RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 13 September to 19 September 2009, CDC Weeks 37

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Center for Vector Biology

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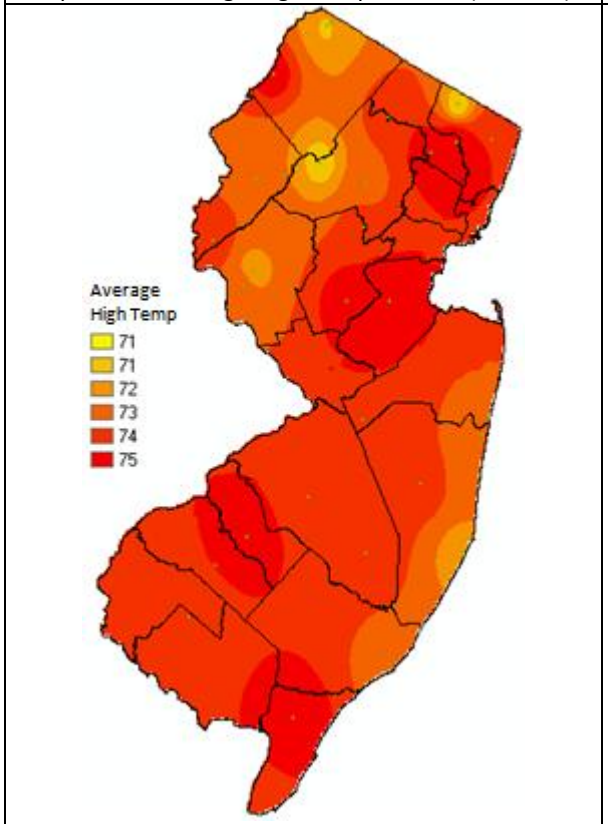
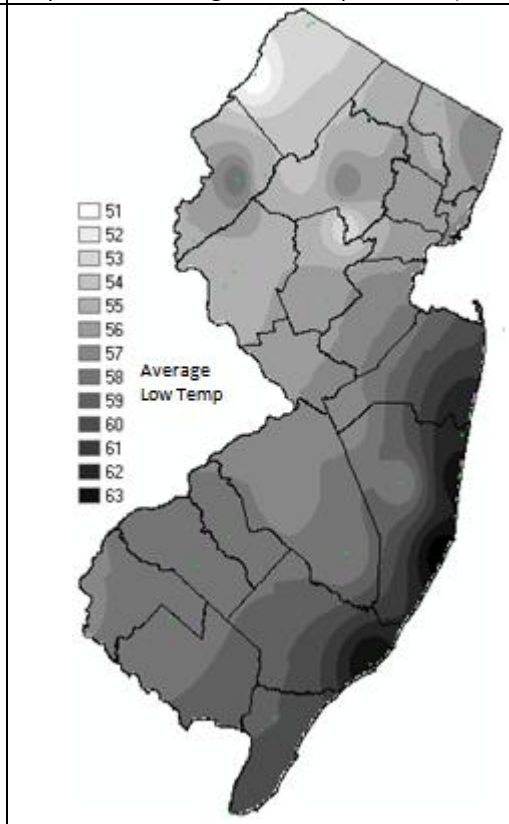
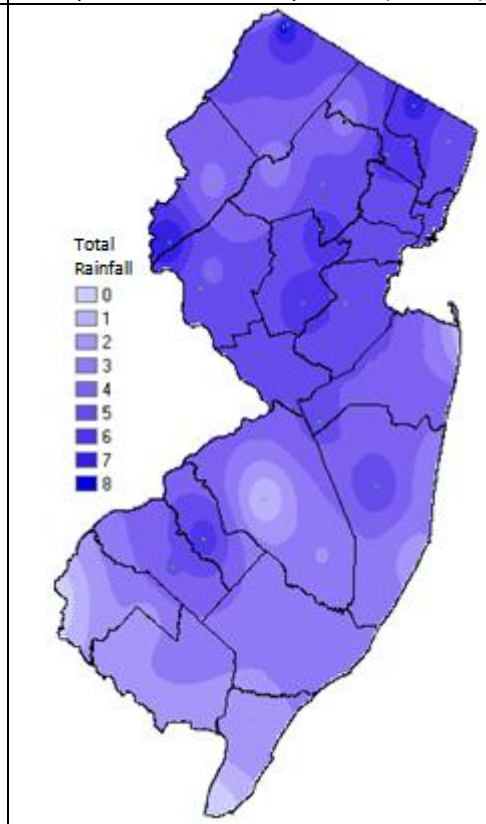
Summary table – Week 37

	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	**0.79**	**2.40**	**0**	**1.45**	**2.67**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.98**	**0**
Coastal	**0.25**	**2.56**	**0**	**1.21**	**2.84**	**0**	**0.00**	**0.13**	**0**	**0.21**	**4.63**	**0**
Delaware Bayshore	**0.29**	**0.76**	**0**	**1.77**	**9.20**	**0**	**0.00**	**0.16**	**0**	**0.03**	**9.22**	**0**
Delaware River Basin	**0.00**	**7.80**	**0**	**0.00**	**8.17**	**0**	**0.00**	**0.24**	**0**	**0.00**	**0.05**	**0**
New York Metro	**1.07**	**1.72**	**0**	**2.96**	**6.37**	**0**	**0.03**	**0.05**	**0**	**0.07**	**0.18**	**0**
North Central Rural	**0.04**	**0.50**	**0**	**0.78**	**0.34**	**3**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**4.14**	**11.89**	**0**	**1.77**	**1.79**	**0**	**0.00**	**0.01**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.00**	**10.12**	**0**	**0.00**	**3.28**	**0**	**0.00**	**0.11**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.18**	**1.46**	**0**	**0.68**	**1.91**	**0**	**0.10**	**0.07**	**1**	**0.00**	**0.04**	**0**
Suburban Corridor	**0.95**	**3.36**	**0**	**0.61**	**2.11**	**0**	**0.00**	**0.17**	**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: *Aedes vexans* showed increased activity over historical trends in the New York Metropolitan and Northwest Rural regions. *Culex* species were in greater abundance in the North Central Rural region. *Coquillettidia perturbans* has declined significantly throughout much of New Jersey and *Aedes sollicitans* is also in significant decline along the Coastal and Delaware Bayshore regions.

Climate Factors

September Average High Temperatures (2 weeks)	September Average Low Temperatures (2 weeks)	September Total Precipitation (2 weeks)
		

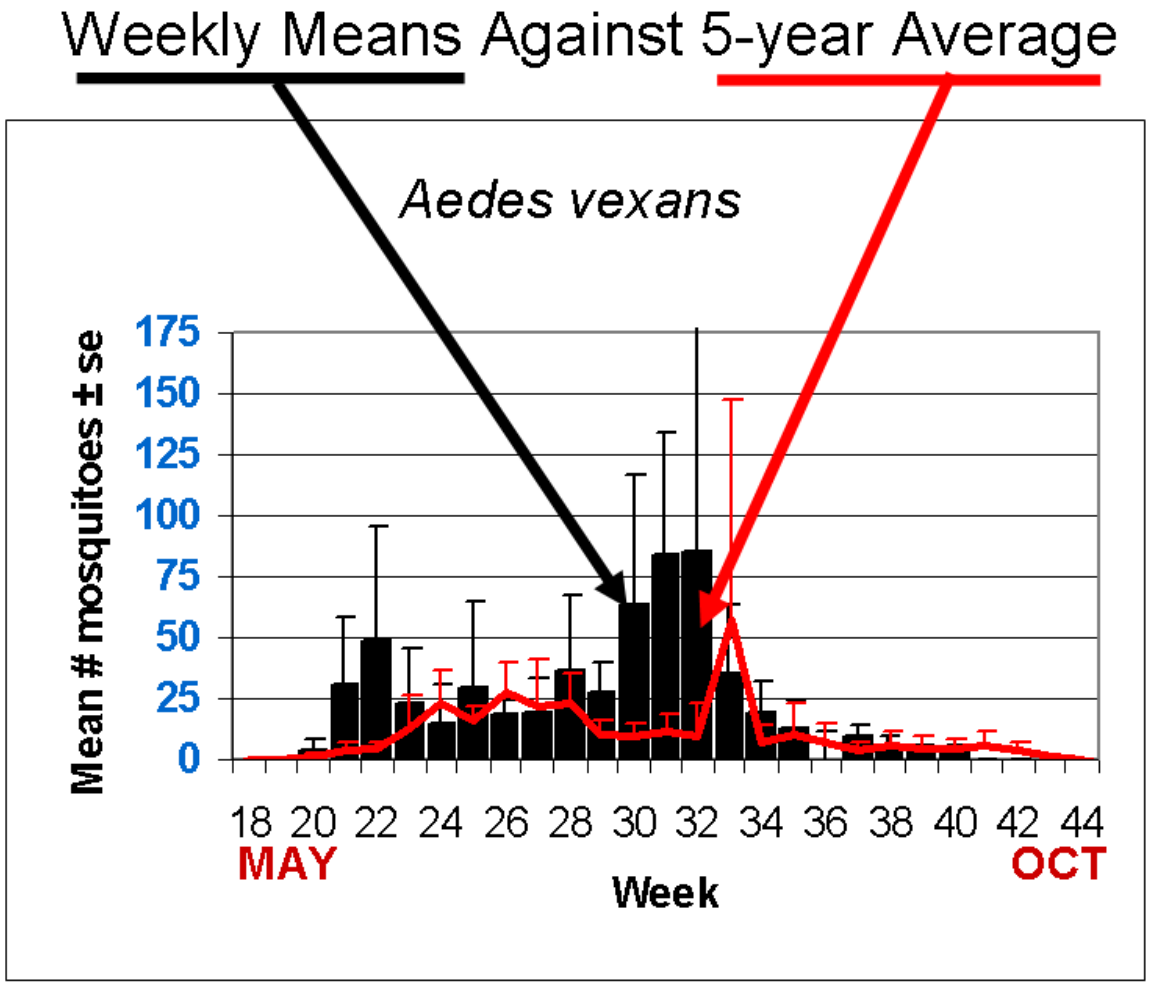
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for the first two weeks of September in New Jersey. Data points are from 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

For the first two weeks in September, average high temperatures were highest through the suburban corridor and parts of Camden, Gloucester and Cape May counties. Average low temperatures were again highest along the coastal region. The northern portion of New Jersey experienced higher rainfall. In general, it was warmest in the suburbs during the day, warmer along the coast at night and wetter in the north.

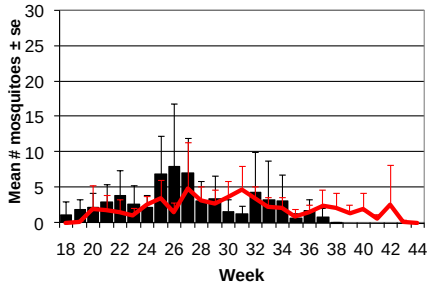
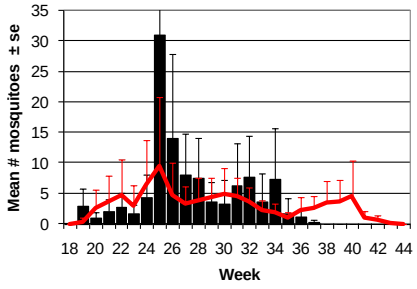
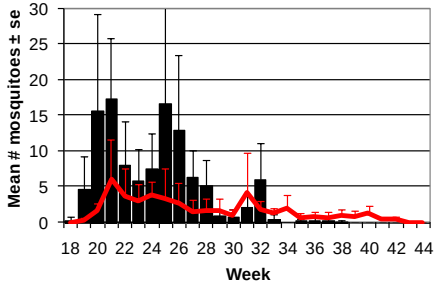
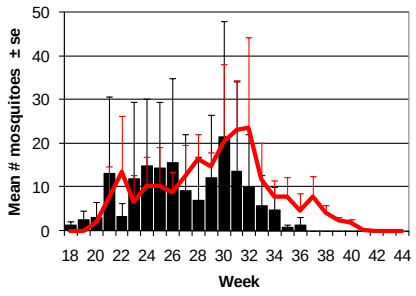
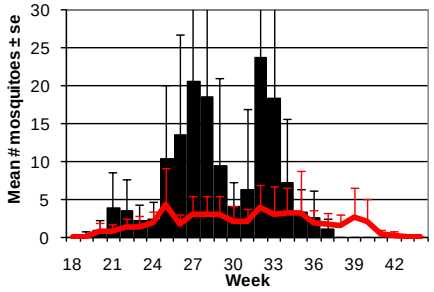
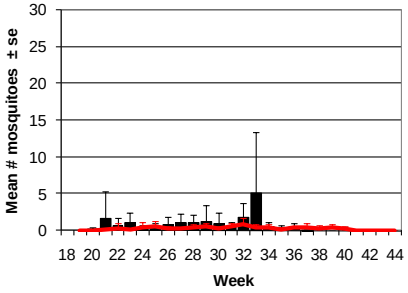
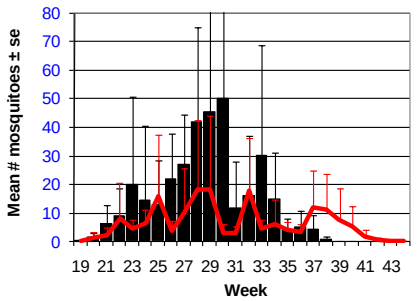
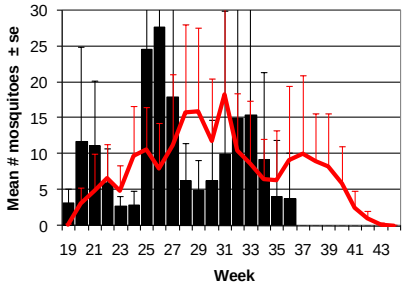
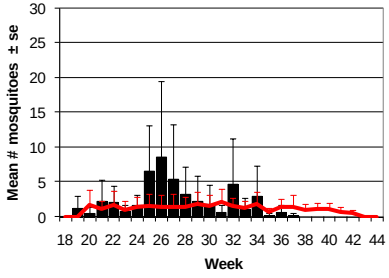
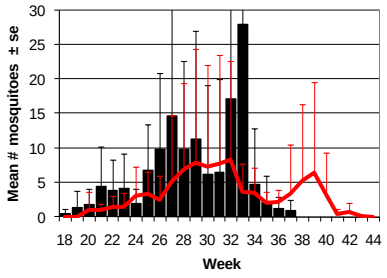
NJ Weather & Climate NETWORK

ONJSC at Rutgers University

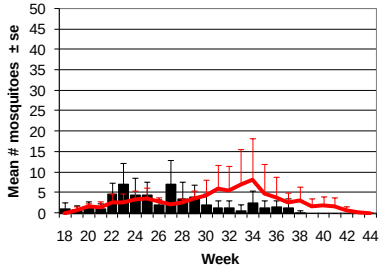
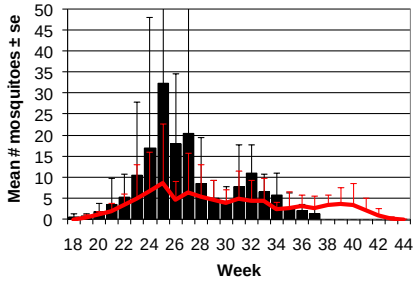
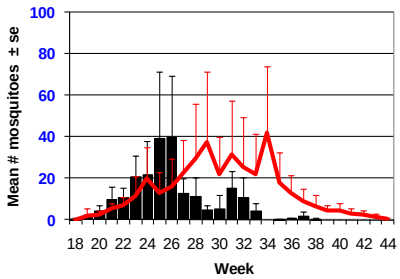
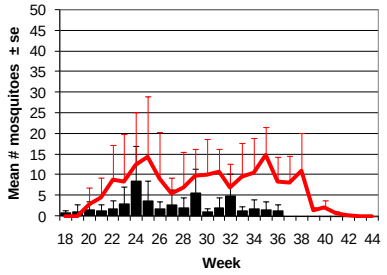
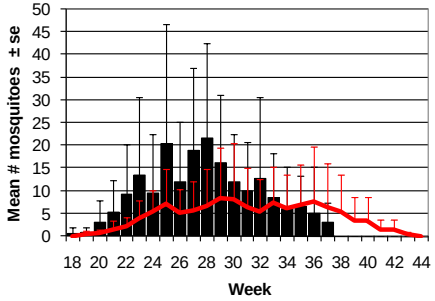
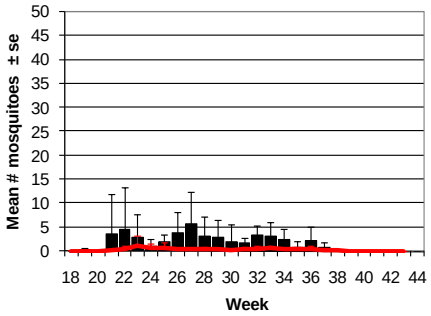
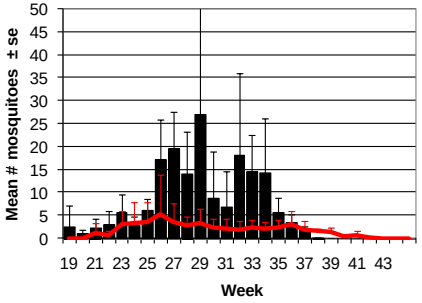
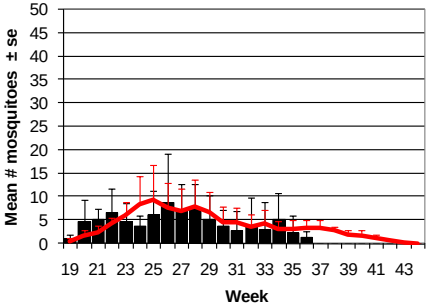
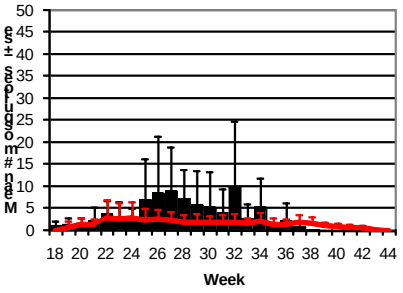
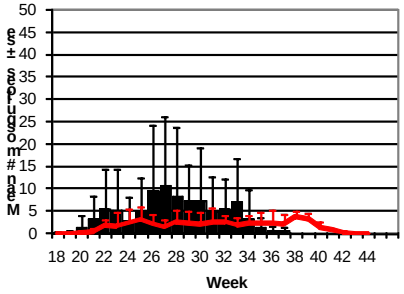
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 Atlantic, Bergen, (Camden), Cumberland, Essex, Hunterdon, Monmouth, Morris, Ocean, Somerset, Sussex, Union and Warren counties. Note: County data is sent in at a variety of times during the week.



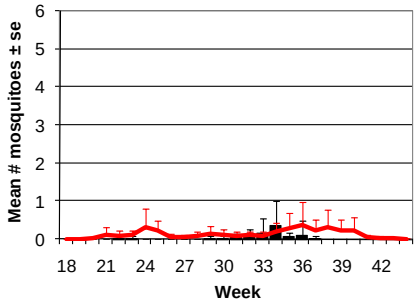
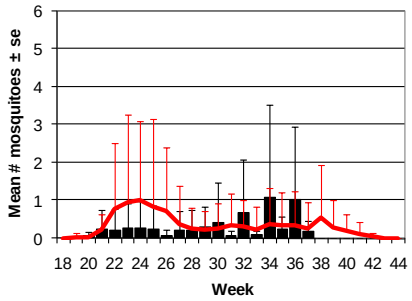
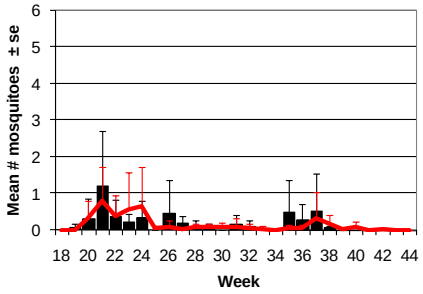
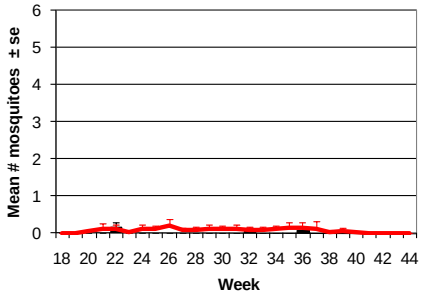
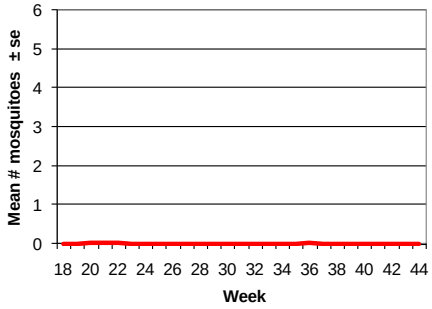
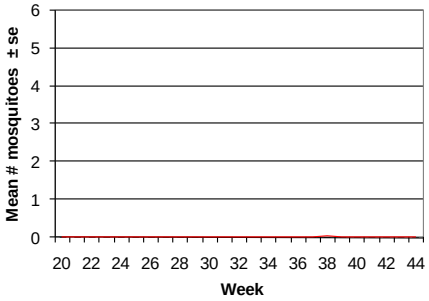
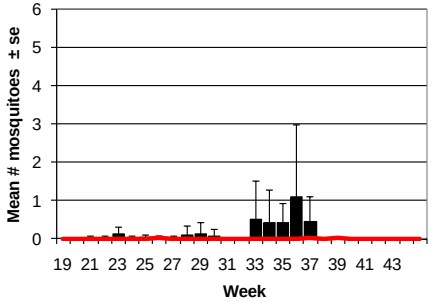
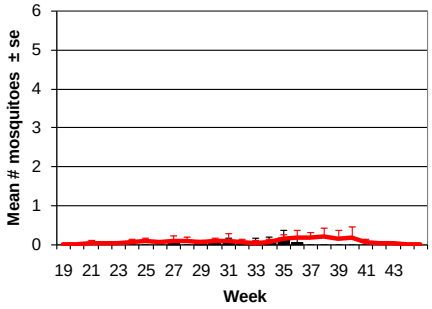
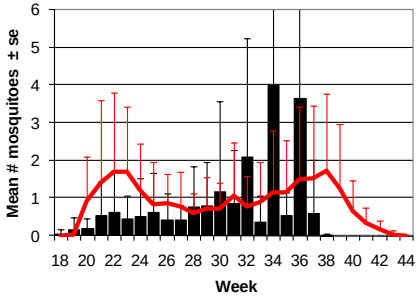
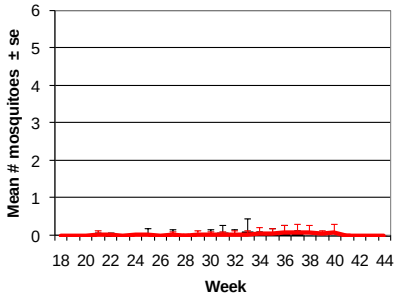
Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

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 decrease through much of the state. Historical trends indicate that an increase of numbers can occur late in the season, most notably in the Coastal, Philadelphia Metropolitan and Suburban Corridor regions. Females search for depressions and other landscape features that will remain moist after precipitation allowing adults to emerge from non-aqueous substrates such as cracked earth.	

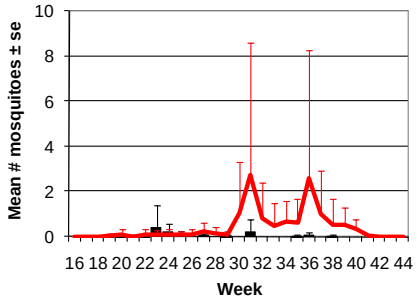
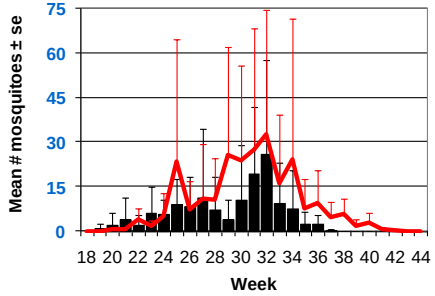
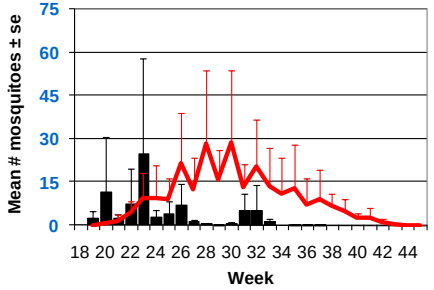
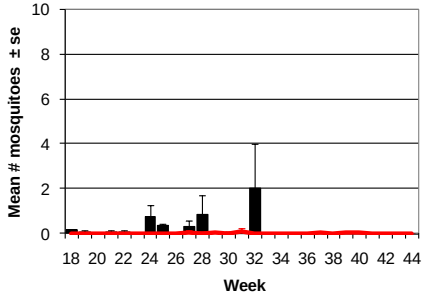
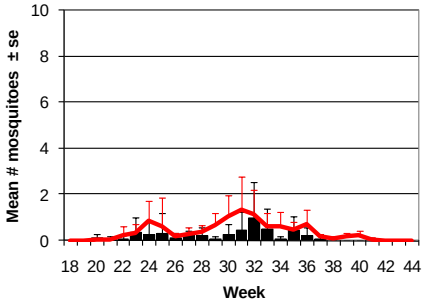
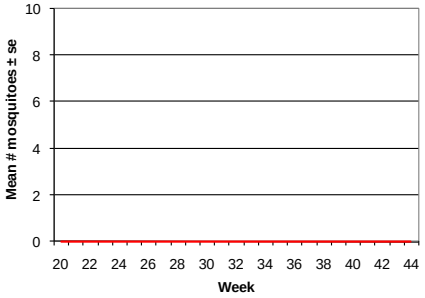
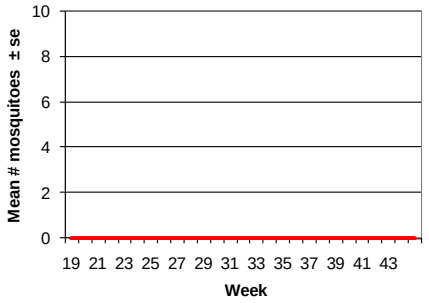
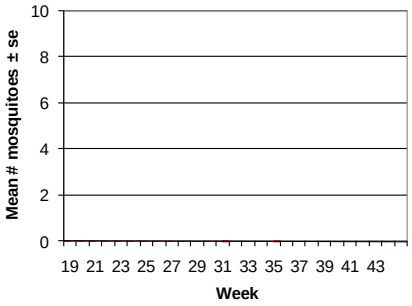
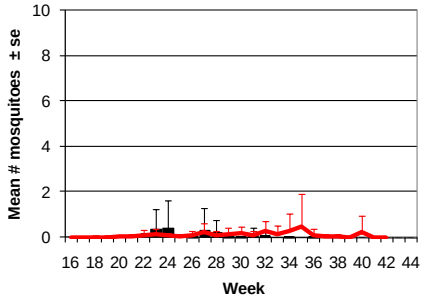
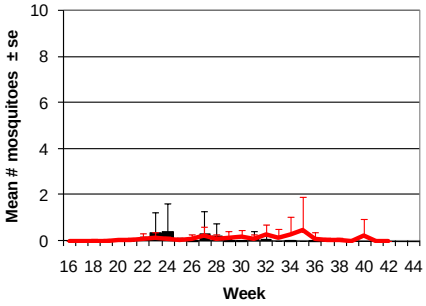
Culex Mix – Permanent Water Species
Multivoltine *Culex/Anopheles* (*Cx. pipiens* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* abundance was elevated slightly in the North Central rural region. Populations of this mixed category, which includes *Culex pipiens, Cx. restuans* and *Cx salinarius,* are the primary WNV amplification vectors (*pipiens restuans*). Populations were high for several regions (Coastal, New York Metro, Northwestern Rural, for example) but this trend appears to be decreasing as the season progresses.	

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**	
		Populations of *Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, have shown considerable variability in both the Coastal and Pinelands regions (areas of highest population levels). Overall patterns appear to suggest population levels consistent with historical levels, except for the Northwestern Rural region, where a late season increase is clearly evident and may be an indication of the second generation. EEE virus is in abundance in southern New Jersey, and a surge in population levels of this species could signal the potential for amplification to bridge vectors. In northern populations, however, a number of the avian host species have begun migration and may not be available for bloodmeals (Reed and Crans 1998 Geographic variation in avian migration cycles in an eastern equine encephalitis region. NMCA).	

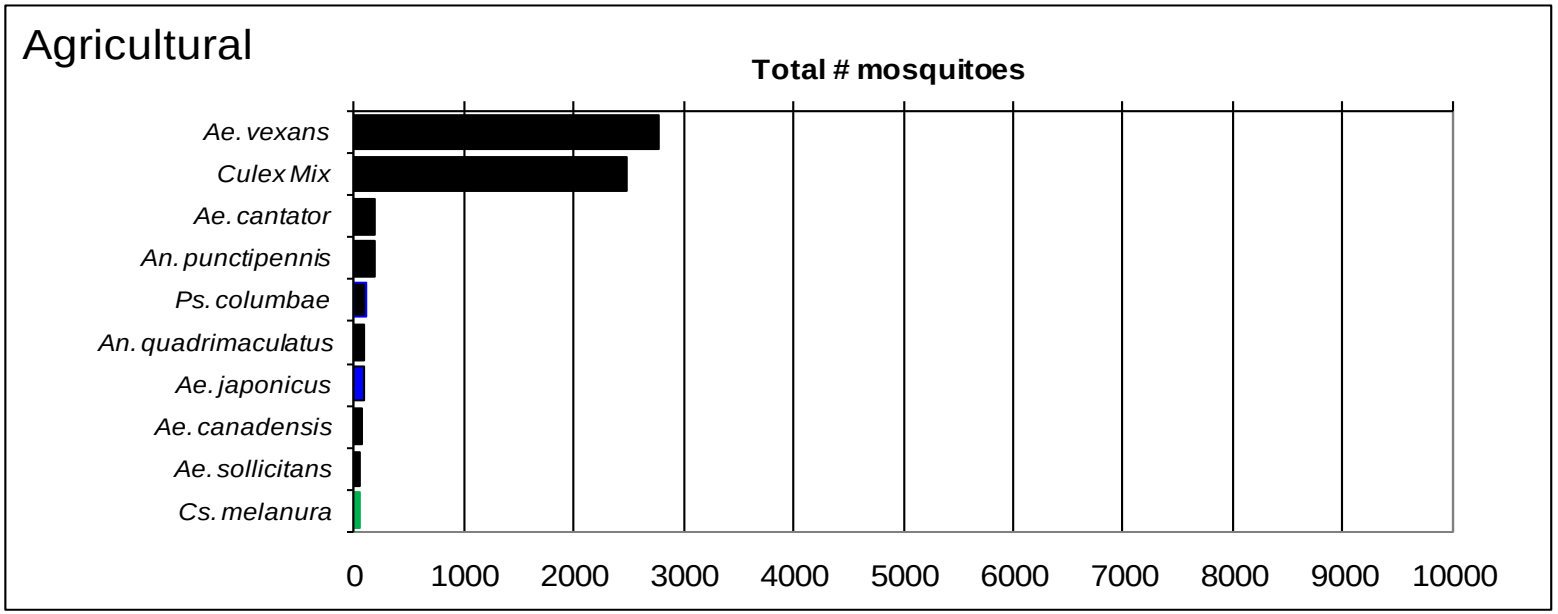
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

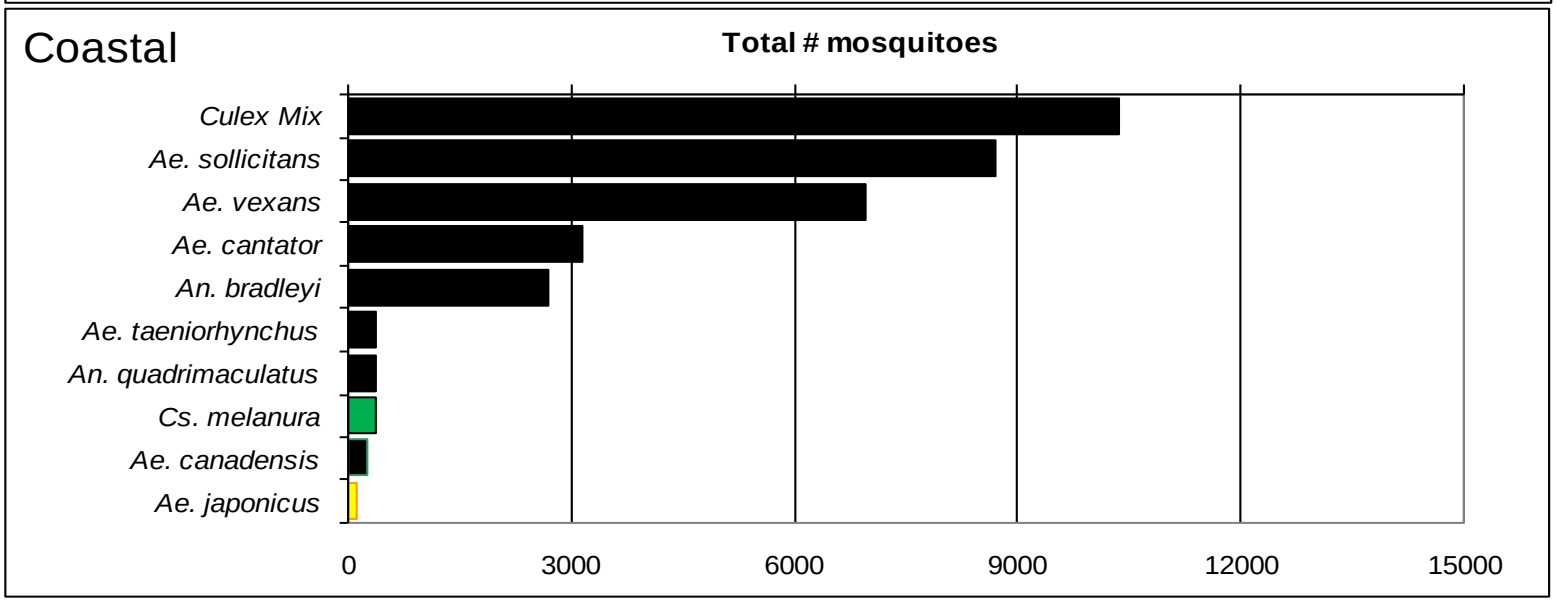
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* populations continue to wane. With population levels apparently lower than historical levels, it is easy to forget the impact that this species can have on all forms of life on the coast. In both the early (Abbitt et al 1981 Fatal exsanguination of cattle attributed to an attack of salt marsh mosquitoes *Aedes sollicitans*, J. Am. Vet. Med. Assoc. 179 (12):1397-1400) and late 1990's, in Louisiana, numbers of *Ae. sollicitans* were so high that some cattle died from blood loss (with possibly other contributing factors such as allergic reaction, protein shock, suffocation, etc.). Next Full Moon: 4 October.	

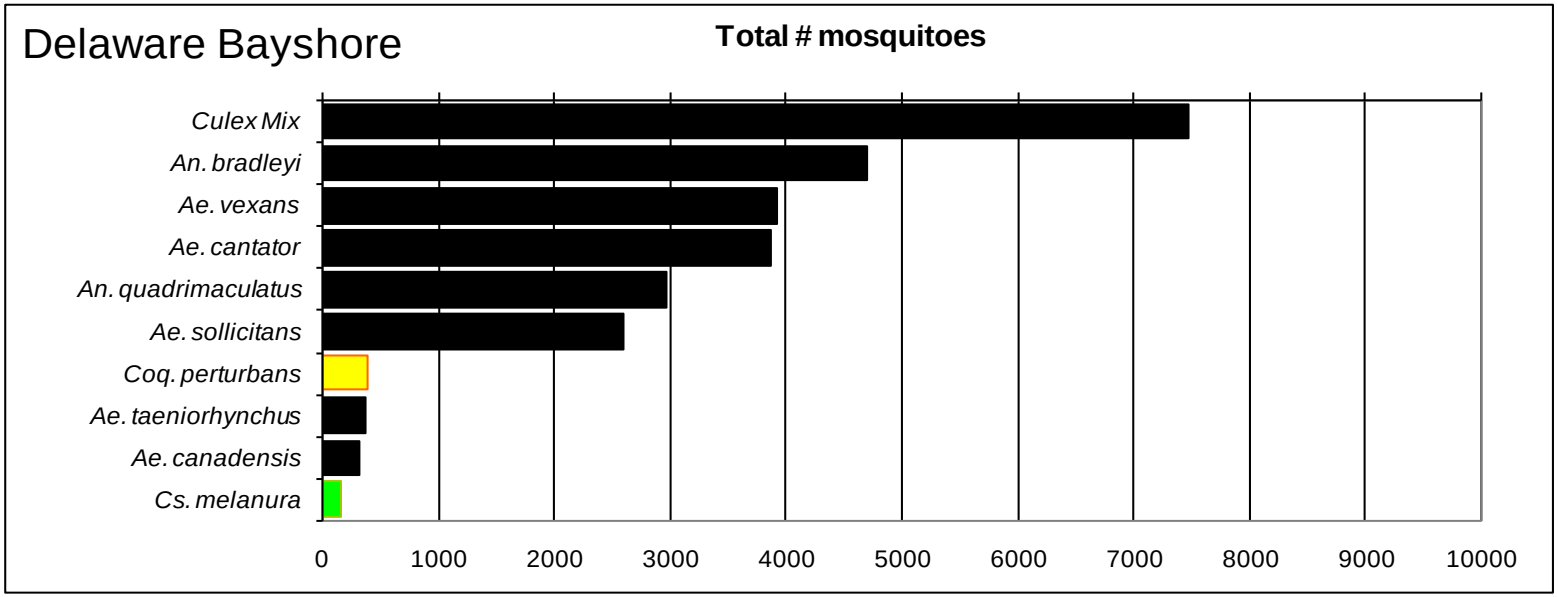
WNV *EEE*

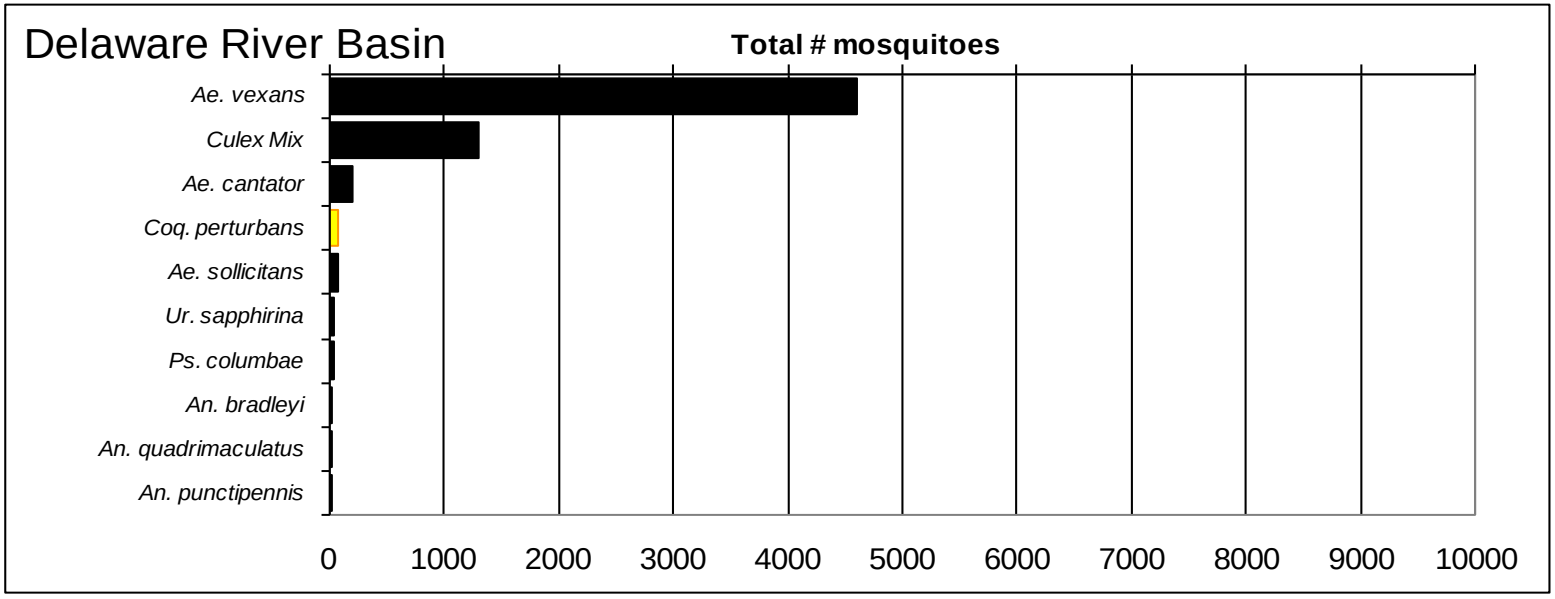
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

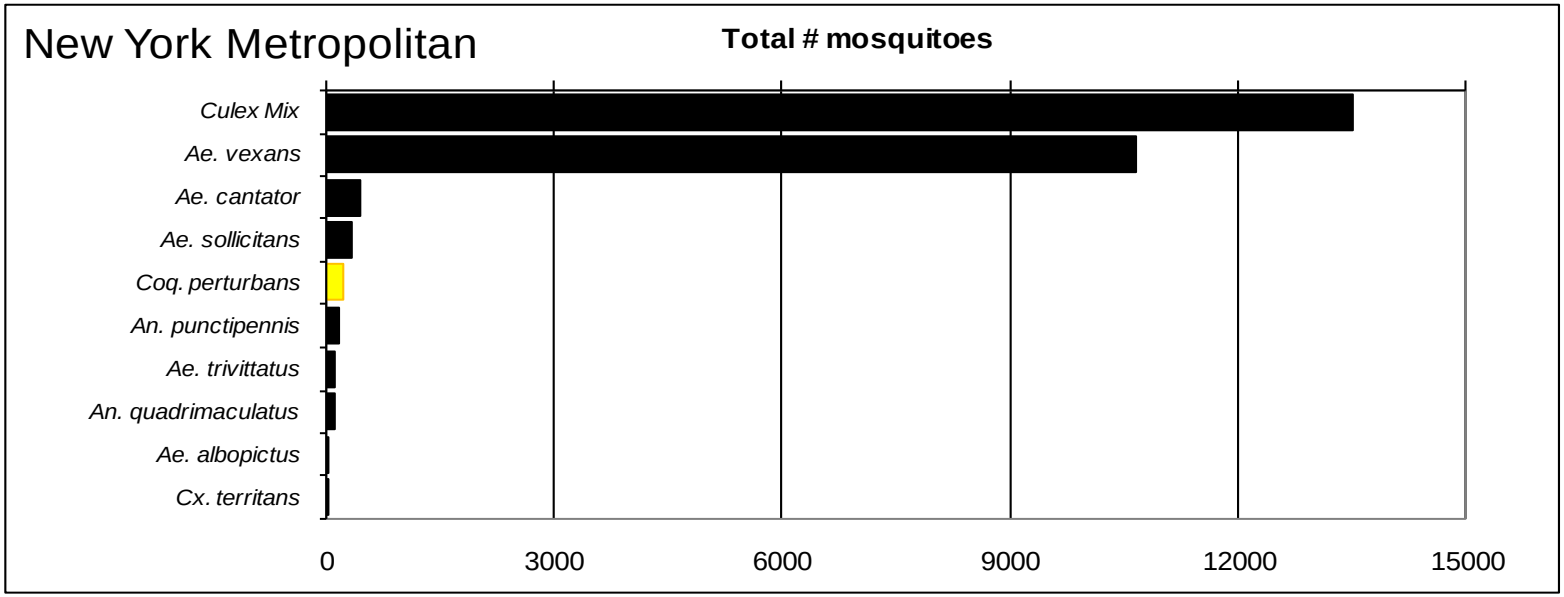
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

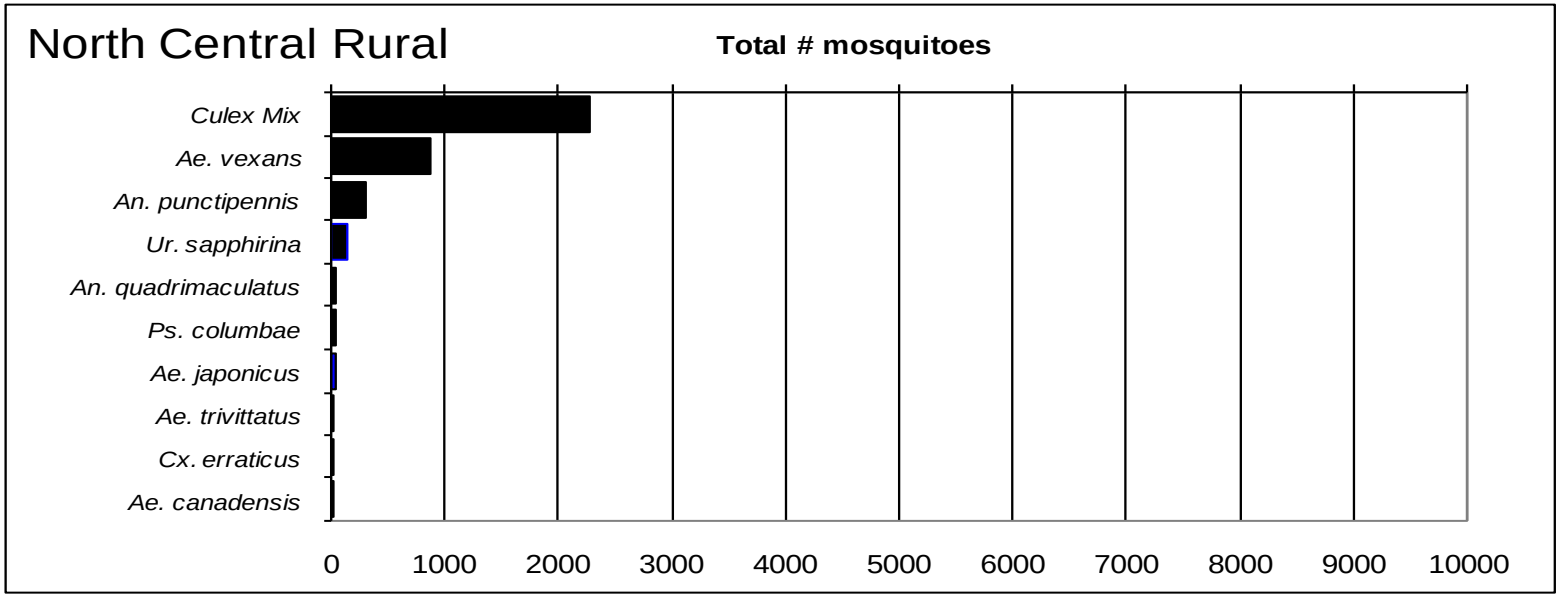


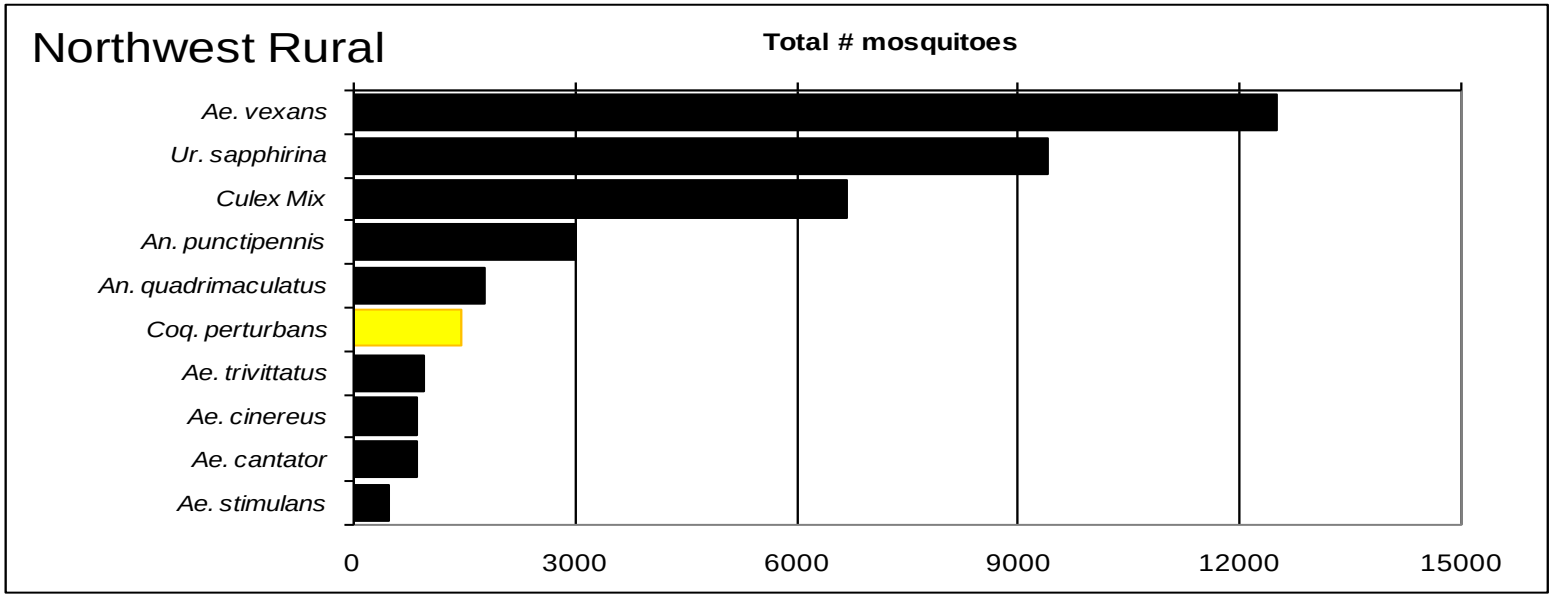


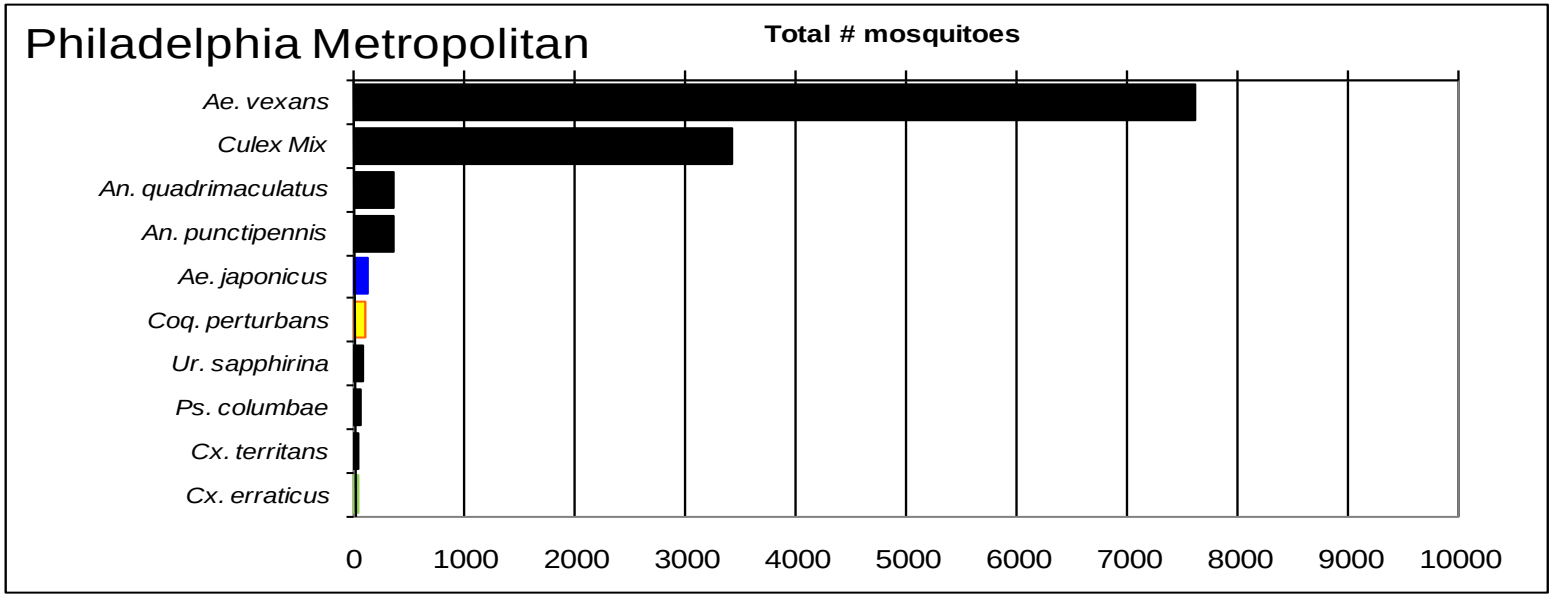

Delaware Bayshore
Total # mosquitoes
Culex Mix
An. bradleyi
Ae. vexans
Ae. cantator
An. quadrimaculatus
Ae. sollicitans
Coq. perturbans
Ae. taeniorhynchus
Ae. canadensis
Cs. melanura
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

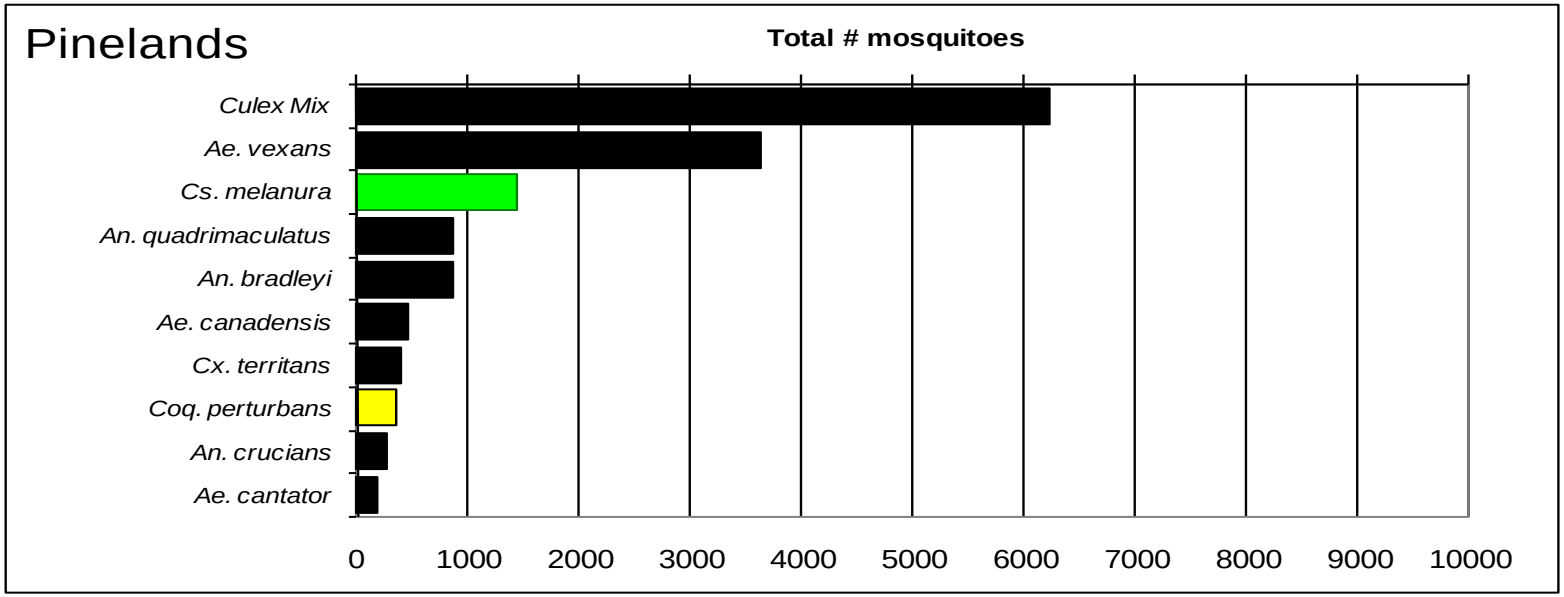

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. cantator
Coq. perturbans
Ae. sollicitans
Ur. sapphirina
Ps. columbae
An. bradleyi
An. quadrimaculatus
An. punctipennis
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000

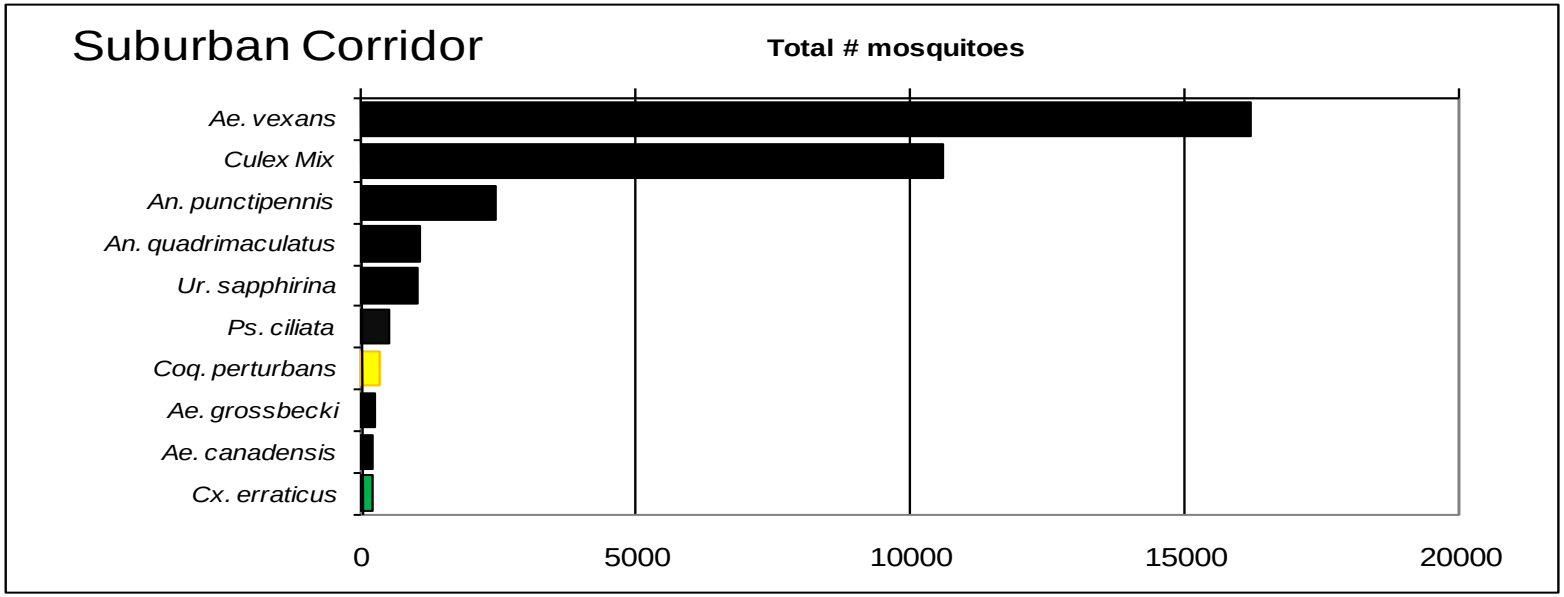

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Ae. sollicitans
Coq. perturbans
An. punctipennis
Ae. trivittatus
An. quadrimaculatus
Ae. albopictus
Cx. territans
0
3000
6000
9000
12000
15000


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


Northwest Rural
Total # mosquitoes
Ae. vexans
Ur. sapphirina
Culex Mix
An. punctipennis
An. quadrimaculatus
Coq. perturbans
Ae. trivittatus
Ae. cinereus
Ae. cantator
Ae. stimulans
0
3000
6000
9000
12000
15000


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


Pinelands
Total # mosquitoes
Culex Mix
Ae. vexans
Cs. melanura
An. quadrimaculatus
An. bradleyi
Ae. canadensis
Cx. territans
Coq. perturbans
An. crucians
Ae. cantator
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
An. punctipennis
An. quadrimaculatus
Ur. sapphirina
Ps. ciliata
Coq. perturbans
Ae. grossbecki
Ae. canadensis
Cx. erraticus
0
5000
10000
15000
20000