NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 16 September to 22 September, 2007, Week 38

Prepared by Lisa M. Reed, Scott Crans and Dina Fonseca
Center for Vector Biology
Rutgers University, New Brunswick, NJ

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.

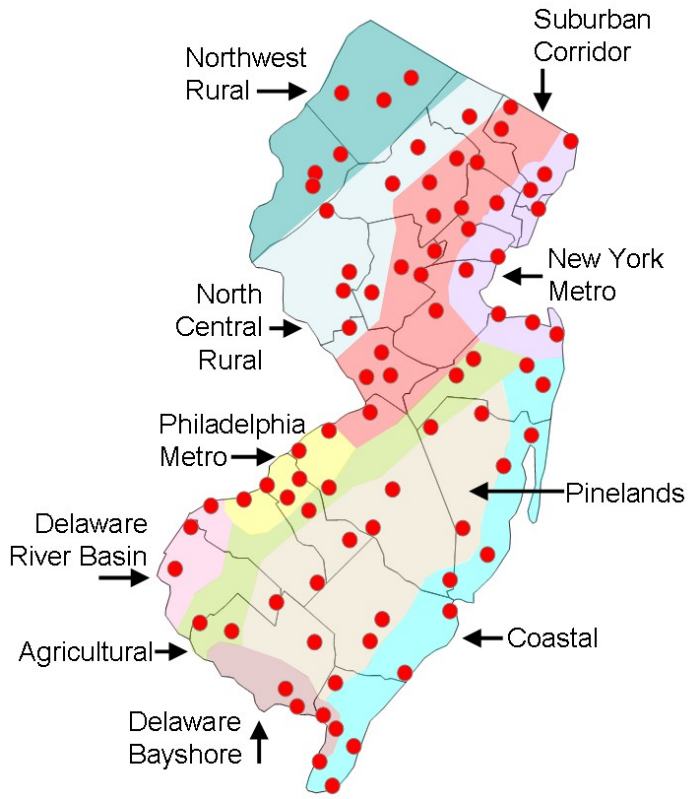


Figure 1: Ten regions selected for the New Jersey Adult Mosquito Surveillance Program overlaid with county borders. Trap locations indicated by red-filled circles.

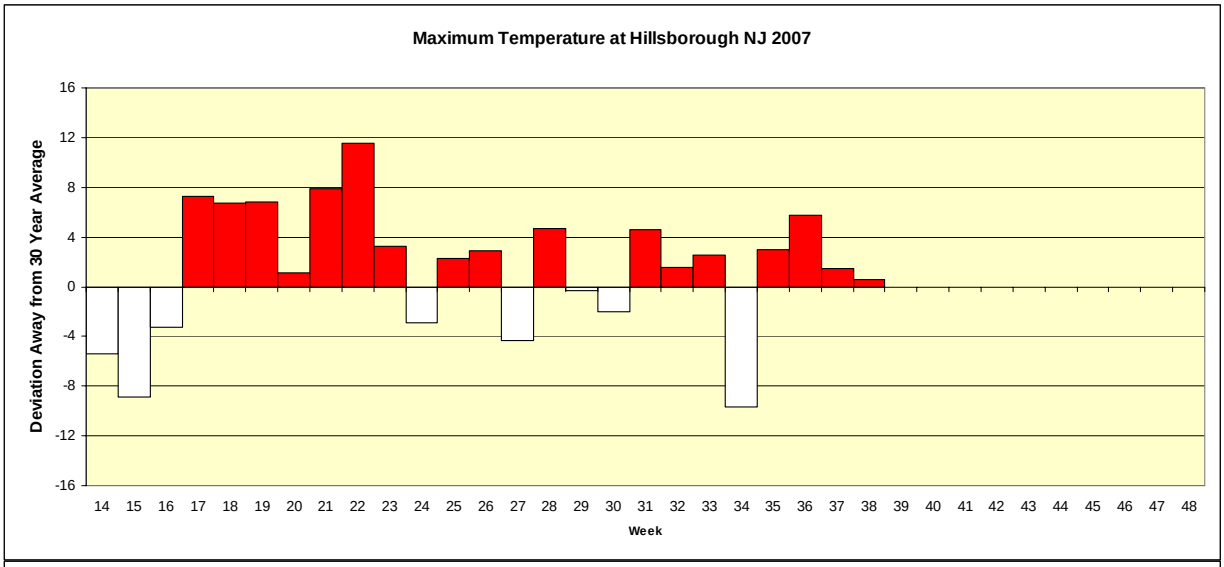
Summary table – Week 38

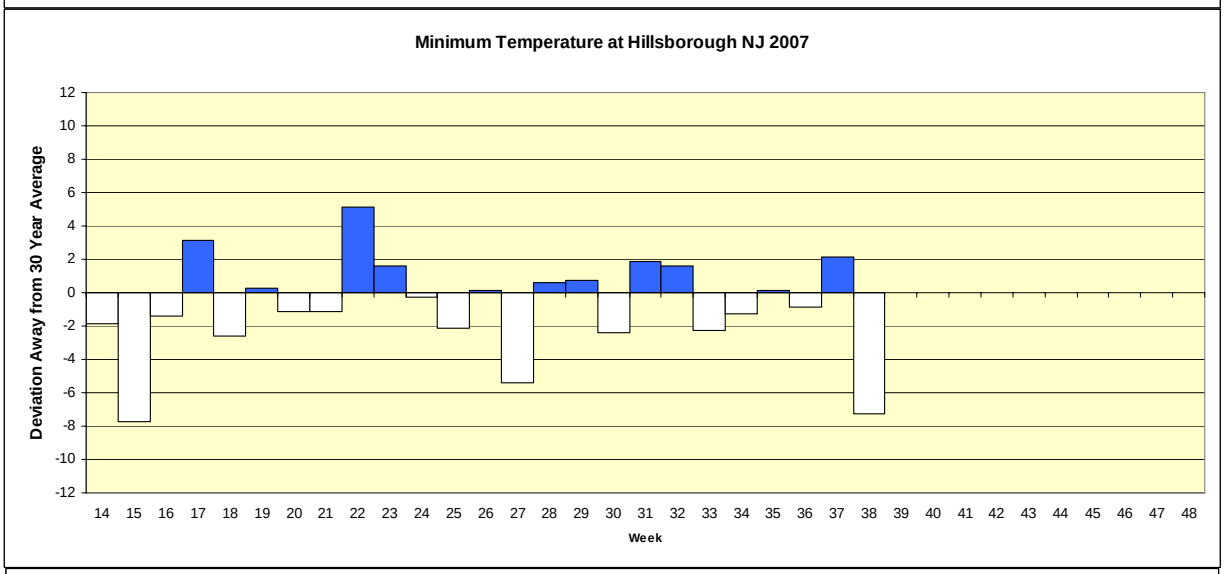
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**0.10**	**3.08**	**0**	**1.12**	**8.92**	**0**	**0.00**	**0.00**	**0**	**0.19**	**0.00**	
Coastal	**0.54**	**4.34**	**0**	**0.84**	**2.33**	**0**	**0.00**	**0.08**	**0**	**0.78**	**18.63**	**0**
Delaware Bayshore	**0.02**	**0.06**	**0**	**1.93**	**6.17**	**0**	**0.00**	**0.05**	**0**	**0.71**	**3.47**	**0**
Delaware River Basin	**0.00**	**6.40**	**0**	**0.00**	**16.89**	**0**	**0.00**	**0.29**	**0**	**0.00**	**0.04**	**0**
New York Metro	**0.30**	**1.13**	**0**	**2.16**	**3.58**	**0**	**0.01**	**0.00**		**0.01**	**0.51**	**0**
North Central Rural	**0.00**	**0.35**	**0**	**0.04**	**0.20**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.03**	**12.16**	**0**	**0.00**	**2.43**	**0**	**0.00**	**0.06**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**1.51**	**9.59**	**0**	**0.38**	**2.47**	**0**	**0.00**	**0.19**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.19**	**1.22**	**0**	**0.34**	**1.78**	**0**	**0.00**	**0.16**	**0**	**0.01**	**0.05**	**0**
Suburban Corridor	**1.03**	**2.14**	**0**	**0.70**	**2.06**	**0**	**0.00**	**0.37**	**0**	**0.00**	**0.02**	**0**

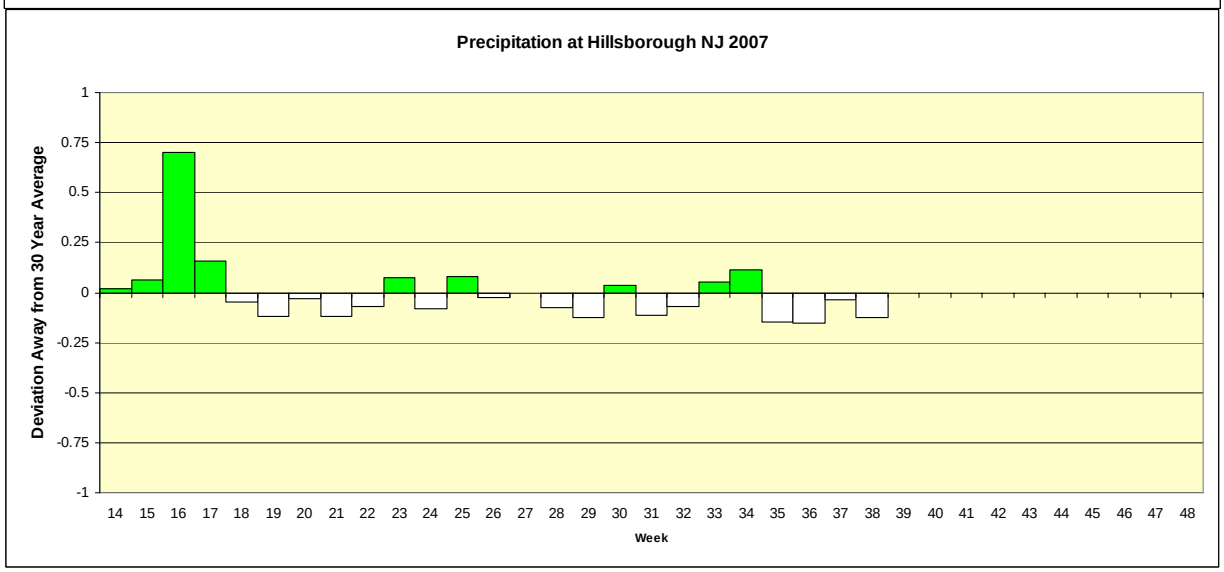
* Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference by 3 (orange) and greater than 150% increase by 4 (red). White (blank) cells denote increases from an historic zero and thus no value can be appropriately given. These end of year changes are generally minor unless otherwise noted.

State Summary: The table above indicates that mosquitoes from the four pestiferous species continue to decline throughout the state. *Cq. perturbans* is higher than the historical average in the New York Metro region, but this difference is minor and at the end of the season for this species.

Climate Deviations

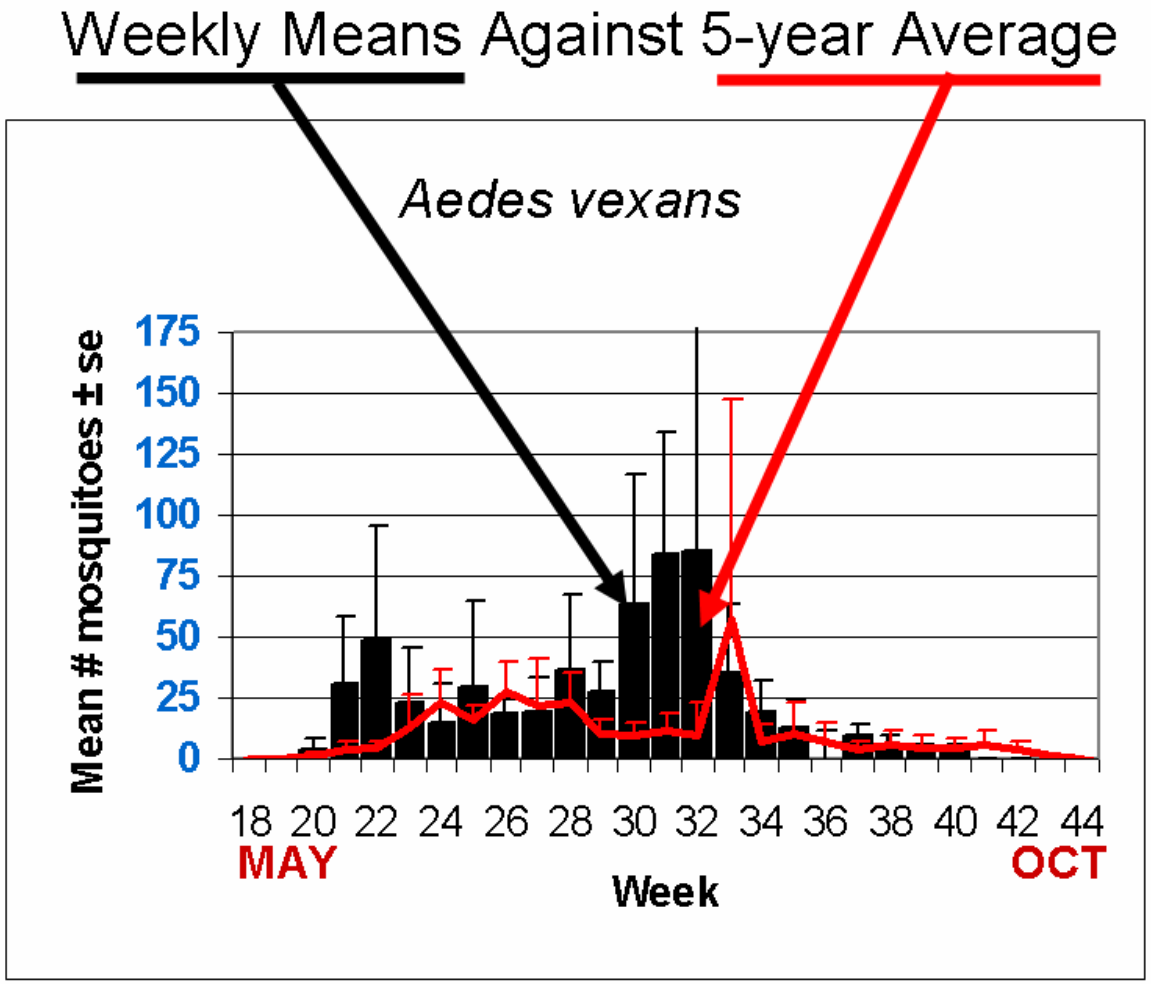




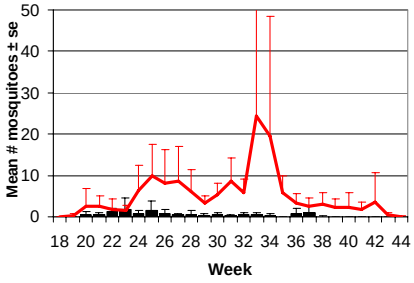
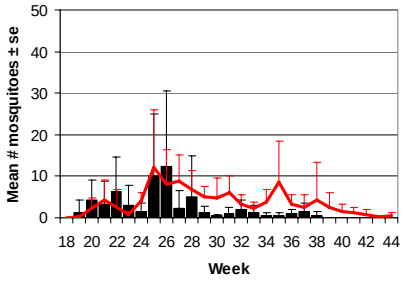
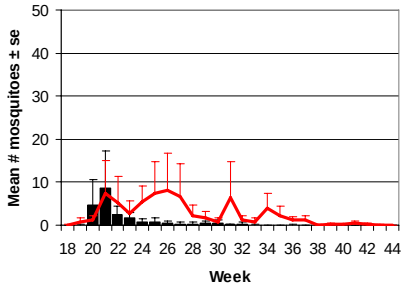
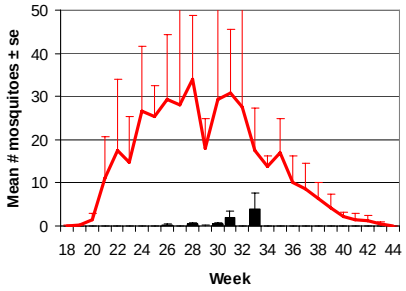
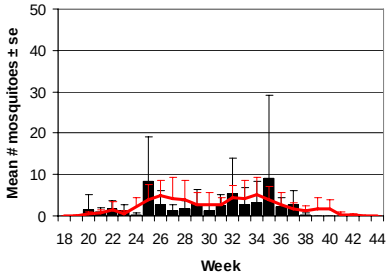
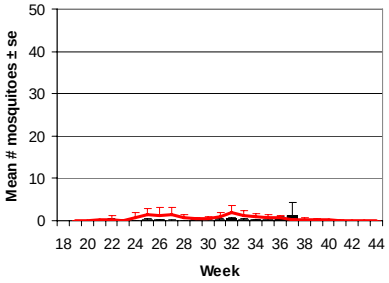
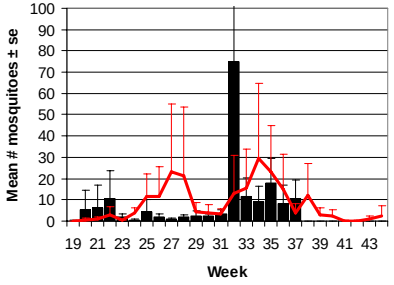
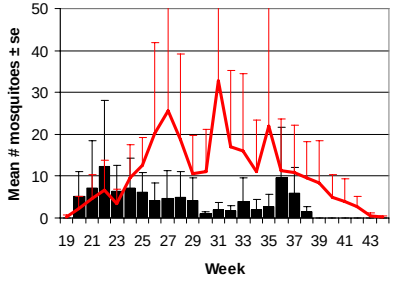
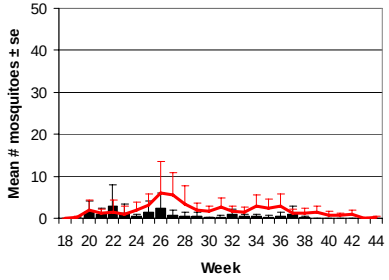
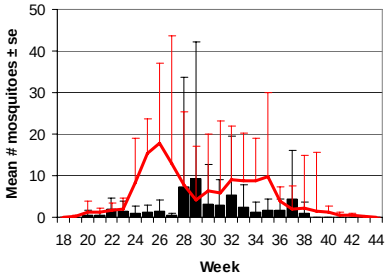


The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data is from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist)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

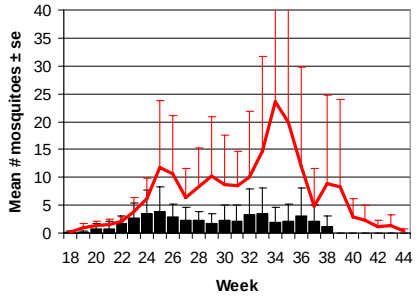
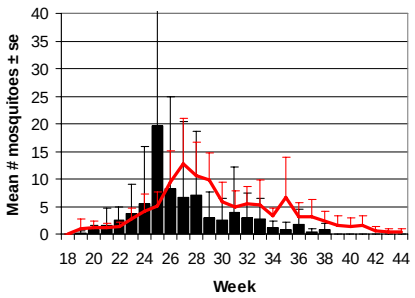
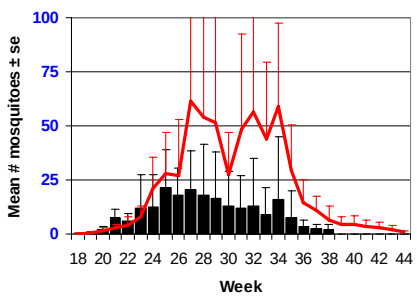
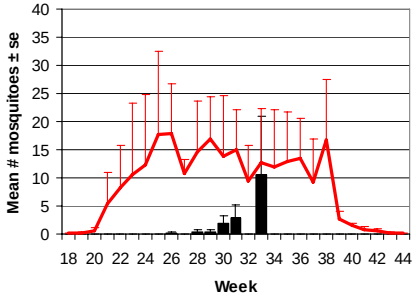
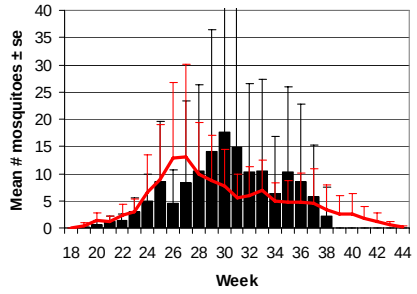
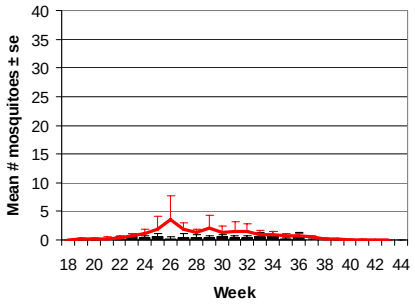
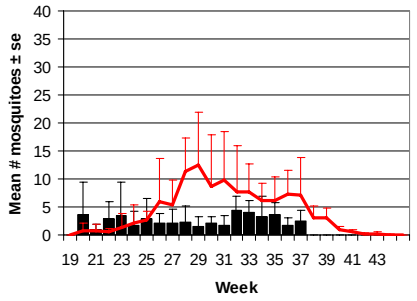
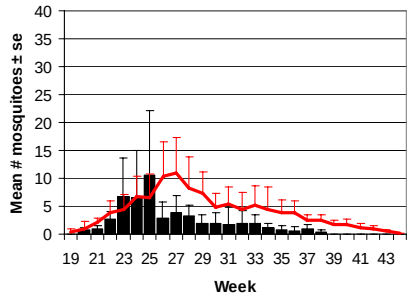
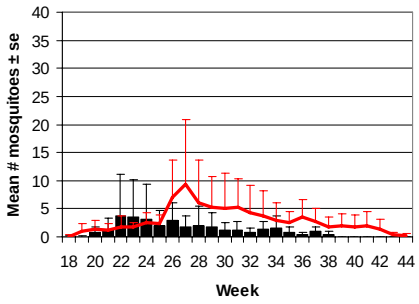
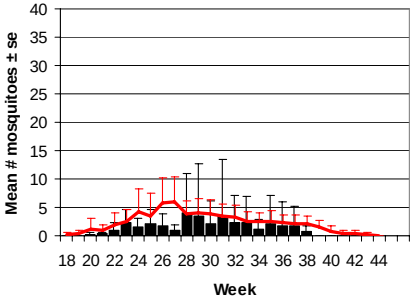
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 36 are from Atlantic, Burlington, Camden, Cumberland, Essex, Hudson, Mercer, Middlesex, Monmouth, Ocean, Passaic, Union and Warren counties.



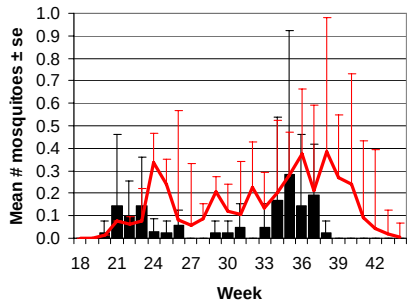
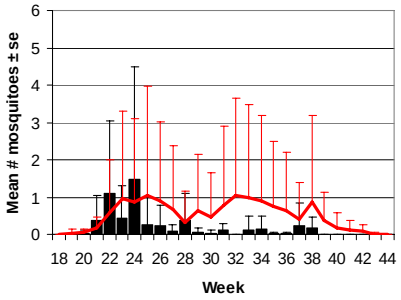
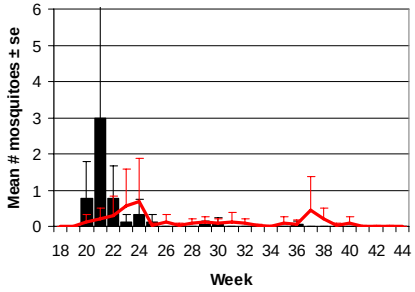
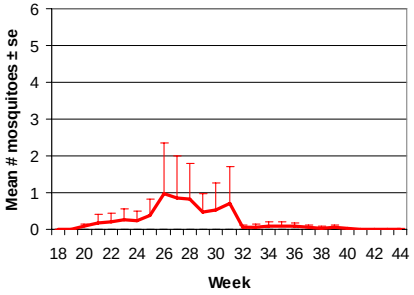
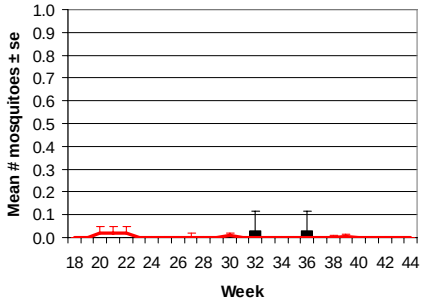
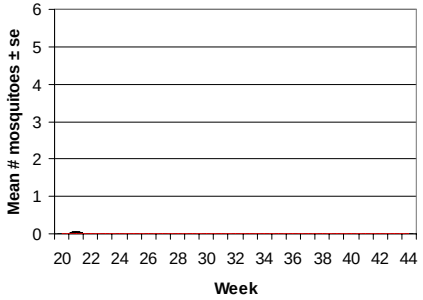
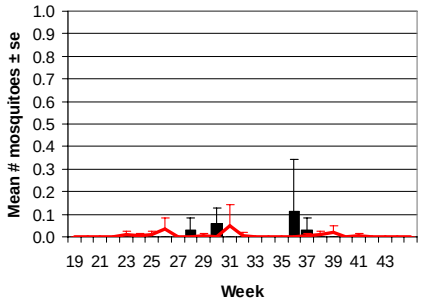
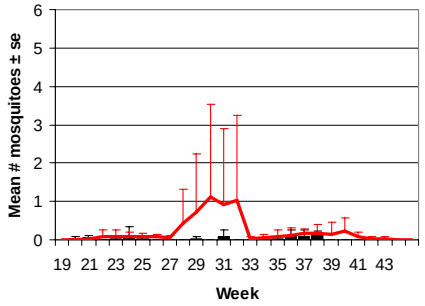
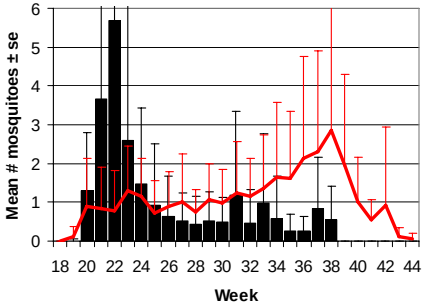
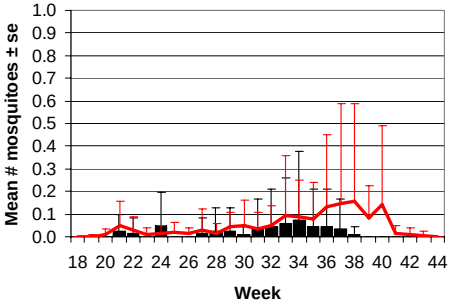
Aedes vexans - Fresh Floodwater Species

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations are on the wane. Nighttime temperatures are dropping, and rainfall has been limited, both reducing the number of adults on the wing.	

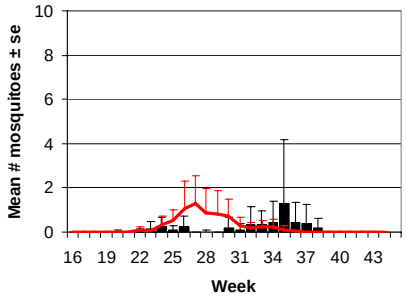
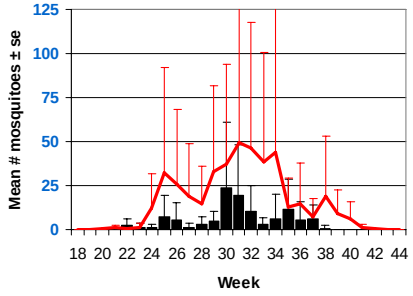
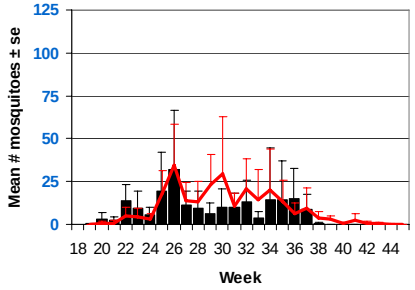
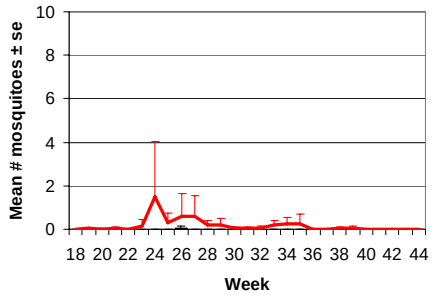
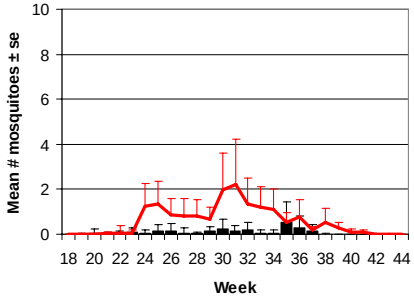
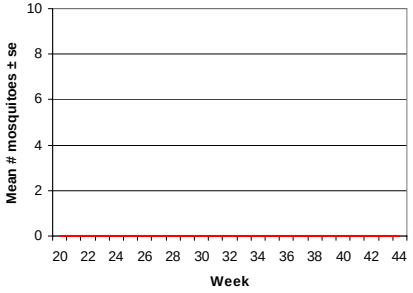
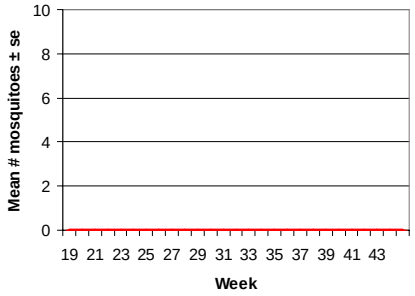
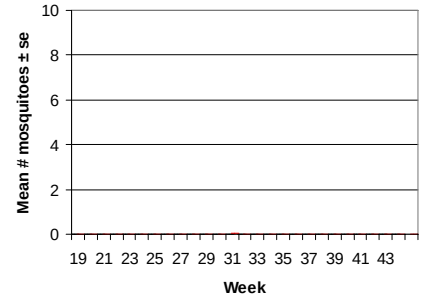
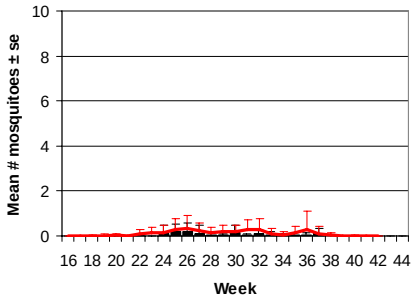
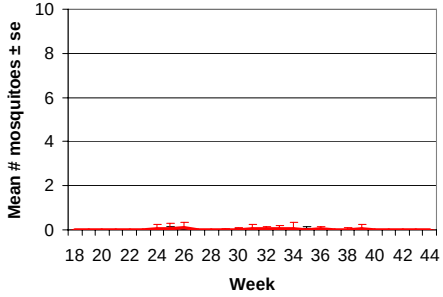
Culex Mix - Multivoltine *Culex* Species

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 to decline and all regions continue to have lower than historical abundances. *Culex salinarius*, the “Salt Marsh Culex,” is more likely to be found in brackish waters or impoundments such as dredge spoils than in the open salt marsh. This species is cosmopolitan in its diet, and will include birds and mammals and is an efficient vector of SLE as well as WN. This year, West Nile has been found in several pools of *Cx. salinarius* when previously, there has been little evidence of involvement. These pools have been located along areas of high human populations and thus this species warrants a closer examination.	

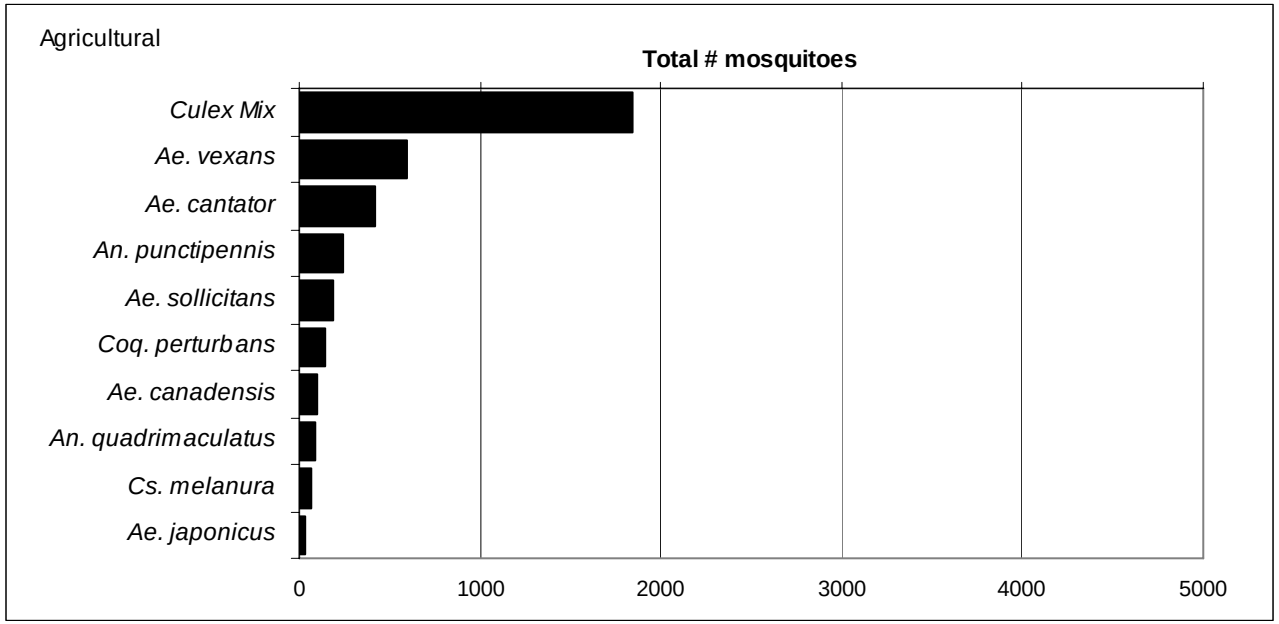
Culiseta melanura – Miscellaneous Group

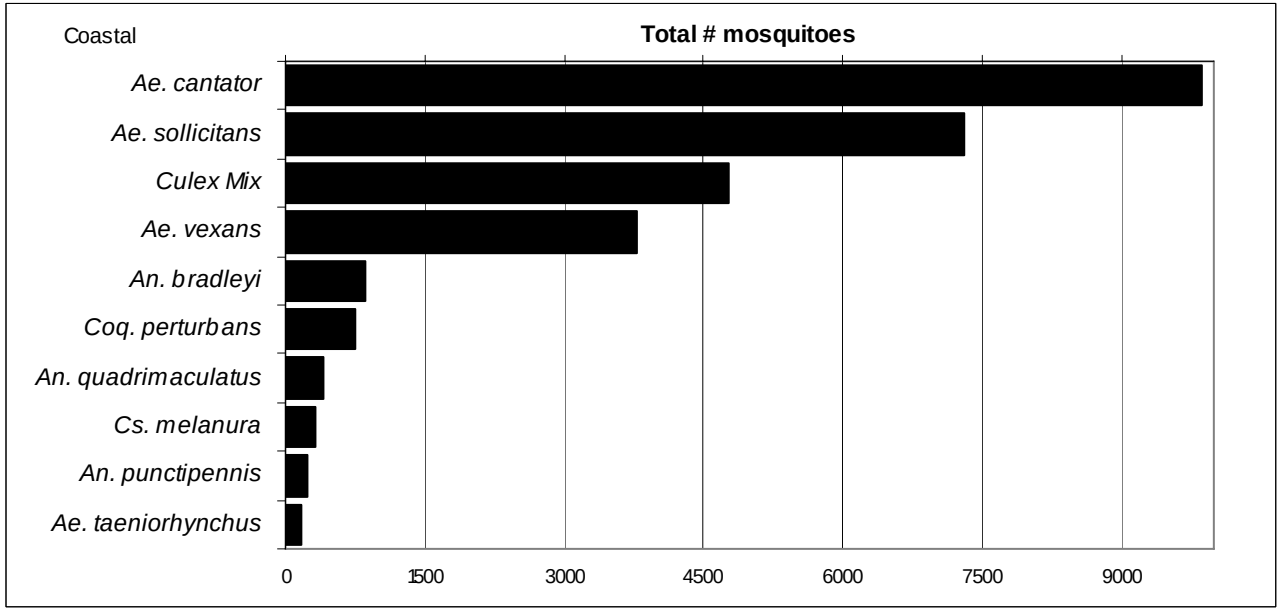
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura* populations continue to maintain or decline as the season draws closer to the end. Despite the lower mid to late season abundances, enough of this primary enzootic vector of eastern equine encephalitis found avian bloodmeals to produce moderately widespread activity of the virus.	

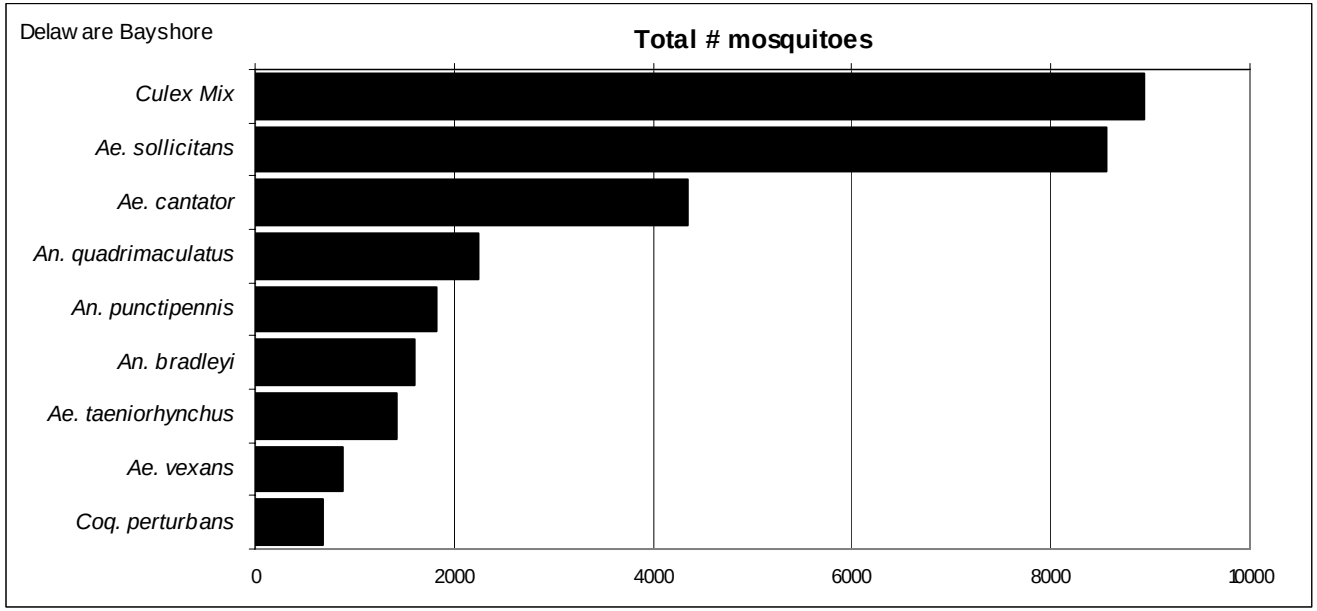
Aedes sollicitans - Salt Marsh Floodwater Species

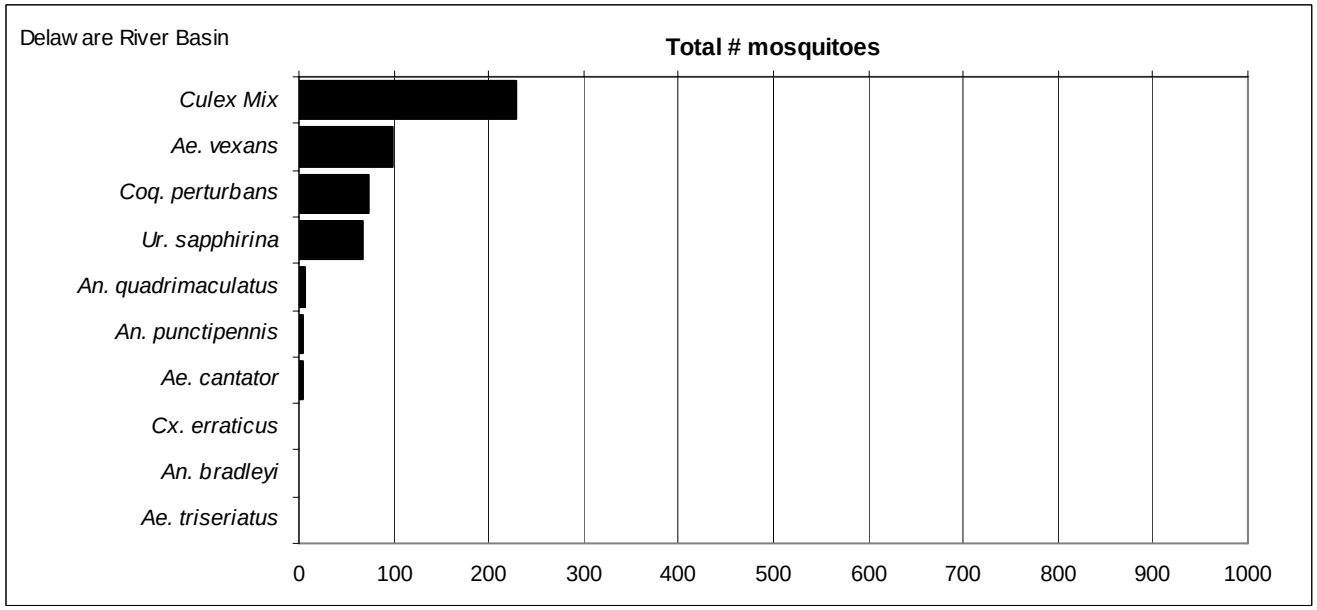
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* appears to be on the decline. The current full moon occurred on the 26th of September. Under optimal temperature, *Ae. sollicitans* eggs that had been deposited and dried in suitable larval habitat within saltmeadow cordgrass *(Spartina patens)* would hatch and larvae emerge in as little as 5 days. Cooler temperatures will delay this emergence and while this species may last through October (and be more noticeable as they change hostseeking behavior), population peaks from significant emergences should be over.	

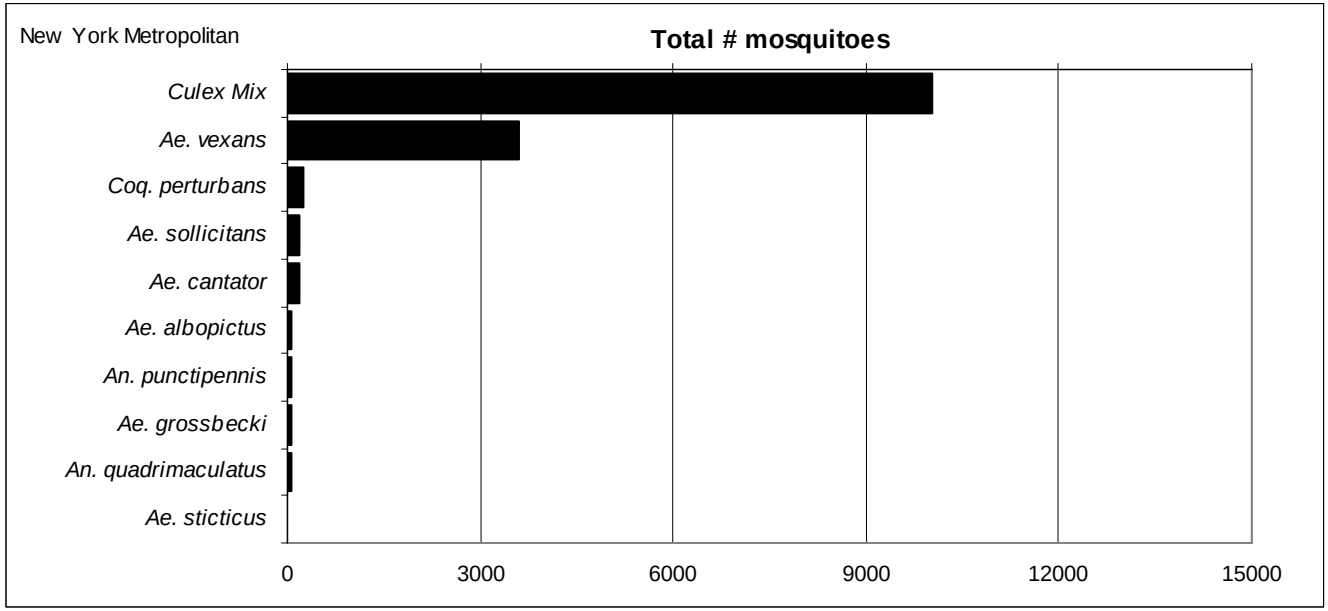
Top Ten cumulative species for each region to date.

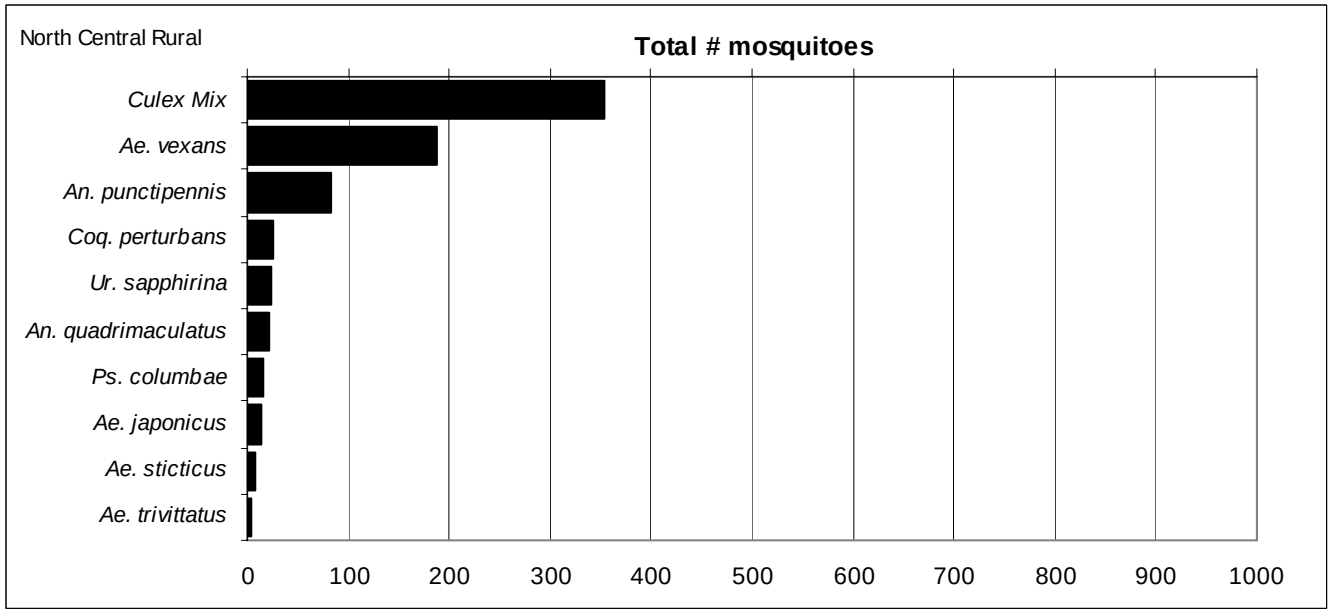


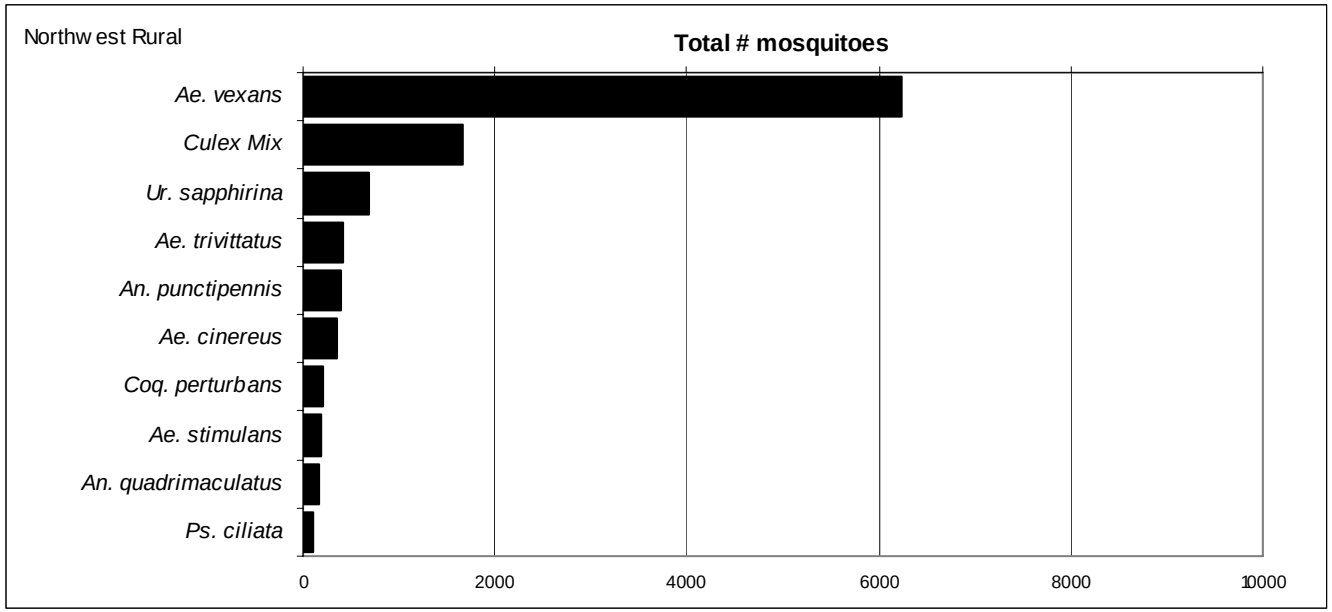


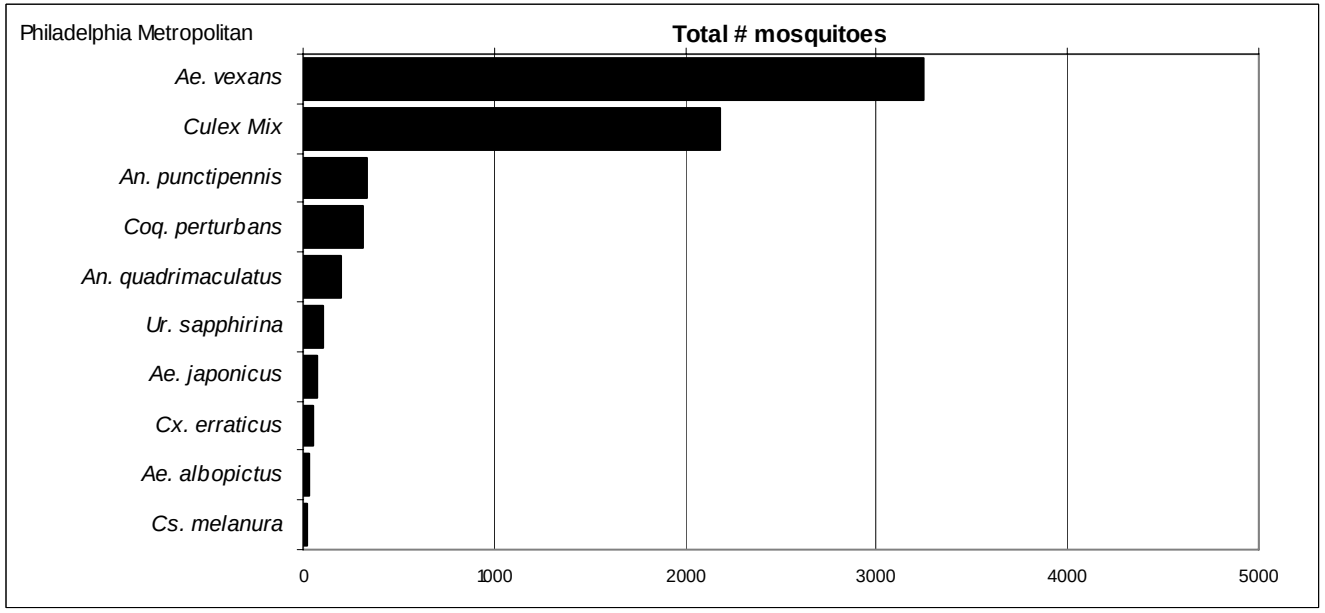

Delaware Bayshore
Total # mosquitoes
Culex Mix
Ae. sollicitans
Ae. cantator
An. quadrimaculatus
An. punctipennis
An. bradleyi
Ae. taeniorhynchus
Ae. vexans
Coq. perturbans
0
2000
4000
6000
8000
10000

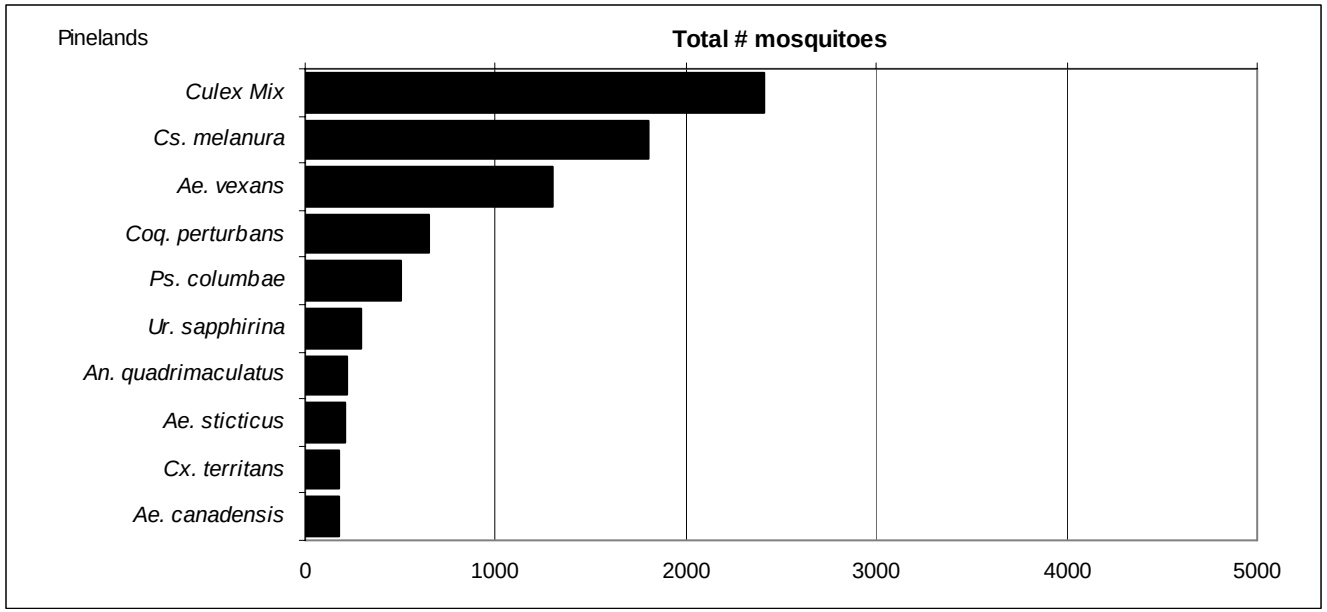

Delaware River Basin
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ur. sapphirina
An. quadrimaculatus
An. punctipennis
Ae. cantator
Cx. erraticus
An. bradleyi
Ae. triseriatus
0
100
200
300
400
500
600
700
800
900
1000

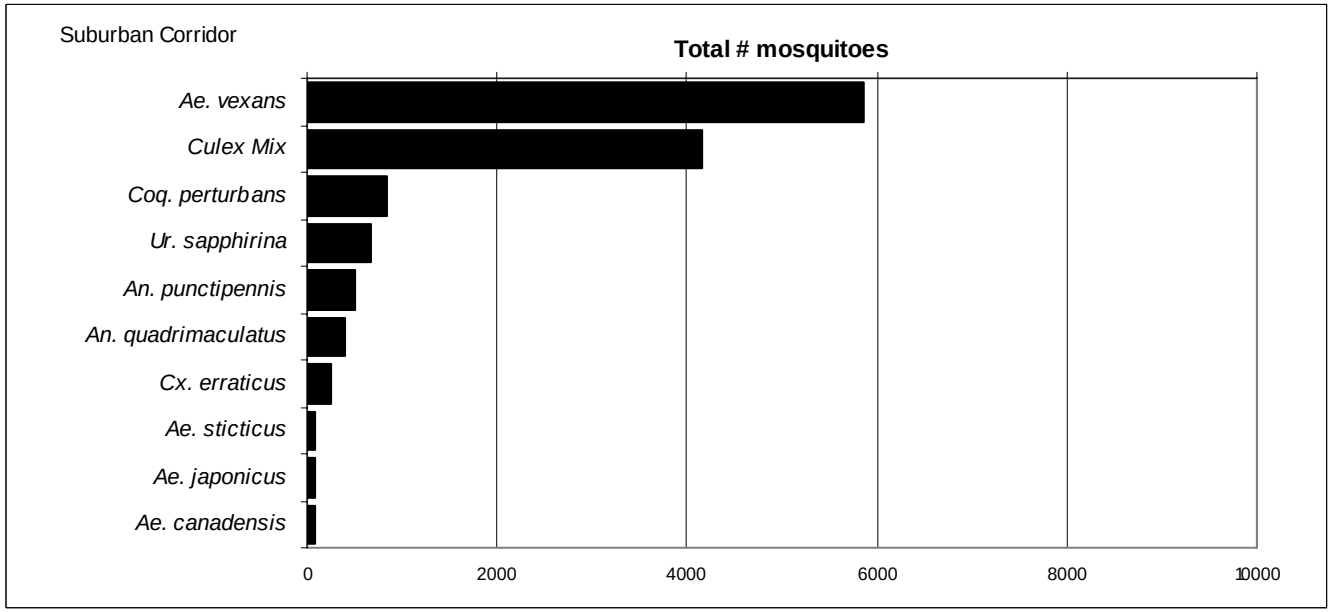

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ae. sollicitans
Ae. cantator
Ae. albopictus
An. punctipennis
Ae. grossbecki
An. quadrimaculatus
Ae. sticticus
0
3000
6000
9000
12000
15000


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


Northwest Rural
Total # mosquitoes
Ae. vexans
Culex Mix
Ur. sapphirina
Ae. trivittatus
An. punctipennis
Ae. cinereus
Coq. perturbans
Ae. stimulans
An. quadrimaculatus
Ps. ciliata
0
2000
4000
6000
8000
10000


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


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


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
Coq. perturbans
Ur. sapphirina
An. punctipennis
An. quadrimaculatus
Cx. erraticus
Ae. sticticus
Ae. japonicus
Ae. canadensis
0
2000
4000
6000
8000
10000