NEW JERSEY STATEWIDE SURVEILLANCE

Week 30 Report for 20 July to 26 July, 2005

Submitted by Lisa M. Reed
Mosquito Research and Control Unit
Rutgers University, New Brunswick, NJ 08901

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.

This is New Jersey Agricultural Experiment Station publication No. PT-08-40500-32-05 supported by Hatch funds and funding from the NJ State Mosquito Control Commission. Prepared by Lisa M. Reed.

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

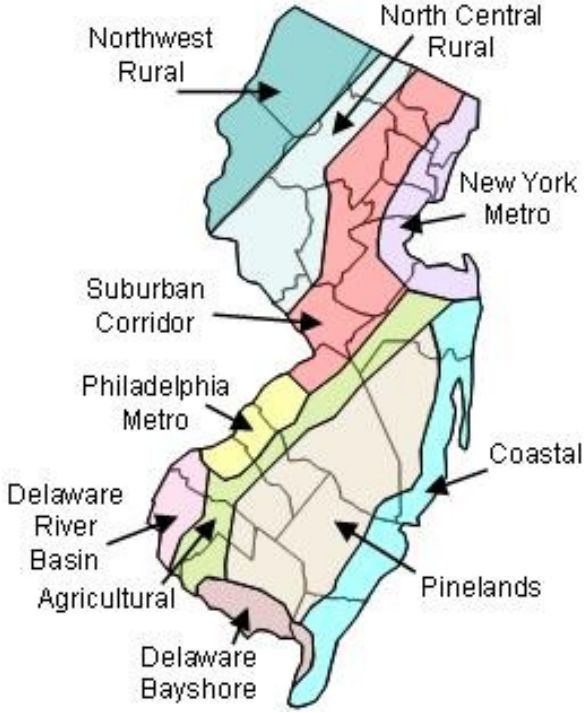


Figure 1b. Trap lat-long locations.

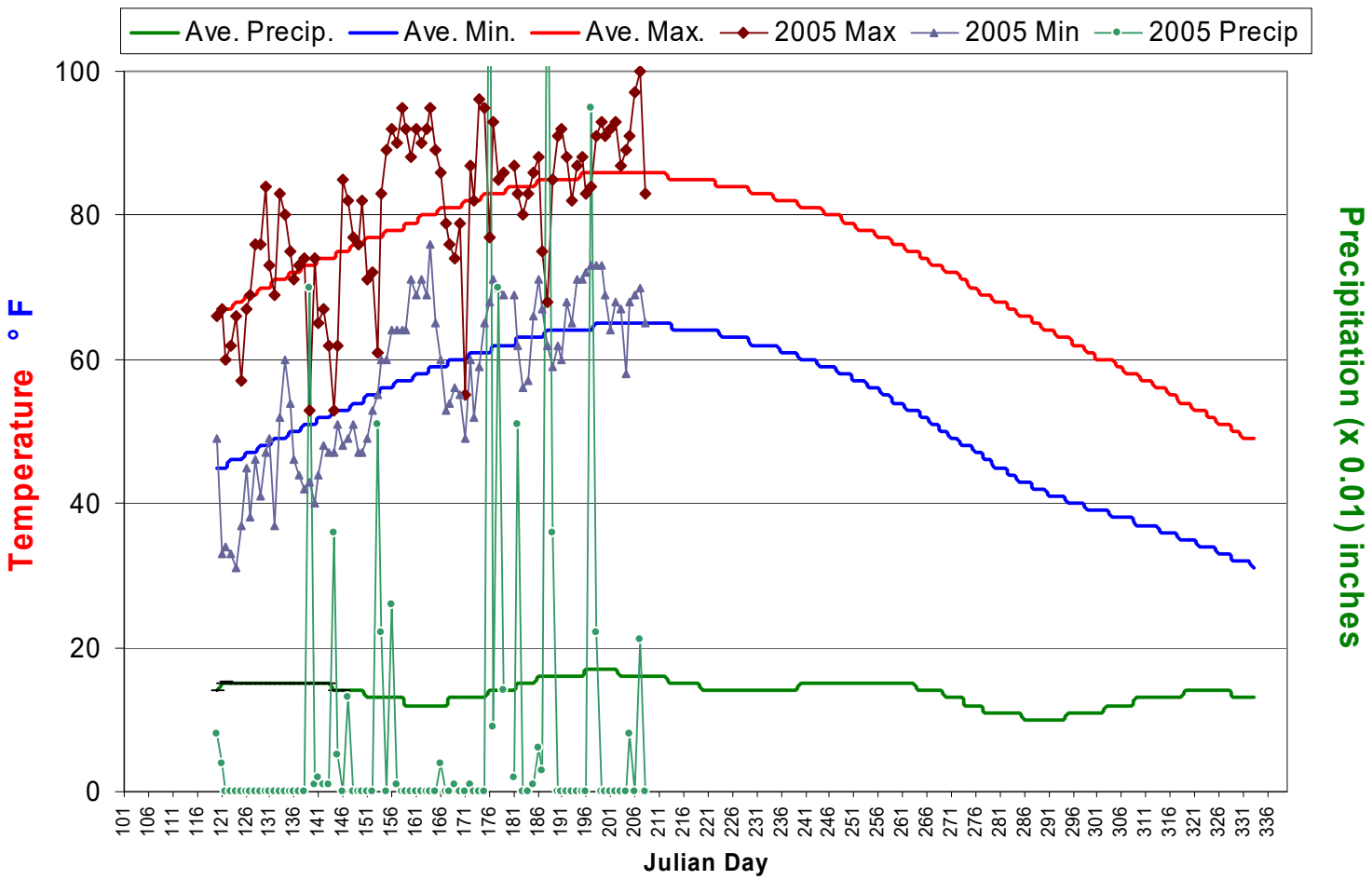
Summary table – Week 30

	Aedes vexans		*Culex complex*		*Coquillettidia perturbans*		*Ochlerotatus sollicitans*	
Region	This Week	Average*	This Week	Average*	This Week	Average*	This Week	Average*
Agricultural	**6.43**	**3.85**	**1.45**	**10.95**	**1.10**	**0.43**	**0.14**	**1.35**
Coastal	**9.49**	**1.96**	**1.67**	**6.66**	**1.59**	**0.52**	**26.44**	**40.32**
Delaware Bayshore	**0.00**	**8.64**	**16.93**	**24.73**	**0.00**	**3.60**	**9.54**	**11.33**
Delaware River Basin	**24.50**	**23.61**	**0.00**	**23.93**	**0.07**	**0.02**	**0.00**	**0.11**
New York Metro	**2.76**	**1.72**	**5.33**	**6.81**	**0.09**	**0.15**	**0.03**	**1.18**
North Central Rural	**0.43**	**0.14**	**0.12**	**3.27**	**0.00**	**0.19**	**0.00**	**0.00**
Northwest Rural	**11.33**	**3.33**	**0.62**	**7.86**	**0.00**	**0.23**	**0.00**	**0.00**
Philadelphia Metro	**7.37**	**9.06**	**1.57**	**8.05**	**0.64**	**0.21**	**0.00**	**0.01**
Pinelands	**1.73**	**1.57**	**0.68**	**5.60**	**4.56**	**0.72**	**0.04**	**0.19**
Suburban Corridor	**4.15**	**3.52**	**0.94**	**4.48**	**0.39**	**1.82**	**0.00**	**0.05**

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

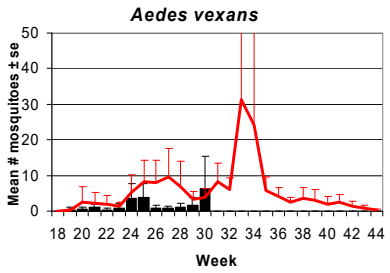
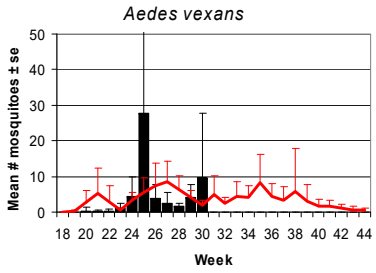
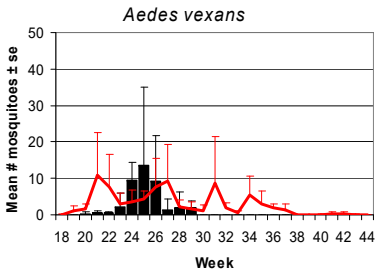
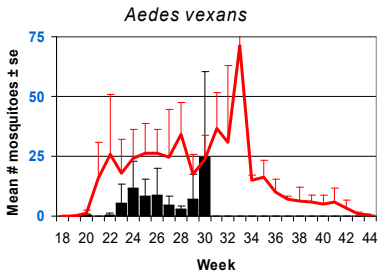
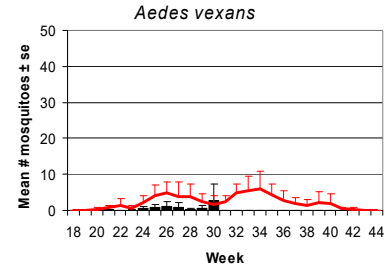
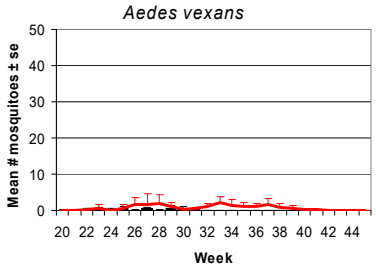
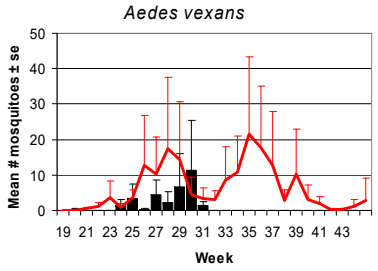
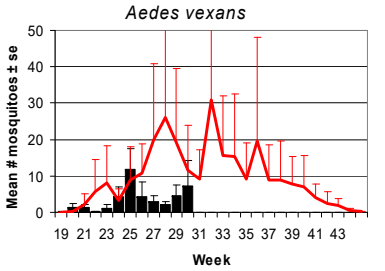
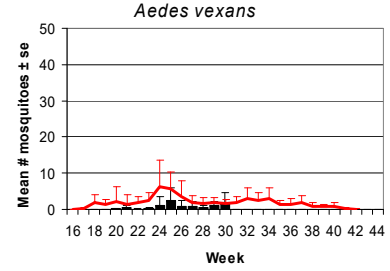
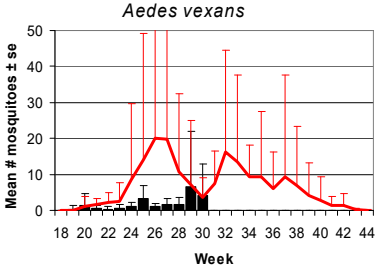
15 of 21 counties in current week; 20 of 21 counties reporting.

Climate Data

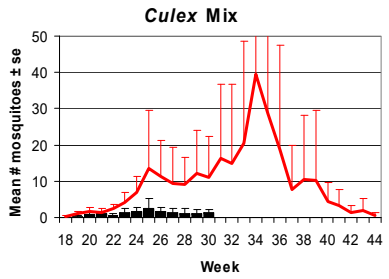
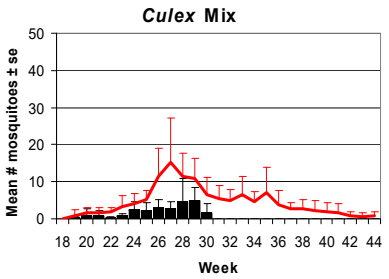
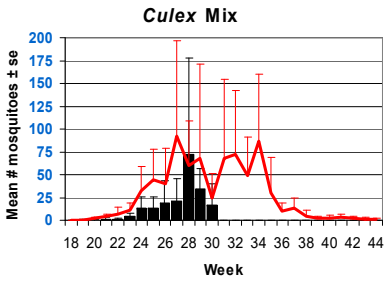
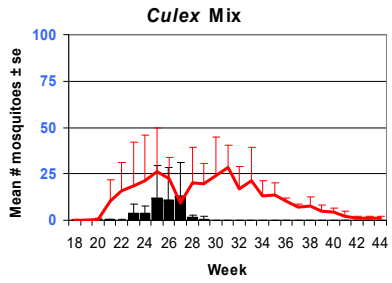
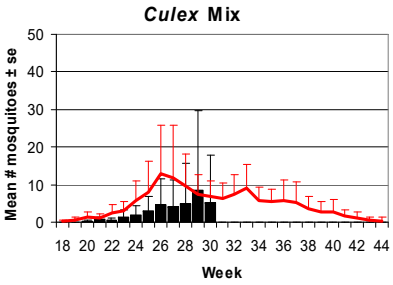
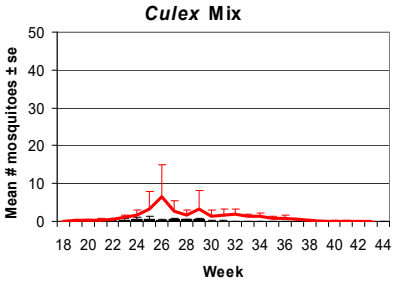
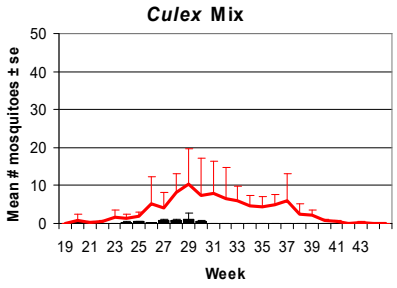
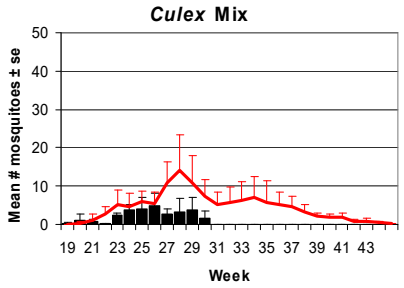
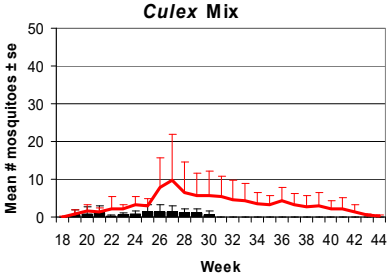
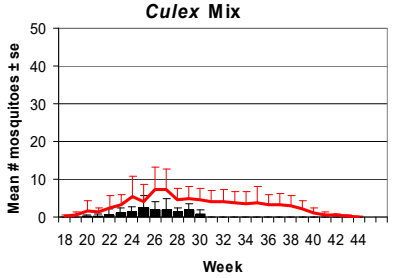


This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station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

Aedes vexans - Fresh Floodwater Species

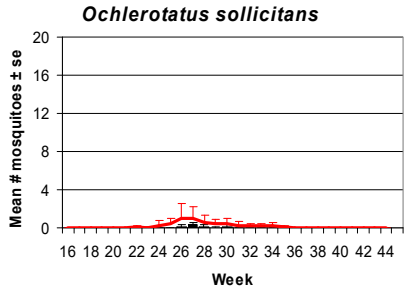
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations continue to run lower than recent historical data would indicate, for most regions. The Coastal habitat appeared to have two emergences, this week being the most recent, that were substantially larger, in some areas, than the historical means. But, the trend continues to indicate locally abundant populations after rainfall, against a background of generally lower-than-expected populations.	

Culex Complex - Multivoltine *Culex* Species

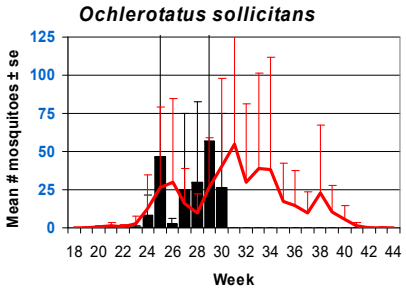
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* numbers, as with *Ae. vexans*, are also lower throughout most regions of the state, particularly the Agricultural, Northwest Rural, and Pinelands habitats. Overall suppression of populations appear quite noticeable in the Agricultural habitat, while in areas like the Delaware Bayshore and New York Metro, the population peaks were delayed by a few weeks. The first scenario might suggest little vector support for West Nile transmission between virus hosts (birds), and thus a reduced amplification period. However, *Culex* pools that have tested positive for West Nile virus are now being found in the suburban and metropolitan areas. The degree of WN activity for this current year remains to be seen.	

Ochlerotatus sollicitans - Salt Marsh Floodwater Species

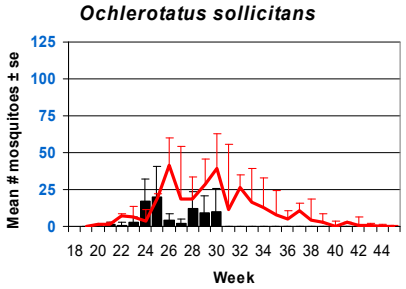
Agricultural



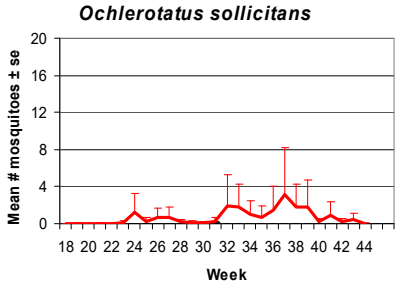
Coastal



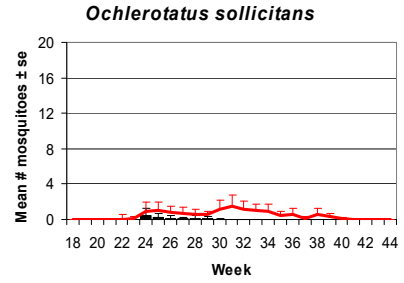
Delaware Bayshore



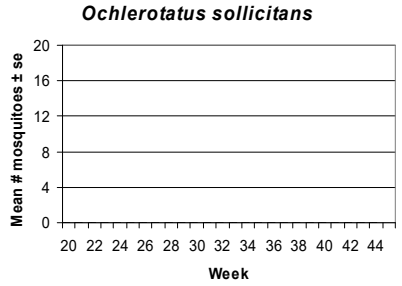
Delaware River Basin



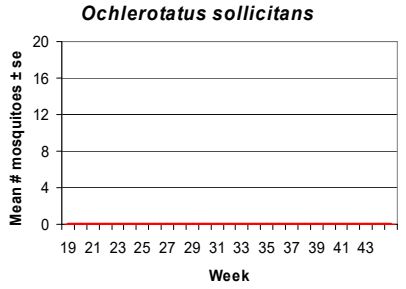
New York Metro



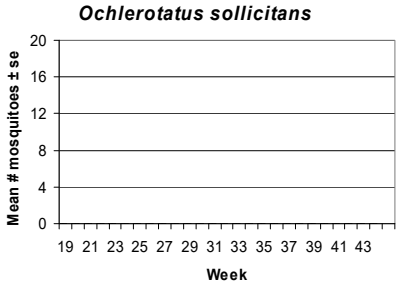
North Central Rural



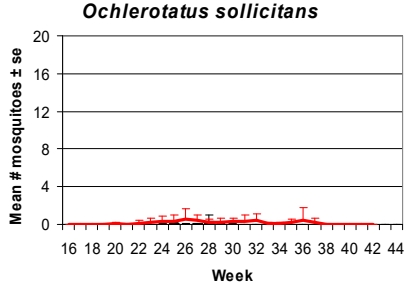
Northwestern Rural



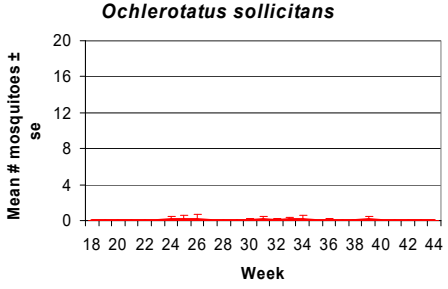
Philadelphia Metro



Pinelands



Suburban Corridor

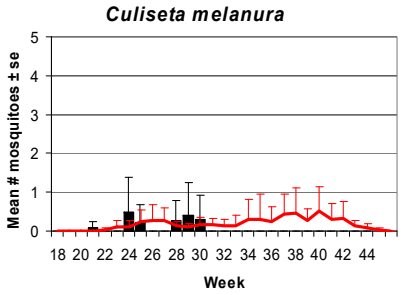


Comments

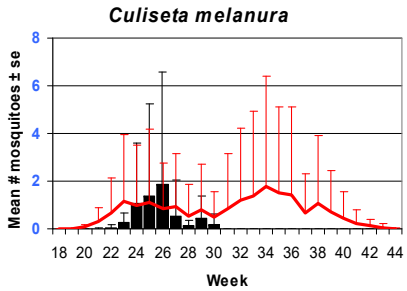
The second emergence of *Ochlerotatus sollicitans* is starting to decline, but population levels overall should slowly climb as broods overlap. Peak abundances are occurring about now, and population levels should begin to drop off over the next several weeks.

Culiseta melanura – Miscellaneous Group

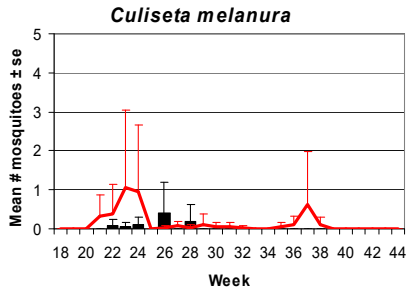
Agricultural



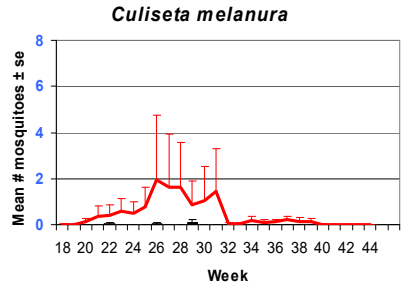
Coastal



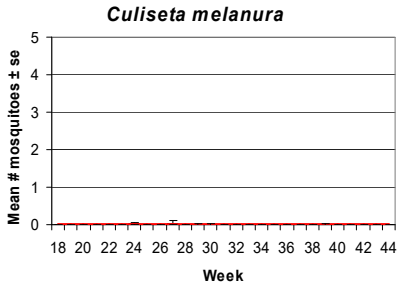
Delaware Bayshore



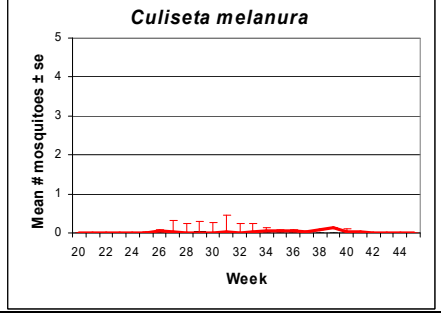
Delaware River Basin



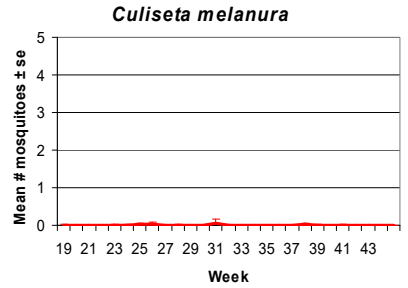
New York Metro



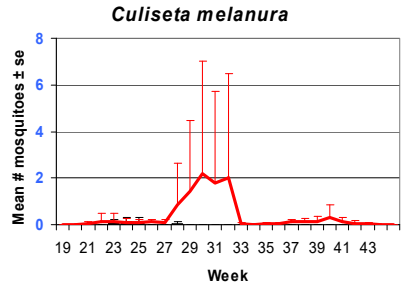
North Central Rural



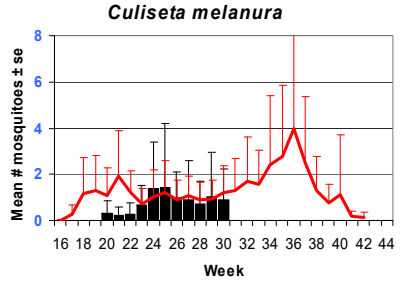
Northwestern Rural



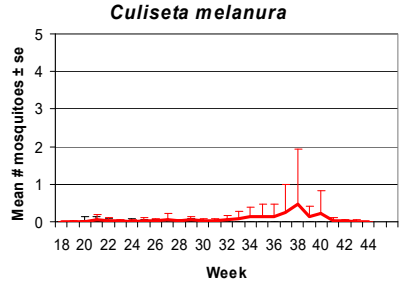
Philadelphia Metro



Pinelands



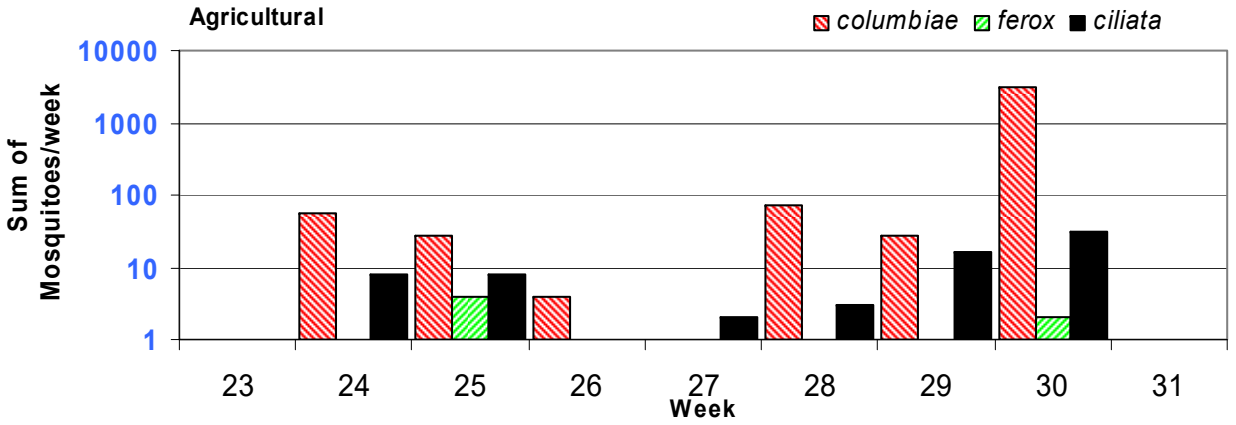
Suburban Corridor



Comments

The seasonal patterns for *Culiseta melanura* populations seem to indicate that the overall cycle was delayed by several weeks throughout the range of habitat. Eastern equine encephalitis has shown increasing activity throughout the eastern seaboard, both north and south of New Jersey and includes both horse and human cases.

Predator-Prey: *Psorophora ciliata*, a voracious larva, will prey on other floodwater species, such as the smaller *Ps. columbiae*. Thus, the typical predator-prey graphs can be seen when number are sufficiently large. Another large psorophoran, *Ps. ferox* is also present, indicating long-standing water nearby. Note the exceptional numbers of *Ps. ciliata* in this current week (log scale).



Ochlerotatus cantator can exploit habitat with lowered salinity – a situation that can occur after rains. This can result in a later-season emergence, as had happened in the Coastal habitat two weeks prior, and currently in the Agricultural and Delaware Bayshore habitat.

Coastal Habitat	Agricultural Habitat	Delaware Bayshore Habitat