NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 12 August to 18 August, 2007, Week 33

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Purpose: Samples from New Jersey light traps throughout the state are collected by county mosquito control agencies for use in their IPM programs. A portion of this data (about 82 traps) is sent to Rutgers and re-calculated to show statewide trends in mosquito populations for species of nuisance or health concerns.

Calculations are based on regional distributions, with emphasis on mosquito habitat and land use. Trends will allow a statewide evaluation of changing mosquito populations, in response to control and/or changes in habitat.

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of county mosquito control agencies in New Jersey.

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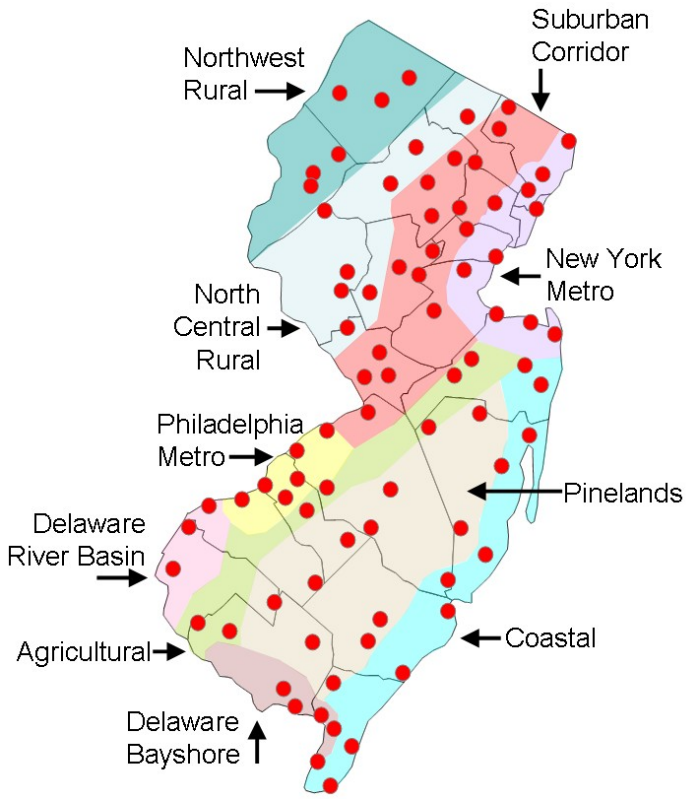


Figure 1: Ten regions selected for the New Jersey Adult Mosquito Surveillance Program overlaid with county borders. Trap locations indicated by red-filled circles.

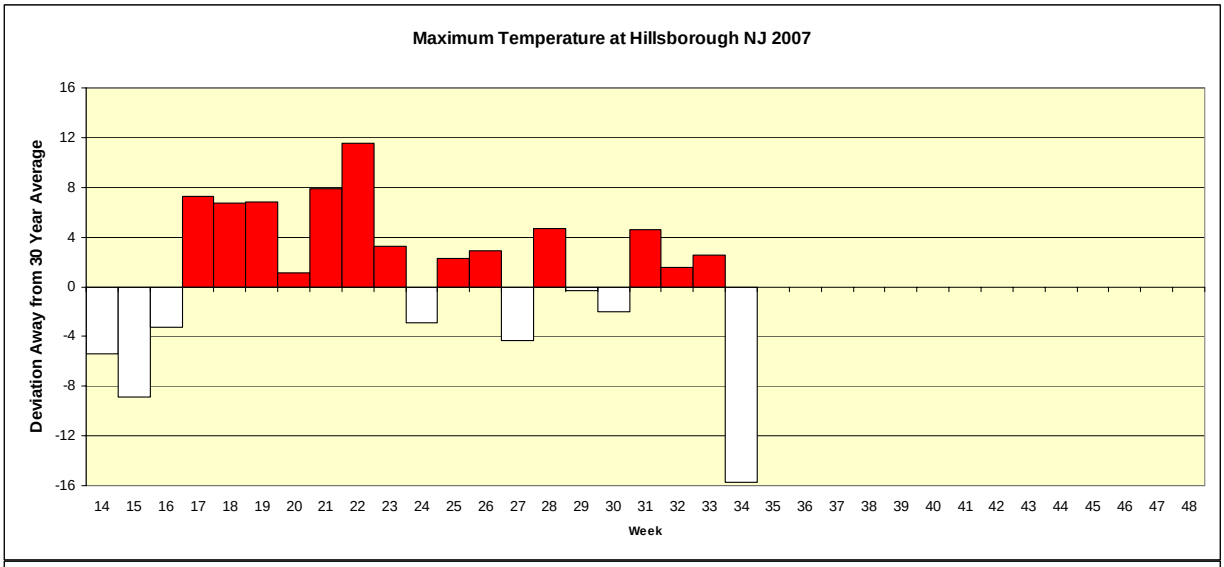
Summary table – Week 33

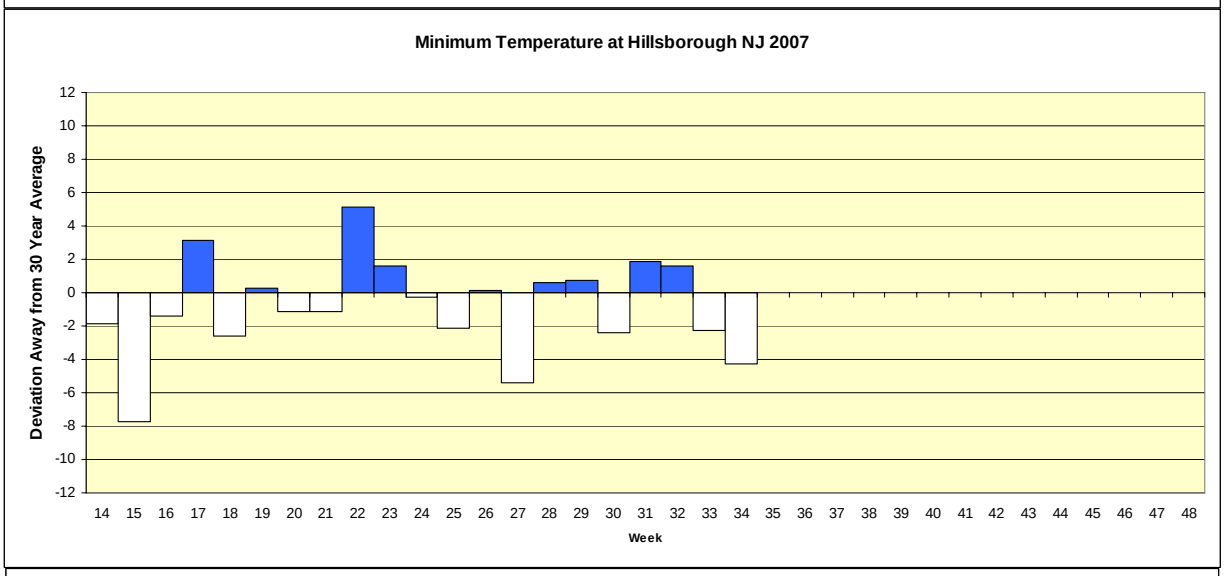
Region	*Aedes vexans*			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	0.21	19.8	0	2.88	11.83	0	0.1	0.44	0	0.29	0.23	1
Coastal	0.97	2.16	0	2.7	4.71	0	0.08	0.43	0	1.94	32.07	0
Delaware Bayshore	0.07	0.82	0	9.1	44.11	0	0.05	3.45	0	3.6	15.12	0
Delaware River Basin	0	13.79	0	0	12.69	0	0	0.69	0	0	0.17	0
New York Metro	2.5	4.01	0	10.26	6.96	1	0.14	0.09	2	0.07	1.21	0
North Central Rural	0.22	1.11	0	0.57	0.95	0	<0.01	0.04	0	0	0	0
Northwest Rural	9.64	16.36	0	3.33	7.75	0	0.05	0.1	0	0	0	0
Philadelphia Metro	1.97	11.07	0	0.67	5.22	0	0.09	0.36	0	0	0	0
Pinelands	0.29	1.47	0	0.69	3.5	0	0.18	0.81	0	0.06	0.11	0
Suburban Corridor	1.99	8.03	0	2.15	2.96	0	0.24	1.85	0	0	0.04	0

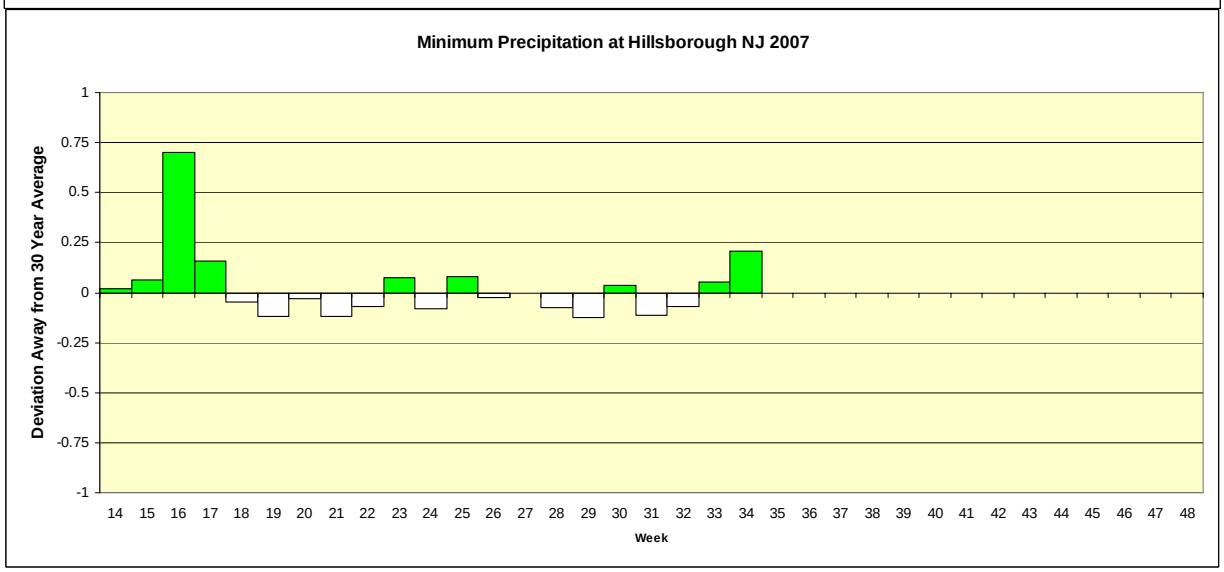
* Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference by 3 (orange) and greater than 150% increase by 4 (red).

State Summary: Continuing with the trends from the previous week, *Culex* Mix population abundance in the New York Metro is above recent historical trends. Amplification of West Nile virus is also underway with an increase in the number of positive *Culex* pools coming from the Suburban Corridor and New York Metro regions. *Coquillettidia perturbans*, an epizootic vector of eastern equine encephalitis, also continues to be above historical values in the New York Metro region. An increase in inland *Aedes sollicitans* is seen at primarily one agricultural site, suggesting little migration has occurred from coastal habitat.

Climate Deviations

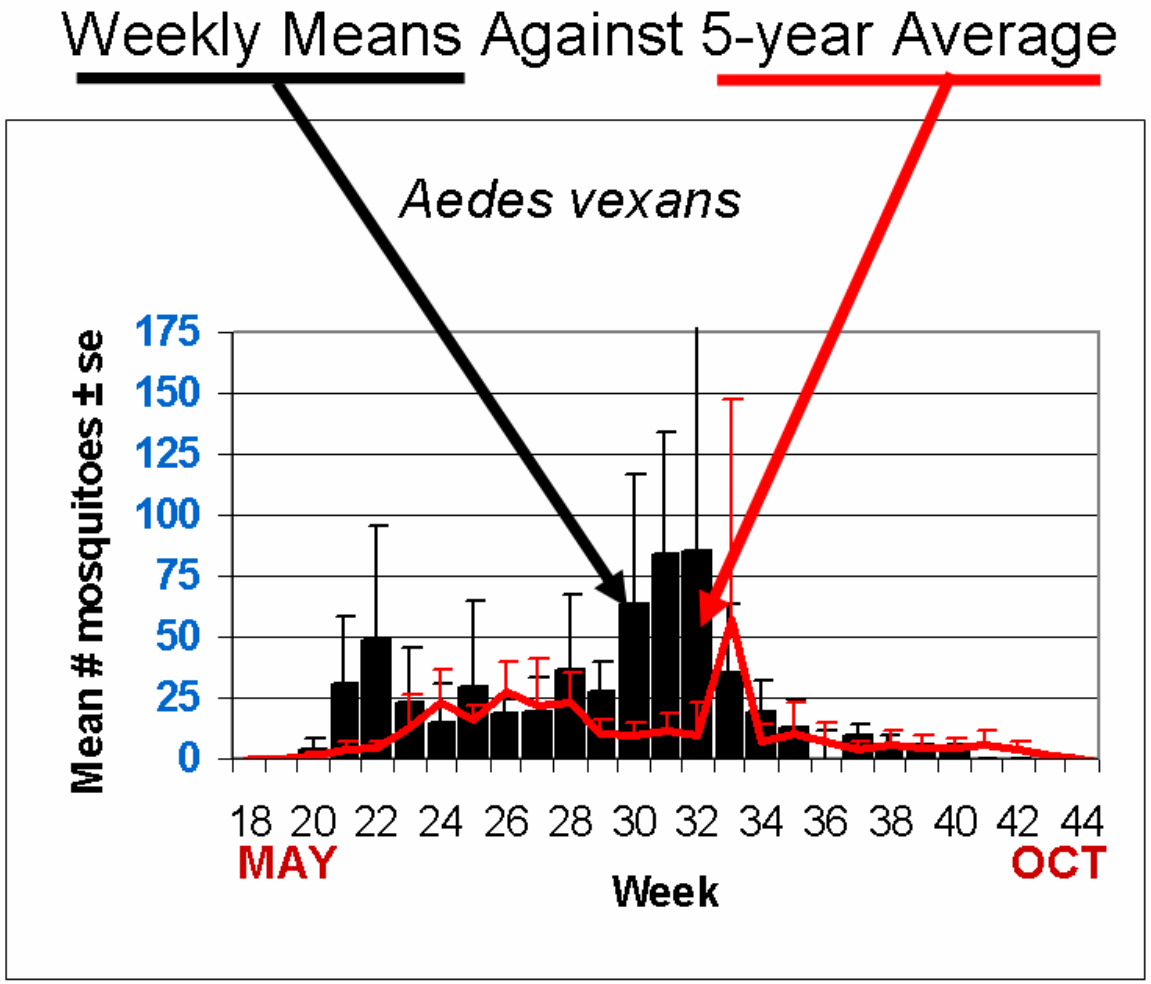






The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data is from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) while historical data was from the New Brunswick weather station. Color bars going 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 Week 33 are from Atlantic, Bergen, Camden, Cape May, Cumberland, Hudson, Hunterdon, Mercer, Middlesex, Morris, Monmouth, Ocean, Passaic, Somerset, Sussex, Union and Warren counties.



Aedes vexans - Fresh Floodwater Species

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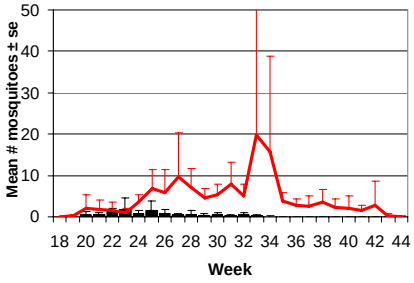
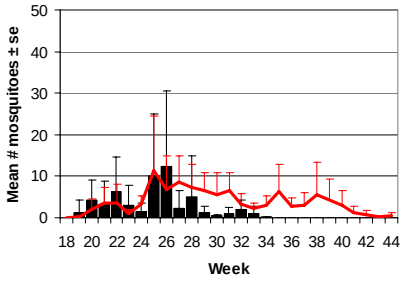
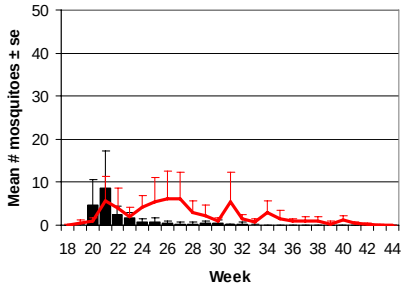
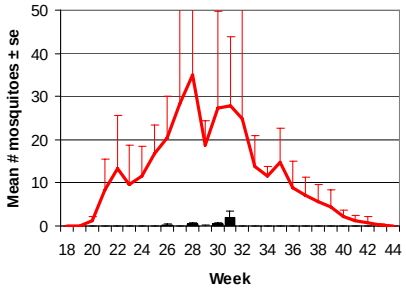
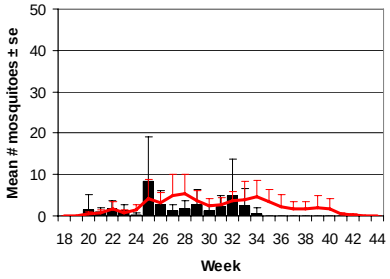
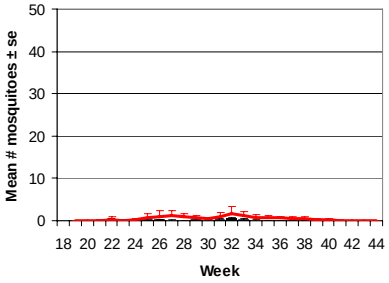
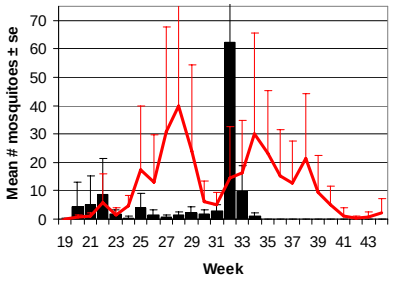
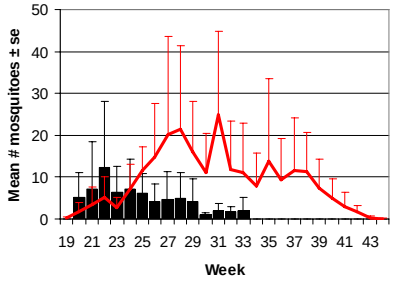
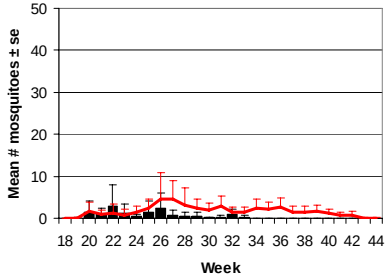
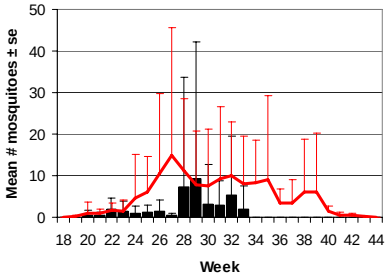
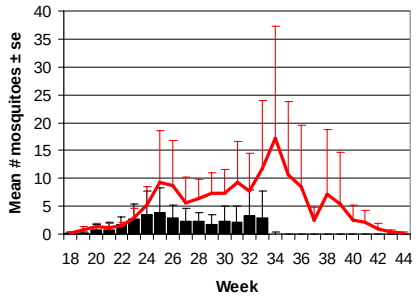
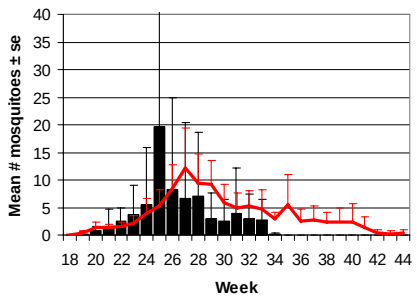
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		While *Aedes vexans* abundance may appear low in some regions, the Top Ten list that appears at the end of this report indicate that this mosquito is the most frequently caught species in the light traps of this program for several regions. It is in greatest relative abundance in the Northwestern Rural, the Philadelphia Metro, and the Suburban Corridor. This cosmopolitan species generates many complaints and has been implicated as a bridge vector to EEE. While New Jersey experienced very cool days recently, warmer weather and a steady rainfall may provide the conditions for a jump in this species soon.	

Culex Mix - *Multivoltine Culex Species*

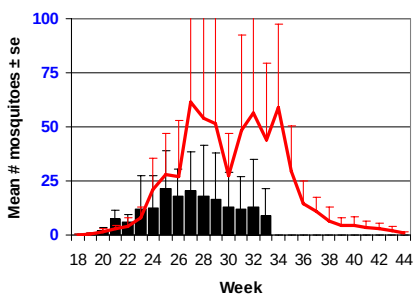
Agricultural



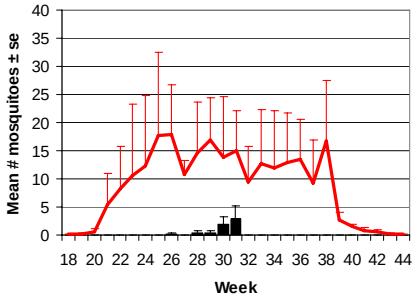
Coastal



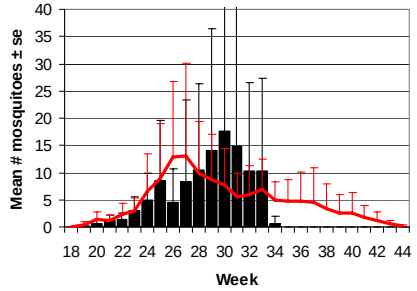
Delaware Bayshore



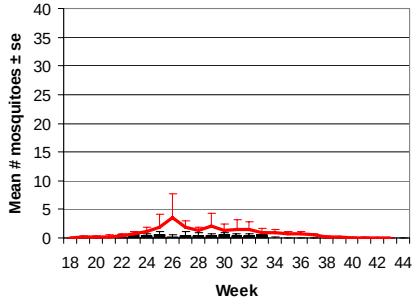
Delaware River Basin



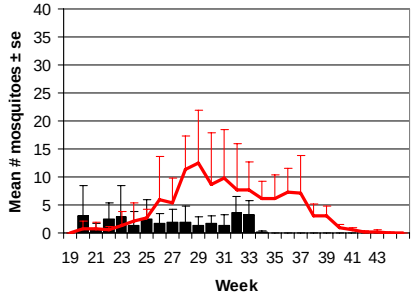
New York Metro



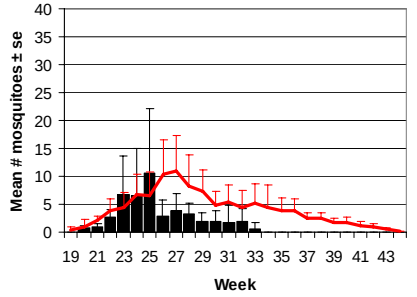
North Central Rural



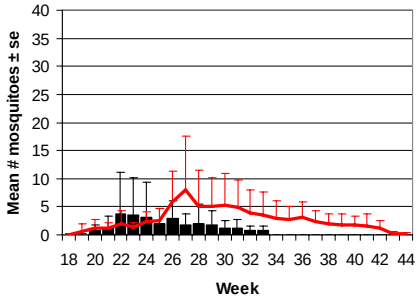
Northwestern Rural



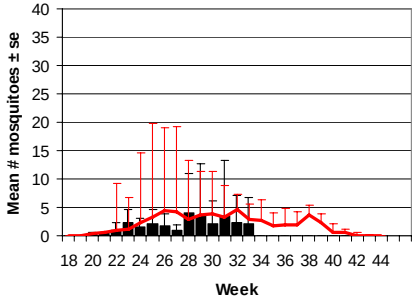
Philadelphia Metro



Pinelands



Suburban Corridor

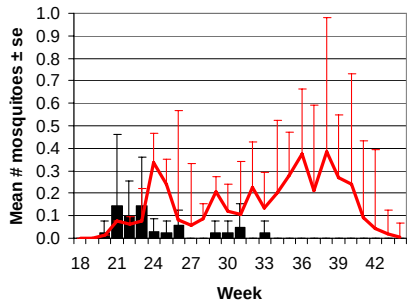


Comments

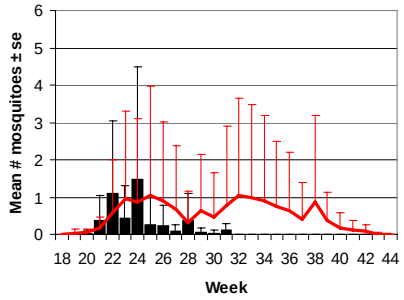
Culex species (*Cx. pipiens, restuans,* and *salinarius*) continue at greater abundance than the historical means in the New York Metropolitan region. For most other regions, *Culex* abundance is beginning to decline as blooded females begin to search for hibernaculae to overwinter in. Positive WN pools of *Culex* mosquitoes are regularly being found throughout the populated corridors of New Jersey, including the Suburban Corridor, the two metropolitan regions as well as along the coast.

Culiseta melanura – Miscellaneous Group

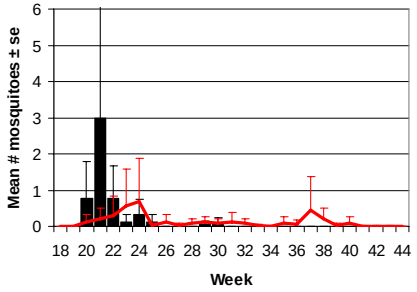
Agricultural



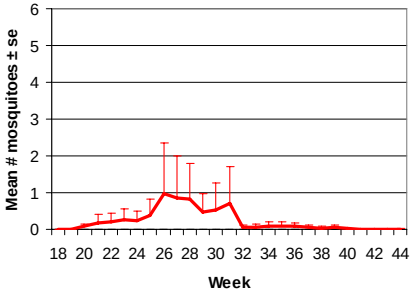
Coastal



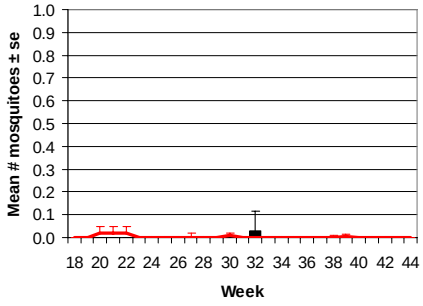
Delaware Bayshore



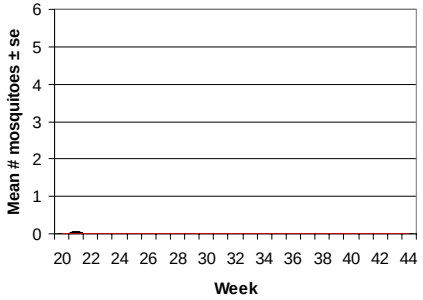
Delaware River Basin



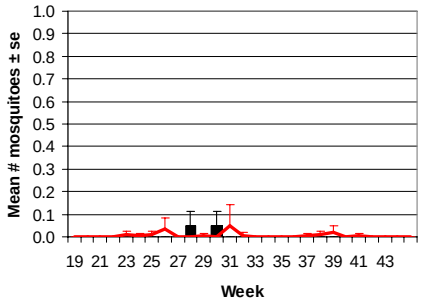
New York Metro



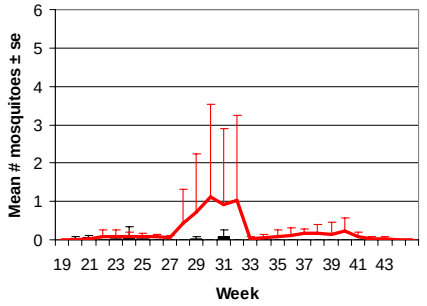
North Central Rural



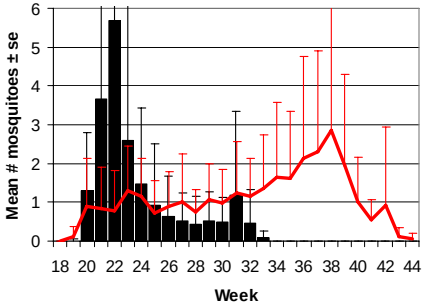
Northwestern Rural



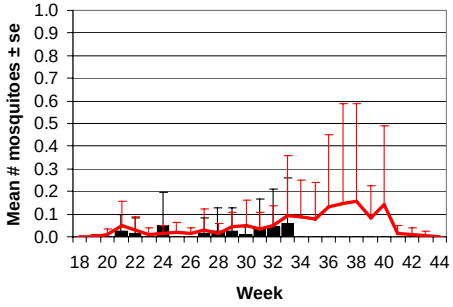
Philadelphia Metro



Pinelands



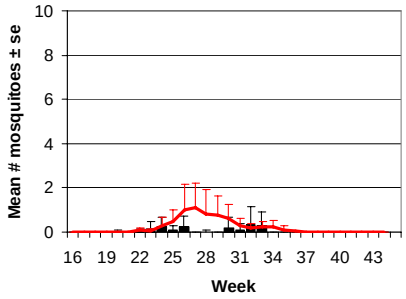
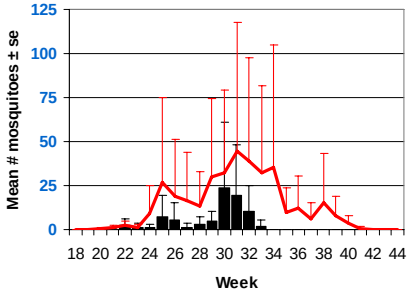
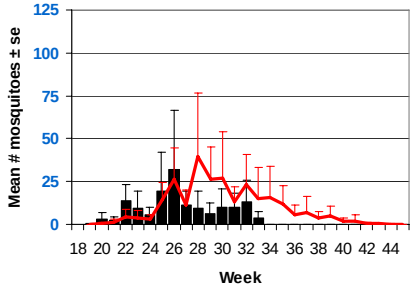
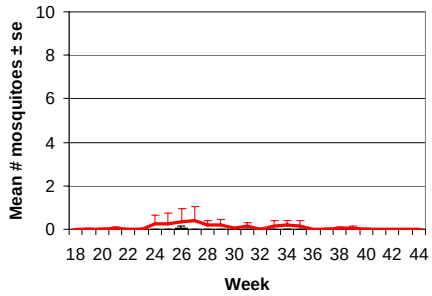
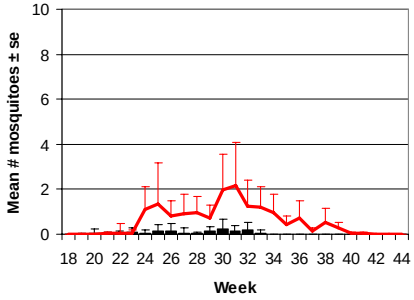
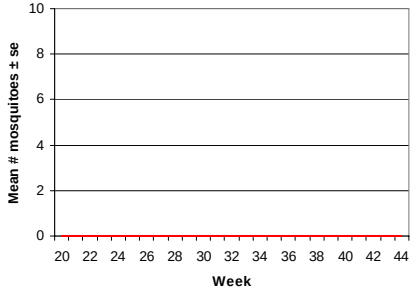
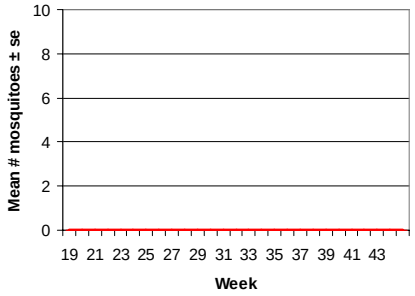
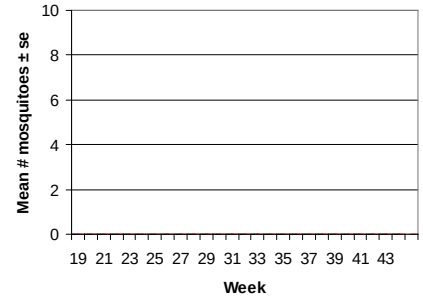
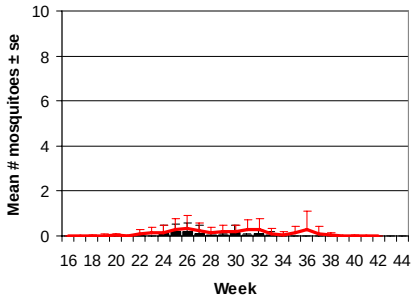
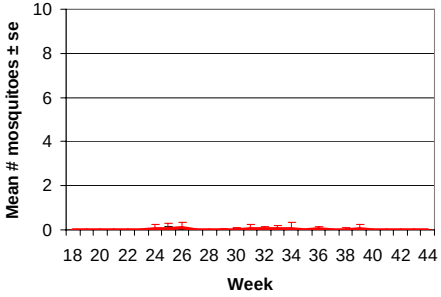
Suburban Corridor



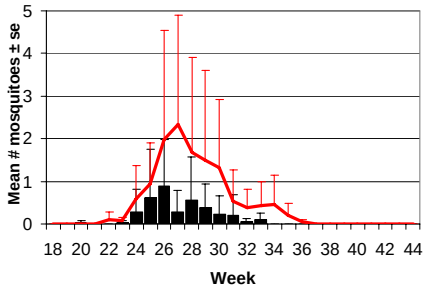
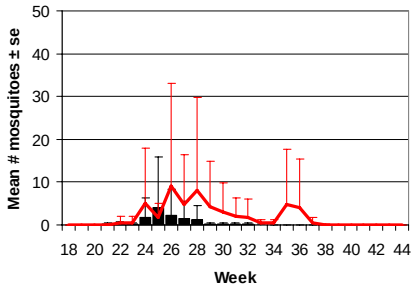
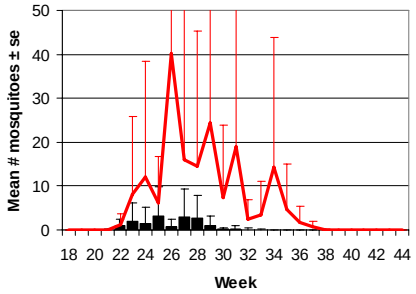
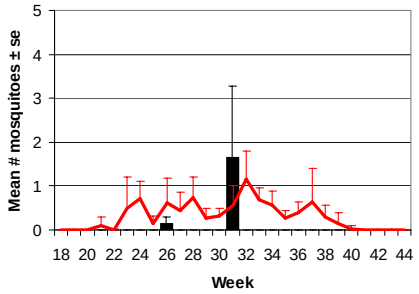
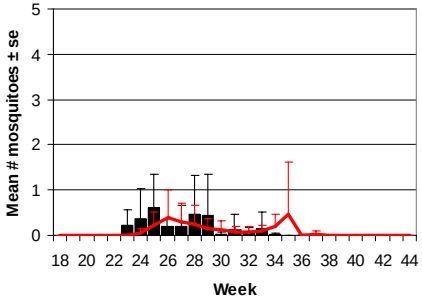
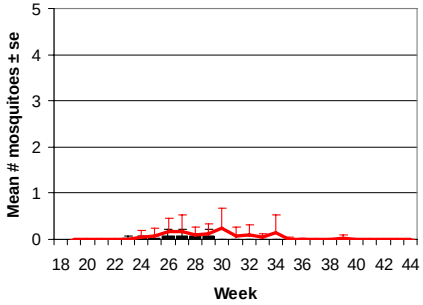
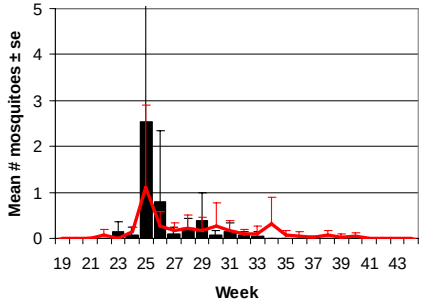
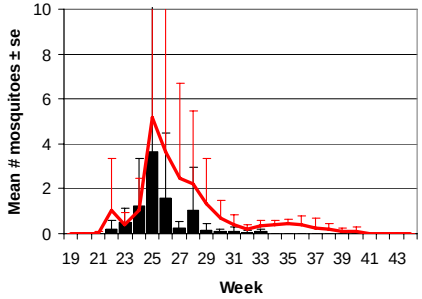
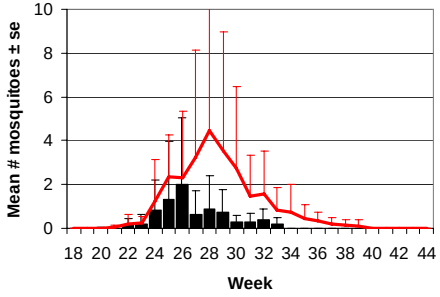
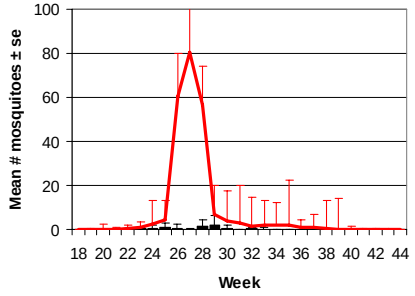
Comments

Culiseta melanura populations in the Pinelands appear to be declining in comparison to historical trends after early season highs. This corresponds with resting box data that suggest more southerly sites are generally experiencing lower population levels. An eastern equine encephalitis positive pool of Cs. melanura was detected at one of the vector surveillance sites. This was the second year that a positive pool was found at a site that showed very low population levels of this mosquito.

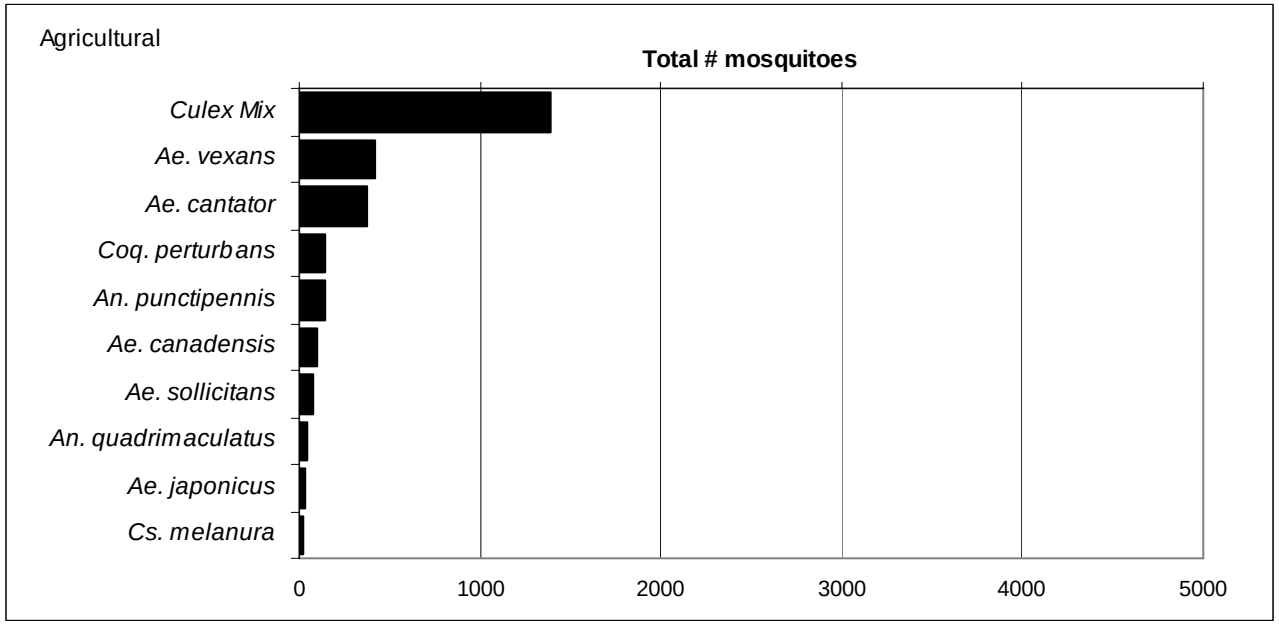
Aedes sollicitans - Salt Marsh Floodwater Species

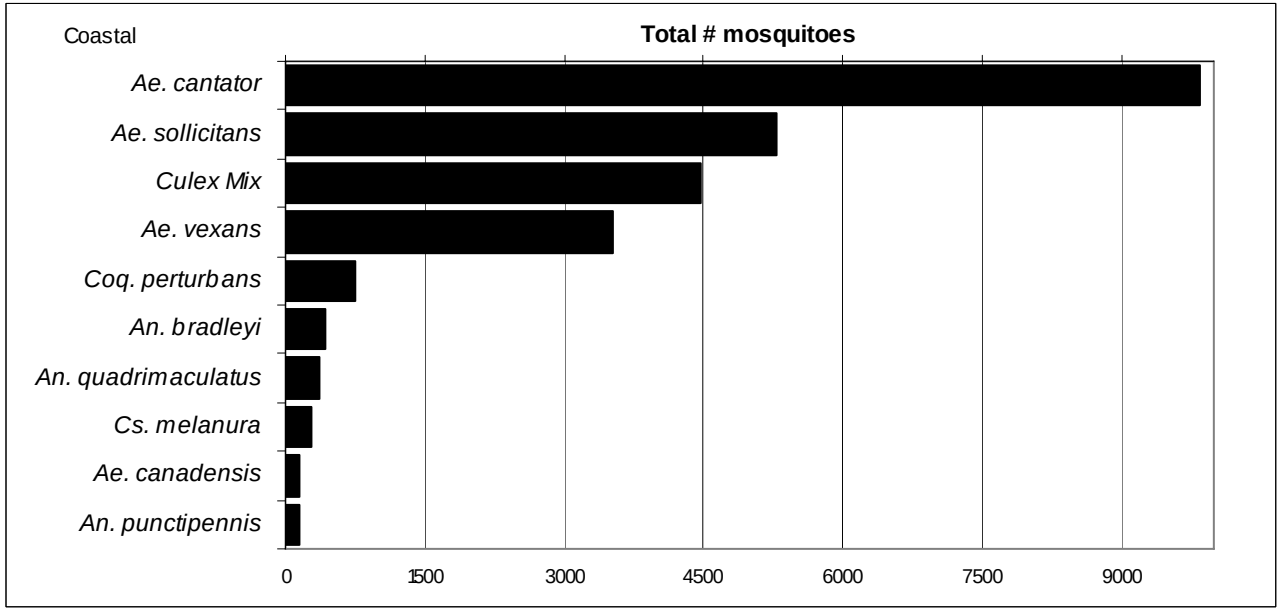
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* appears to have emerged three times in the Coastal and Delaware Bayshore regions. A fourth small emergence is possible before the end of the season. Although the final emergence may not be as large as mid-season broods, complaints may increase as this aggressive mosquito begins biting during the day when people are outside. Migrants into the Agricultural region are mostly from a southern trap located closest to the Delaware Bayshore – the likely source.	

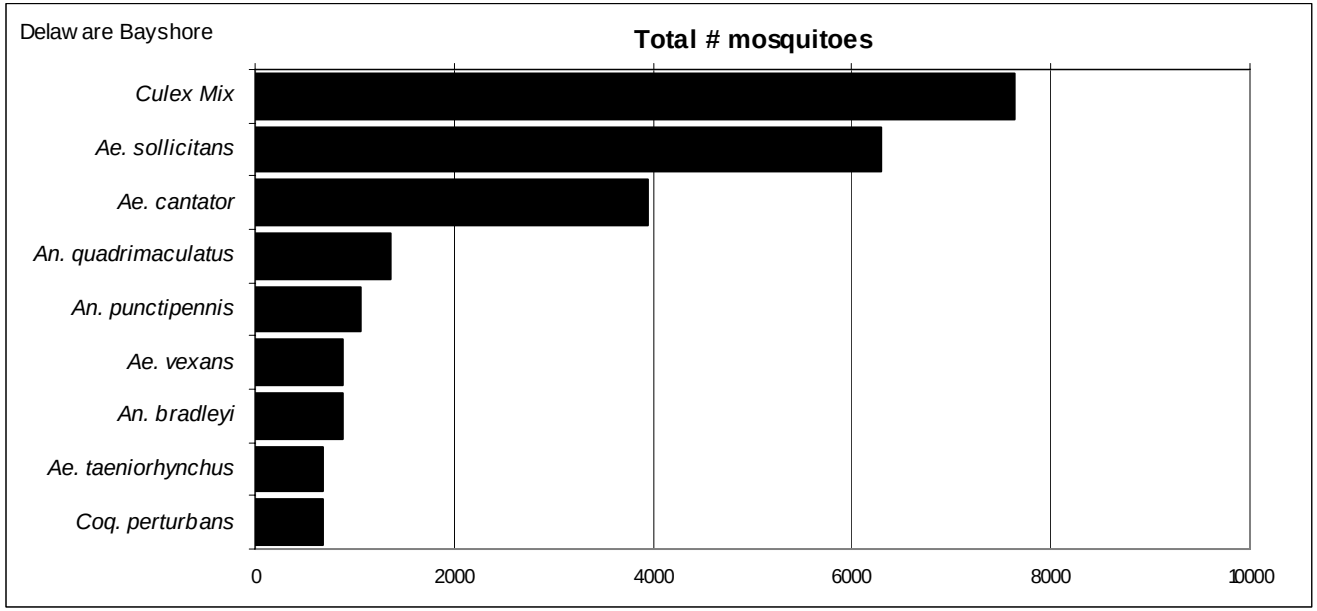
Coquillettidia perturbans – Unique Life History

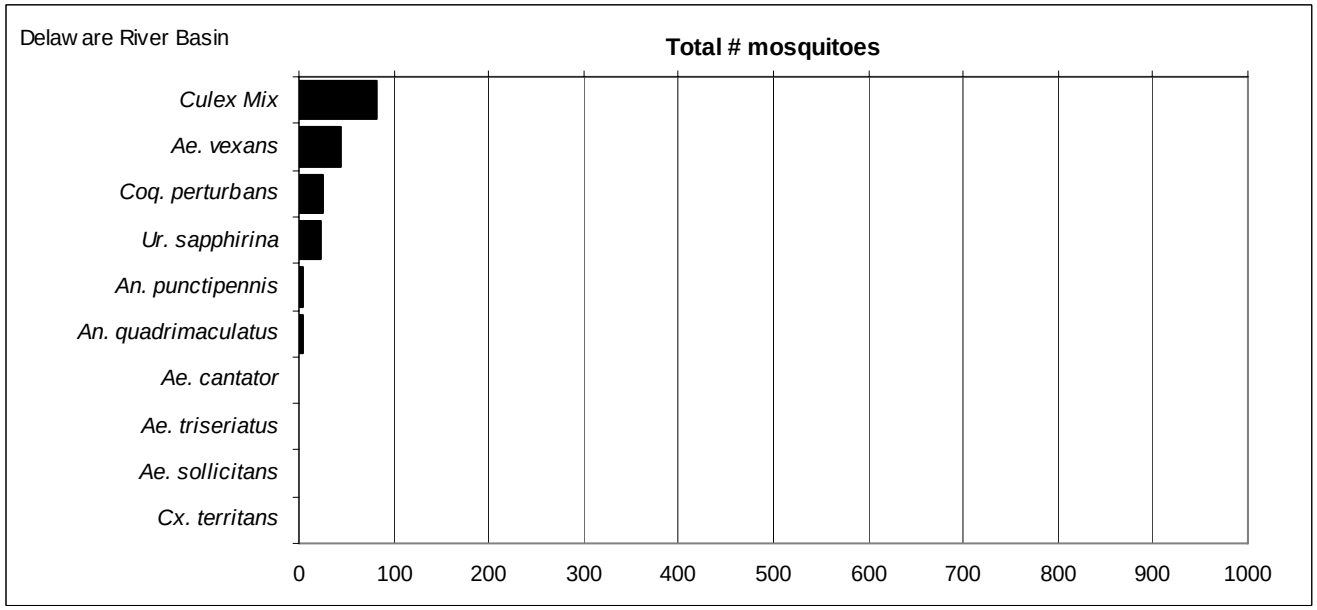
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* numbers are generally decreasing throughout the state. However, numbers are above average in the New York Metropolitan region.	

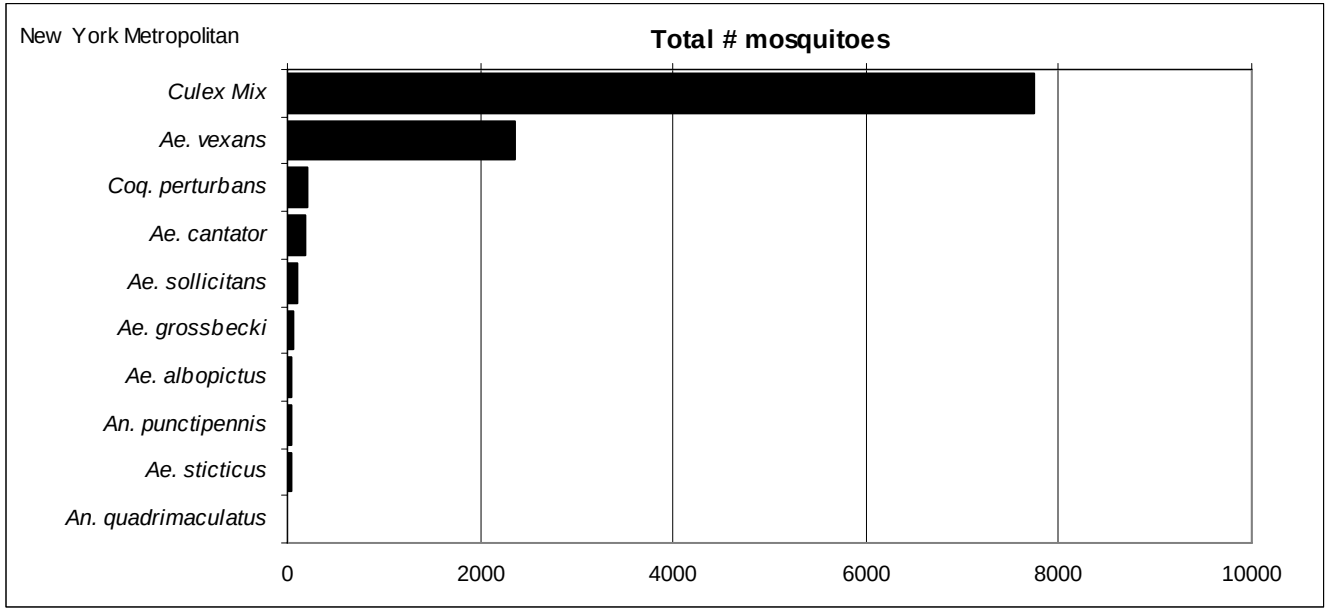
Top Ten cumulative species for each region to date.

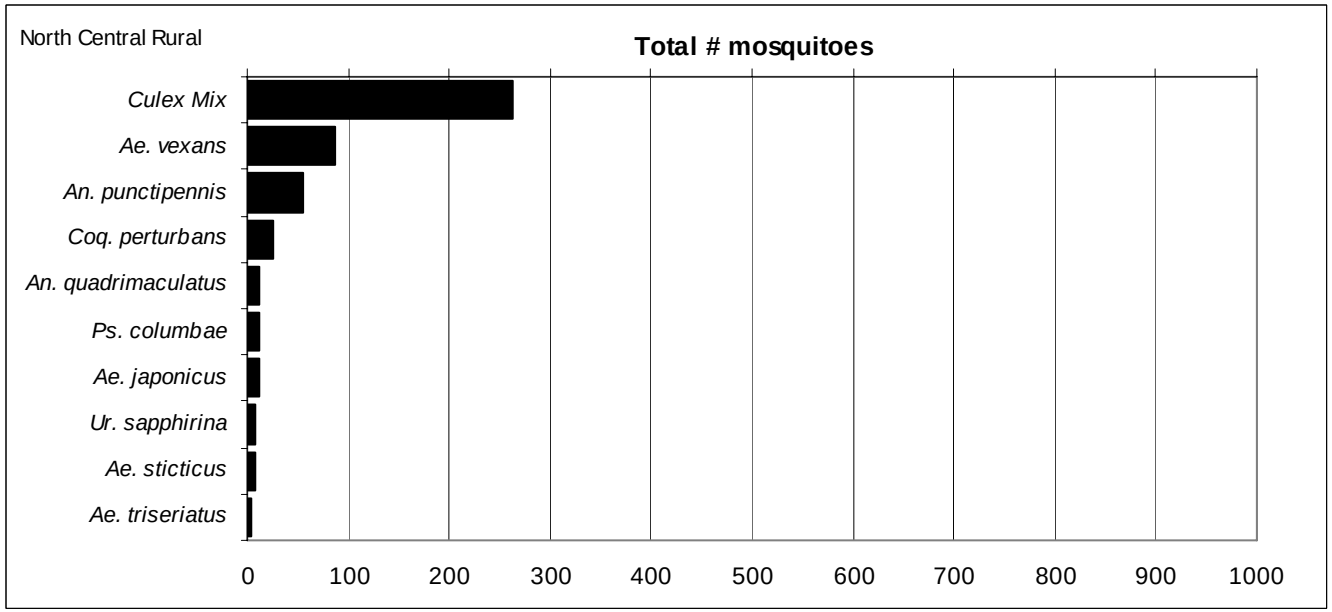


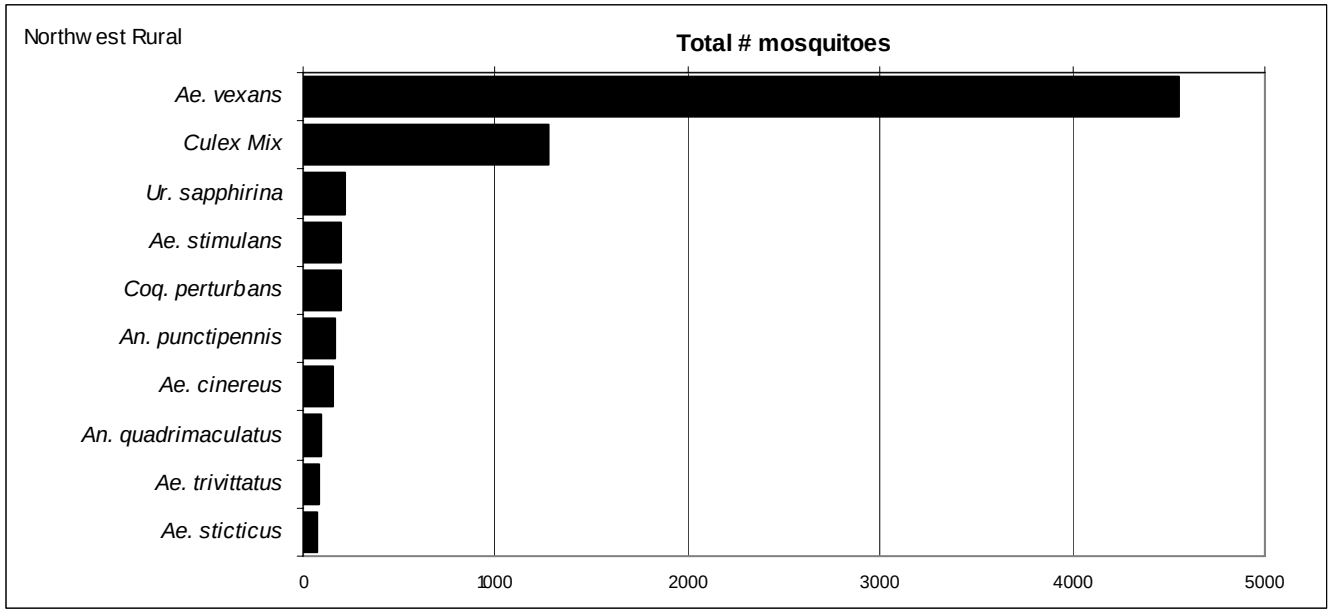


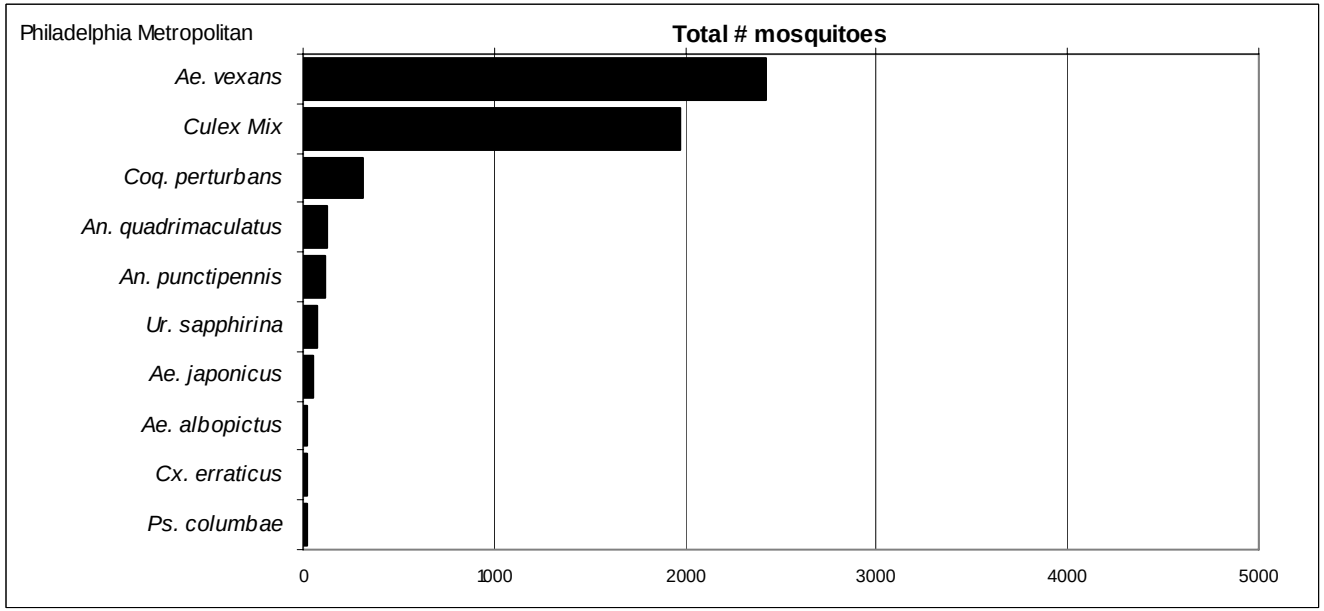

Delaware Bayshore
Total # mosquitoes
Culex Mix
Ae. sollicitans
Ae. cantator
An. quadrimaculatus
An. punctipennis
Ae. vexans
An. bradleyi
Ae. taeniorhynchus
Coq. perturbans
0
2000
4000
6000
8000
10000

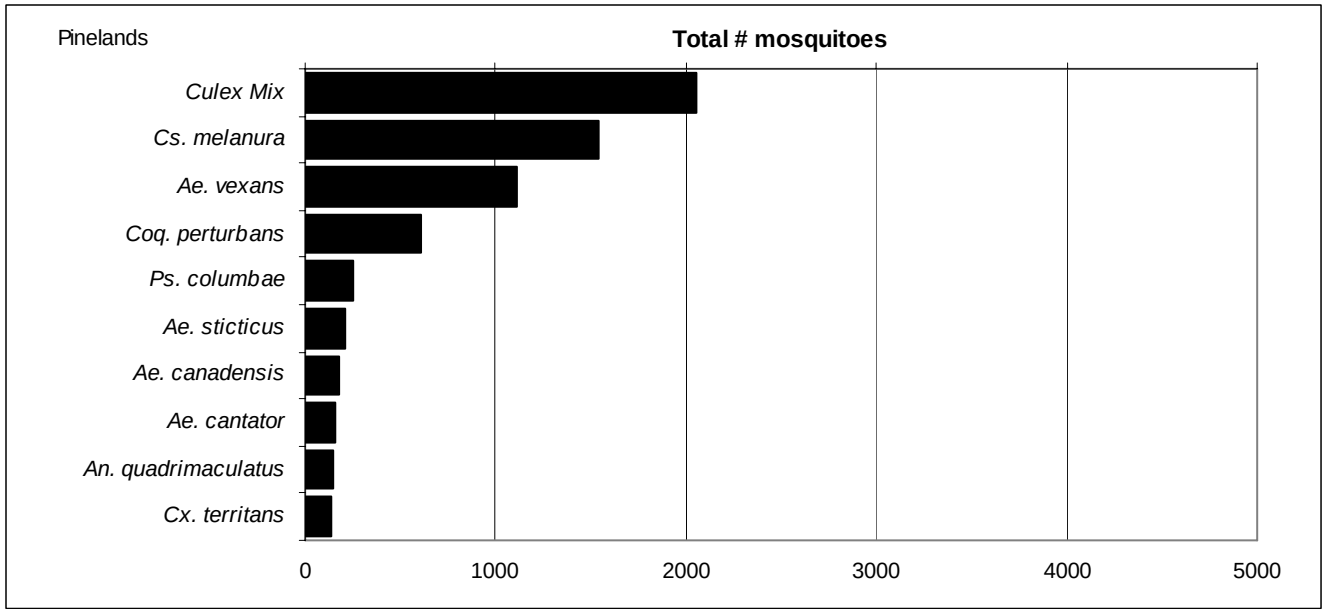

Delaware River Basin
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ur. sapphirina
An. punctipennis
An. quadrimaculatus
Ae. cantator
Ae. triseriatus
Ae. sollicitans
Cx. territans
0
100
200
300
400
500
600
700
800
900
1000

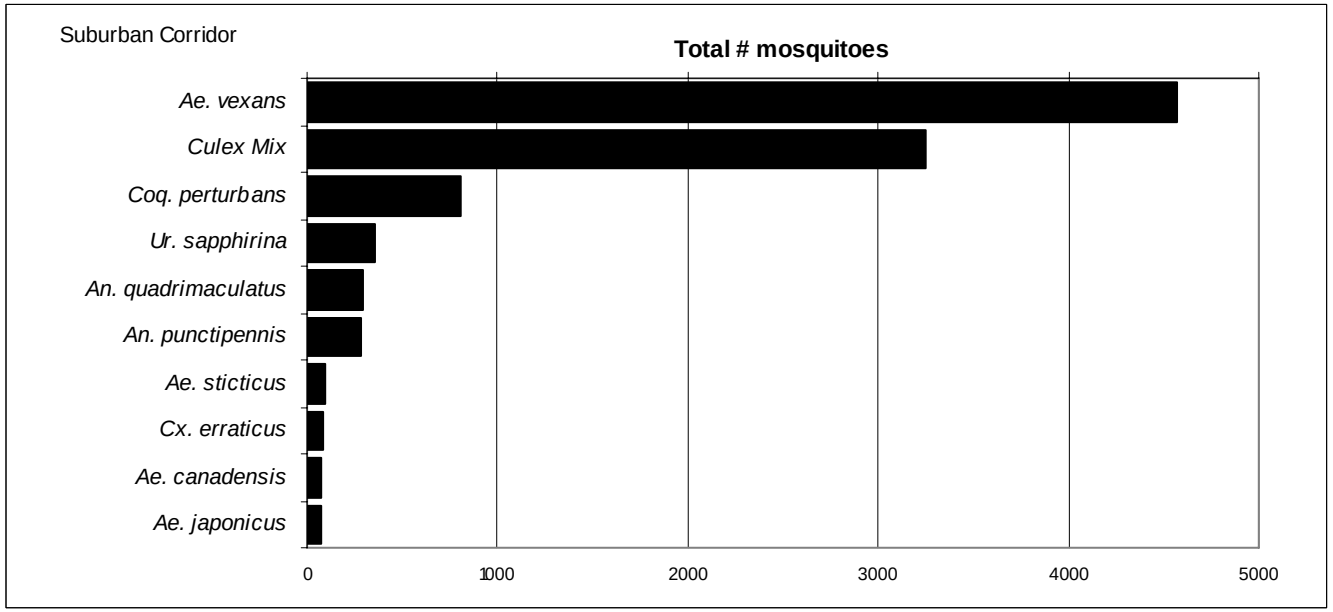

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ae. cantator
Ae. sollicitans
Ae. grossbecki
Ae. albopictus
An. punctipennis
Ae. sticticus
An. quadrimaculatus
0
2000
4000
6000
8000
10000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
An. punctipennis
Coq. perturbans
An. quadrimaculatus
Ps. columbae
Ae. japonicus
Ur. sapphirina
Ae. sticticus
Ae. triseriatus
0
100
200
300
400
500
600
700
800
900
1000


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


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
An. quadrimaculatus
An. punctipennis
Ur. sapphirina
Ae. japonicus
Ae. albopictus
Cx. erraticus
Ps. columbae
0
1000
2000
3000
4000
5000


Pinelands
Total # mosquitoes
Culex Mix
Cs. melanura
Ae. vexans
Coq. perturbans
Ps. columbae
Ae. sticticus
Ae. canadensis
Ae. cantator
An. quadrimaculatus
Cx. territans
0
1000
2000
3000
4000
5000


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