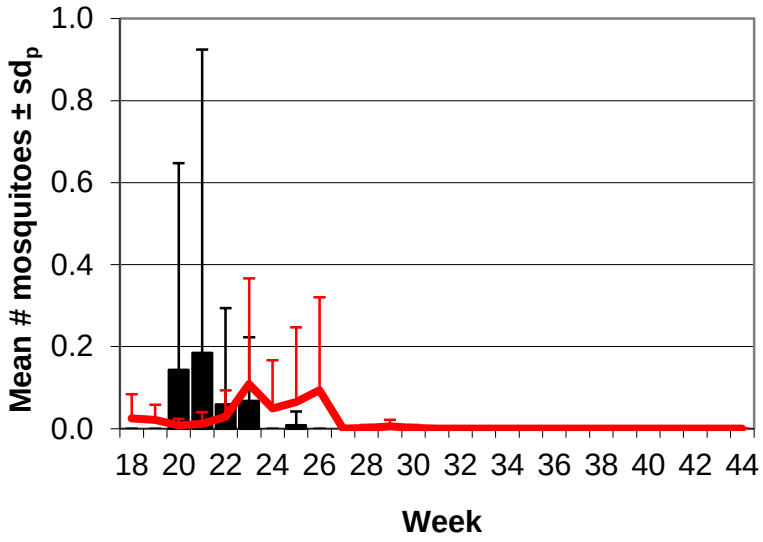
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. This species has recently shown lower than expected numbers for a few years, but may be on the rebound. Recent weeks show elevated populations in the Agricultural regions, but this comes from one trap located very close to the Delaware Bayshore region, and is in line with values seen there. The next full moon is 19 July.	

Coquillettidia perturbans
Monotypic (*Coquillettidia perturbans* Type)

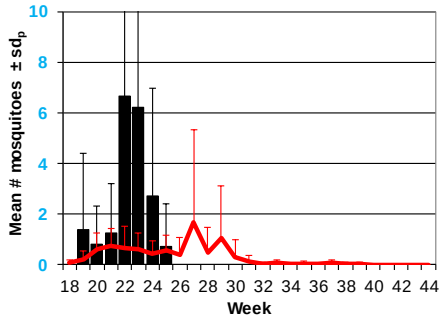
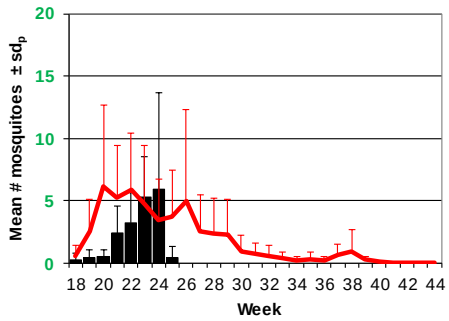
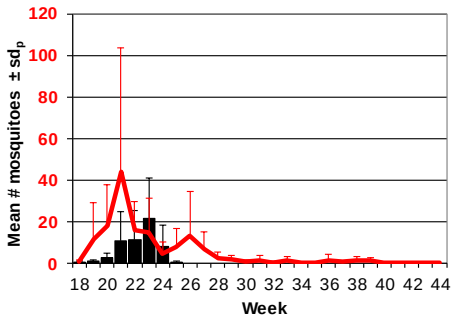
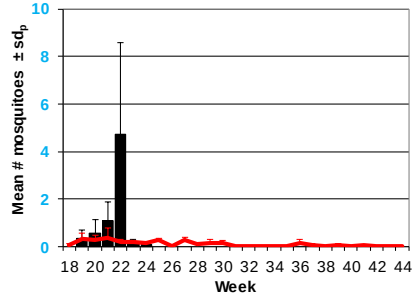
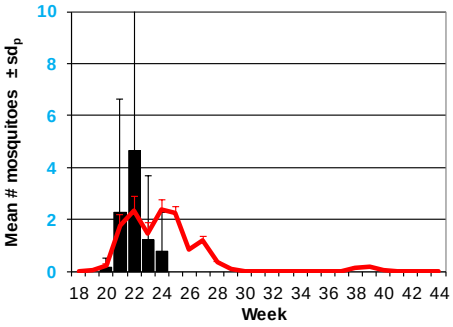
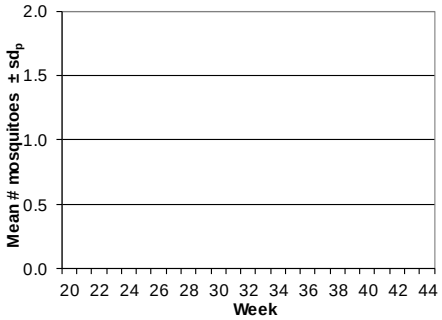
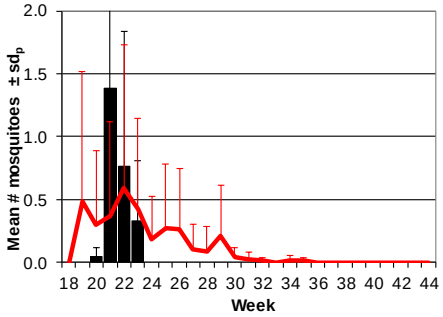
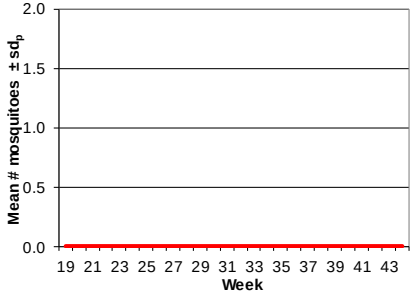
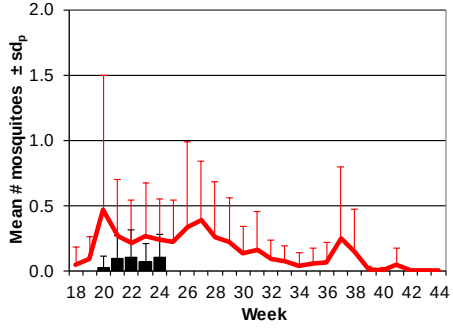
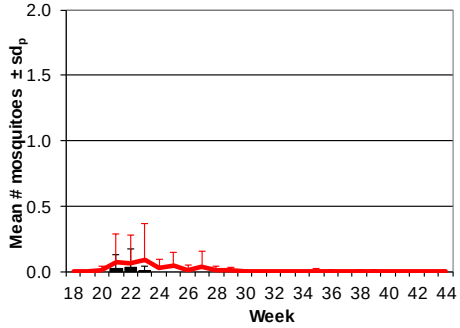
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. This species has been making significant emergences recently, most notably in the Delaware River Basin and the North Rural Central regions. This species may play a role in the transmission of inland cases of EEE.	

Early season species: Another early season species, *Aedes grossbecki*, is likely found throughout New Jersey, but in low numbers. This species will, for the large part, be gone around mid-summer. Although a biter, their numbers limit their pestiferous status.

Aedes grossbecki in the Suburban Corridor



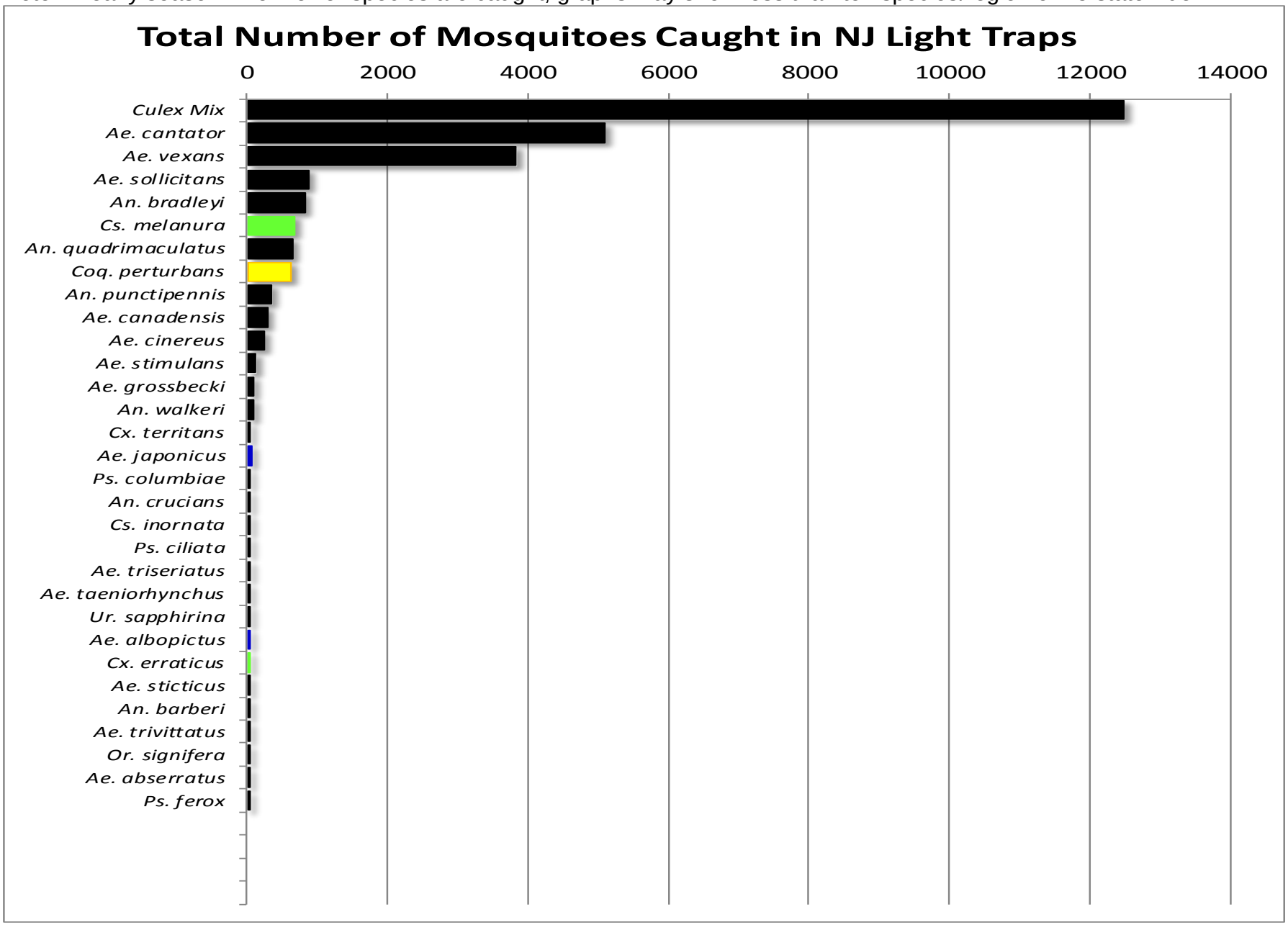
Aedes cantator
Monotypic (*Coquillettidia perturbans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes cantator* is a salt-tolerant species with a wide range of habitats, but their typical ecology includes the upland salt marshes. If manmade sources of salt are available, such as ditches next to well-salted roadways, they can also then be found well inland from coastal habitat. These manmade habitats also include manufacturers' sites such as the textile company in the Northwestern Rural region that uses salts to make dyes hold fast to materials. Populations vary considerably throughout New Jersey.	

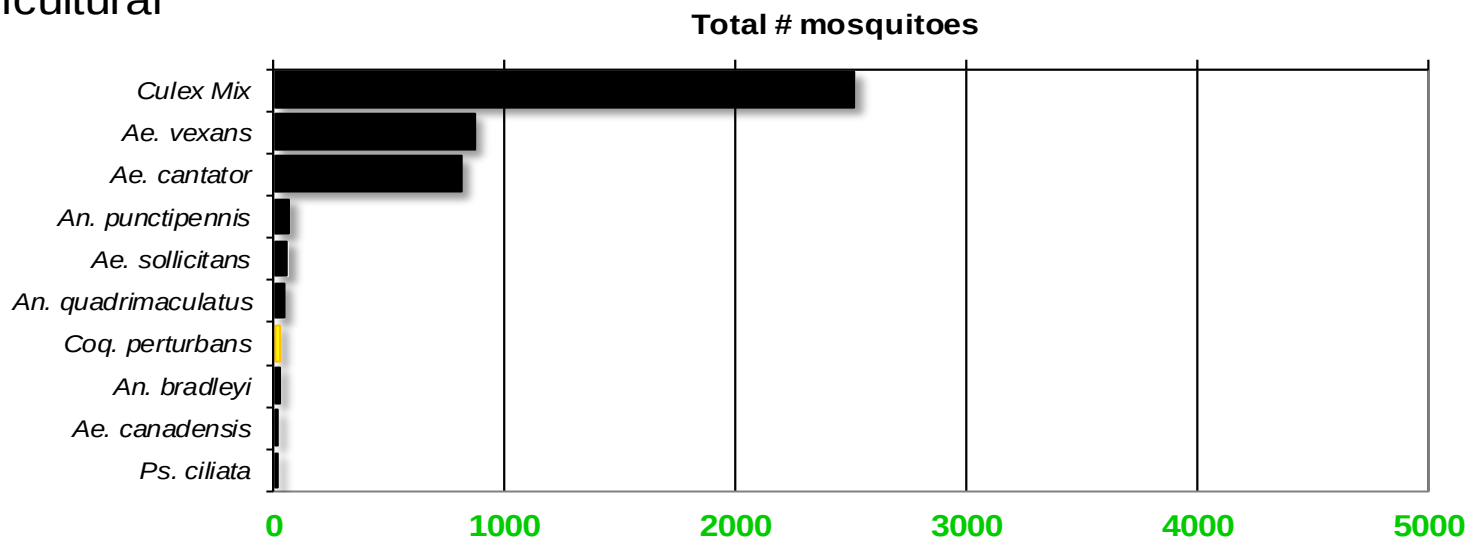
WNV *EEE*

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

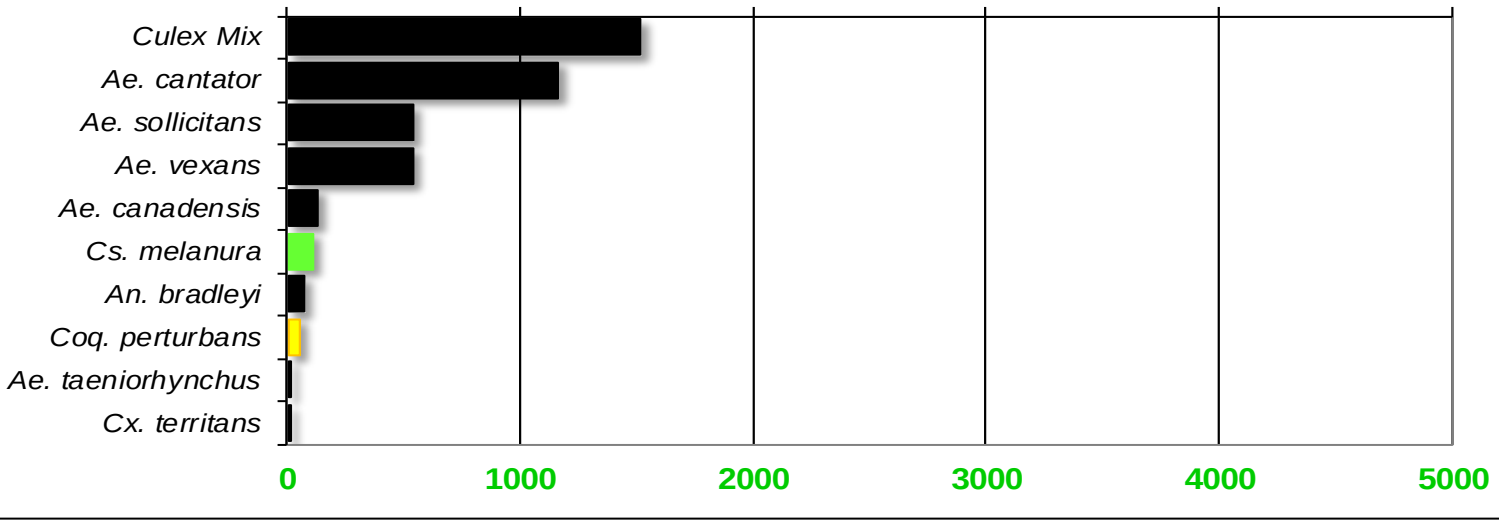
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

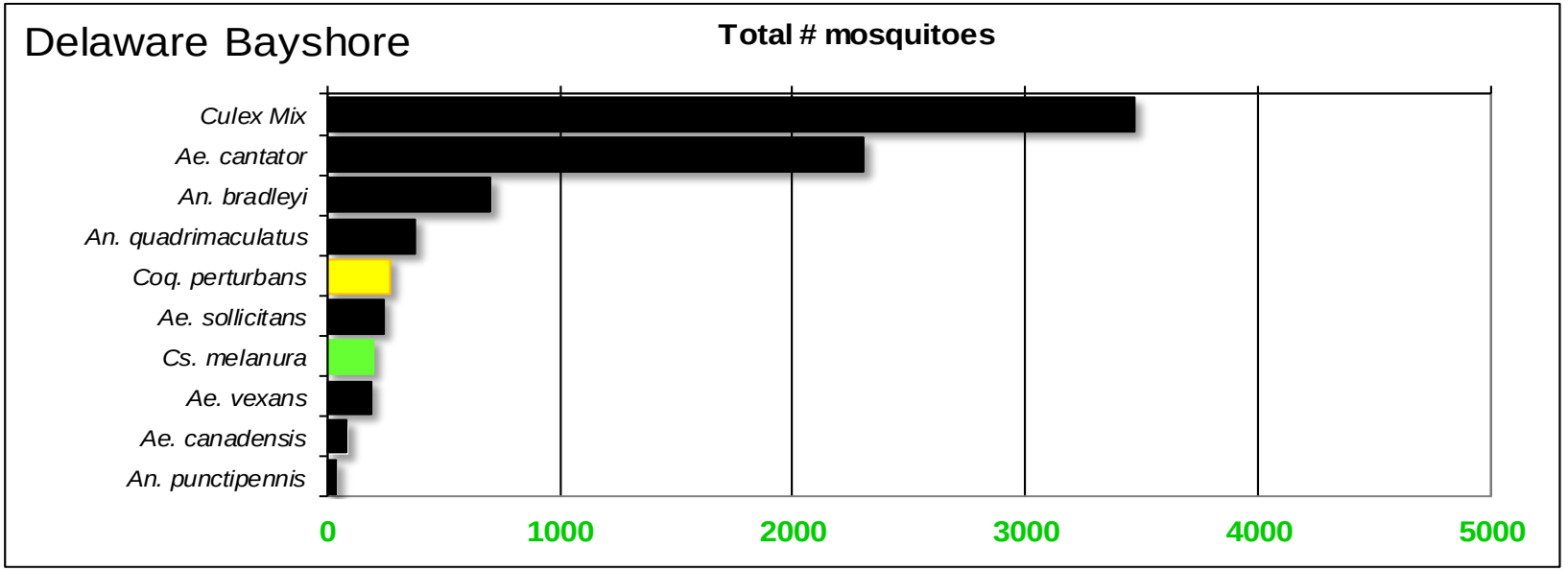


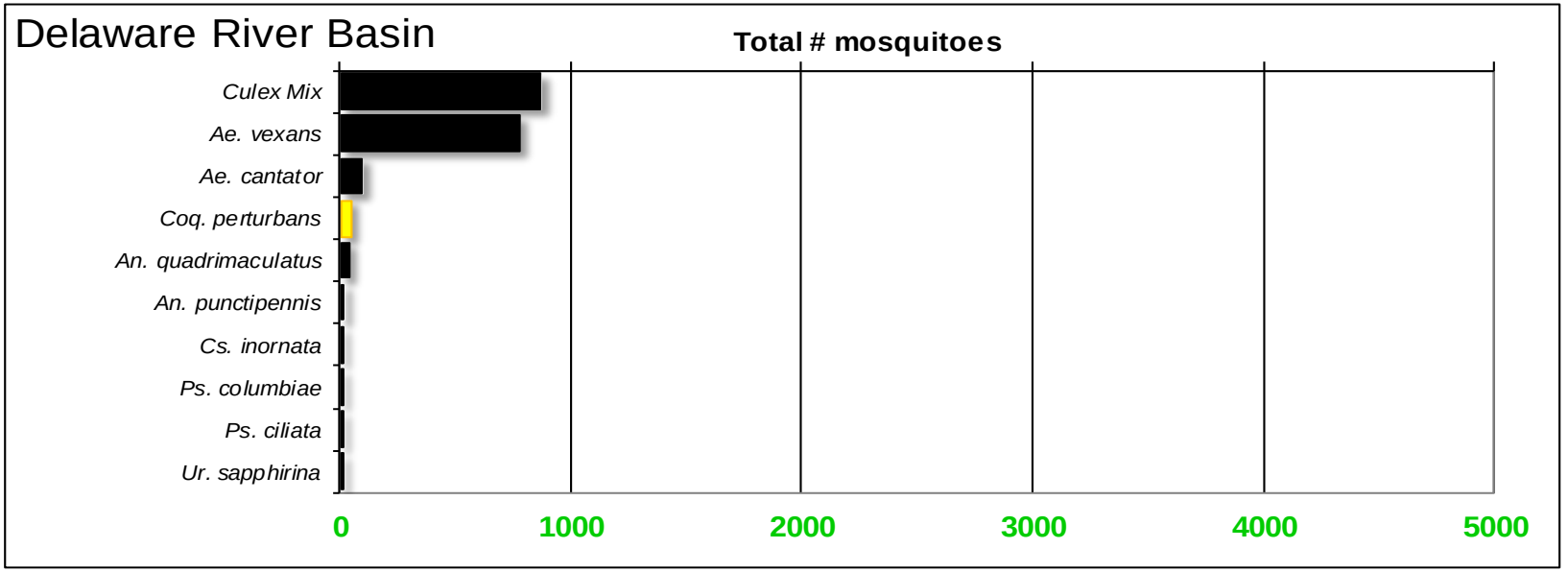
Agricultural



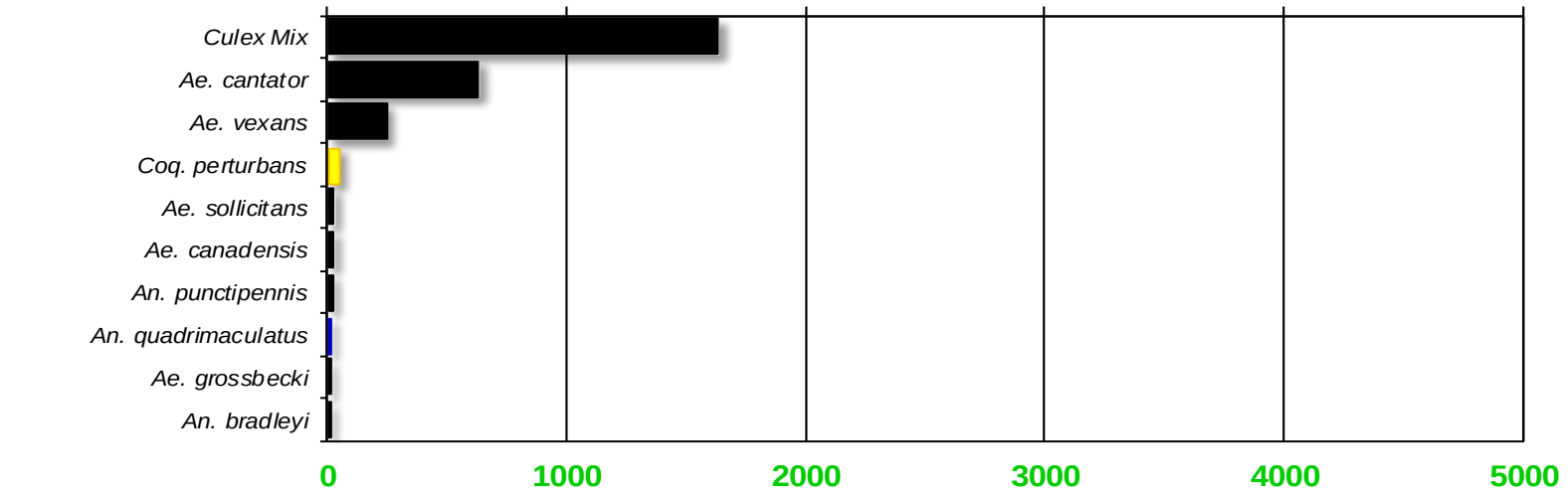
Coastal



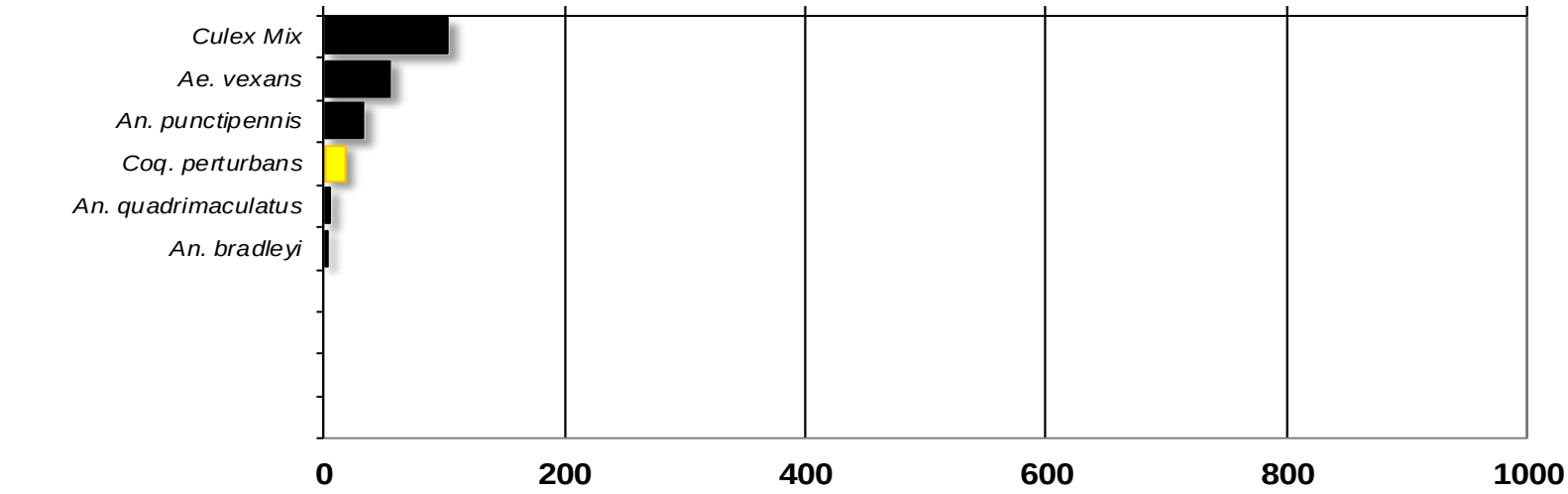

Delaware Bayshore
Total # mosquitoes
Culex Mix
Ae. cantator
An. bradleyi
An. quadrimaculatus
Coq. perturbans
Ae. sollicitans
Cs. melanura
Ae. vexans
Ae. canadensis
An. punctipennis
0
1000
2000
3000
4000
5000

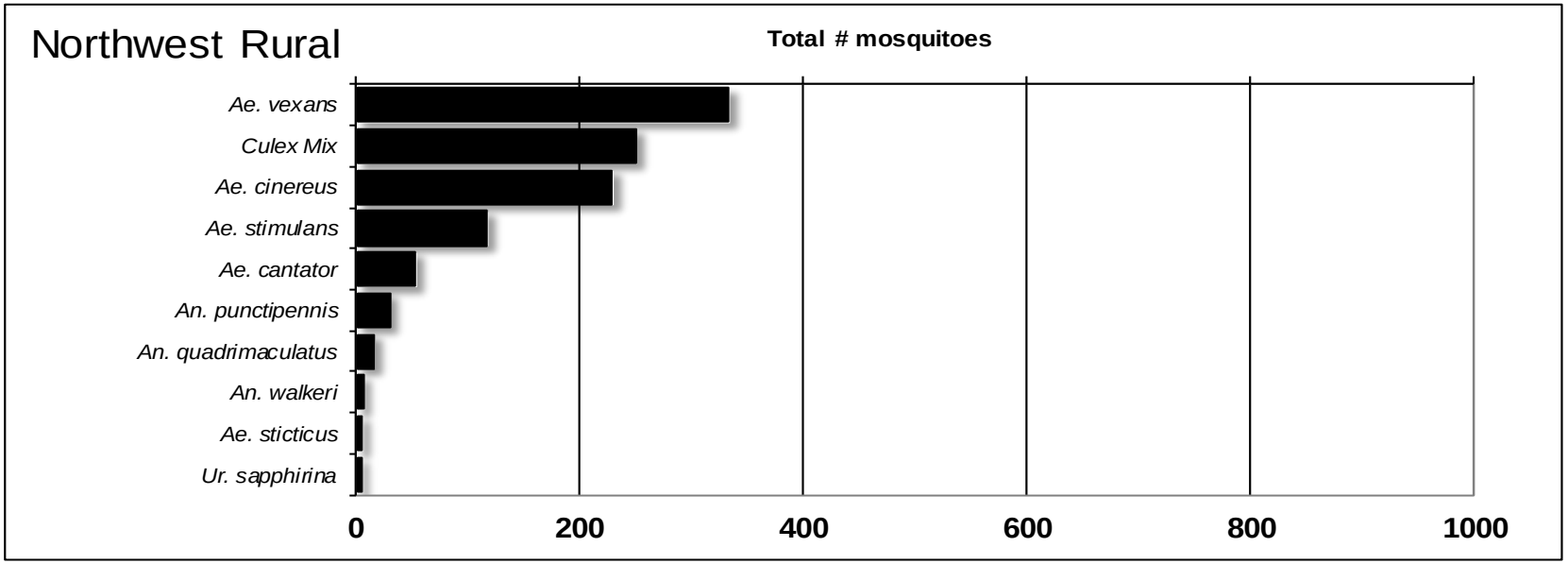

Delaware River Basin
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
An. quadrimaculatus
An. punctipennis
Cs. inornata
Ps. columbiae
Ps. ciliata
Ur. sapphirina
0
1000
2000
3000
4000
5000

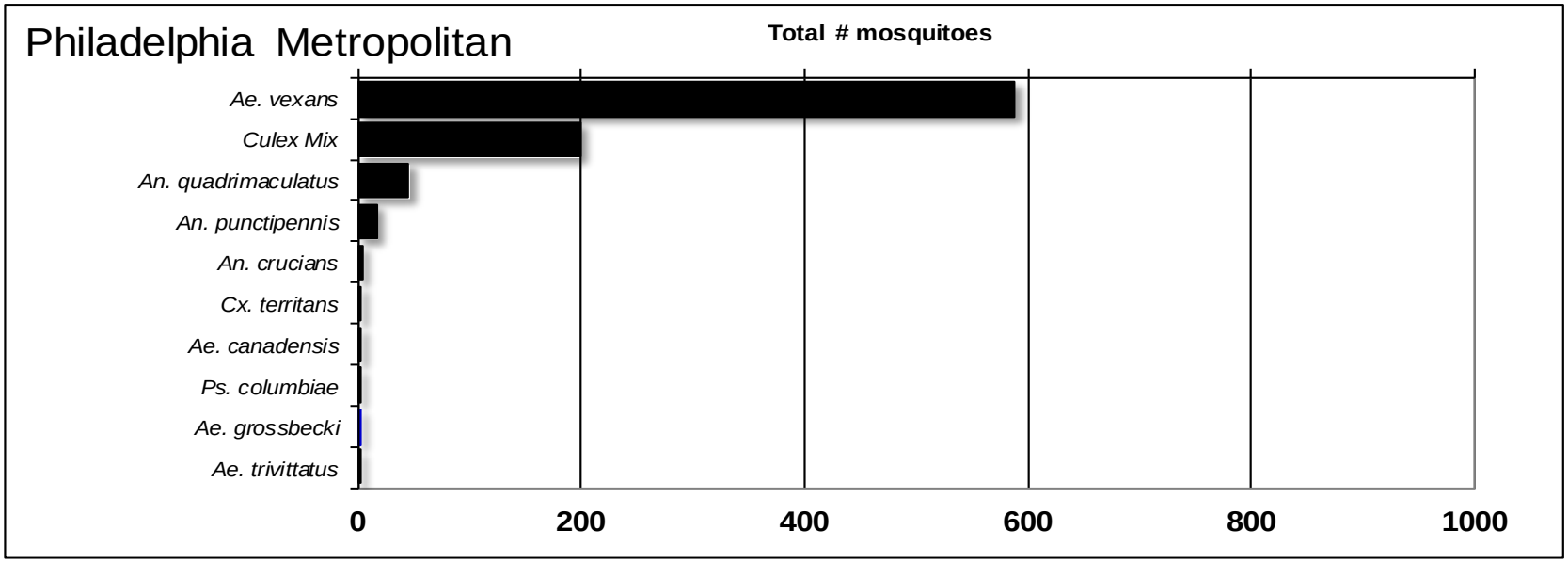
New York Metropolitan

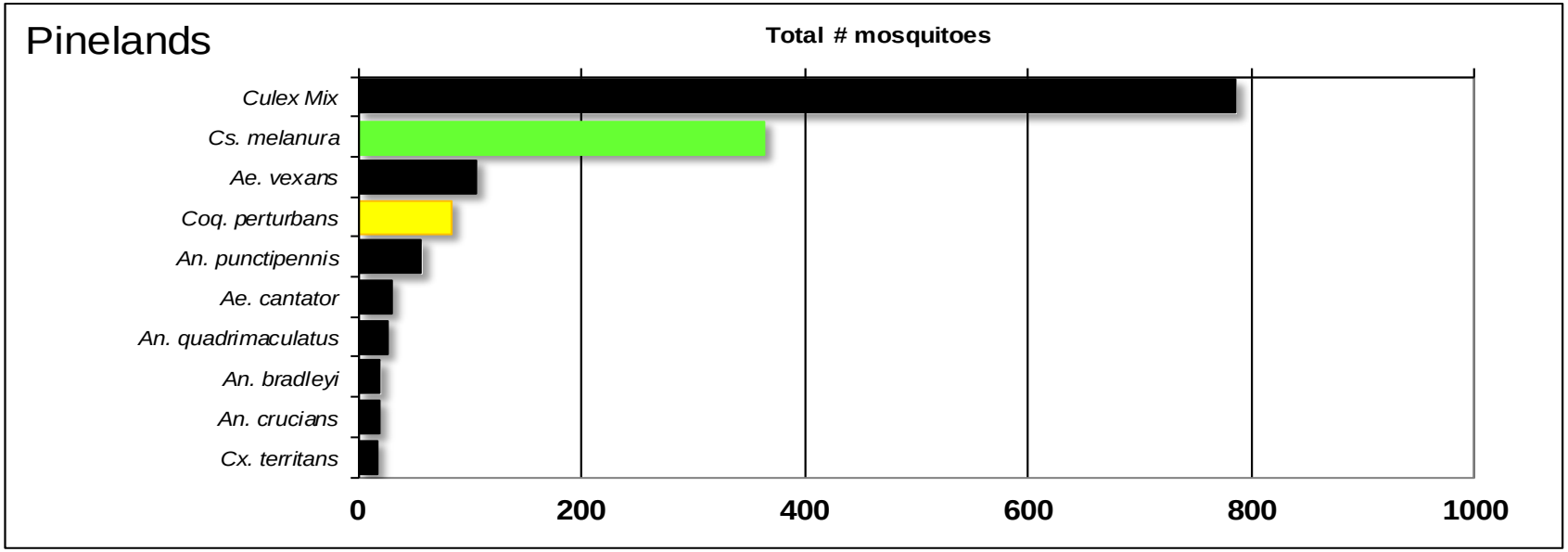


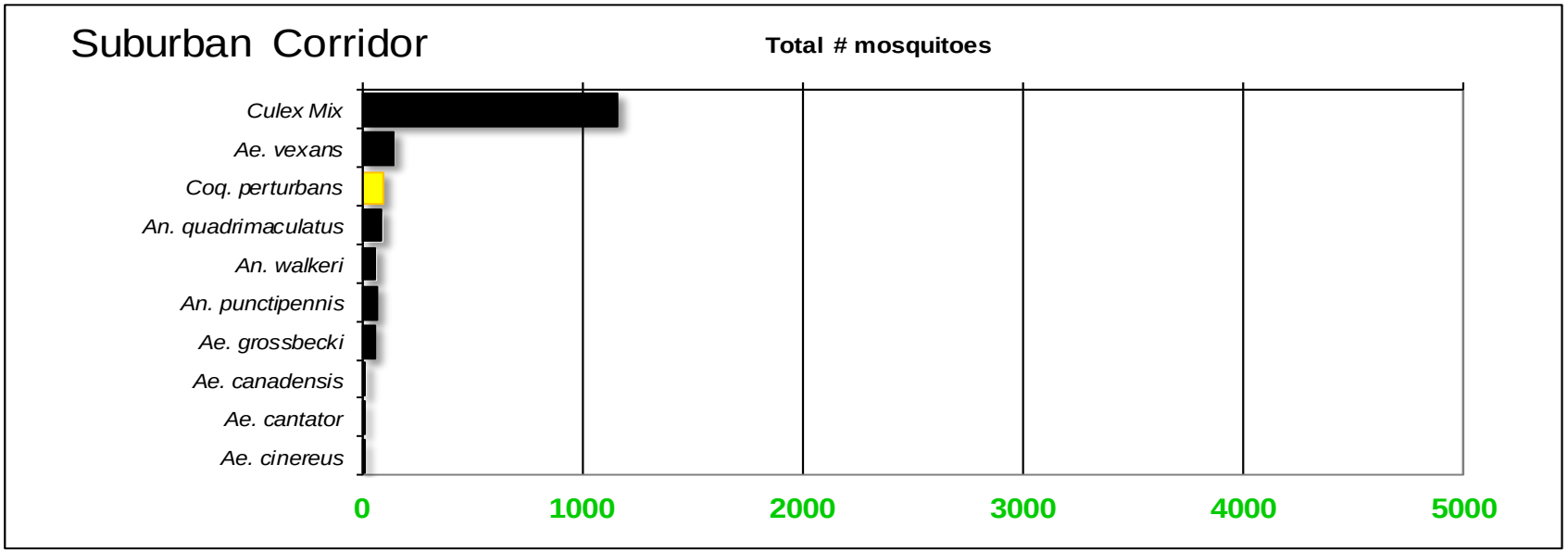
North Central Rural




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


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
An. quadrimaculatus
An. punctipennis
An. crucians
Cx. territans
Ae. canadensis
Ps. columbiae
Ae. grossbecki
Ae. trivittatus
0
200
400
600
800
1000


Pinelands
Total # mosquitoes
Culex Mix
Cs. melanura
Ae. vexans
Coq. perturbans
An. punctipennis
Ae. cantator
An. quadrimaculatus
An. bradleyi
An. crucians
Cx. territans
0
200
400
600
800
1000


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
An. quadrimaculatus
An. walkeri
An. punctipennis
Ae. grossbecki
Ae. canadensis
Ae. cantator
Ae. cinereus
0
1000
2000
3000
4000
5000