RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 5 July to 11 July 2009, CDC Weeks 27

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Center for Vector Biology

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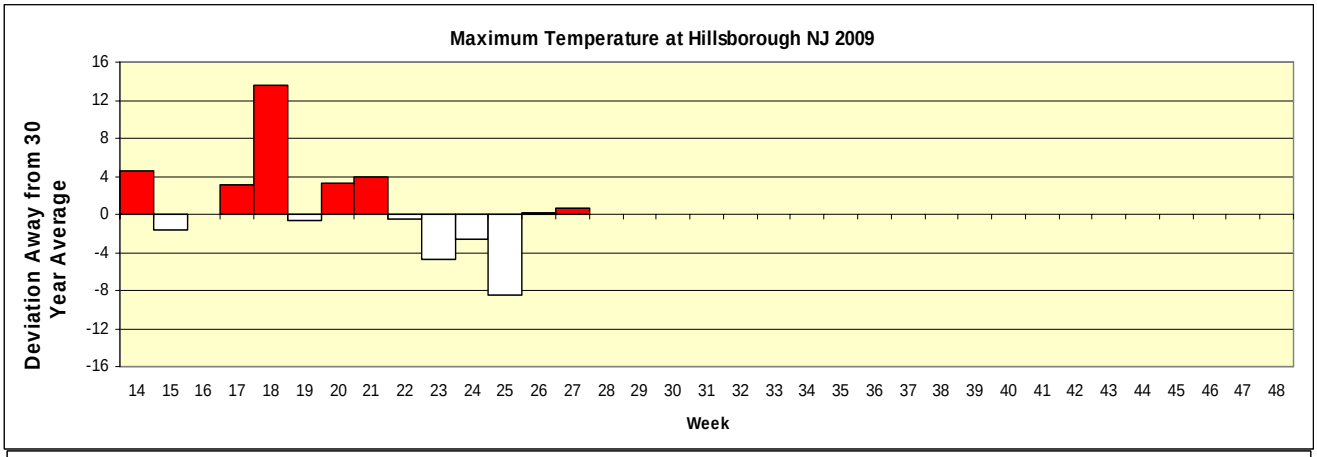
Summary table – Week 27

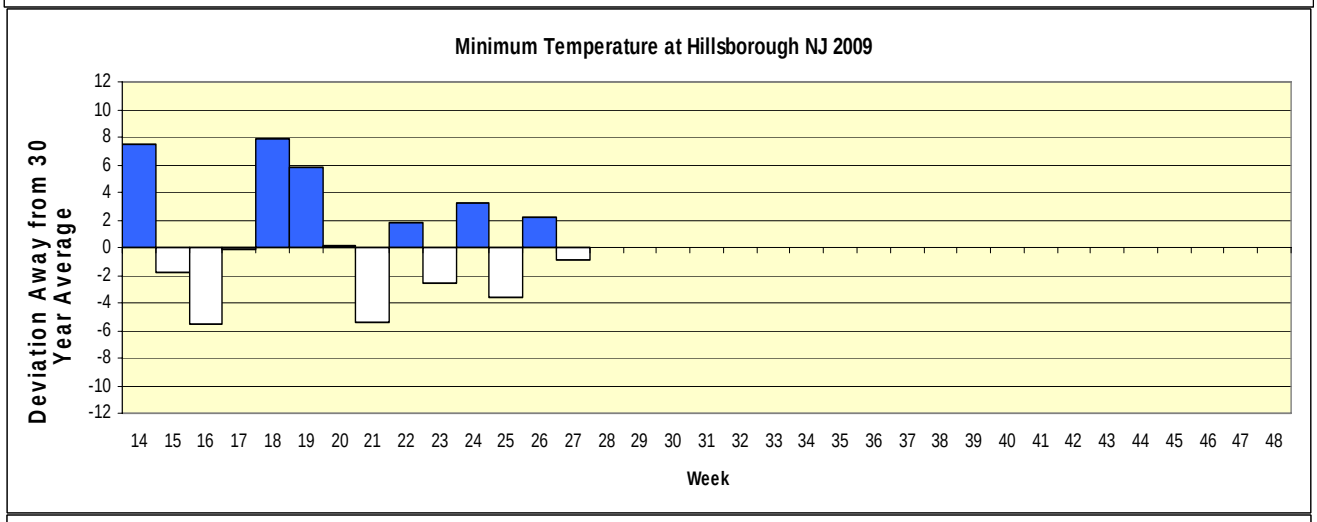
	Aedes vexans			*Culex* Mix			*Coquillettidia perturbans*			*Aedes sollicitans*		
Region	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase	This Week	Average*	Increase
Agricultural	**4.97**	**4.87**	**1**	**2.88**	**2.11**	**1**	**0.06**	**0.72**	**0**	**0.03**	**0.24**	**0**
Coastal	**4.89**	**3.27**	**1**	**3.30**	**6.43**	**0**	**0.00**	**1.61**	**0**	**9.08**	**11.12**	**0**
Delaware Bayshore	**0.00**	**2.81**	**0**	**0.00**	**22.74**	**0**	**0.00**	**3.53**	**0**	**0.00**	**12.59**	**0**
Delaware River Basin	**0.00**	**12.59**	**0**	**0.00**	**5.44**	**0**	**0.00**	**0.34**	**0**	**0.00**	**0.06**	**0**
New York Metro	**12.87**	**3.00**	**4**	**10.67**	**5.72**	**2**	**0.39**	**0.24**	**2**	**0.21**	**0.31**	**0**
North Central Rural	**0.24**	**0.30**	**0**	**0.49**	**0.43**	**1**	**0.04**	**0.13**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**10.77**	**10.07**	**1**	**13.31**	**3.54**	**3**	**2.23**	**0.57**	**3**	**0.00**	**0.00**	**0**
Philadelphia Metro	**13.64**	**11.32**	**1**	**3.00**	**6.96**	**0**	**0.14**	**1.38**	**0**	**0.00**	**0.00**	**0**
Pinelands	**3.31**	**1.50**	**3**	**3.08**	**2.29**	**1**	**0.22**	**1.81**	**0**	**0.01**	**0.25**	**0**
Suburban Corridor	**9.74**	**5.10**	**2**	**7.88**	**1.40**	**4**	**0.34**	**1.19**	**0**	**0.03**	**0.00**	

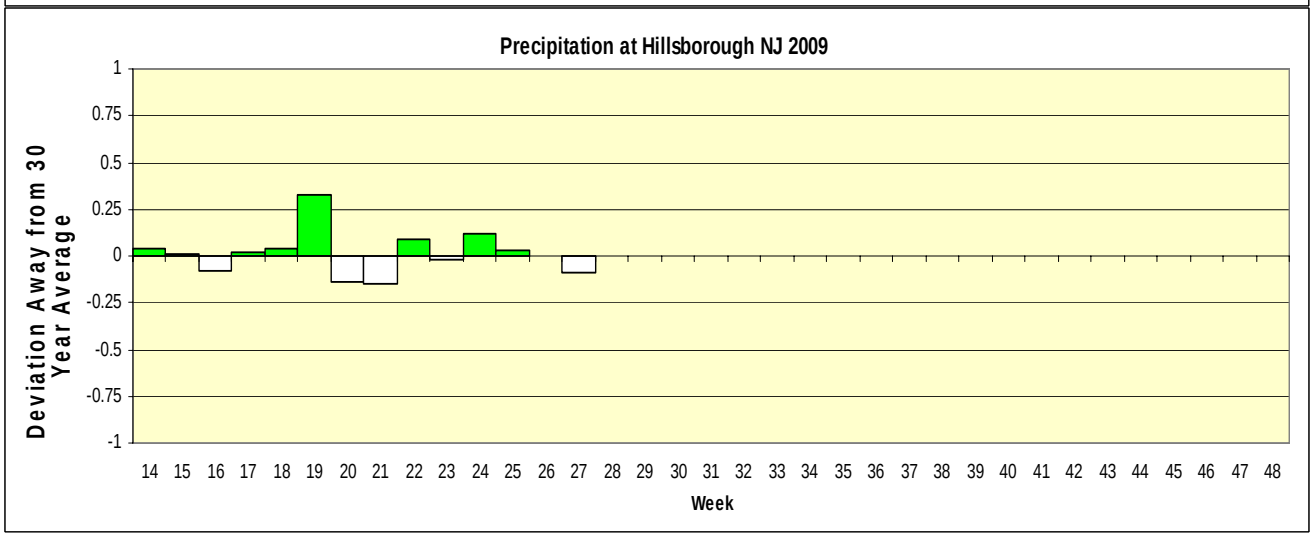
*Averages represent data from, at most, the previous 5 years. Increase is a scale of current values from historical values where no difference or a decrease is represented by 0 (blue), up to 50% greater difference by 1 (green), up to 100% greater difference by 2 (yellow), up to 150% greater difference 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: The effects of the past month's rainfall continue to be seen as *Aedes vexans* population topped recent historical values in more than half of the regions. The New York Metropolitan region had high numbers of both fresh floodwater and permanent water species as did the Suburban Corridor. The Northwest Rural region has had a significant population of *Coquillettidia perturbans* earlier than historic trends would indicate.

Climate Deviations



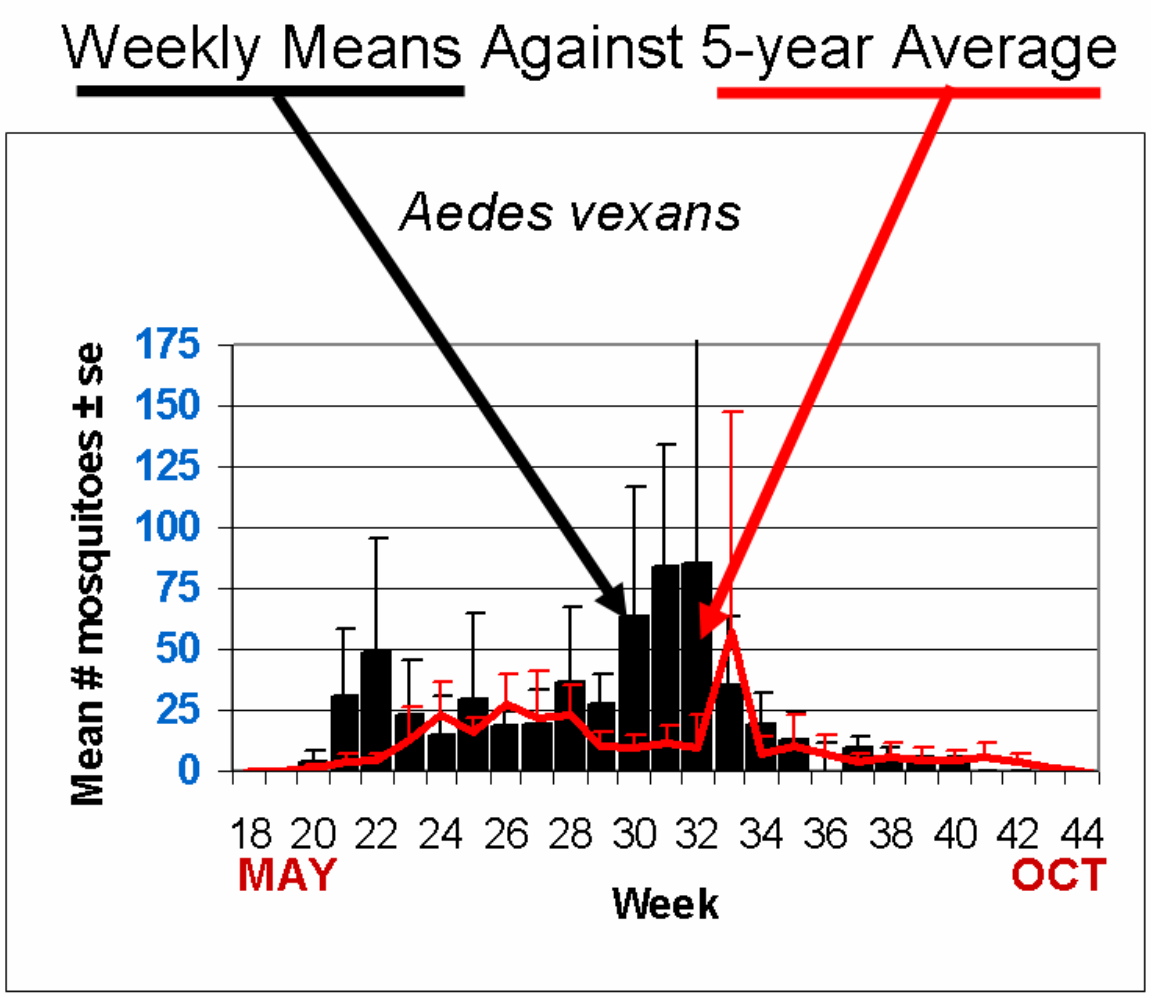




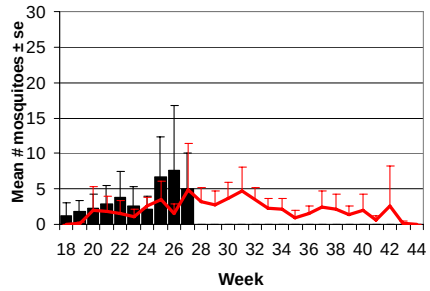
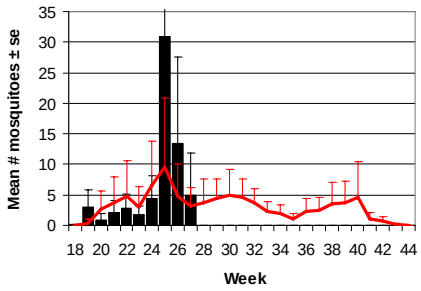
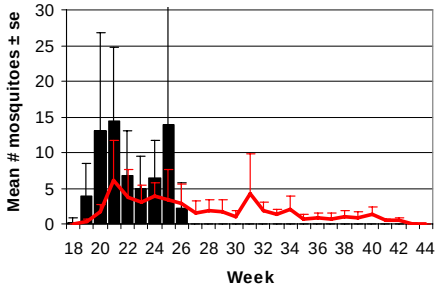
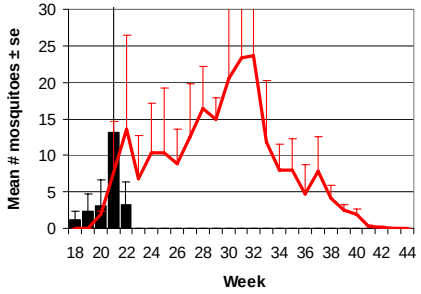
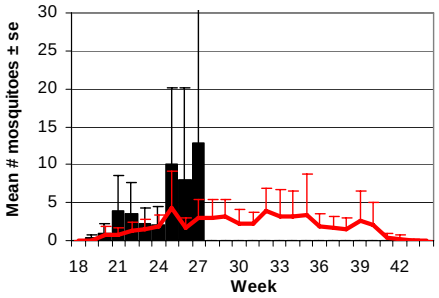
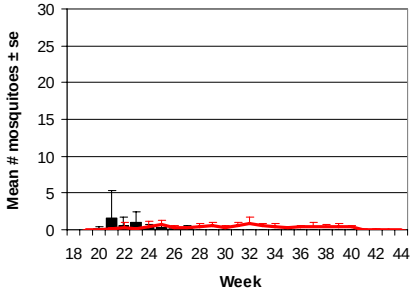
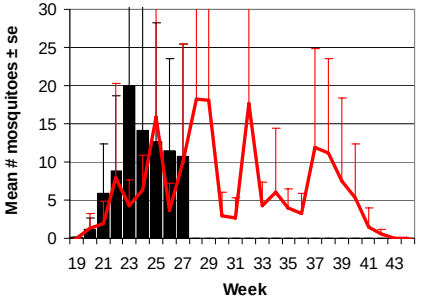
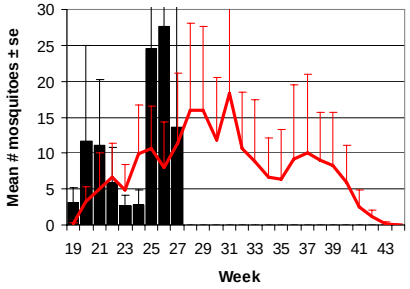
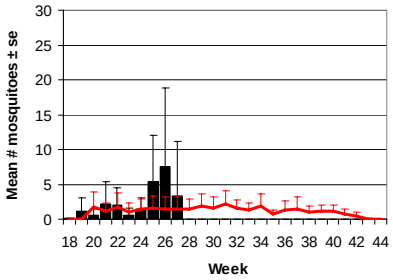
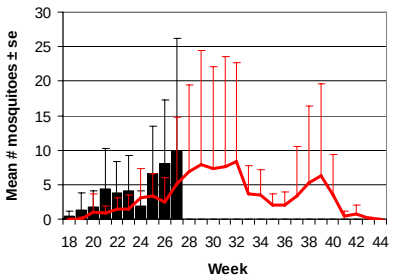
The figures show the average maximum temperature, minimum temperature and precipitation deviations from 30 year averages. Current data are from the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist) 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.

Data from: http://climate.rutgers.edu/njwxnet/index.php

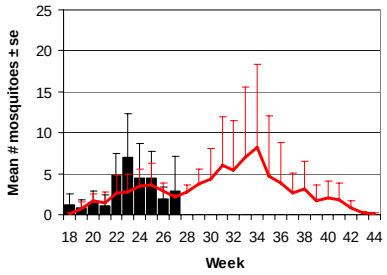
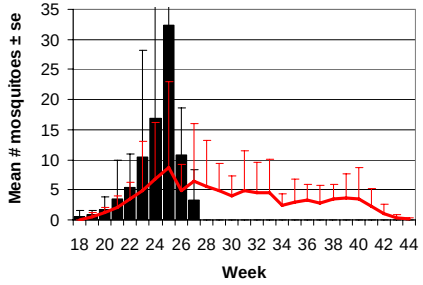
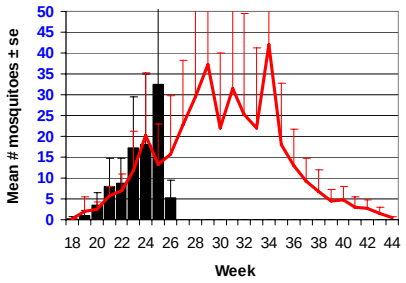
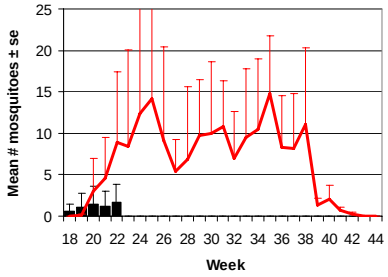
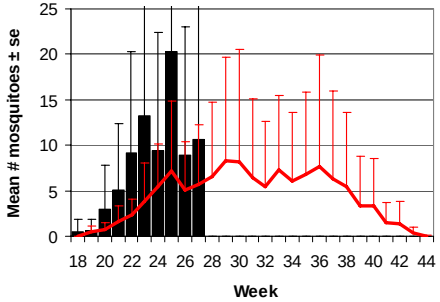
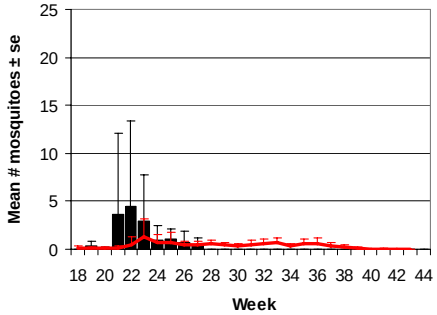
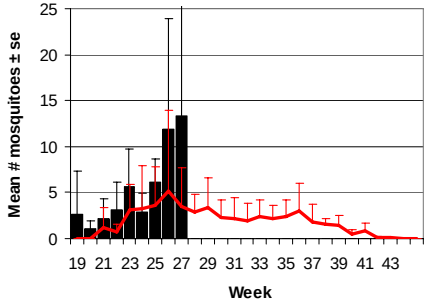
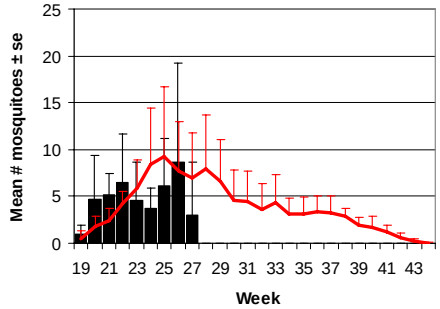
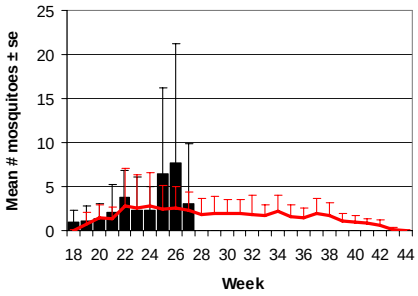
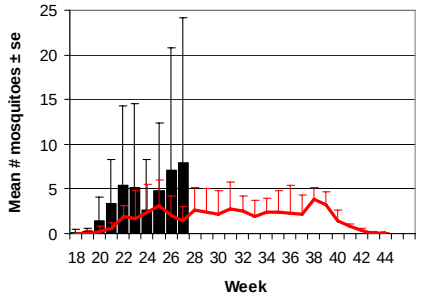
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example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



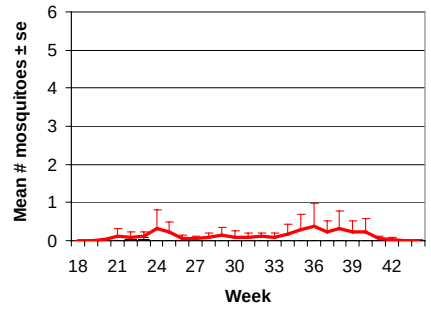
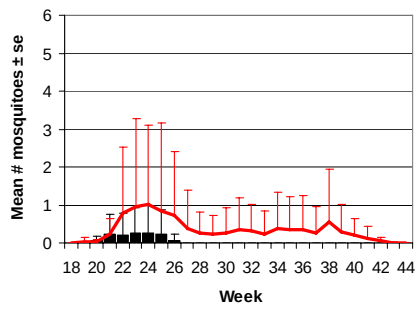
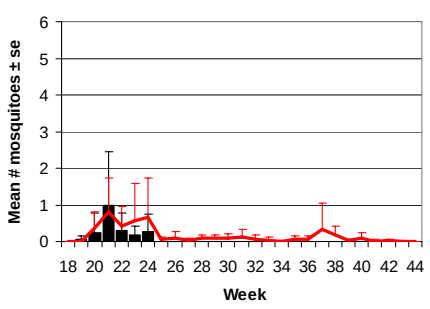
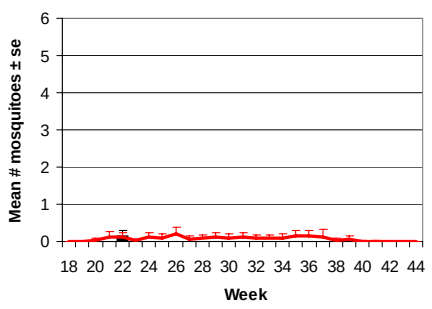
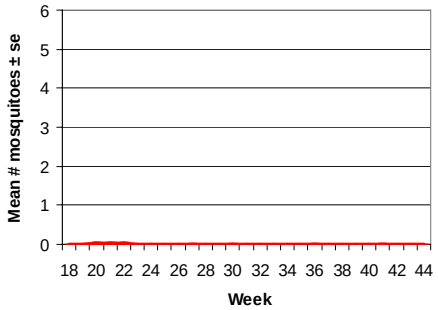
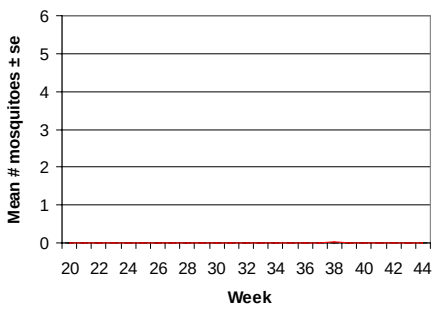
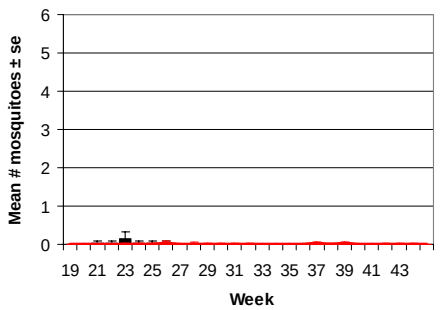
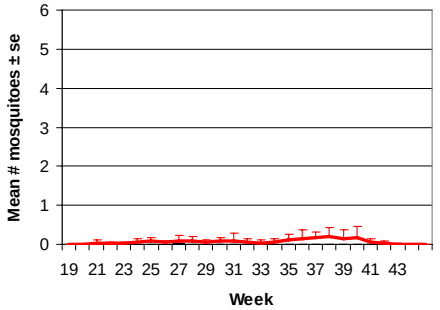
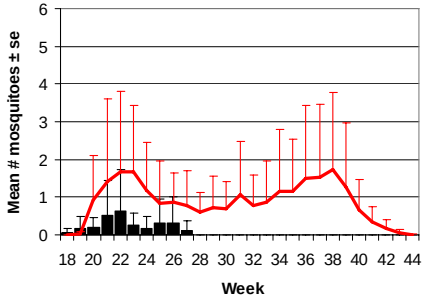
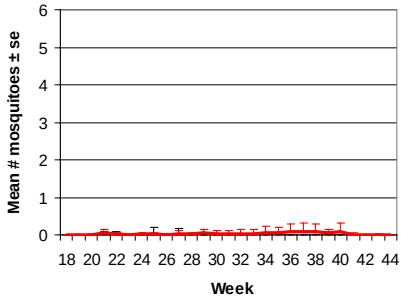
Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

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 show locally large emergences in some regions such as the New York Metropolitan region. As the cooler June temperatures give way to summertime temperatures, the amount of time between egg submersion and adult emergence would be expected to decrease. Floodwater species that emerge quickly may be smaller in size, such as for *Aedes triseriatus*. But *Aedes vexans* can employ a different strategy by delaying emergence. *Aedes vexans* larvae can survive in moist soil after the habitat has dried down. Later rainfall (sometimes small amounts) allow the adults to emerge. These two strategies, the “get out quickly but small” versus “slow down and grow” allow floodwater species a varied response to environmental change (Schäfer and Lundström 2006 Different responses of two floodwater mosquito species, *Aedes vexans* and *Aedes sticticus* (Diptera: Culicidae) to larval habitat drying. Journal of Vector Ecology, 31(1):123-128).	

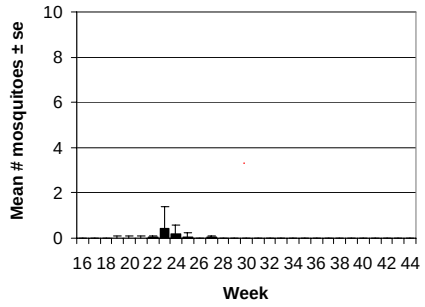
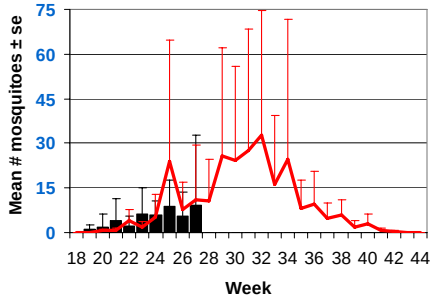
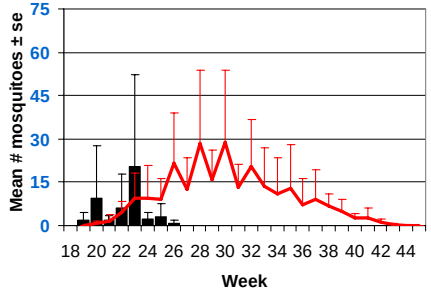
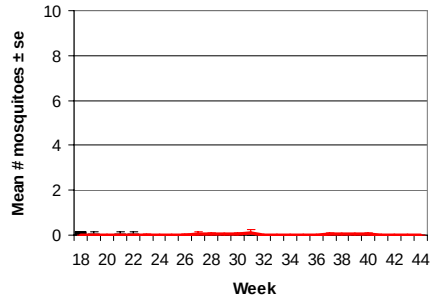
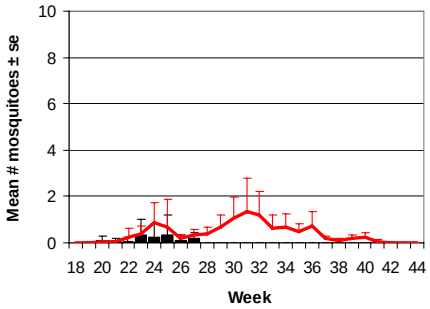
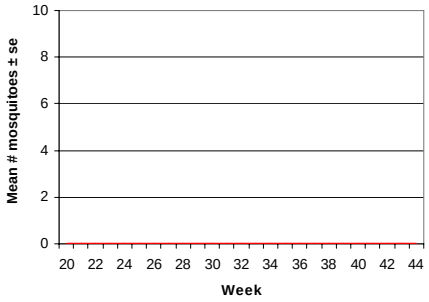
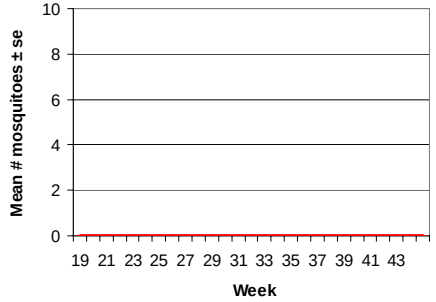
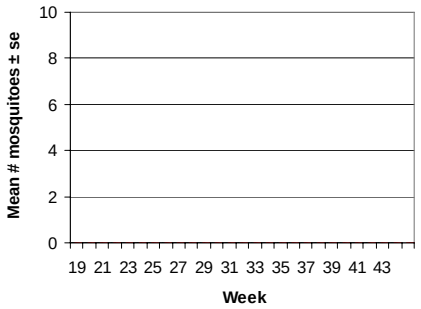
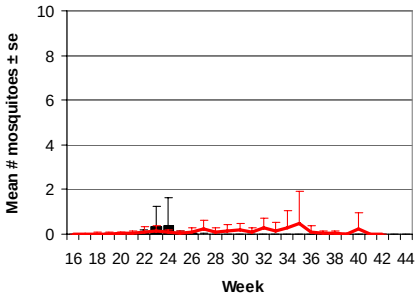
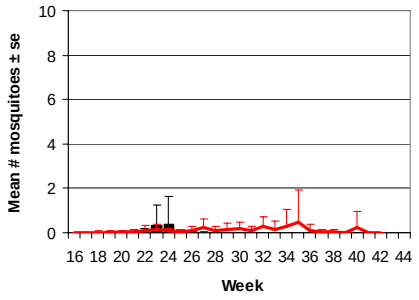
Culex Mix – Permanent Water Species
Multivoltine *Culex*/*Anopheles* (*Cx. pipiens* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* populations from various regions continue to show healthy, above historical trends abundances. The New York Metropolitan, Northwestern Rural, Suburban Corridor and (until recently), the Coastal regions all hosted above normal populations. According to Slaff and Crans (1982 Impounded water as a major producer of *Culex salinarius* (Diptera: Culicidae) in coastal areas of New Jersey, USA Journal of Medical Entomology 19(2): 185-190) coastal impoundment areas, such as those that used to be built to control *Aedes sollicitans,* can be dominated by *Cx. salinarius*. These also included freshwater impoundments, pointing to the wide range of saline habitats that *Cx. salinarius* can exploit.	

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*, the enzootic ornithophilic vector of eastern equine encephalitis, continue to show population levels that track below historic values for both the Coastal and Pineland regions. Smaller populations continue to show in regions like the Delaware Bayshore, Northwest Rural and Suburban Corridor.	

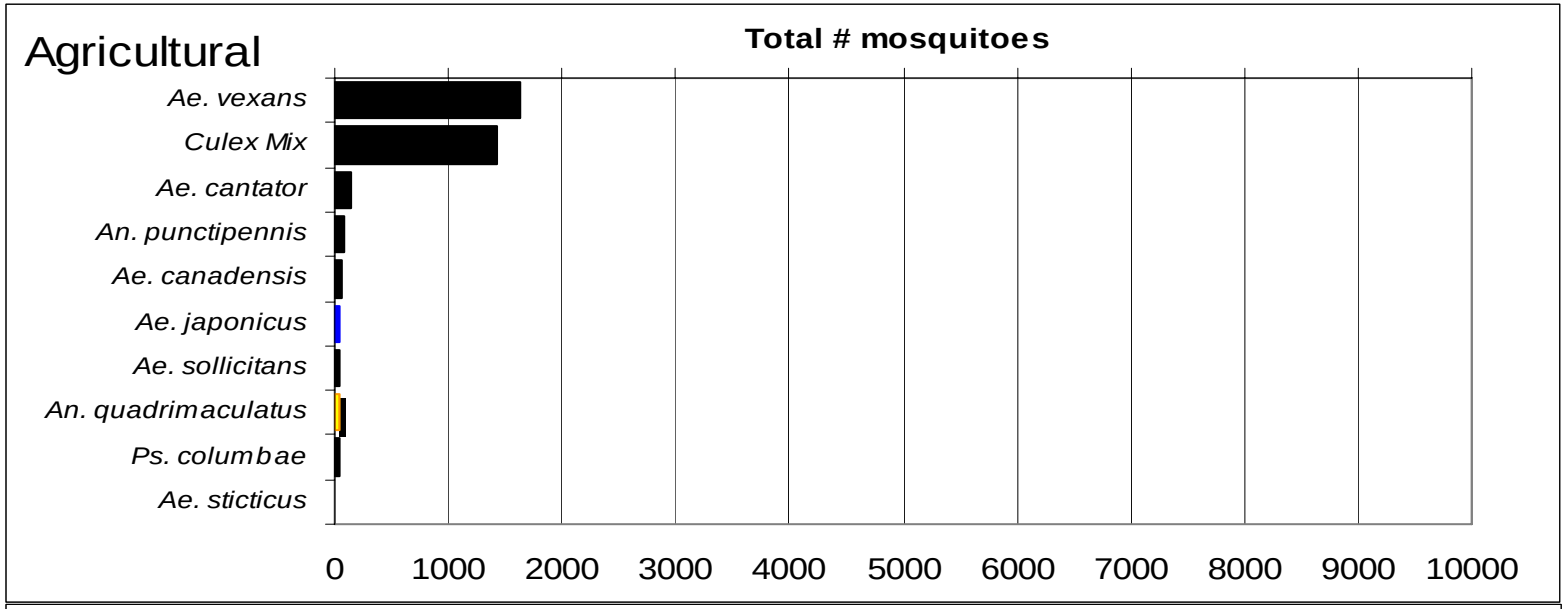
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

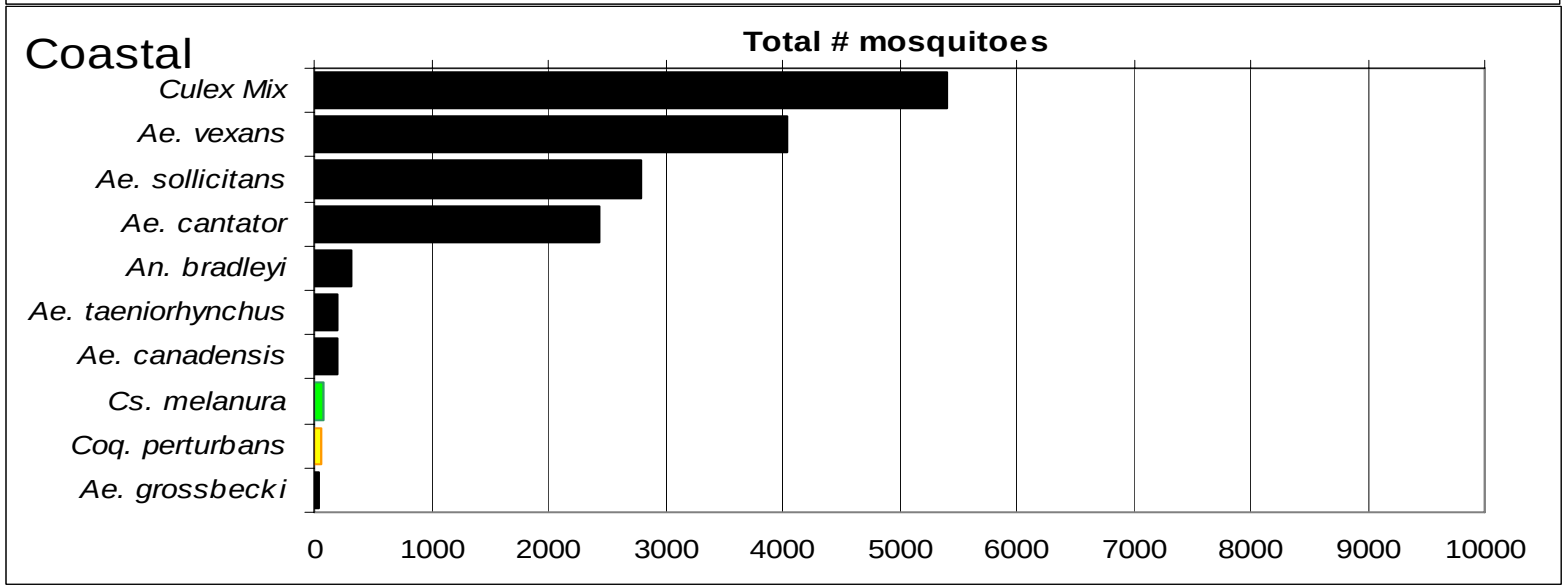
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* in the Coastal region appears to be growing steadily, rather than displaying discrete population emergences typically seen, particularly at the beginning of the season. This is likely due to the abundance of rainfall these past several weeks, which can flood *Ae. sollicitans* eggs laid in upland areas. Next Full Moon: 6 August	

WNV *EEE*

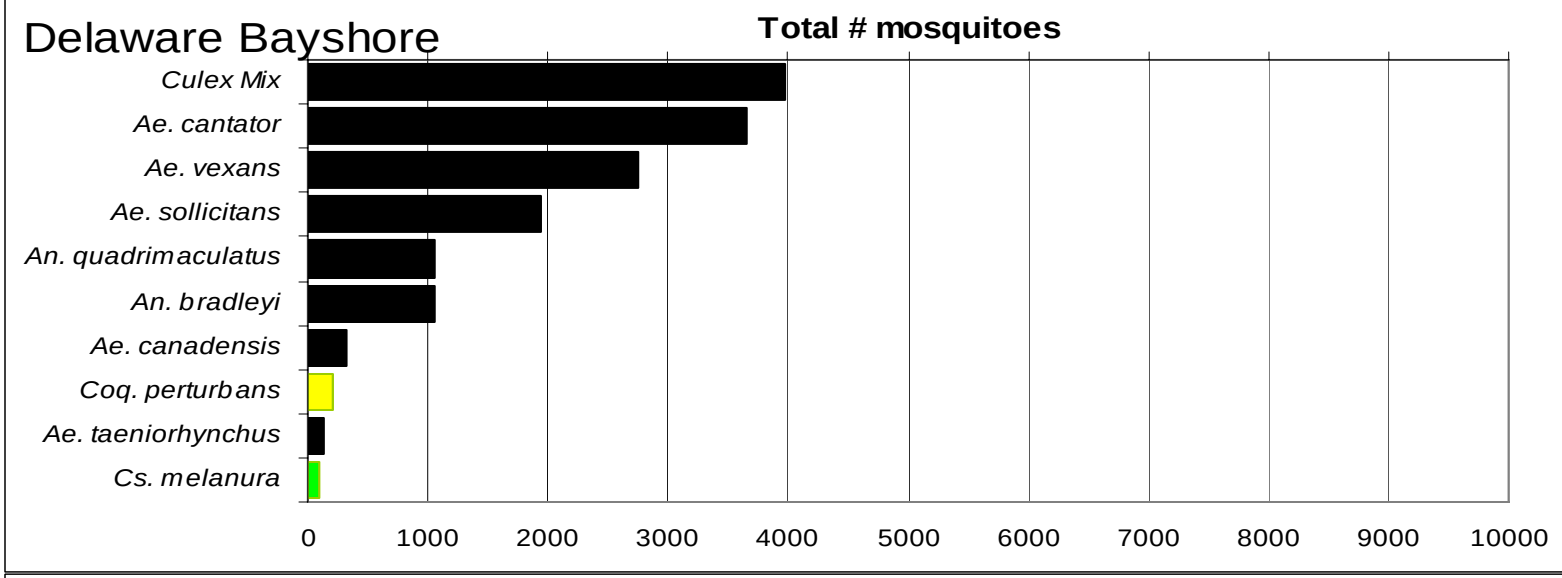
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

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

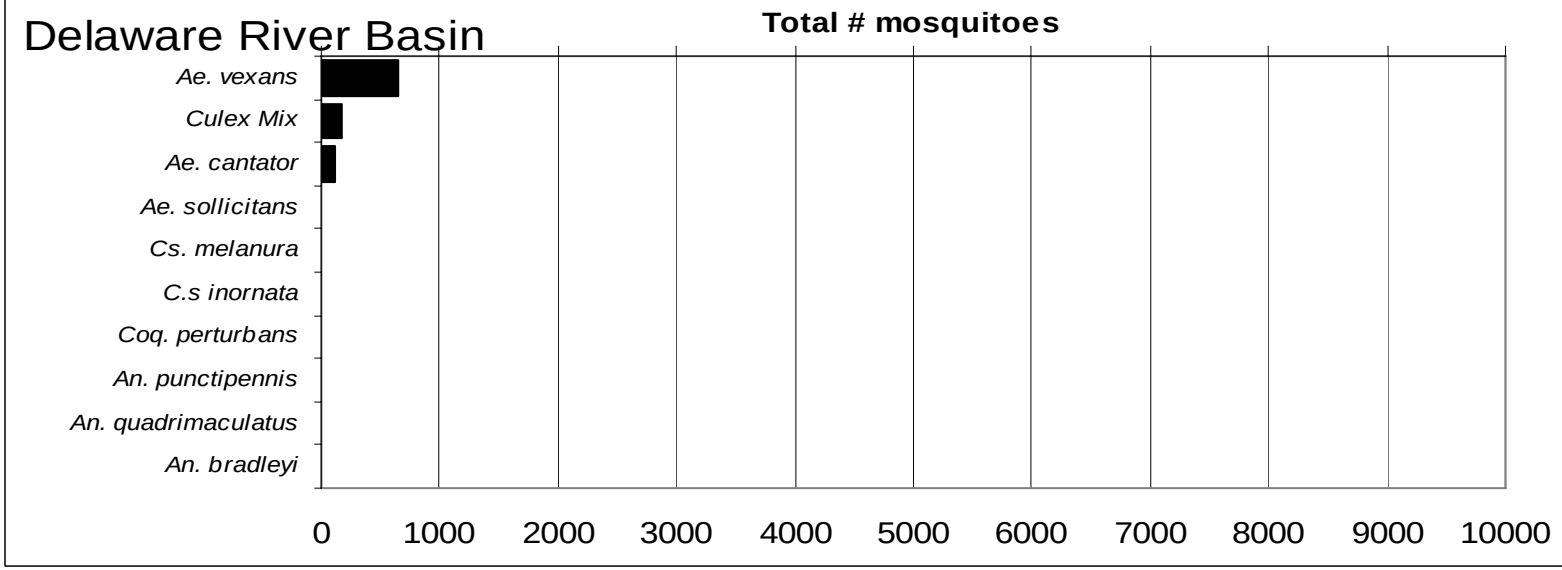




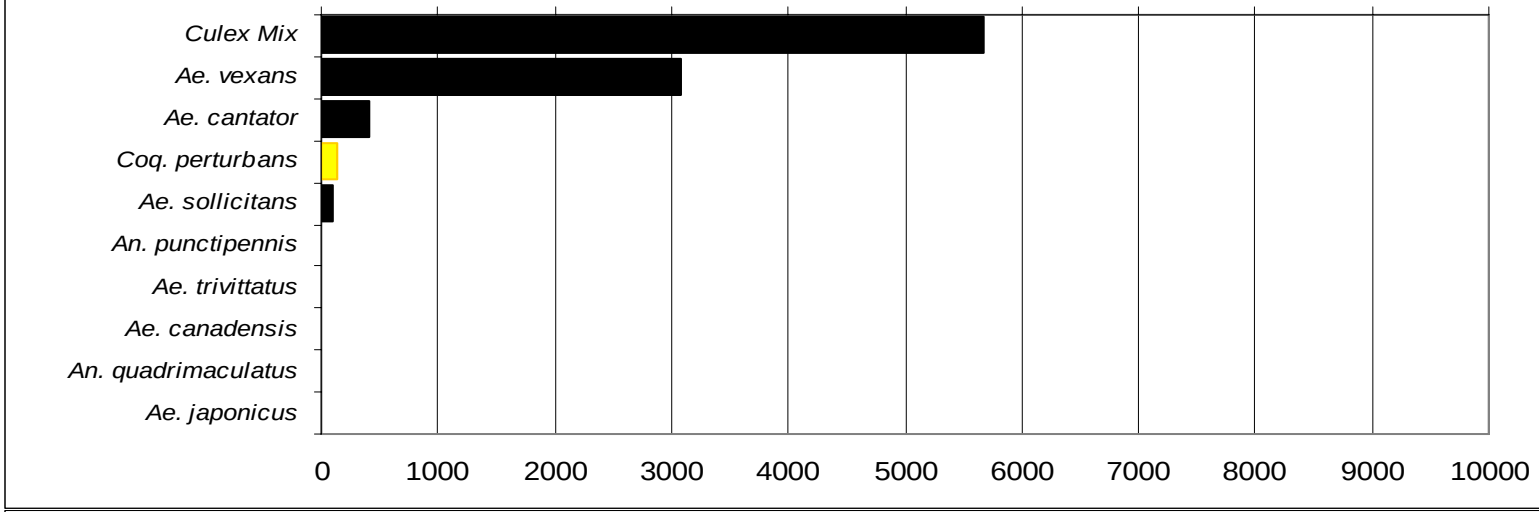
Delaware Bayshore



Delaware River Basin



New York Metropolitan



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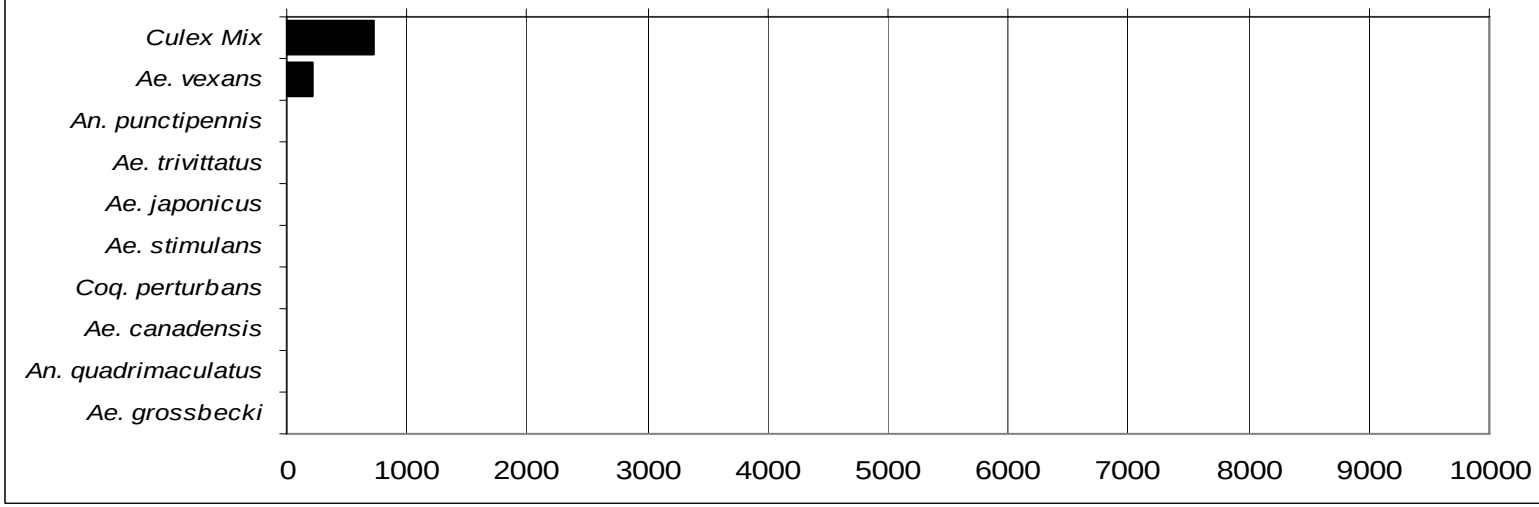

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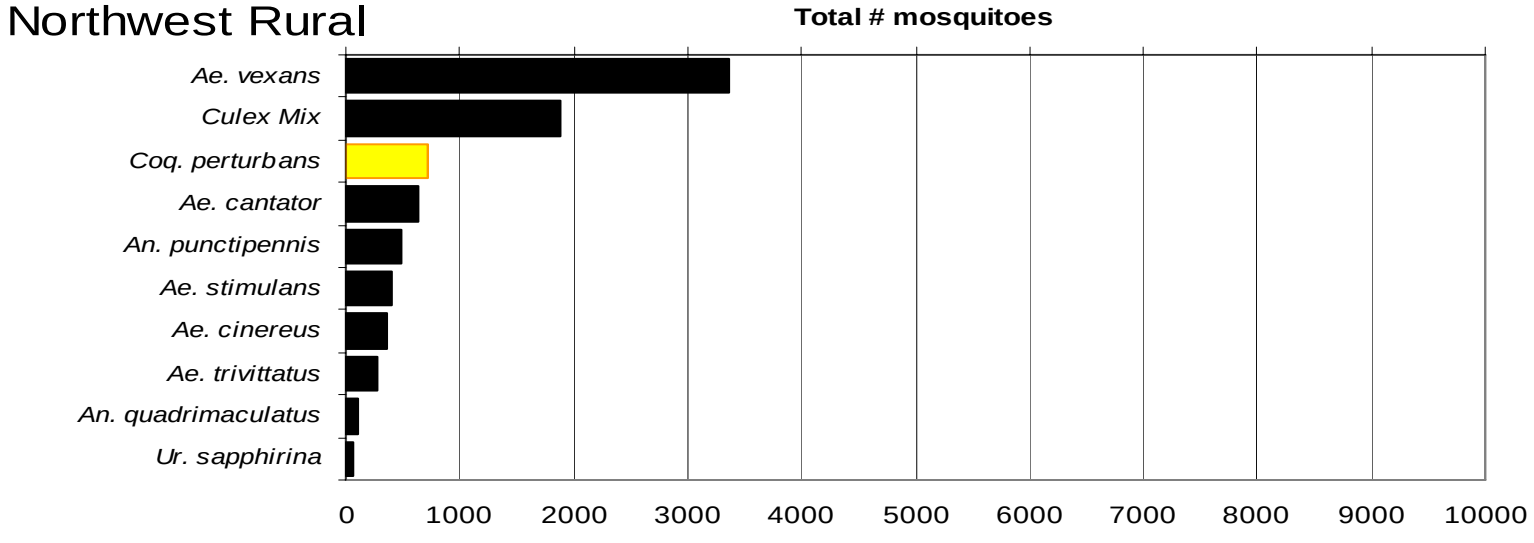

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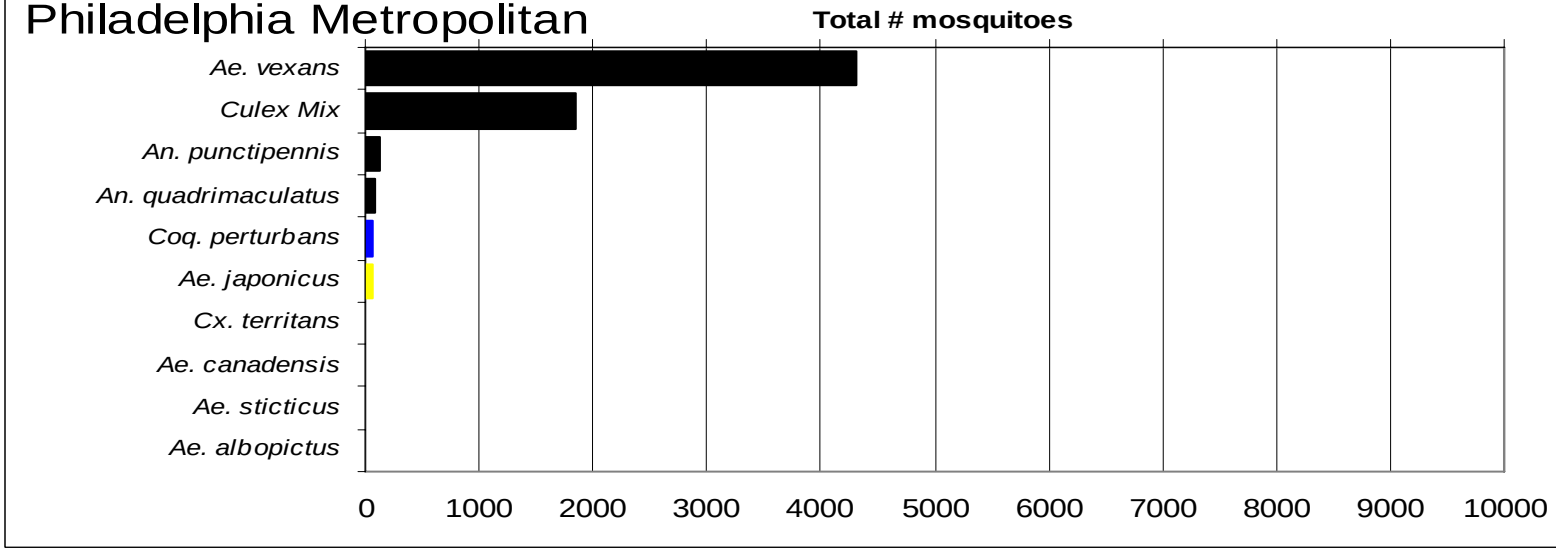
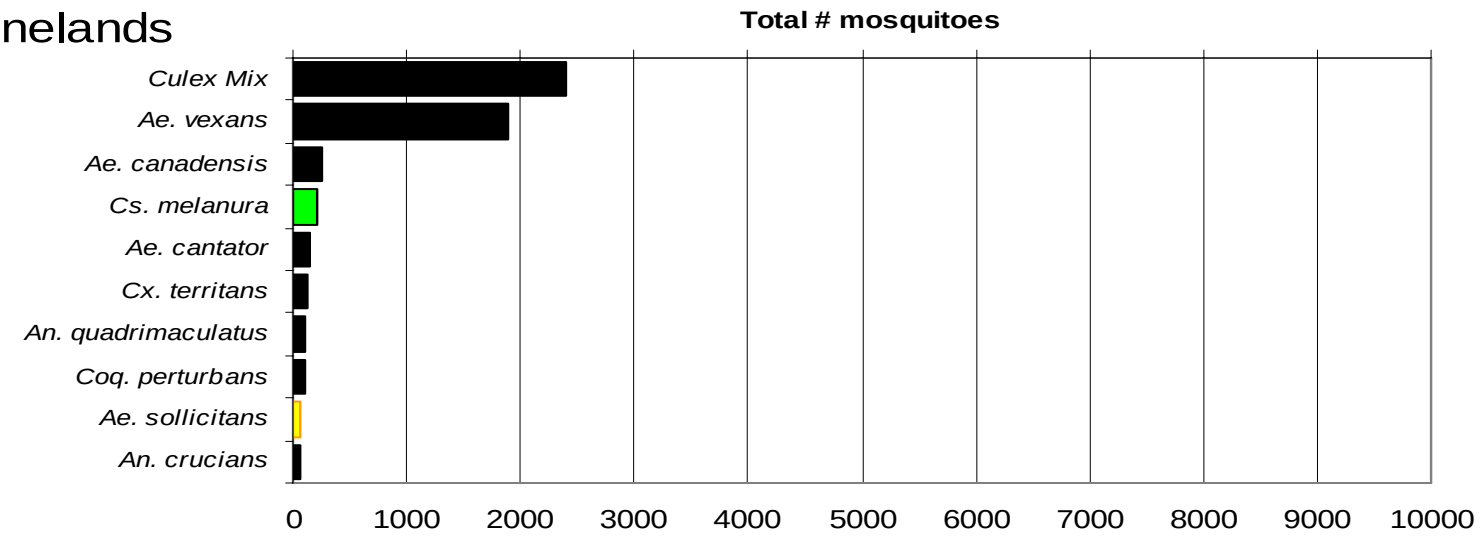


Pinelands



Suburban Corridor