RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 21 September to 27 September 2008, CDC Week 39

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Center for Vector Biology

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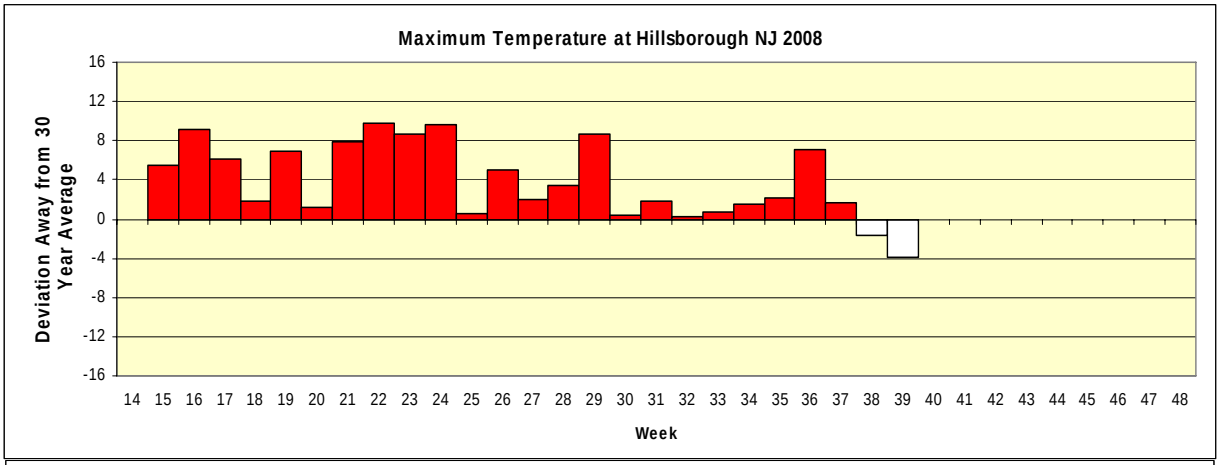
Summary table – Week 39

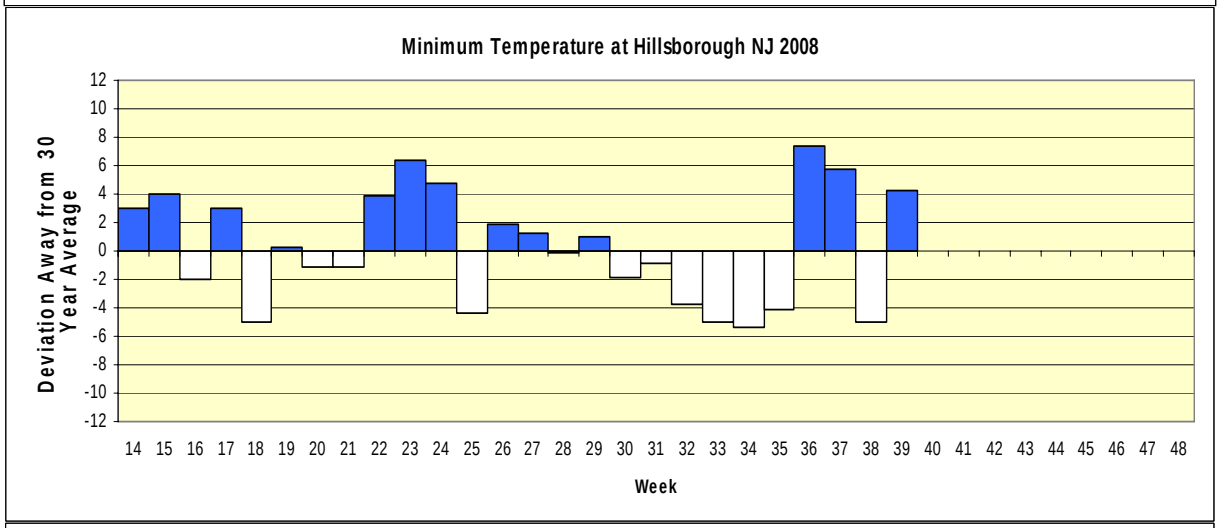
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.24**	**1.84**	**0**	**0.02**	**6.04**	**0**	**0.02**	**0.00**	**0**	**0.00**	**0.42**	**0**
Coastal	**2.05**	**5.18**	**0**	**2.06**	**1.93**	**1**	**0.00**	**0.01**	**0**	**2.40**	**3.32**	**0**
Delaware Bayshore	**0.00**	**0.29**	**0**	**0.00**	**3.93**	**0**	**0.00**	**0.01**	**0**	**0.00**	**4.37**	**0**
Delaware River Basin	**0.00**	**3.96**	**0**	**0.00**	**2.27**	**0**	**0.00**	**0.03**	**0**	**0.00**	**0.04**	**0**
New York Metro	**0.33**	**1.90**	**0**	**0.31**	**2.45**	**0**	**0.00**	**0.01**	**0**	**0.04**	**0.07**	**0**
North Central Rural	**0.12**	**0.42**	**0**	**0.10**	**0.10**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**1.71**	**8.12**	**0**	**1.03**	**2.21**	**0**	**0.00**	**0.05**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**2.05**	**7.68**	**0**	**0.81**	**2.03**	**0**	**0.00**	**0.02**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.25**	**1.24**	**0**	**0.18**	**1.51**	**0**	**0.00**	**0.04**	**0**	**0.01**	**0.01**	**1**
Suburban Corridor	**2.44**	**5.23**	**0**	**0.35**	**2.03**	**0**	**0.00**	**0.03**	**0**	**0.00**	**0.04**	**0**

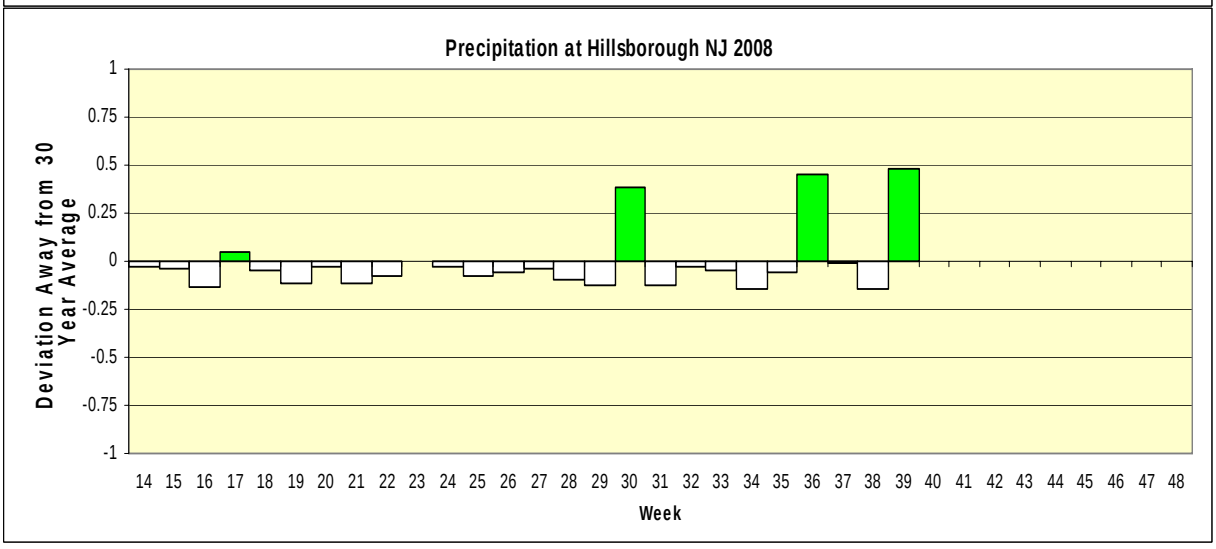
*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference 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.

State Summary: Overall, mosquito populations are decreasing substantially as the season moves into the fall. *Coquillettidia perturbans* populations are not seen in light traps for most of the state although historical data suggests that a few individuals may persist. *Ae. vexans* populations have been partially revived due to recent rains and brief warm weather, but this is too late into the season for a rally. *Culex* inseminated females continue their ways into hibernaculae. Higher than historical populations are seen in *Culex* of the Coastal region and *Ae. sollicitans* of the Pinelands. The latter is a small number and likely not meaningful.

Climate Deviations

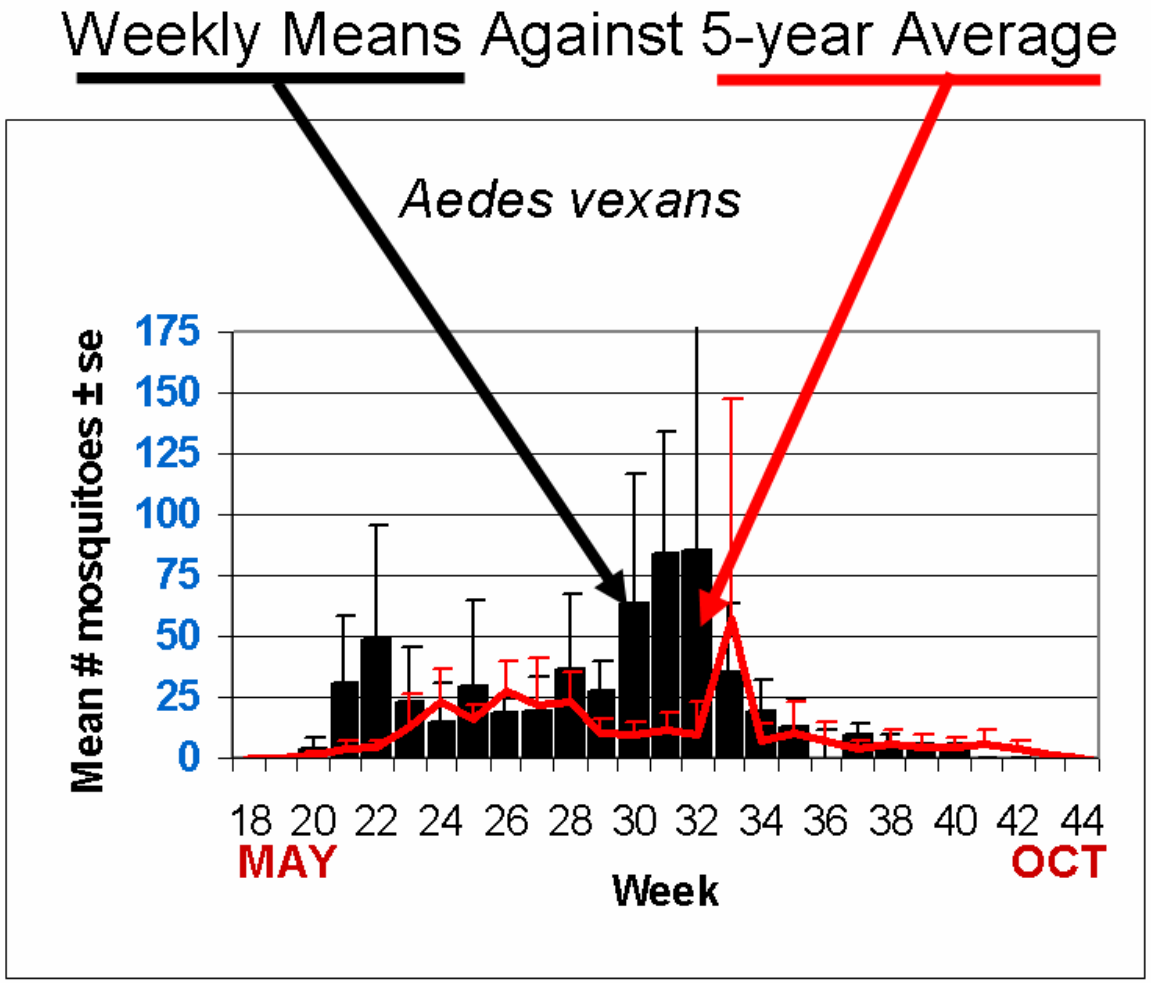






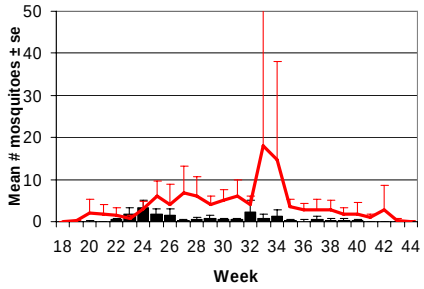
The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data are from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) while historical data was from the New Brunswick weather station. Color bars above the zero line indicate warmer maximum or minimum temperatures and wetter conditions while white bars indicate cooler temperatures and dryer conditions.

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, Camden, Mercer, Morris, Ocean, Sussex, Union and Warren counties. Note: County data is sent in at a variety of times during the week, and some counties suspend light trap operation in October.

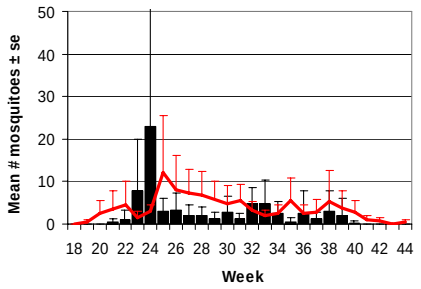


Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

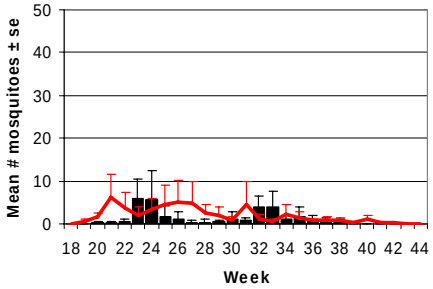
Agricultural



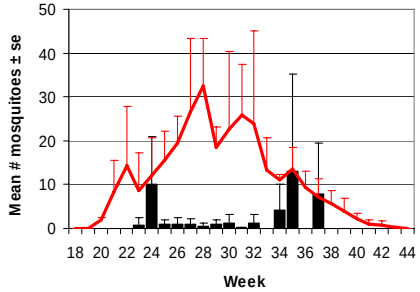
Coastal



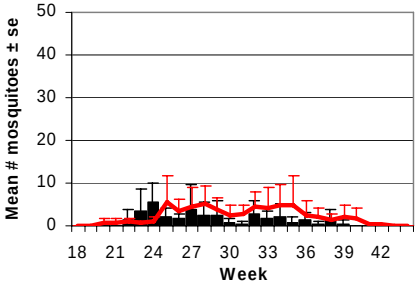
Delaware Bayshore



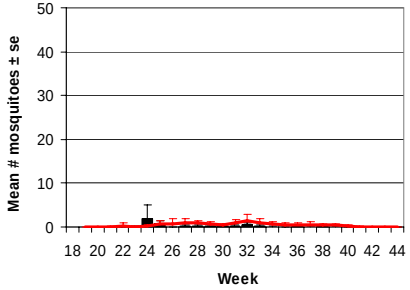
Delaware River Basin



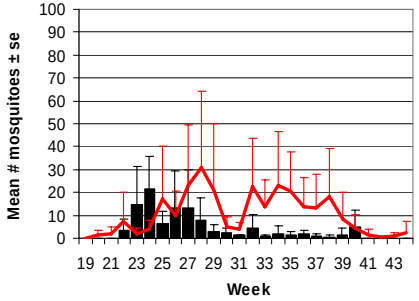
New York Metro



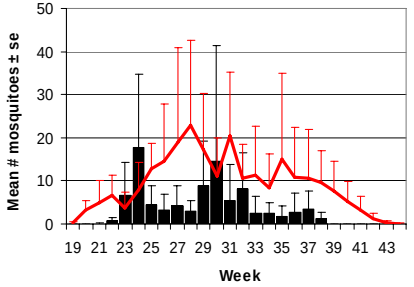
North Central Rural



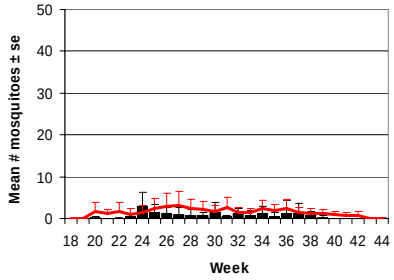
Northwestern Rural



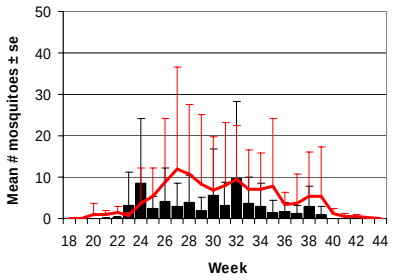
Philadelphia Metro



Pinelands



Suburban Corridor

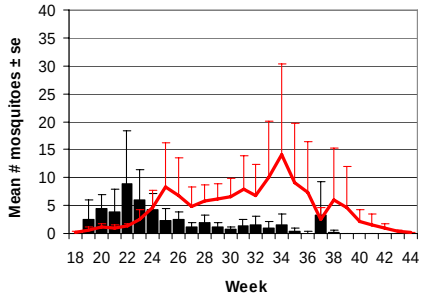


Comments

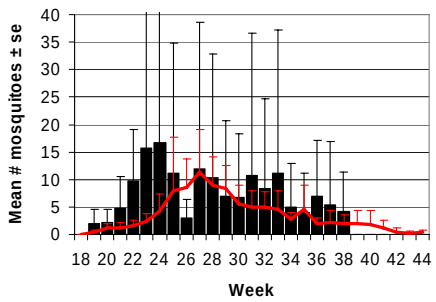
Aedes vexans populations should continue to decrease, particularly as nighttime temperature begin to fall as the season starts to wind down. If nighttime temperatures drop much below 50°F (this week averaged 55°F), then it will be too cold for this species to be active at the time the light traps are running. A shift to daytime feeding will also reduce light trap populations. A brief amount of warm weather with rainfall may produce a minor brood, but not likely contribute to the egg bank significantly.

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

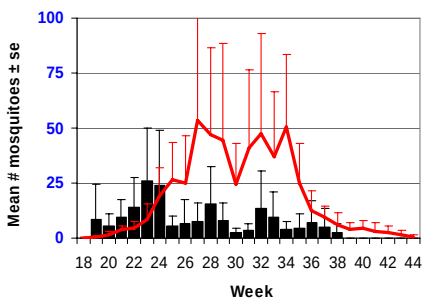
Agricultural



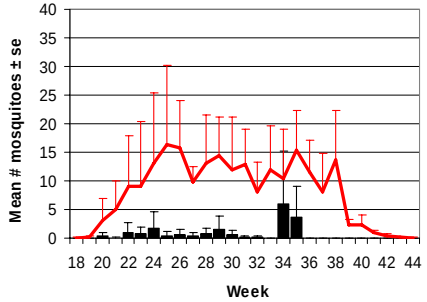
Coastal



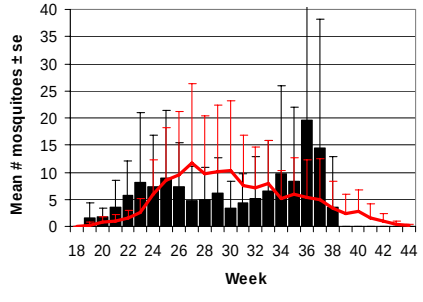
Delaware Bayshore



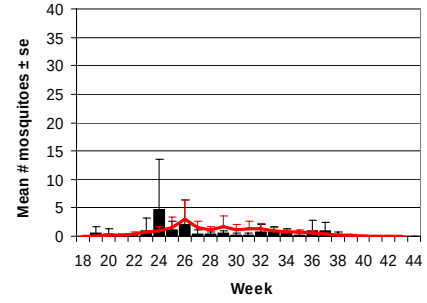
Delaware River Basin



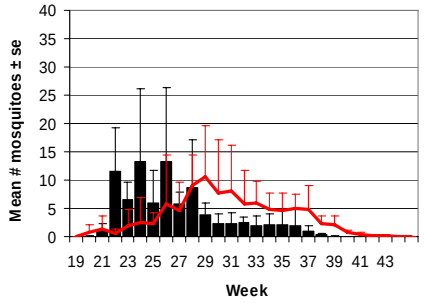
New York Metro



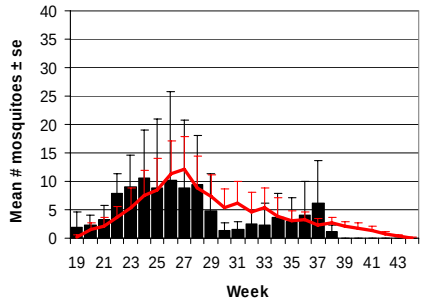
North Central Rural



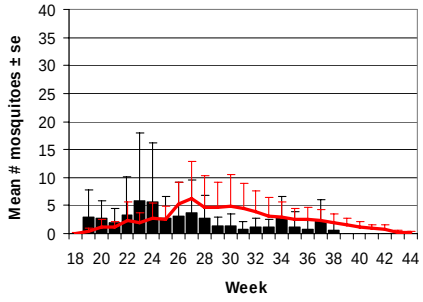
Northwestern Rural



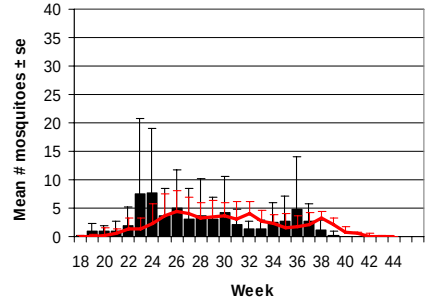
Philadelphia Metro



Pinelands



Suburban Corridor

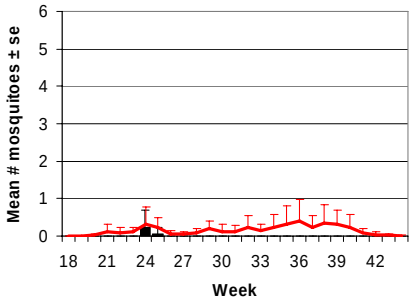
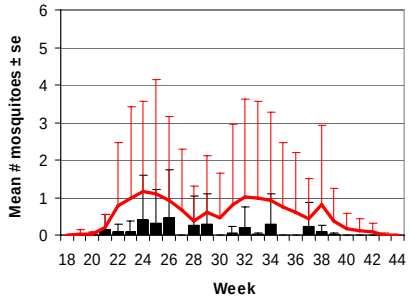
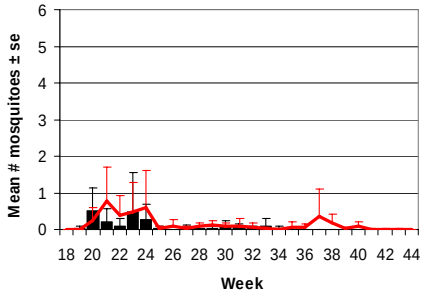
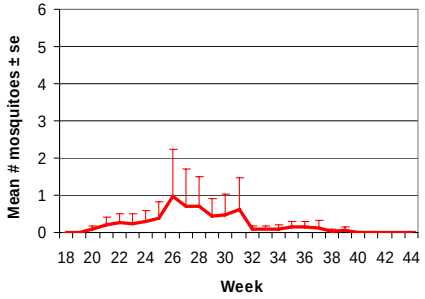
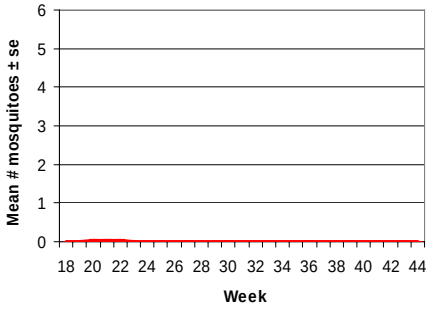
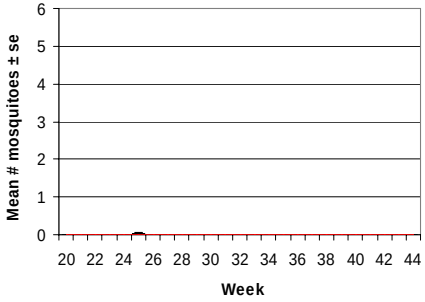
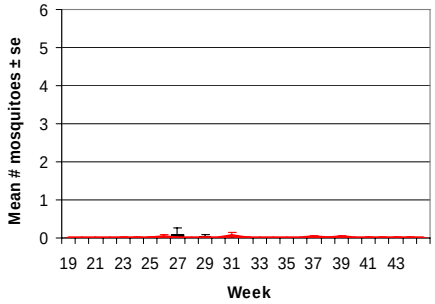
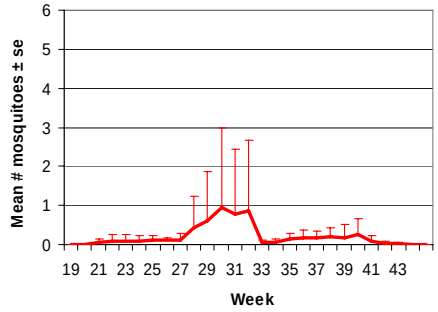
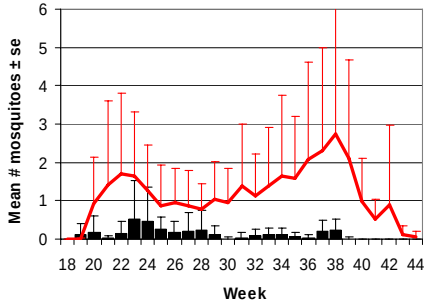
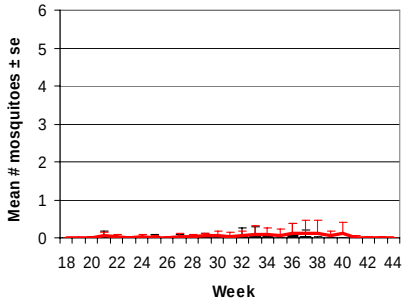


Comments

Culex populations continue to search for hibernaculae to overwinter in. These are inseminated females. During later stages, females will switch to a nectar diet (a rapidly declining resource now), resulting in a build-up over fat used during overwintering. This switch occurs when juvenile hormone is suppressed in response to changing photoperiod and temperature. During the spring, it may take several days for juvenile hormone to be produced after the female mosquito exits her hibernaculae and she will not take a blood meal until the hormone is circulating. This hormone also regulates follicular development (Meola & Petralia 1980).

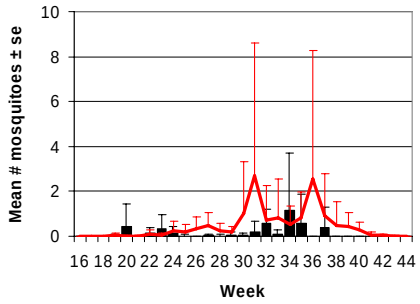
Meola & Petralia 1980 Juvenile hormone induction of biting behavior in *Culex* mosquitoes. Science 209:1548-1550.

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

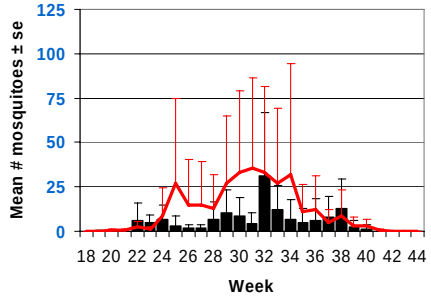
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* populations remain very low in comparison to historical data.	

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

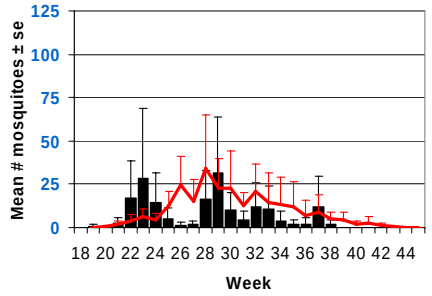
Agricultural



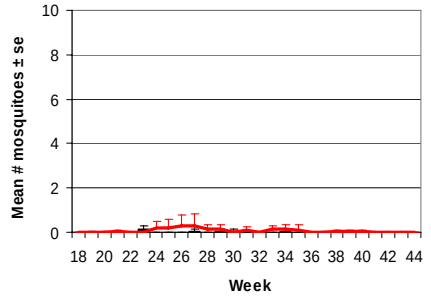
Coastal



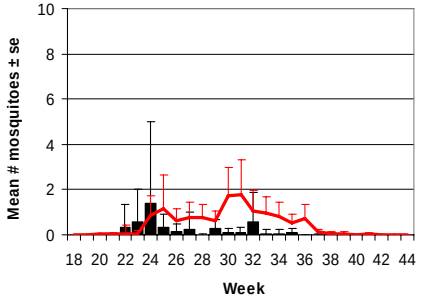
Delaware Bayshore



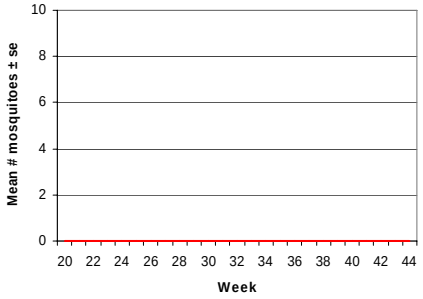
Delaware River Basin



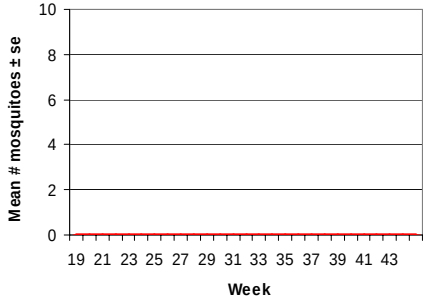
New York Metro



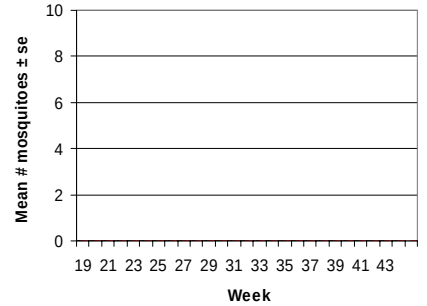
North Central Rural



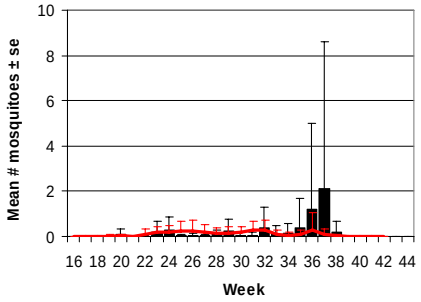
Northwestern Rural



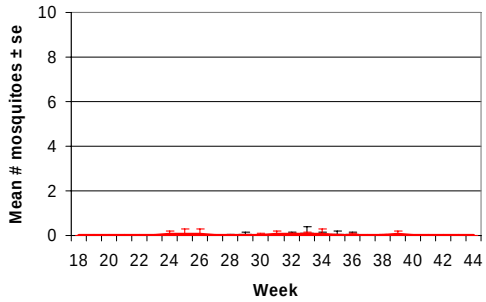
Philadelphia Metro



Pinelands



Suburban Corridor



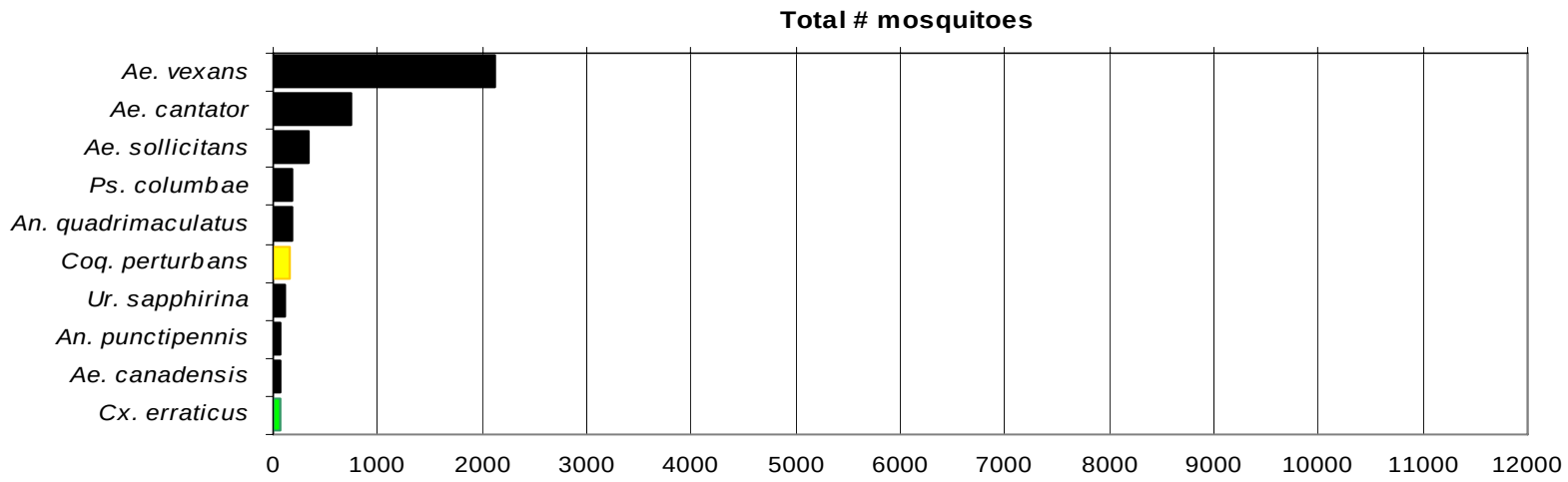
Comments

Aedes sollicitans should continue to decline. September 15th was the last full moon, occurring in Week 38. Emergence from this is not likely to be of any significance, if historical trends are any indication.

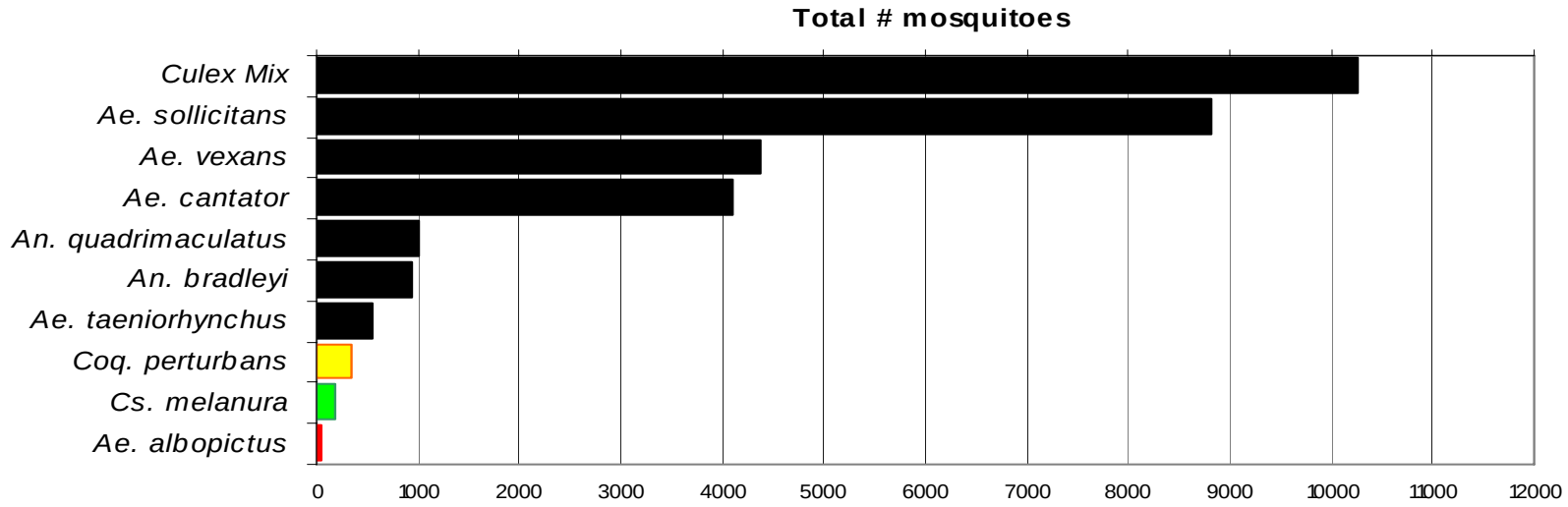
WNV **EEE**

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

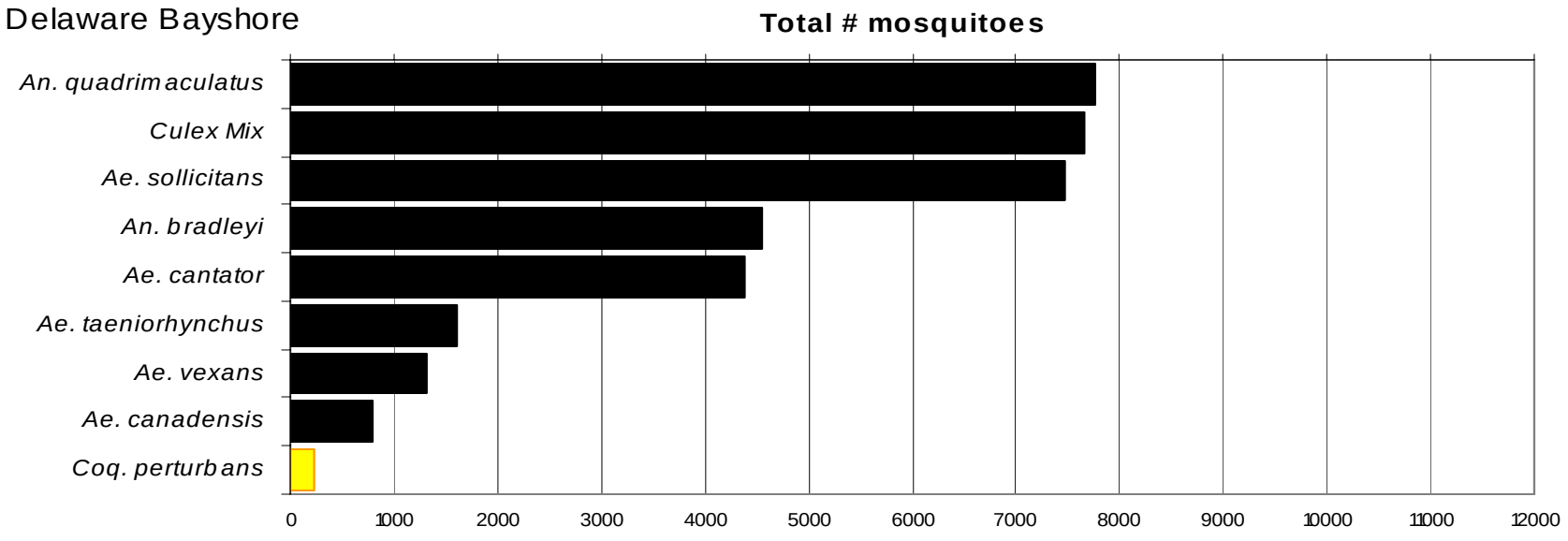
Agricultural



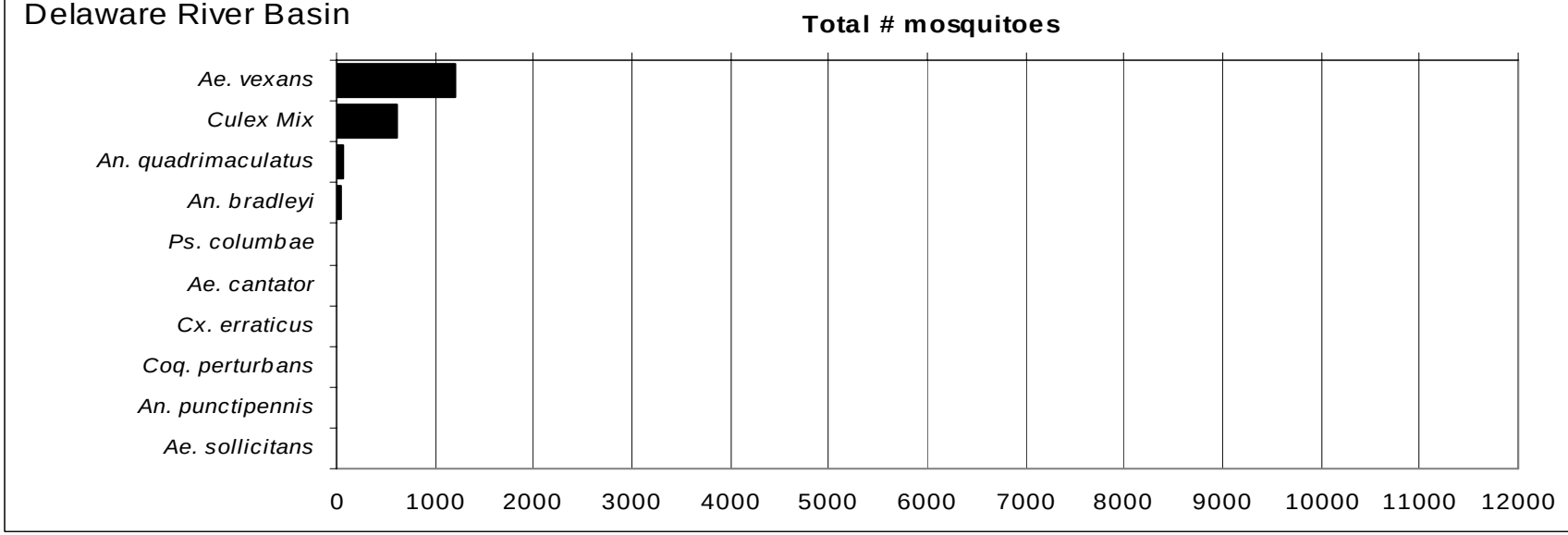
Coastal

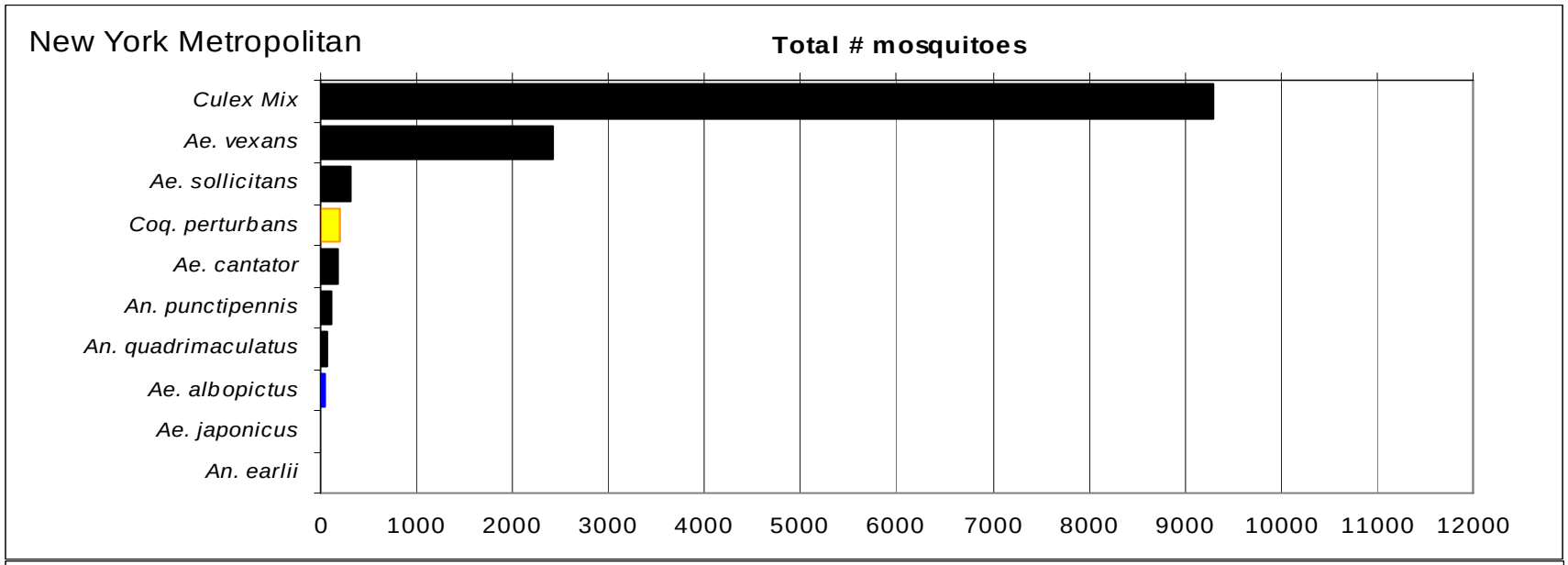


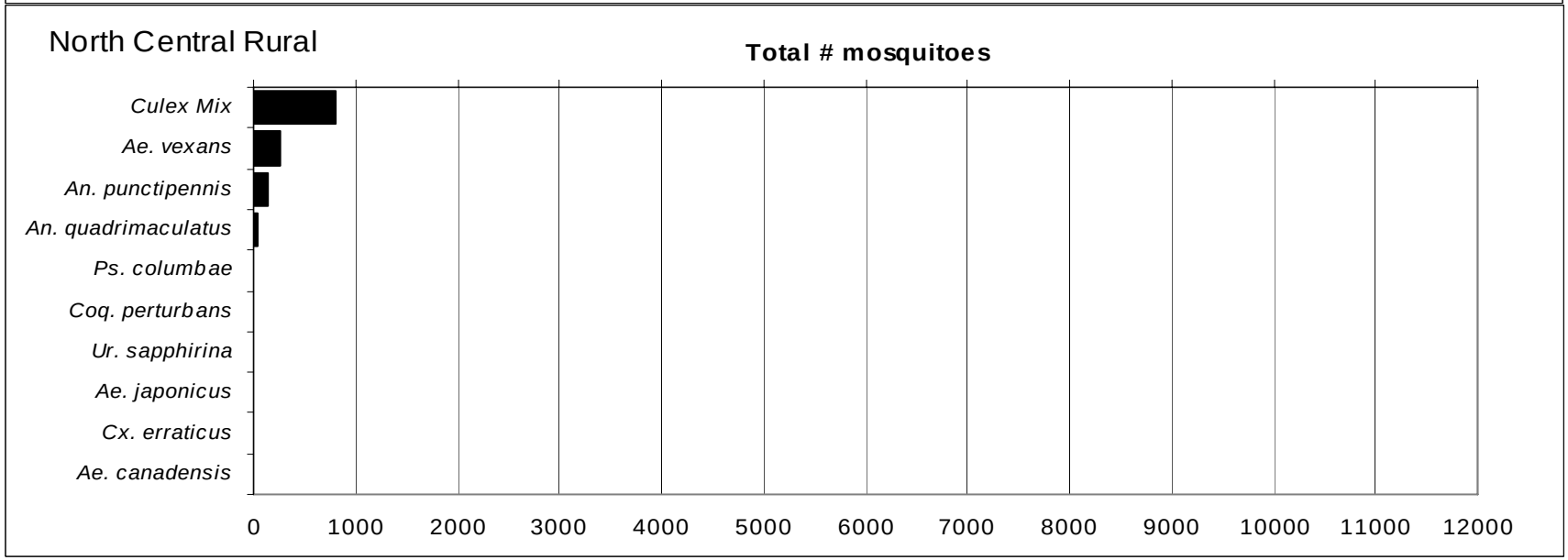
Delaware Bayshore

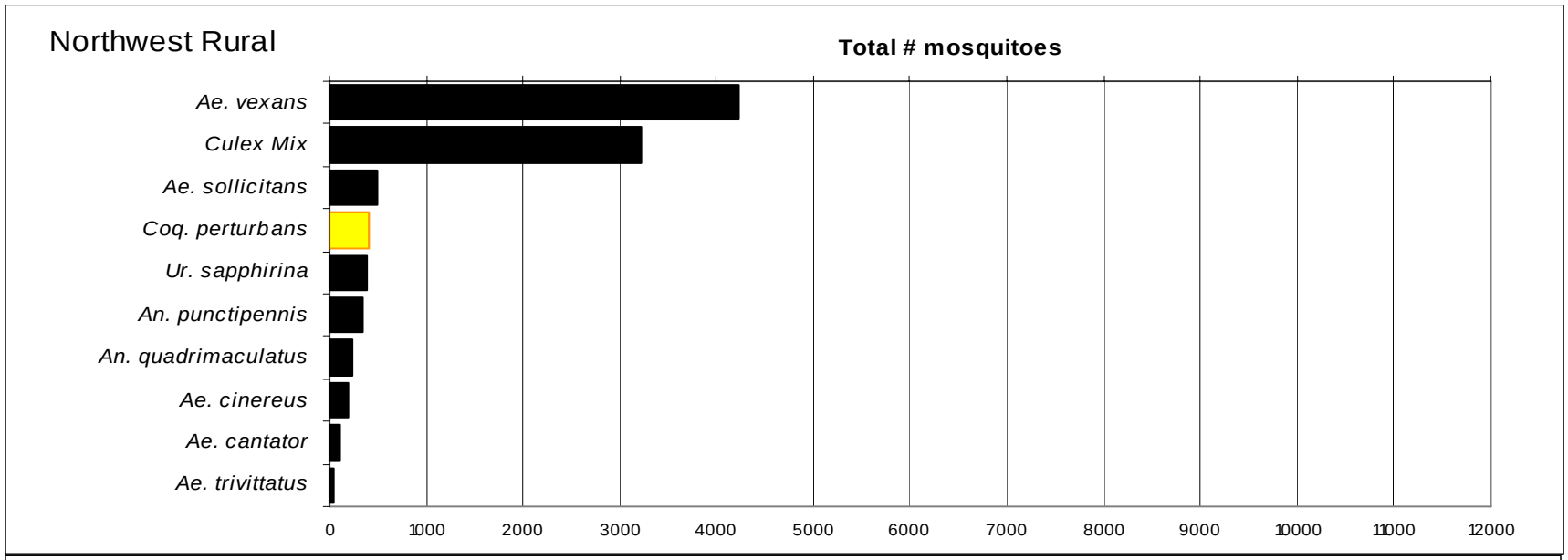


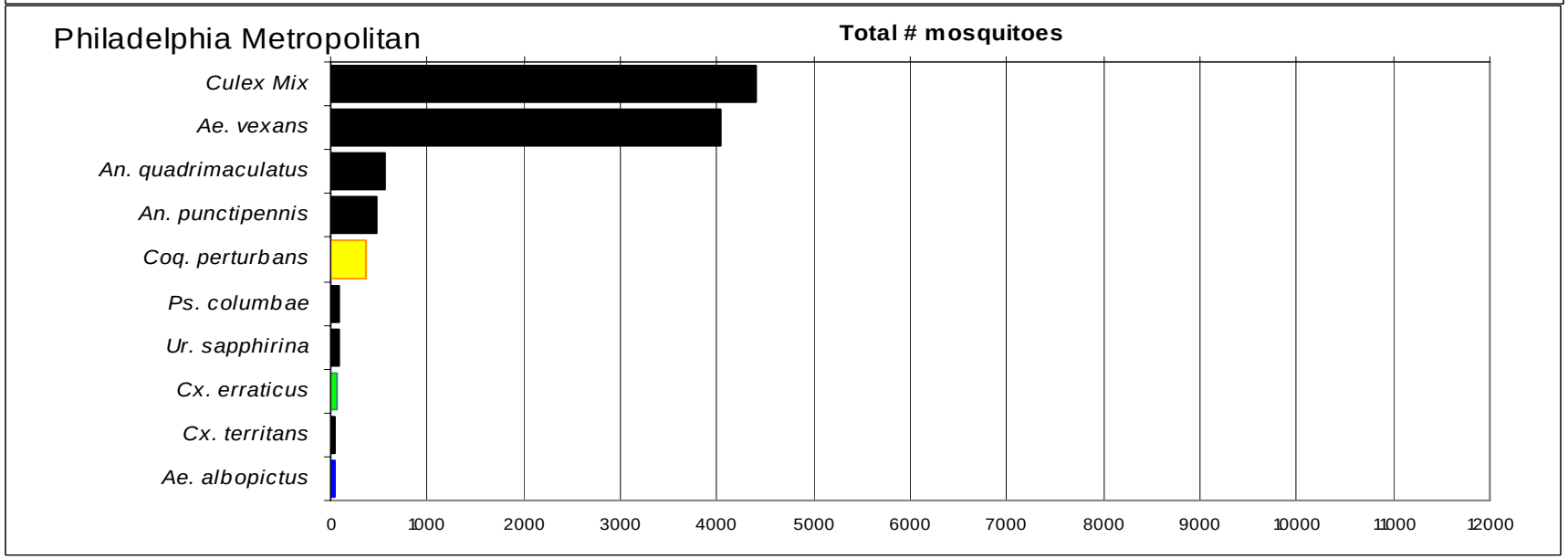
Delaware River Basin

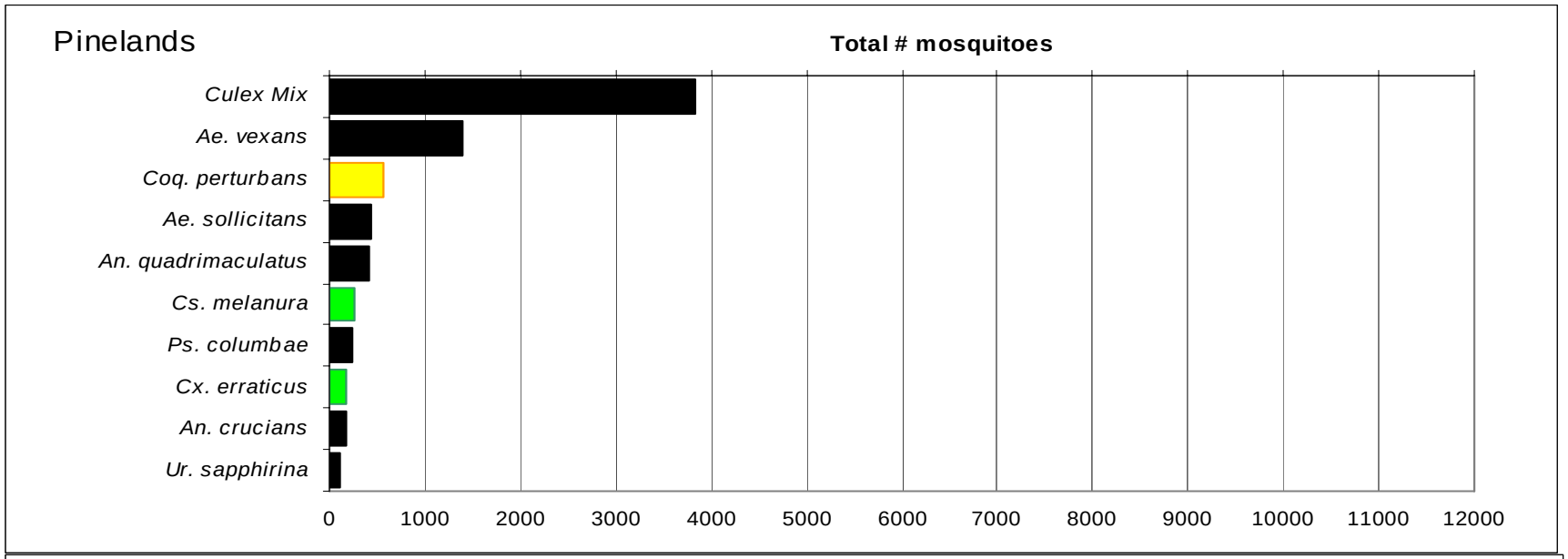


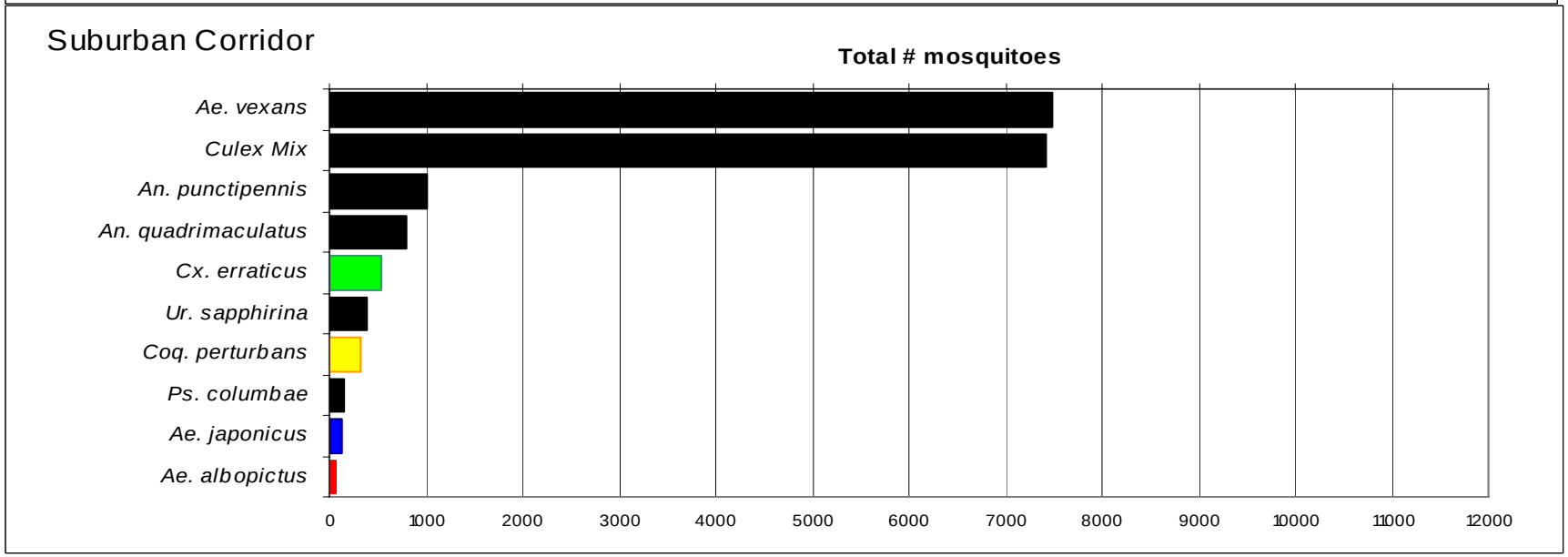

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. sollicitans
Coq. perturbans
Ae. cantator
An. punctipennis
An. quadrimaculatus
Ae. albopictus
Ae. japonicus
An. earlii
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
An. quadrimaculatus
Ps. columbae
Coq. perturbans
Ur. sapphirina
Ae. japonicus
Cx. erraticus
Ae. canadensis
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. sollicitans
Coq. perturbans
Ur. sapphirina
An. punctipennis
An. quadrimaculatus
Ae. cinereus
Ae. cantator
Ae. trivittatus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
An. quadrimaculatus
An. punctipennis
Coq. perturbans
Ps. columbae
Ur. sapphirina
Cx. erraticus
Cx. territans
Ae. albopictus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000


Pinelands
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ae. sollicitans
An. quadrimaculatus
Cs. melanura
Ps. columbae
Cx. erraticus
An. crucians
Ur. sapphirina
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
An. quadrimaculatus
Cx. erraticus
Ur. sapphirina
Coq. perturbans
Ps. columbae
Ae. japonicus
Ae. albopictus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000