NEW JERSEY STATEWIDE SURVEILLANCE

Week 21 Report for 21 May to 27 May, 2006

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Purpose: Data from 84 New Jersey light traps contributed by county mosquito control agencies are used to calculate 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.

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Figure 1a: Map of ten regions selected for the New Jersey Surveillance Program overlaid with county boarders.

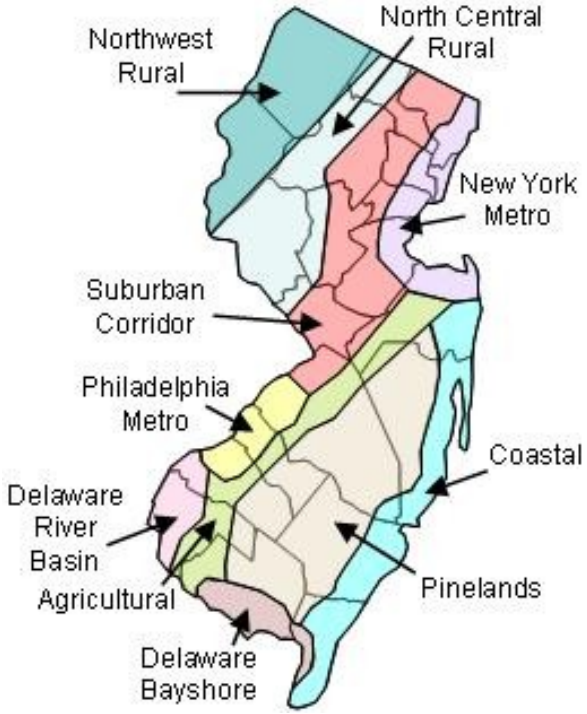


Figure 1b. Trap lat-long locations.

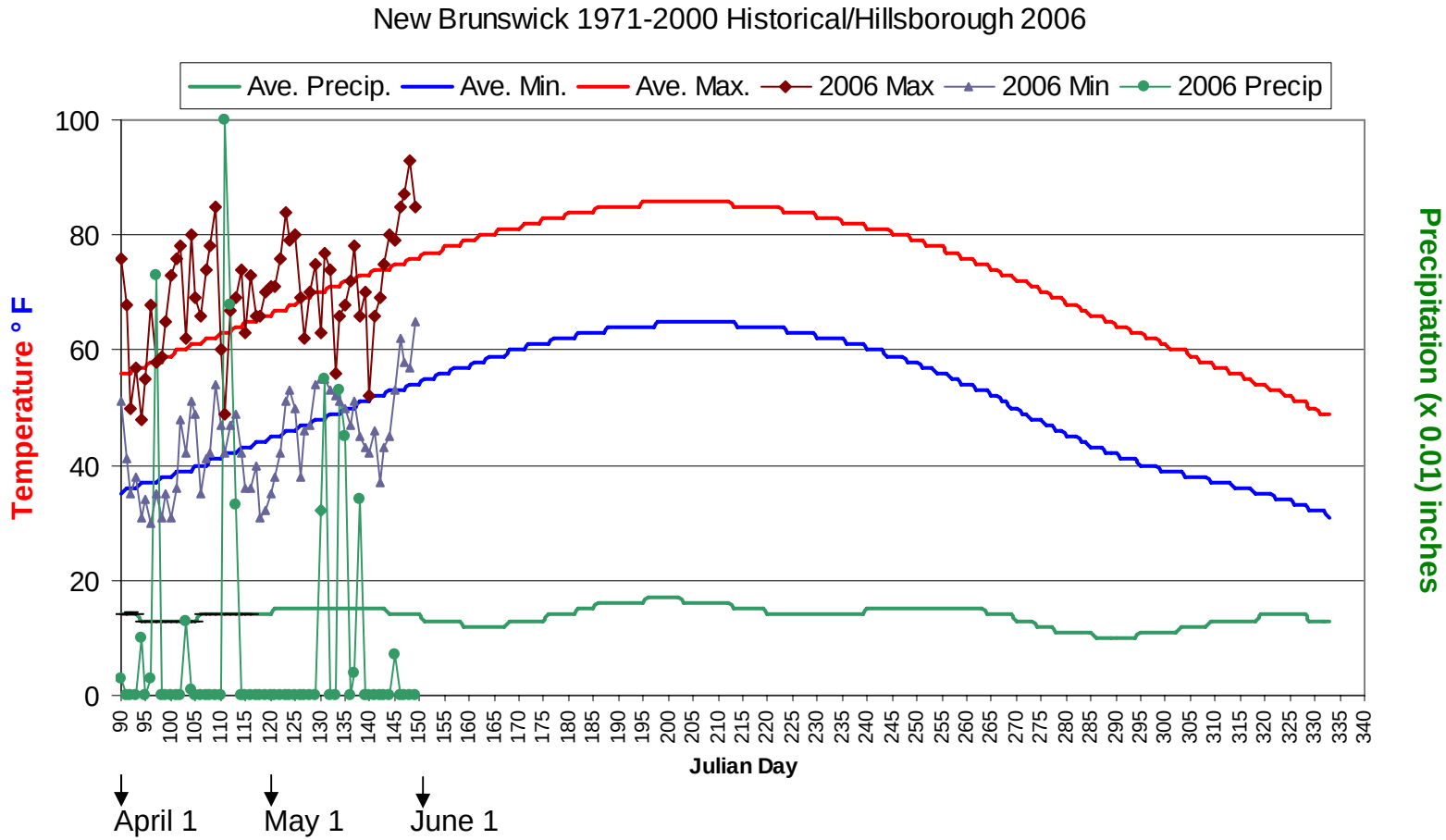
Summary table – Week 21

	Aedes vexans		*Culex complex*		*Coquillettidia perturbans*		*Ochlerotatus sollicitans*	
Region	This Week	Average*	This Week	Average*	This Week	Average*	This Week	Average*
Agricultural	**0.00**	**2.46**	**0.24**	**1.52**	**0.00**	**0.00**	**0.02**	**0.02**
Coastal	**0.00**	**4.21**	**0.27**	**1.10**	**0.00**	**0.02**	**0.06**	**1.09**
Delaware Bayshore	**0.02**	**7.48**	**1.33**	**3.02**	**0.00**	**0.00**	**0.71**	**4.97**
Delaware River Basin	**0.04**	**11.10**	**0.25**	**7.18**	**0.00**	**0.04**	**0.00**	**0.04**
New York Metro	**0.13**	**0.83**	**0.27**	**1.15**	**0.00**	**0.00**	**0.00**	**0.04**
North Central Rural	**0.00**	**0.13**	**0.00**	**0.19**	**0.00**	**0.00**	**0.00**	**0.00**
Northwest Rural	**0.21**	**0.93**	**0.17**	**0.50**	**0.00**	**0.01**	**0.00**	**0.00**
Philadelphia Metro	**0.00**	**4.66**	**0.14**	**2.36**	**0.00**	**0.02**	**0.00**	**0.00**
Pinelands	**0.00**	**1.11**	**0.13**	**1.20**	**0.00**	**0.01**	**0.00**	**0.01**
Suburban Corridor	**0.03**	**1.23**	**0.18**	**0.99**	**0.00**	**0.00**	**0.00**	**0.00**

Graphs include *Ae. vexans, Culex* complex (*Cx. pipiens, Cx. restuans, and Cx. salinarius*), *Oc. sollicitans, Oc. cantator, and Cs. melanura.*

10 of 21 counties in current week; 15 of 21 counties reporting.

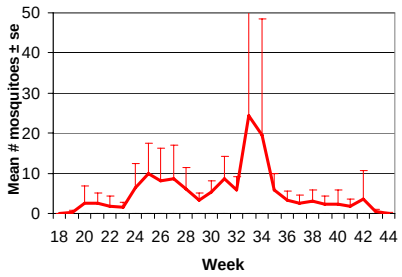
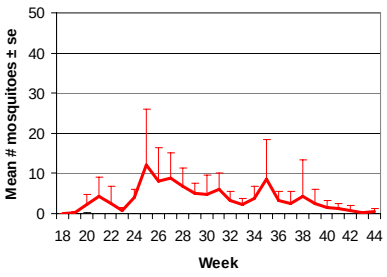
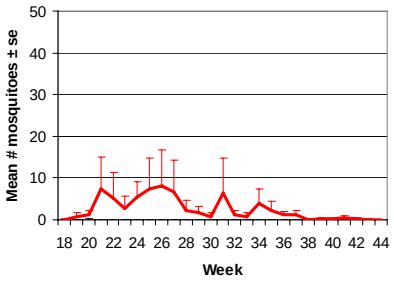
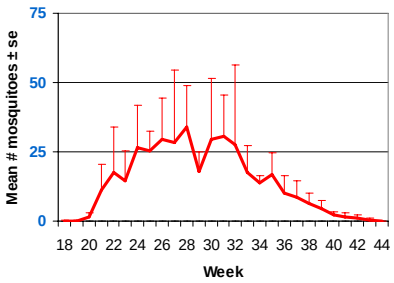
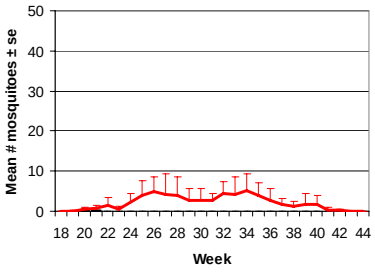
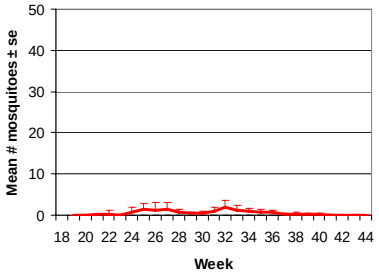
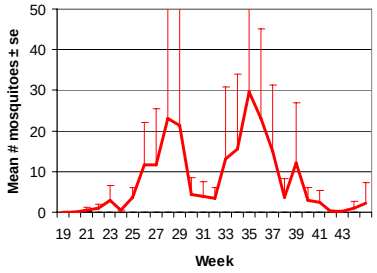
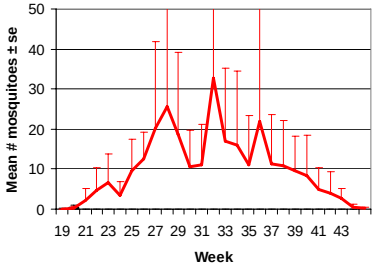
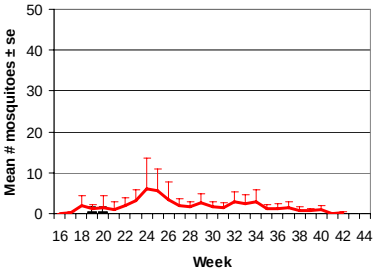
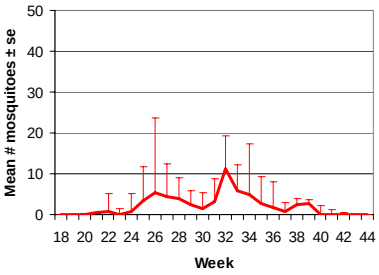
Climate Data



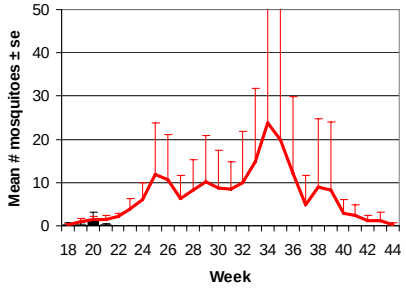
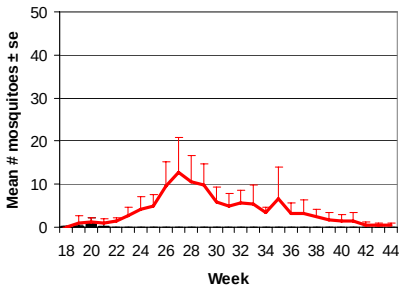
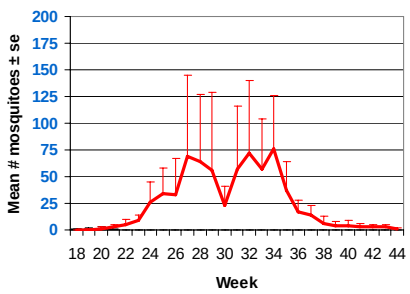
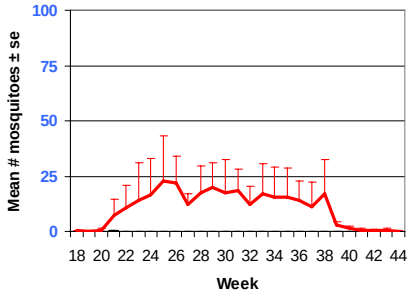
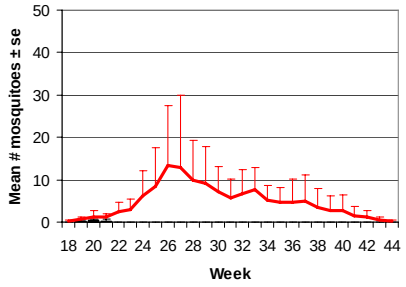
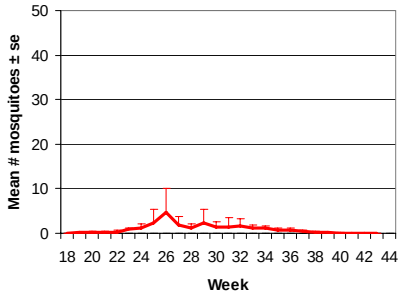
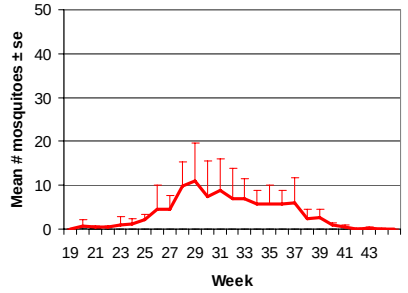
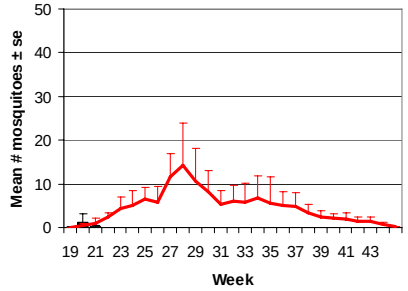
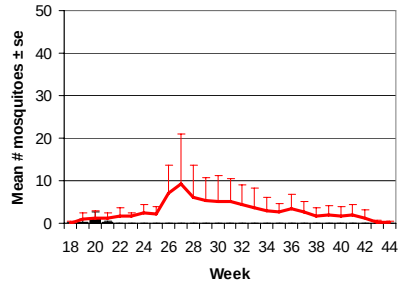
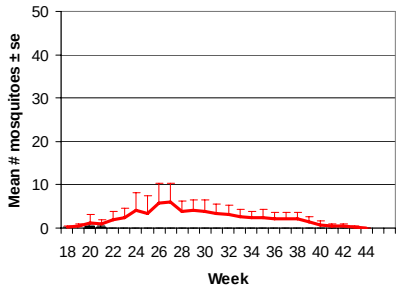
This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist).

Current State Outlook: In April, the state declared drought conditions for New Jersey. Information from the Sate Climatologist indicates that NJ continues to be in drought conditions to date. NOAA calculates Palmer Drought Severity Indices based on rainfall and temperature, and the indices for New Jersey also describe drought (see http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif), at least for the mid-to-southern portions of the state. Although drought conditions might suggest that mosquito population levels might be lower than normal (overall true for last year), the scale that mosquitoes operate dictate that local conditions have the most impact. And, currently, this impact on the disease threat of any population is unknown – drought conditions may result in concentrated populations of both hosts and vectors, and higher transmissions might occur. More information on this is needed.

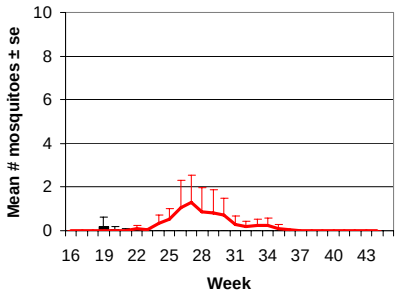
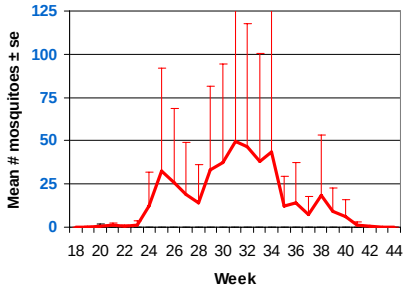
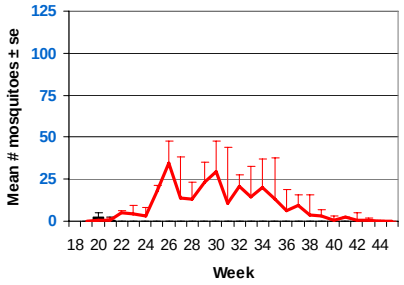
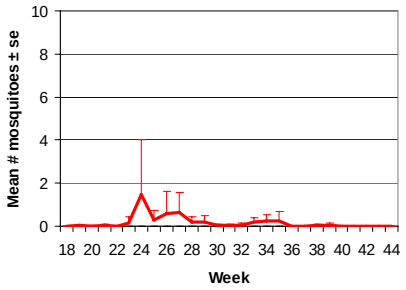
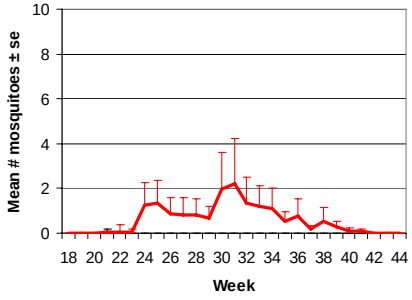
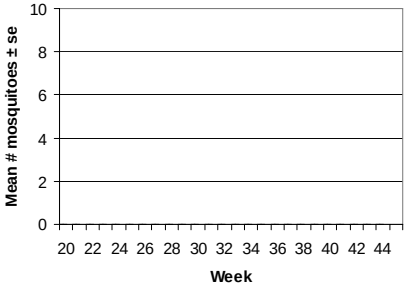
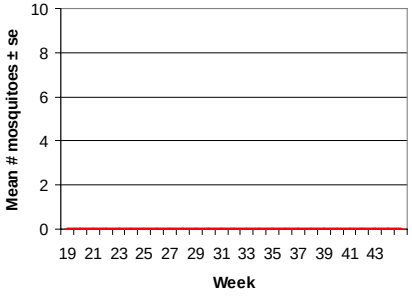
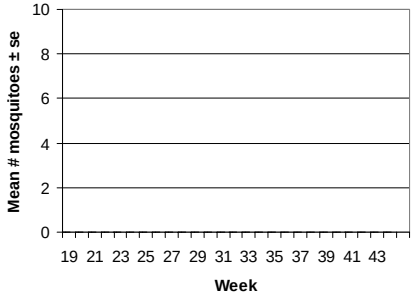
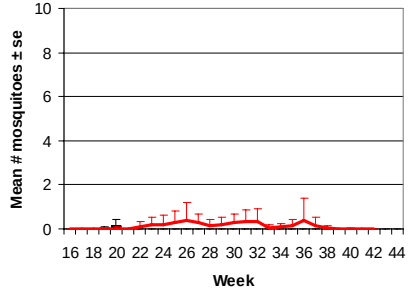
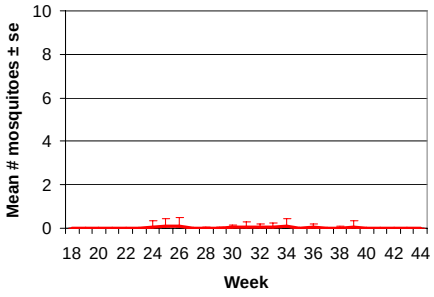
Aedes vexans - Fresh Floodwater Species

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Increasing (above low 40's) nighttime temperatures encourage a flying population, and numerous days in the recent weeks have been well above that. Activity has been reported in most traps involved with this project reporting thus far, including the Delaware Bayshore and River Basin, the New York Metro, the Pinelands, and the Suburban Corridor. This cosmopolitan mosquito can be found in an extensive range of habitat, from the typical ephemeral flooded areas in an open field to the shaded tire.	

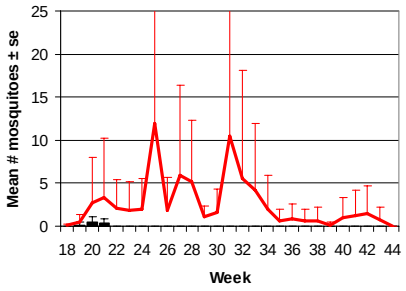
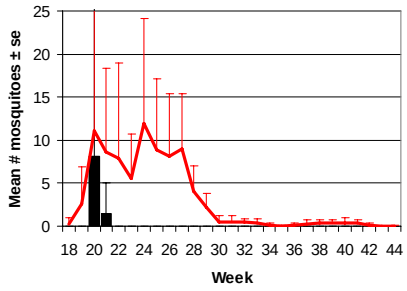
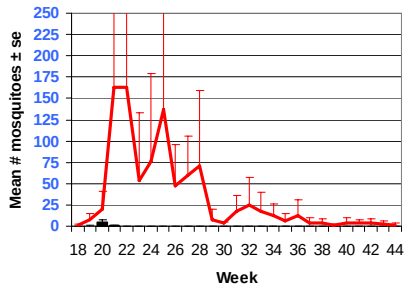
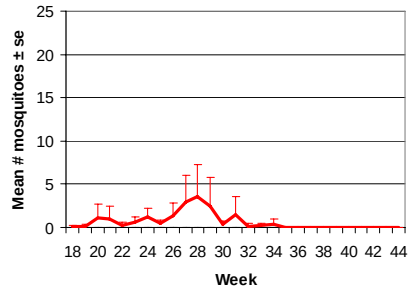
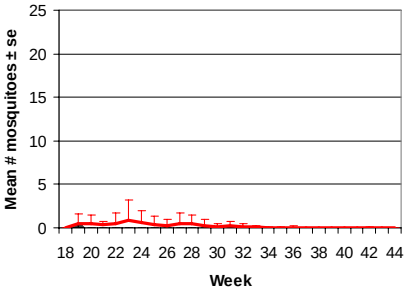
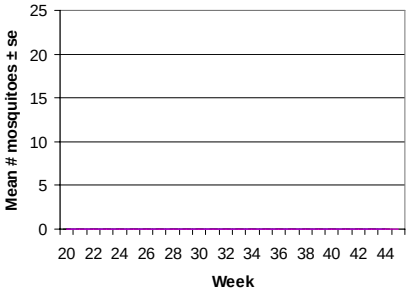
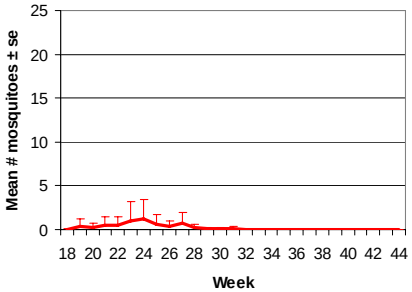
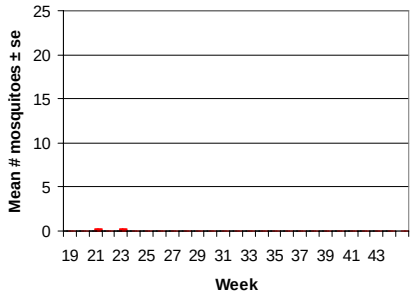
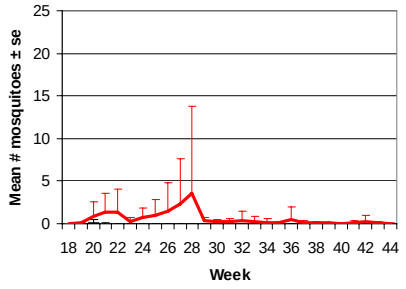
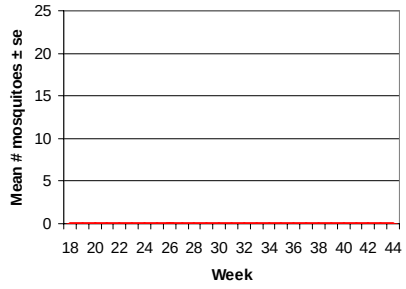
Culex Complex - Multivoltine Culex Species

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* species are slowly on their way building up of their populations in a manner that reflects the characteristics of their multivoltine nature (several generations and a persistence of individuals). This genus plays significant roles in several encephalitides (SLE, WN) as well as heartworm. But interpreting these graphs requires acknowledgement that different species contribute in varying proportions in different regions. *Complex* refers not to a deeper nature, but rather to the combination of several species (*pipiens, restuans,* and *salinarius)*. Thus, as *Culex restuans* is more likely to be found in agricultural areas, this species therefore contributes more heavily in that regions' dataset than in areas where their abundance is reduced.	

Ochlerotatus sollicitans - Salt Marsh Floodwater Species

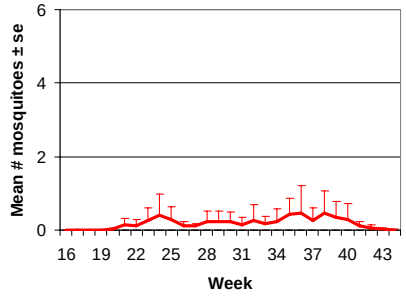
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Ochlerotatus sollicitans* is beginning to show some activity in both the coastal and Delaware Bayshore, as well in other regions, but their truly significant numbers are yet to come. This species is affected by not only tidal action but floodwaters as well.	

Ochlerotatus cantator – Multivoltine Aedine, sollicitans type

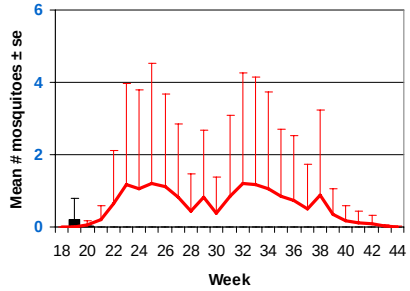
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Ochlerotatus cantator* can occupy the same niche as *sollicitans*, but competition is reduced as *cantator* is an early-season mosquito. In addition, while both *cantator* and *sollicitans* are facultative halophiles, *cantator* appears to be more tolerant of less saline conditions. They can be found in association with numerous species like the similar-appearing *Ochlerotatus canadensis.* Unlike their longer-gilled relatives, *cantator* are more likely to retain their shorter gills after a violent collection, thus allowing the two species to be told apart.	

Culiseta melanura – Miscellaneous Group

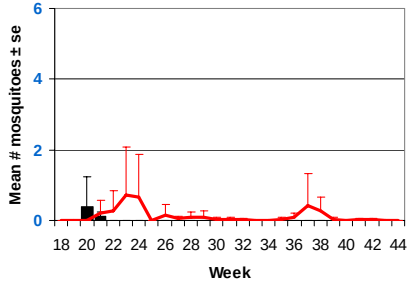
Agricultural



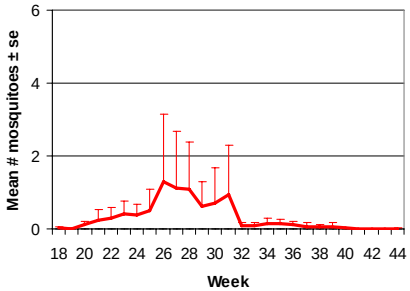
Coastal



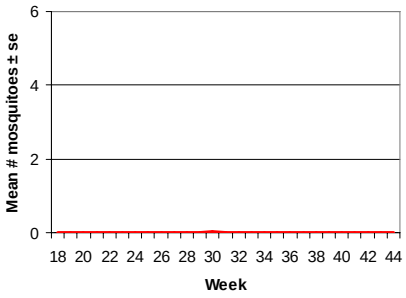
Delaware Bayshore



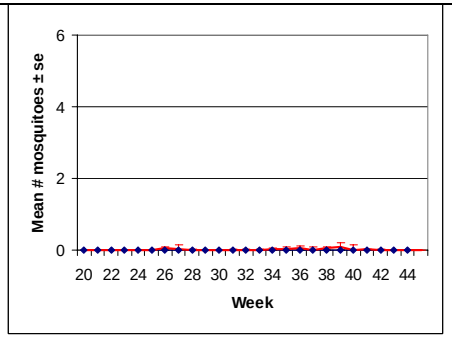
Delaware River Basin



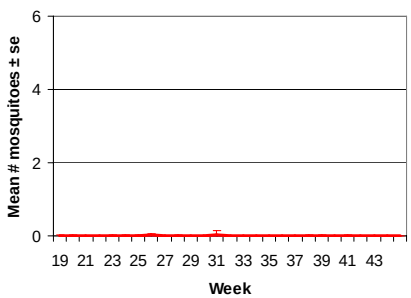
New York Metro



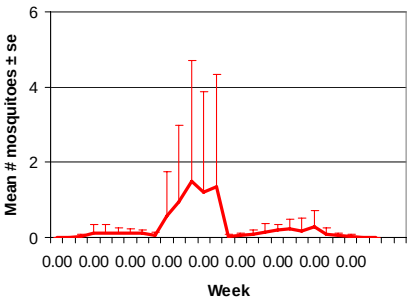
North Central Rural



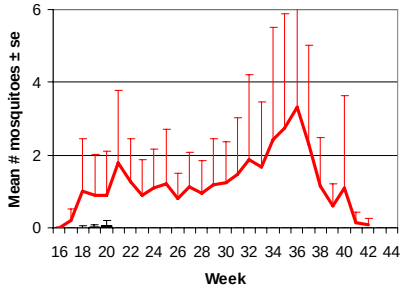
Northwestern Rural



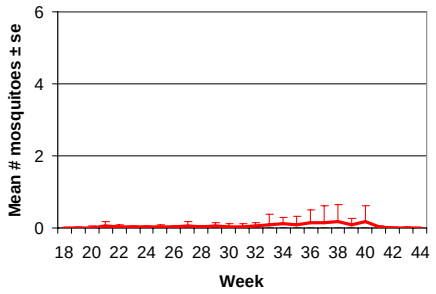
Philadelphia Metro



Pinelands



Suburban Corridor



Comments

The vector of significance for Eastern Equine Encephalitis, *Culiseta melanura,* has begun to emerge from their overwintering crypts in several regions. Recent historical data of this species appear to be lower than past trends would suggest, but this trend has not resulted in a cessation of EEE activity.

The low trends observed here should self-correct as historical records used for the state surveillance reflect only the past 5 years.