NEW JERSEY ADULT MOSQUITO SURVEILLANCE
Report for 16 October to 22 October 2011, CDC Week 42
Prepared by Lisa M. Reed, Scott Crans and Mark Robson
Center for Vector Biology

Summary Table – Week 42

Region	Aedes vexans			Culex Mix			Coquillettidia perturbans			Aedes sollicitans		
	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	0.43	0.07	4	1.45	0.55	4	0.00	0.00	0	0.00	<0.01	0
Coastal	2.51	0.54	4	4.24	1.11	4	0.00	0.00	0	0.05	0.30	0
Delaware Bayshore	0.00	0.70	0	0.00	1.92	0	0.00	0.00	0	0.00	0.71	0
Delaware River Basin	0.21	0.05	4	0.36	0.17	3	0.00	0.00	0	0.00	<0.01	0
New York Metro	0.30	0.14	3	2.23	0.98	3	0.00	0.00	0	0.01	0.04	0
North Central Rural	0.00	<0.01	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
Northwest Rural	8.57	0.52	4	5.83	0.20	4	0.00	0.00	0	0.00	0.00	0
Philadelphia Metro	1.25	0.48	4	0.86	0.16	4	0.00	0.00	0	0.00	0.00	0
Pinelands	0.60	0.29	3	0.87	0.26	4	0.00	0.00	0	0.00	0.34	0
Suburban Corridor	0.12	0.56	0	0.66	0.37	2	0.00	0.00	0	0.00	0.00	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: Both *Aedes vexans* and *Culex* populations remained elevated in several regions, although absolute numbers are decreasing. Some regions reflect programs bringing traps in for the season. A cold weather system bringing very early season snow to the northeast is developing this weekend.

Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation

Average High Temperature legend:
60, 61, 62, 63, 64, 65, 66, 67, 68

Average Low Temperature legend:
42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53

Total Precipitation legend:
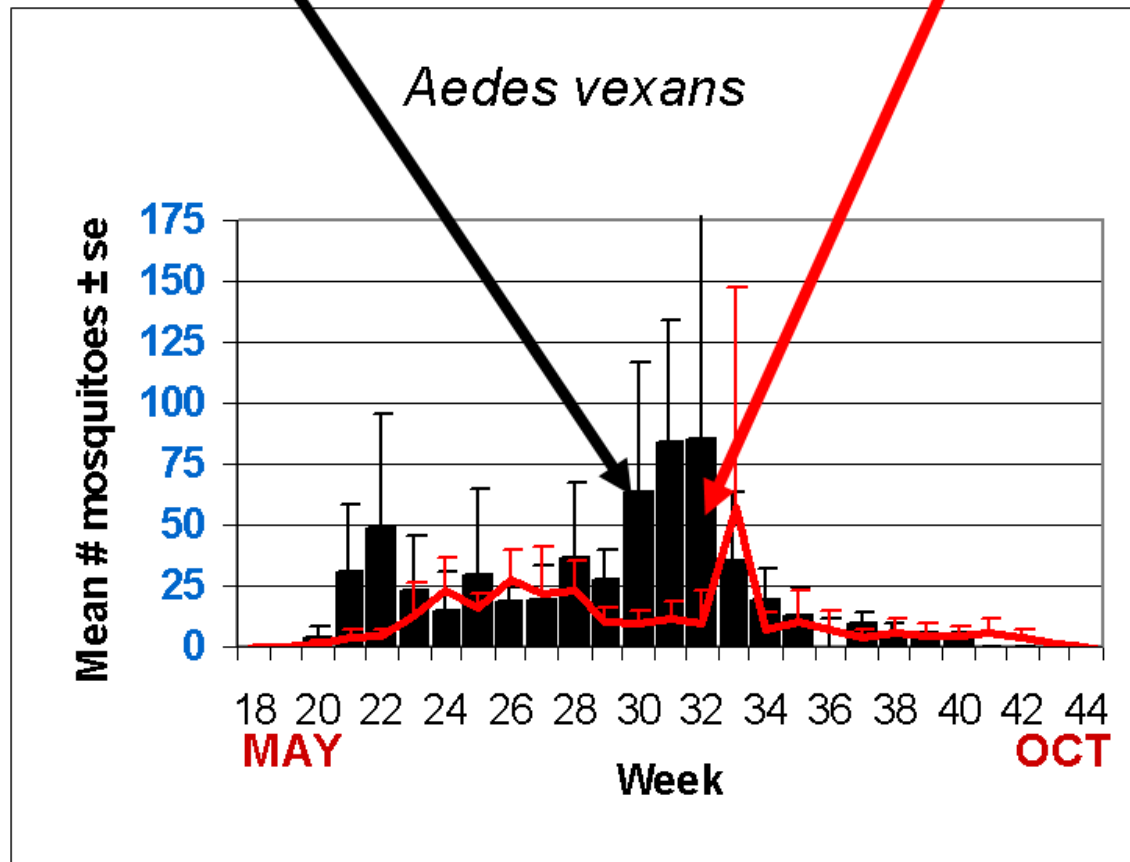0.8, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5
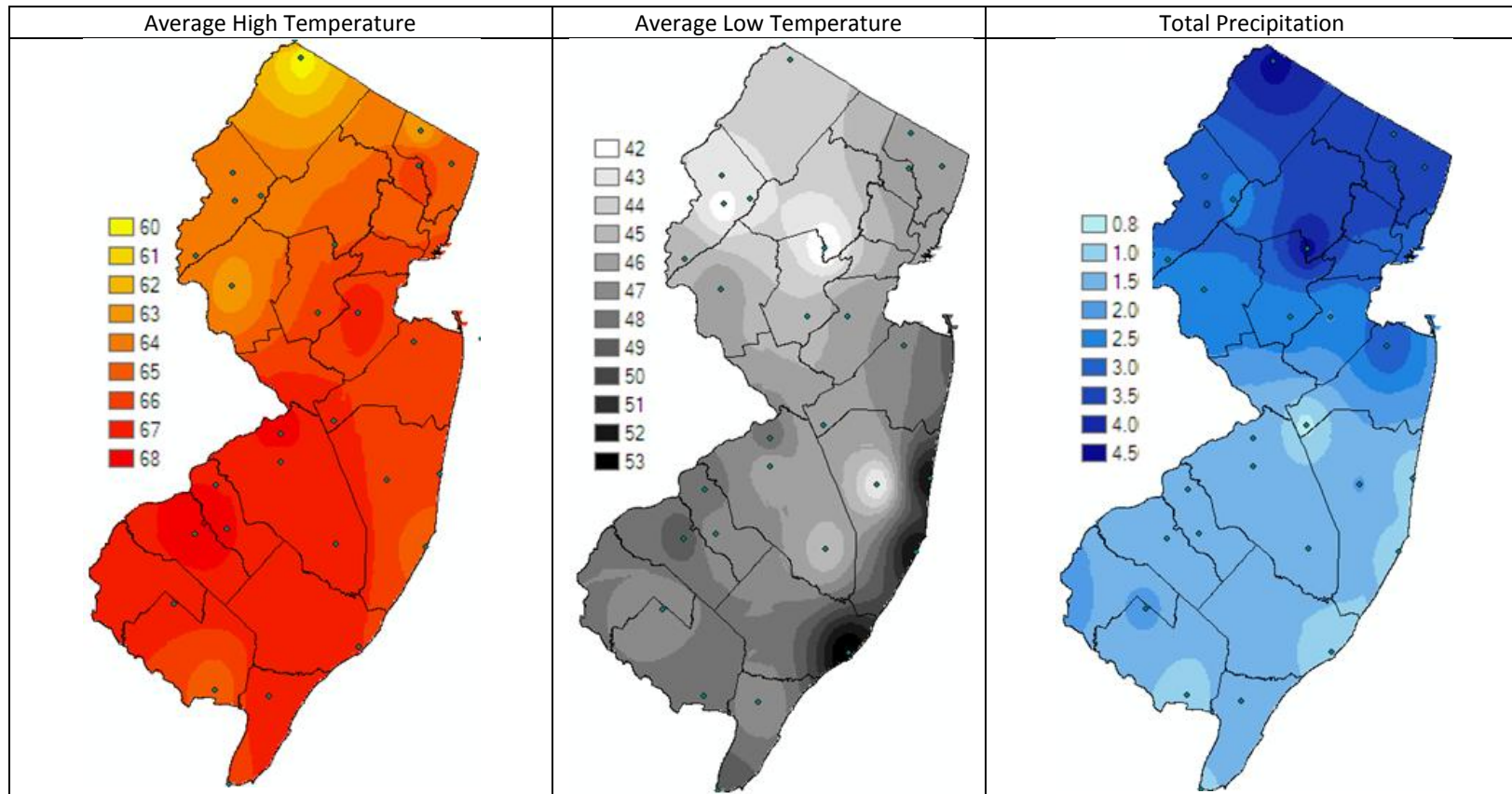
The three figures show the interpolation of average maximum and minimum temperature and total precipitation through 1 October to 28 October, 2011 in New Jersey. Data points are from about 32 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10. Several stations were eliminated from the maps due to going offline (recognizably incomplete data) from Hurricane Irene.

Both average high and low temperatures fell two to three degrees from the previous week. Precipitation added modestly to previous totals, with the majority of the rainfall continuing in the northern portions of the state. Weather forecast calls for possible snow in the Northwest portions of the state, and cold weather throughout the state.
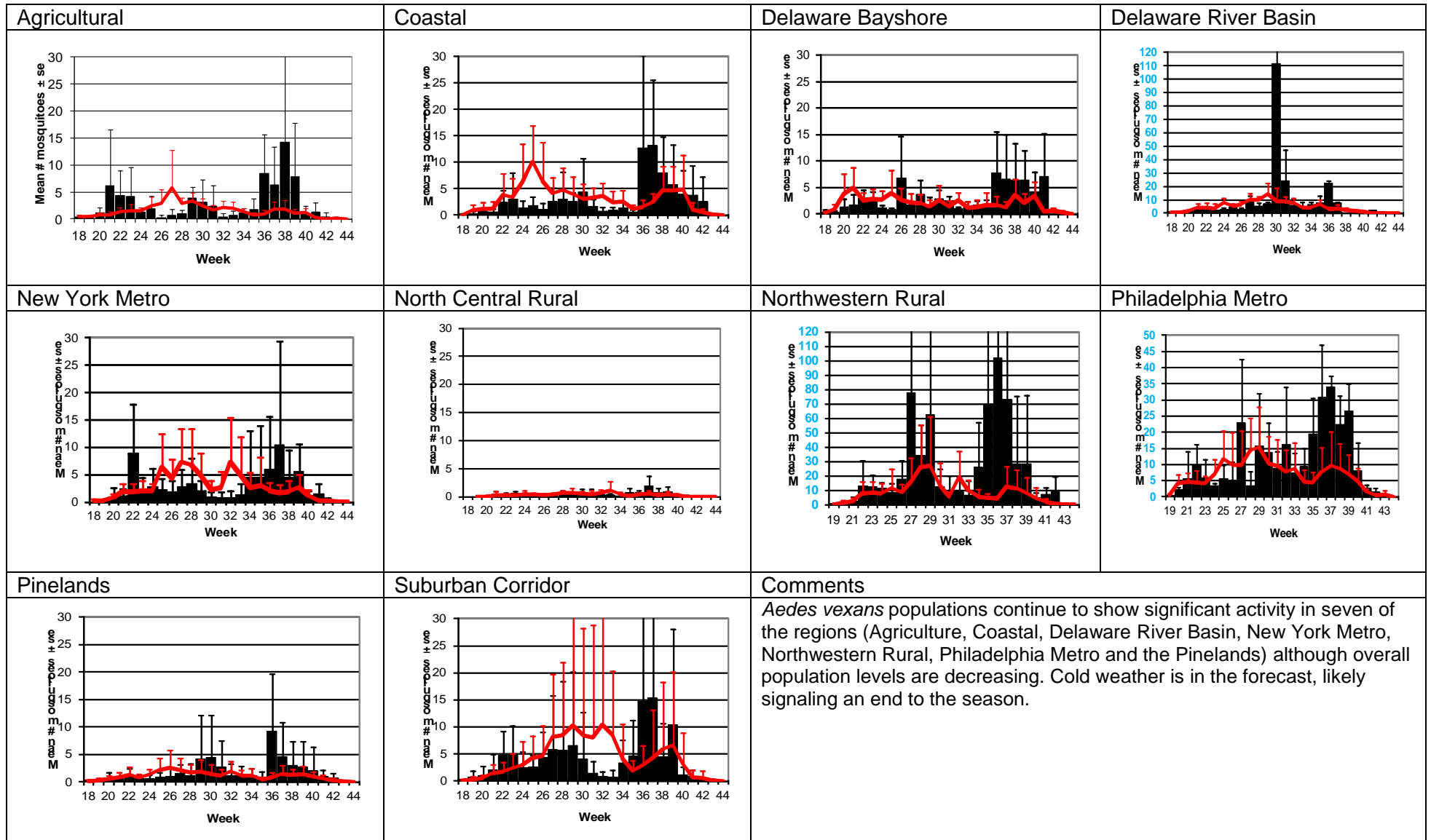
NJ Weather & Climate NETWORK & ONJSC at Rutgers University

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 last week are from Atlantic, Bergen, Burlington, Essex, Monmouth, Salem, Sussex, Union and Warren counties. Previous week included Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hunterdon, Mercer, Middlesex, Monmouth, Salem, Somerset, Sussex, Union and Warren counties. Note: County data is sent in at a variety of times during the week. A number of counties have brought in their light traps for the season, particularly in the north.

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 continue to show significant activity in seven of the regions (Agriculture, Coastal, Delaware River Basin, New York Metro, Northwestern Rural, Philadelphia Metro and the Pinelands) although overall population levels are decreasing. Cold weather is in the forecast, likely signaling an end to the season.

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

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. Eight of the ten regions show significant *Culex* activity. But, as with *Aedes vexans*, populations of these species are also concurrently decreasing.

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

Comments

Culiseta melanura is the enzootic ornithophilic vector of eastern equine encephalitis. *Cs. melanura* abundances continue to be above historical values in the Agricultural, Coastal, Northwestern Rural, Philadelphia Metro and the Pinelands regions. This is in contrast to the observations of low *Cs. melanura* populations in the traditional resting box sites put out for monitoring this species.

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 continue their seasonal decline.
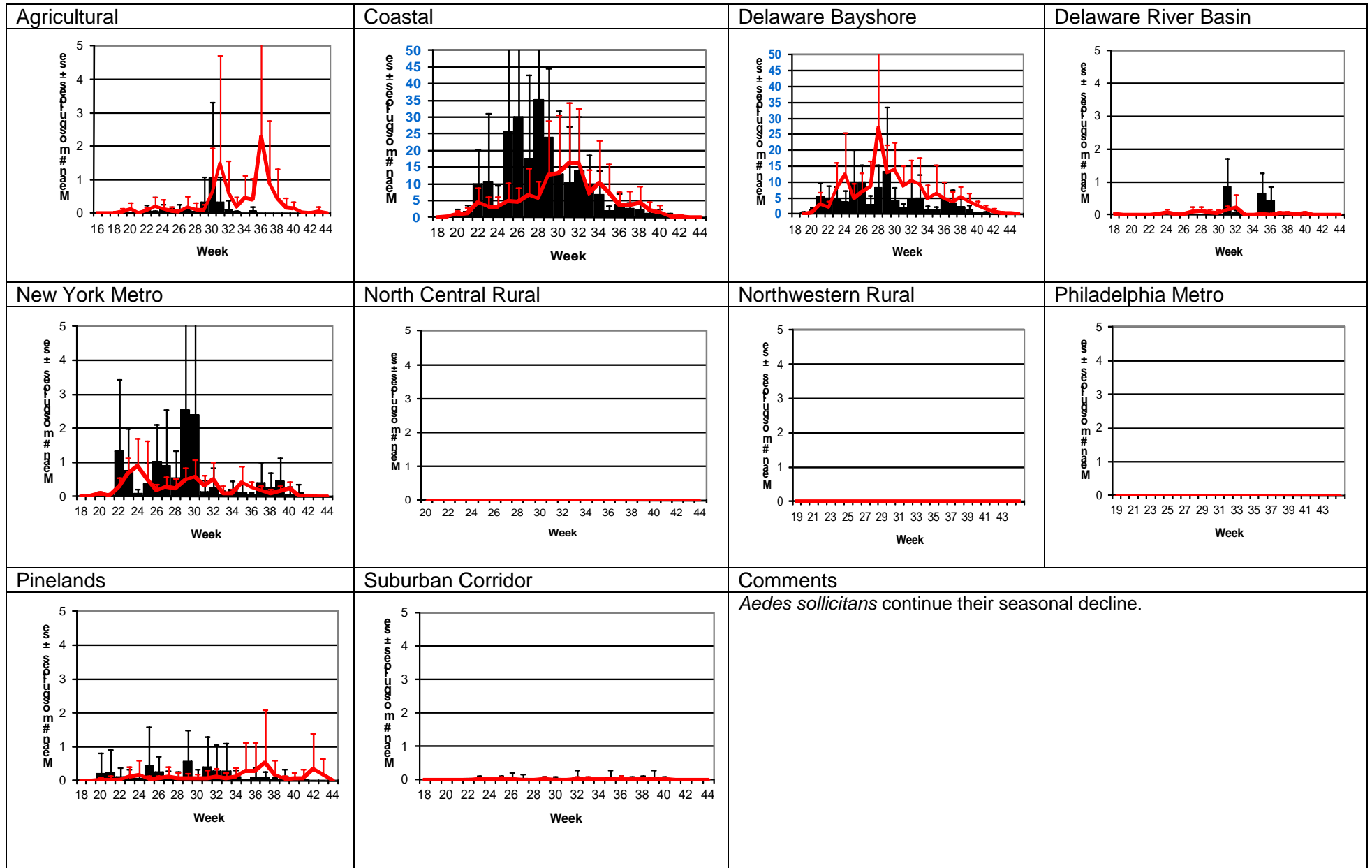
Temperature, Precipitation and Mosquito Abundance: The two graphs below illustrate the complex relationship between climatic variables (temperature and precipitation) and subsequent mosquito populations. In 2010, precipitation was abundant in early spring, setting a potential for significant mosquito populations. But by April, a prolonged drought had begun, and mosquito populations overall were lower that year than either the year before (2009) or this year (2011). Despite (or because of) those conditions, 2010 showed significant West Nile activity in New Jersey with the highest number of positive mosquito pools and high number of human cases.
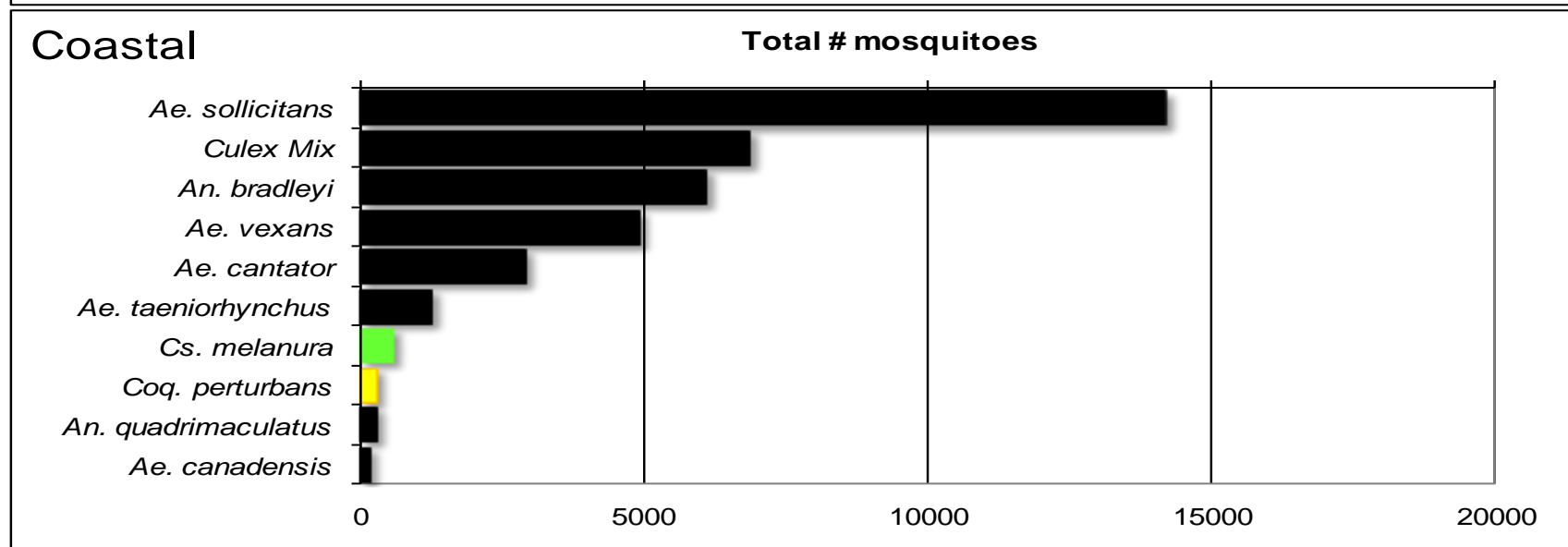
Graphs are aligned by their x-axis. Climate data from http://climate.rutgers.edu/stateclim/
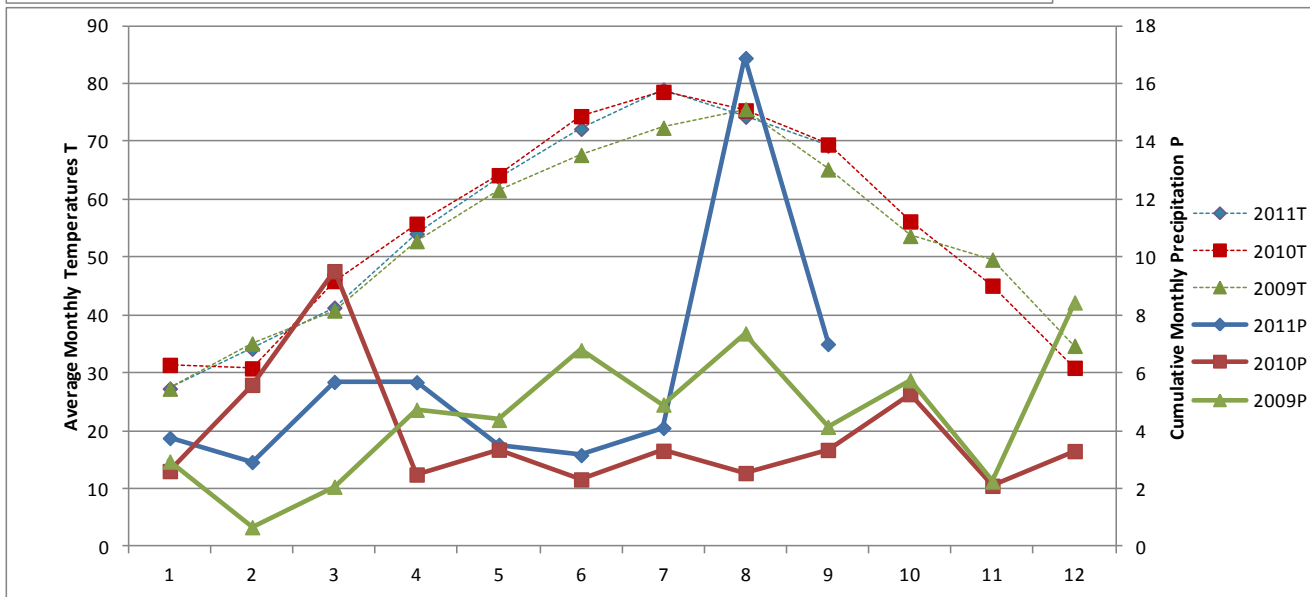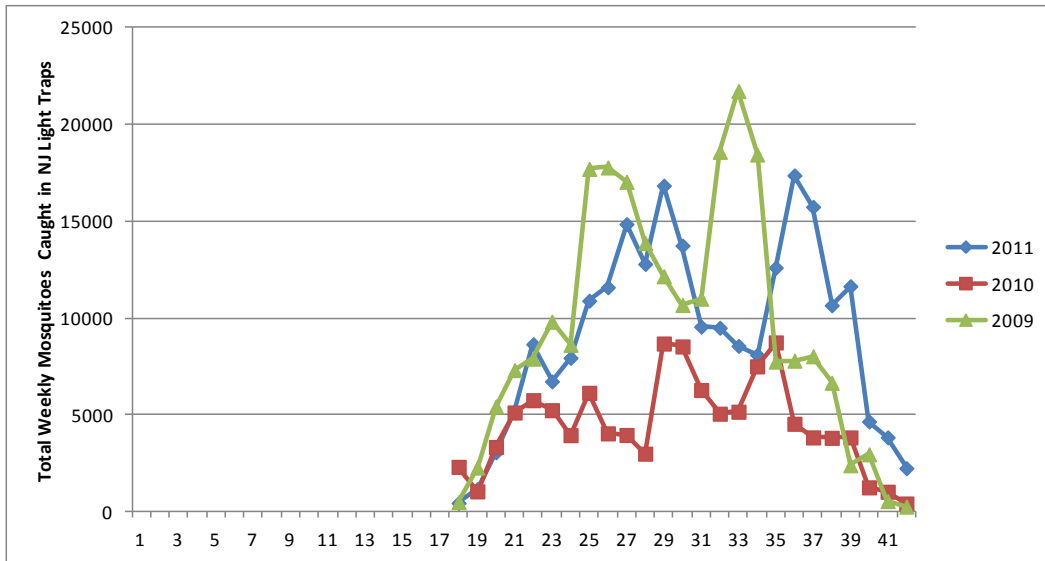
WNV   *EEE*

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 listed.

Agricultural — Total # mosquitoes

Species (top to bottom): Ae. vexans, Culex Mix, Coq. perturbans, Ae. canadensis, Ps. columbae, Ae. cantator, An. quadrimaculatus, An. punctipennis, Cs. melanura, Ps. ciliata. X-axis: 0, 5000, 10000, 15000, 20000.

Coastal — Total # mosquitoes

Species (top to bottom): Ae. sollicitans, Culex Mix, An. bradleyi, Ae. vexans, Ae. cantator, Ae. taeniorhynchus, Cs. melanura, Coq. perturbans, An. quadrimaculatus, Ae. canadensis. X-axis: 0, 5000, 10000, 15000, 20000.

Delaware Bayshore

Total # mosquitoes

Species	
An. bradleyi	
Culex Mix	
Ae. cantator	
Ae. sollicitans	
Ae. vexans	
An. quadrimaculatus	
Ae. taeniorhynchus	
Coq. perturbans	
Ae. canadensis	
Cs. melanura	

0   5000   10000   15000   20000   25000   30000   35000
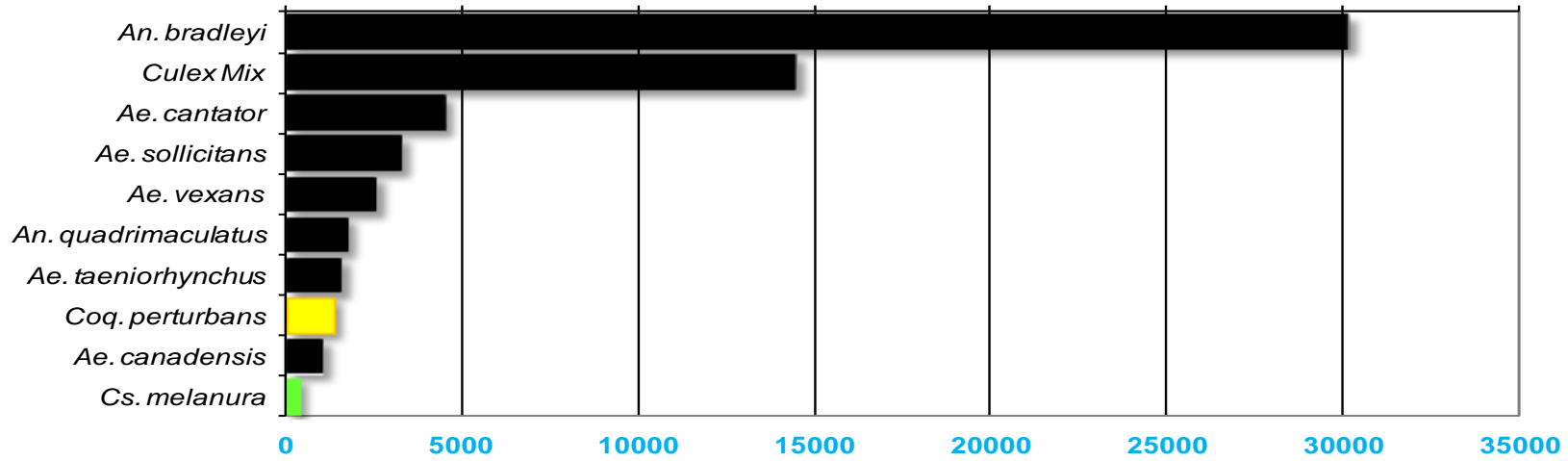
Delaware River Basin

Total # mosquitoes

Species	
Ae. vexans	
Culex Mix	
An. quadrimaculatus	
Coq. perturbans	
Ae. cantator	
Ur. sapphirina	
Ae. sollicitans	
Cx. erraticus	
An. bradleyi	
An. punctipennis	

0   5000   10000   15000   20000
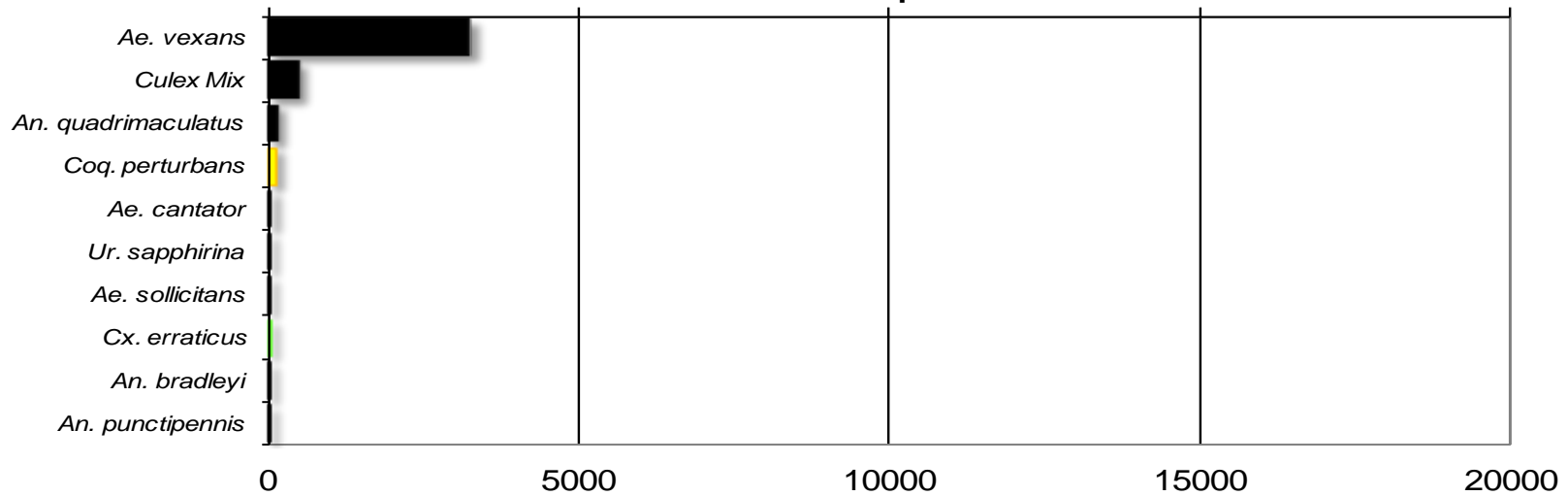
New York Metropolitan

Total # mosquitoes

Species	
Culex Mix	
Ae. vexans	
Ae. sollicitans	
Ae. cantator	
An. punctipennis	
Coq. perturbans	
An. quadrimaculatus	
Ae. albopictus	
Ae. sticticus	
Ur. sapphirina	

0   5000   10000   15000   20000
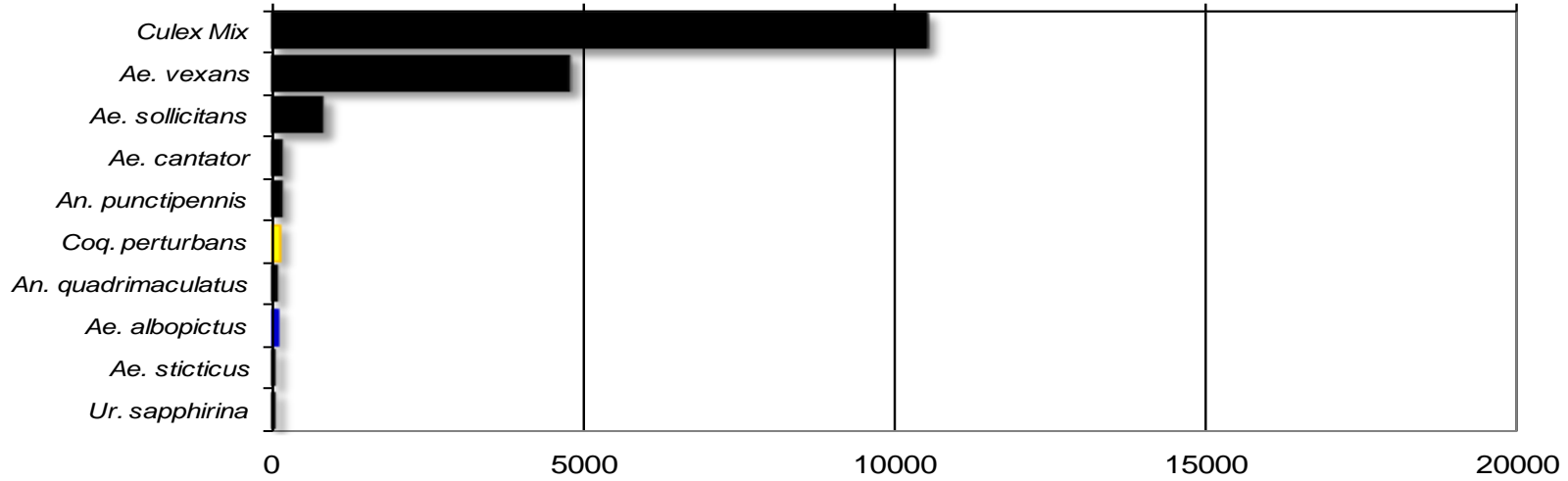
North Central Rural

Total # mosquitoes

Species	
Culex Mix	
Ae. vexans	
An. punctipennis	
Ps. columbae	
An. quadrimaculatus	
Ur. sapphirina	
Ae. trivittatus	
Ae. japonicus	
Coq. perturbans	
Cx. erraticus	

0   5000   10000   15000   20000
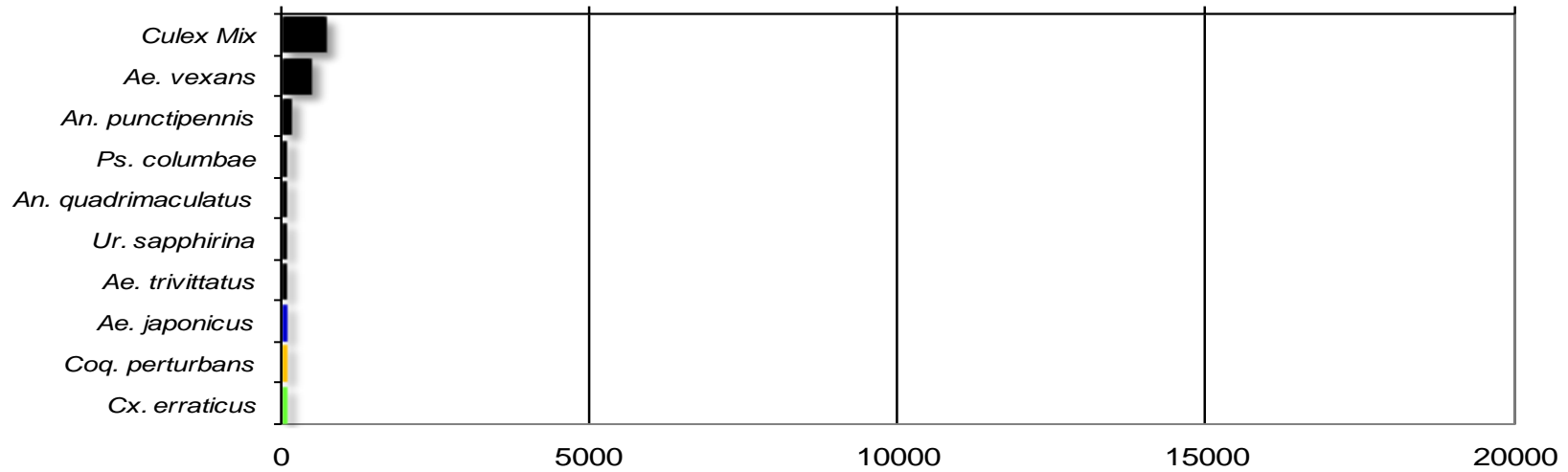
Northwest Rural

Total # mosquitoes

- Ae. vexans
- Culex Mix
- Ae. trivittatus
- An. punctipennis
- Ur. sapphirina
- Ae. stimulans
- Ae. cinereus
- An. quadrimaculatus
- Coq. perturbans
- Ps. ciliata

0   5000   10000   15000   20000   25000   30000   35000
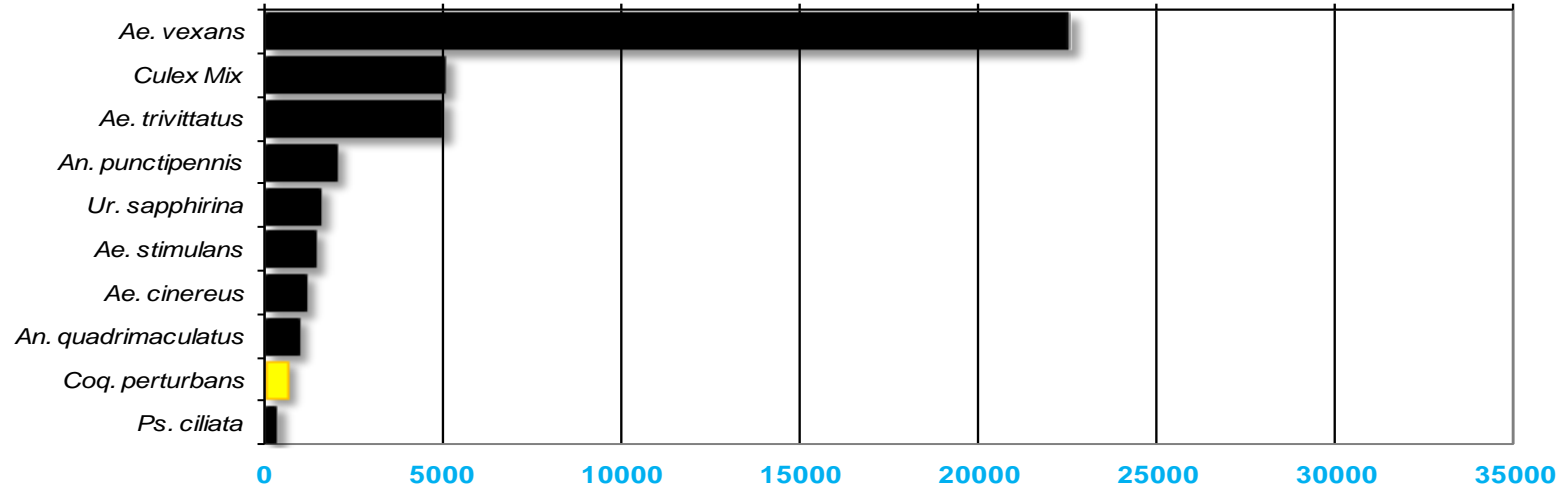
Philadelphia Metropolitan

Total # mosquitoes

- Ae. vexans
- Culex Mix
- An. crucians
- An. punctipennis
- An. quadrimaculatus
- Ur. sapphirina
- Ps. columbae
- Cx. territans
- Cx. erraticus
- Ae. sticticus

0   5000   10000   15000   20000
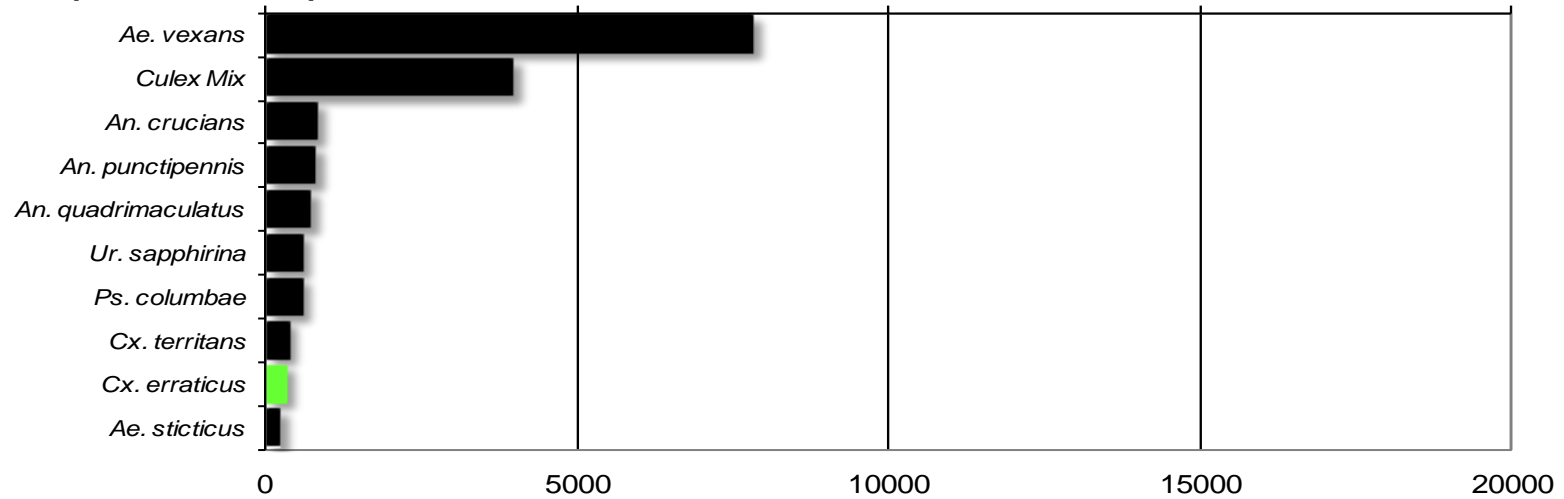
Pinelands

Total # mosquitoes

Species	
Culex Mix	
Ae. vexans	
Cs. melanura	
Ae. canadensis	
An. bradleyi	
Coq. perturbans	
An. quadrimaculatus	
Ae. cantator	
Ae. sollicitans	
Cx. territans	

0   5000   10000   15000   20000
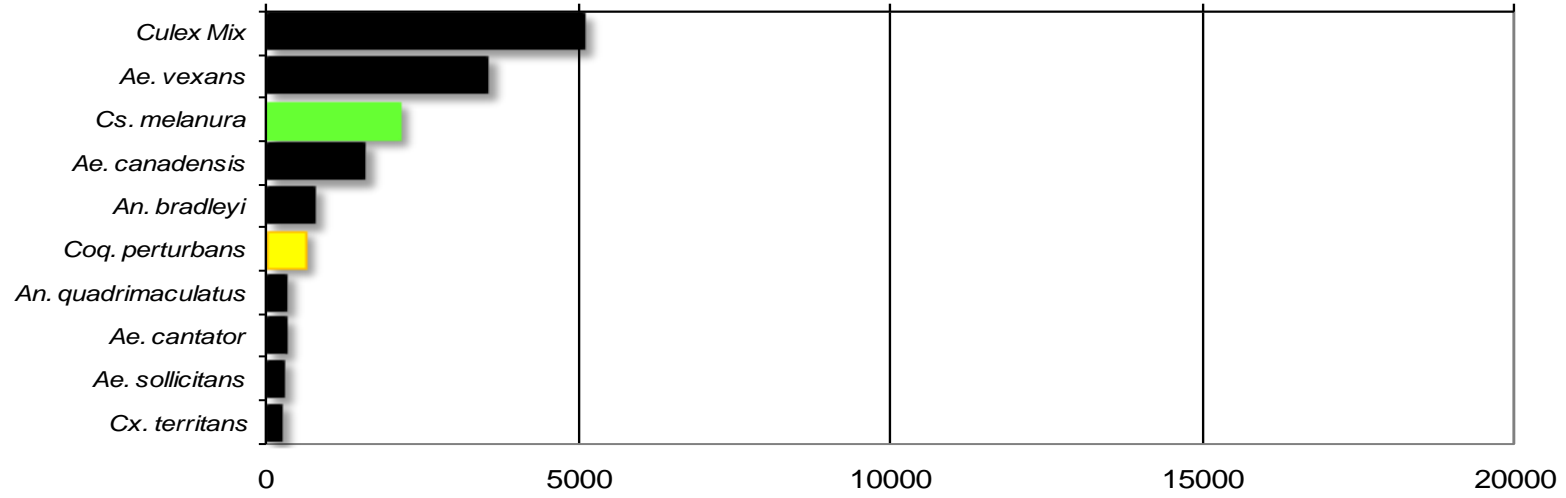
Suburban Corridor

Total # mosquitoes

Species	
Ae. vexans	
Culex Mix	
An. quadrimaculatus	
An. punctipennis	
Ur. sapphirina	
Ps. ciliata	
Cx. erraticus	
Ps. columbae	
Coq. perturbans	
Ae. sticticus	

0   5000   10000   15000   20000