NEW JERSEY STATEWIDE SURVEILLANCE

Week 28 Report for 9 July to 15 July, 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.

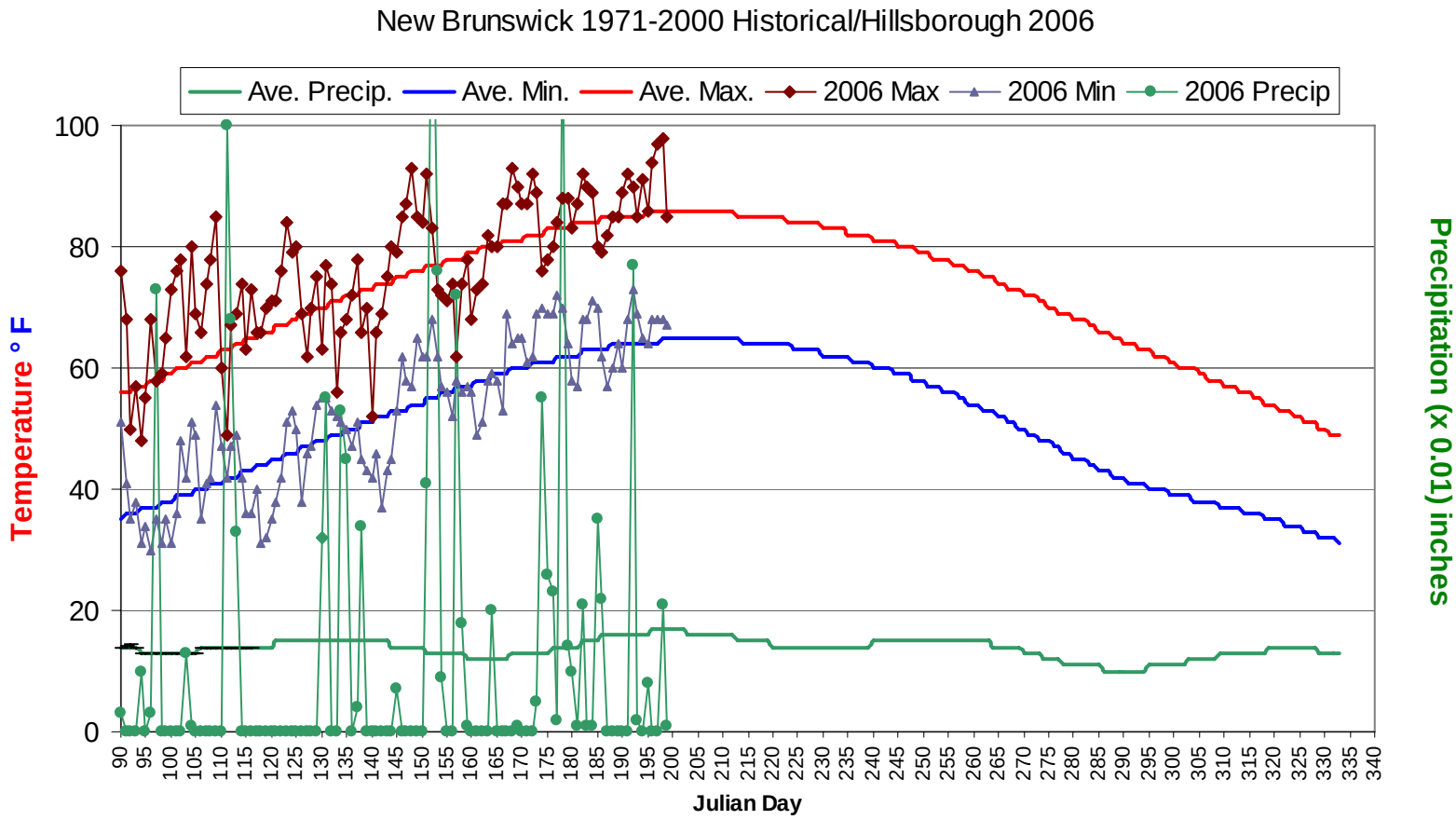
Summary table – Week 28

	Aedes vexans		*Culex complex*		*Coquillettidia perturbans*		*Ochlerotatus sollicitans*	
Region	This Week	Average*	This Week	Average*	This Week	Average*	This Week	Average*
Agricultural	**2.11**	**6.18**	**0.95**	**8.25**	**0.17**	**0.87**	**0.00**	**0.21**
Coastal	**5.03**	**6.73**	**3.25**	**10.51**	**0.08**	**2.97**	**15.11**	**14.33**
Delaware Bayshore	**0**	**2.17**	**0**	**63.89**	**0.10**	**4.84**	**0**	**22.95**
Delaware River Basin	**0**	**34.00**	**0**	**17.44**	**0**	**0.53**	**0**	**0.19**
New York Metro	**6.81**	**4.00**	**3.69**	**10.01**	**0.10**	**0.25**	**0.27**	**0.82**
North Central Rural	**0.10**	**0.75**	**0.14**	**1.99**	**0.00**	**0.09**	**0.00**	**0.00**
Northwest Rural	**0**	**21.37**	**0**	**11.11**	**0.00**	**0.16**	**0**	**0.00**
Philadelphia Metro	**10.57**	**18.74**	**2.71**	**10.64**	**0.00**	**1.45**	**0.00**	**0.00**
Pinelands	**0.00**	**3.44**	**0.48**	**6.01**	**0.06**	**2.77**	**0.01**	**0.40**
Suburban Corridor	**2.33**	**7.87**	**0.75**	**3.75**	**0.02**	**19.60**	**0.00**	**0.01**

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

14 of 21 counties in one or both weeks; 20 of 21 counties reporting.

Climate Data

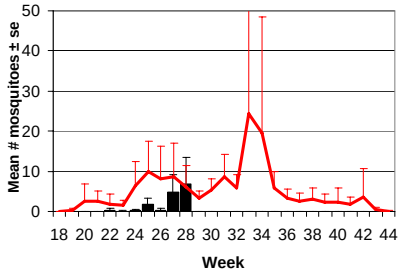
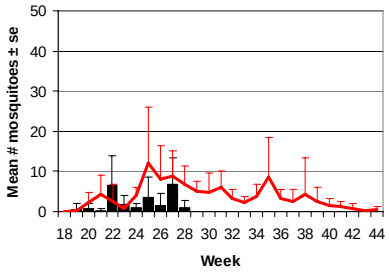
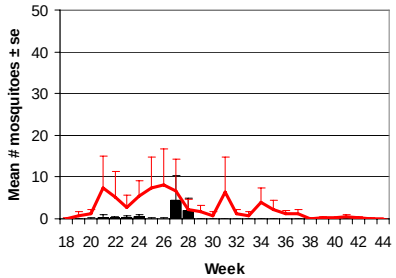
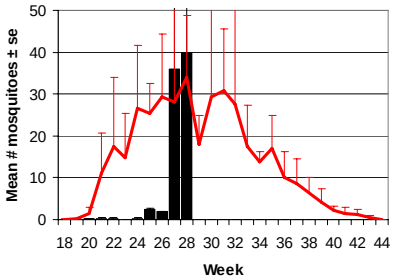
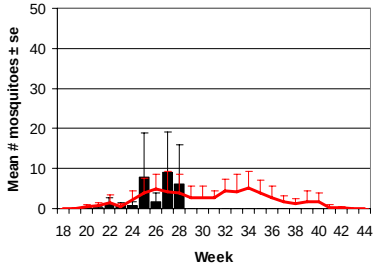
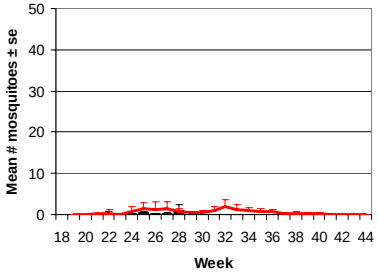
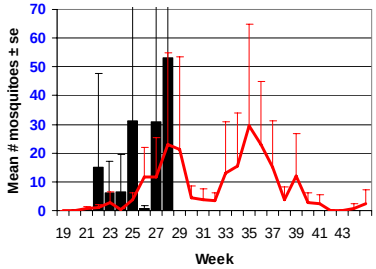
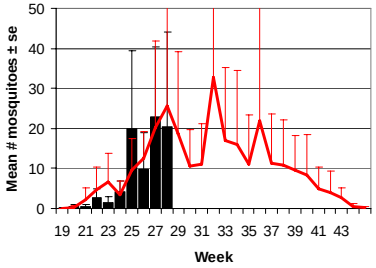
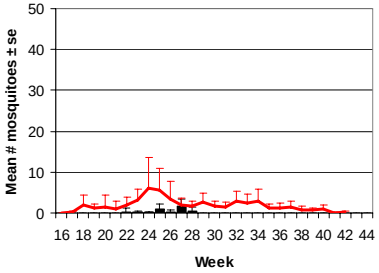
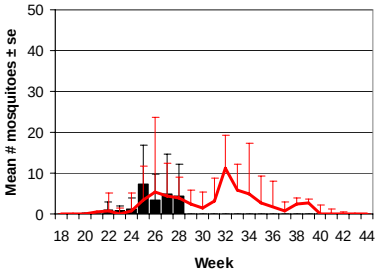


This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station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

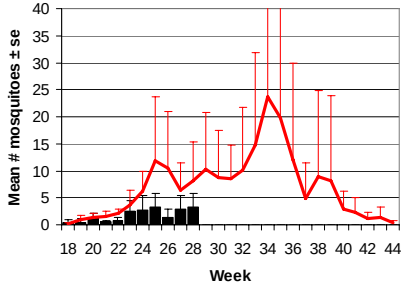
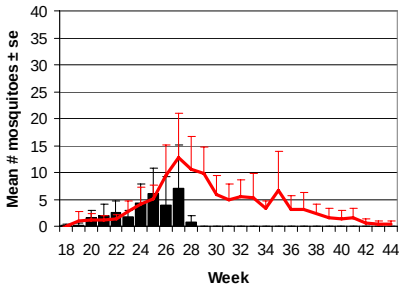
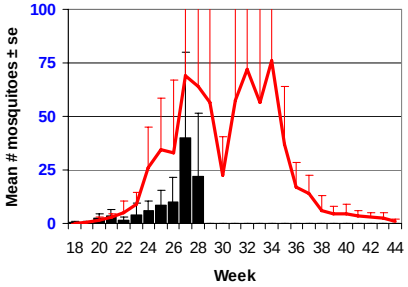
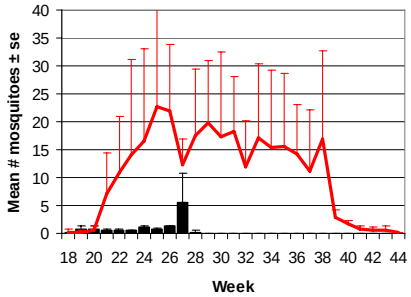
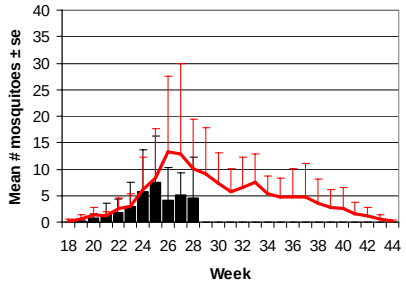
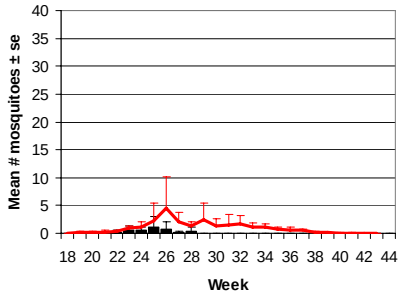
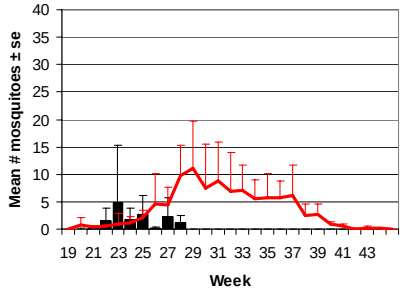
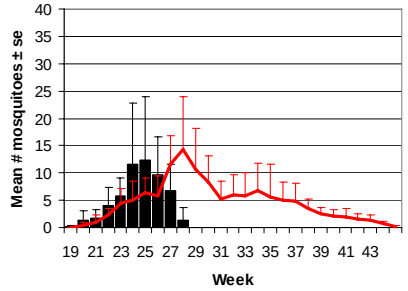
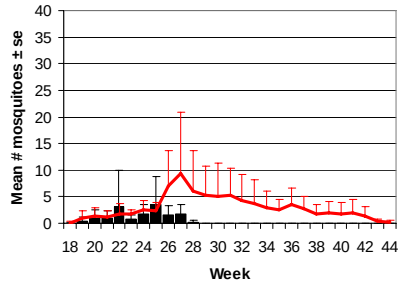
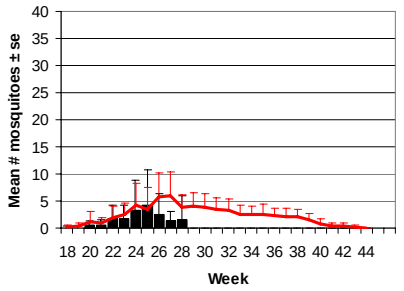
The state climatologist has an extensive amount of climatological historical data as well as stations reporting current conditions and forecasts:

http://climate.rutgers.edu/stateclim/

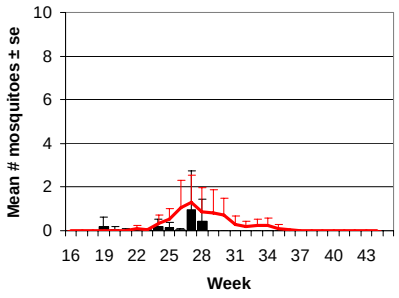
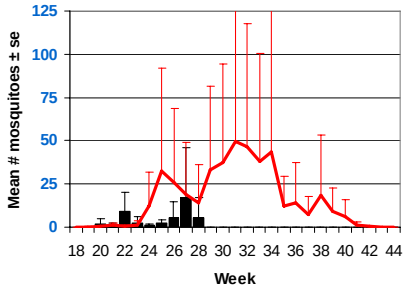
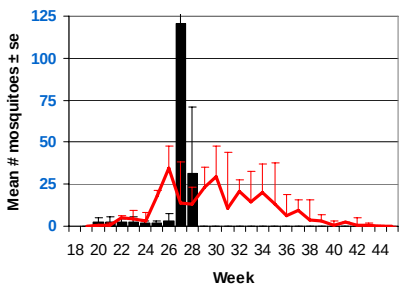
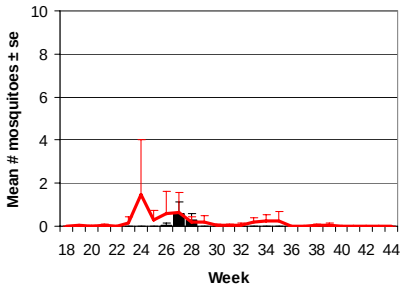
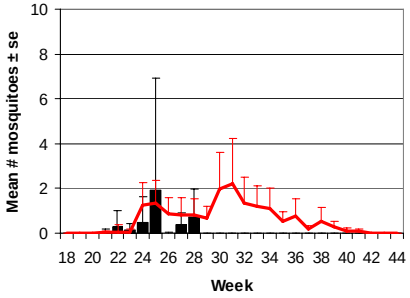
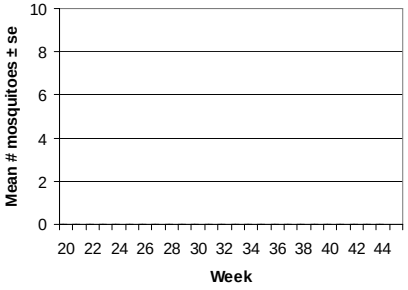
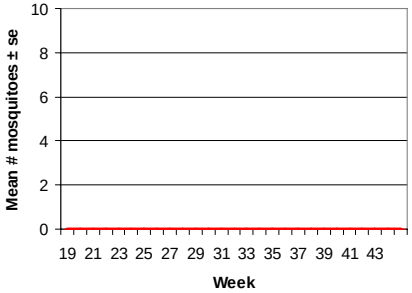
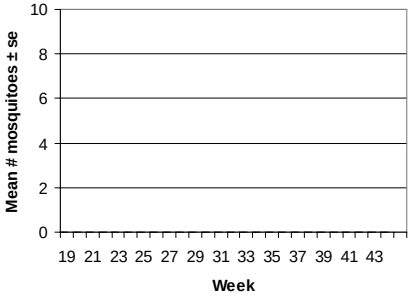
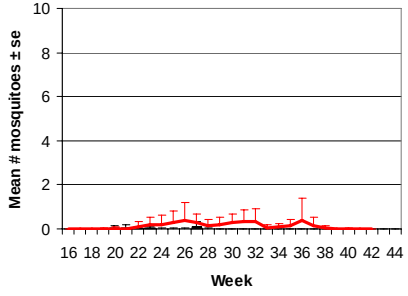
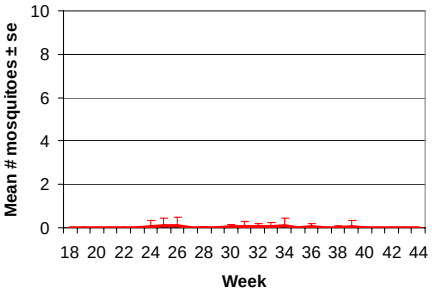
Aedes vexans - Fresh Floodwater Species

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations exploded in the Northwestern Rural and Delaware River Basin regions over the past two weeks. The former region values approached to just under one standard error while the latter region appeared to be catching up to historical trends after a rather slow start. The two metropolitan regions appear to be hosting normal population loads as does the Suburban Corridor. Recent rains and warm weather should encourage further emergences over the next several weeks that should be ameliorated by control efforts before natural seasonal decreases begin.	

Culex Complex - Multivoltine Culex Species

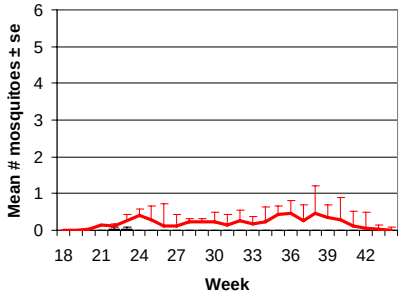
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culex* populations through most regions continue to display the slow, steady buildup typical of the multivoltine *Culex* life histories. Populations in the Delaware Bayshore region took a significant upswing two weeks ago, pushing this year's trends for that region toward recent historical patterns. The Delaware River Basin, however, continues to show very low numbers, and these values appear to be disassociated from other species (i.e., *Ae. vexans*). A recent change in dredging practices may have influenced an emergence of floodwater species such as *Ae. vexans* and *Oc. sollicitans* and not affect those species relying on more permanent waters. Increases were seen in both of the former but only briefly in the latter.	

Ochlerotatus sollicitans - Salt Marsh Floodwater Species

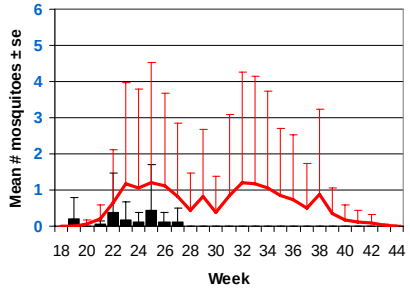
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		A spectacular *Ochlerotatus sollicitans* emergence occurred in the Delaware Bayshore region two weeks ago that is significantly larger than recent historical trends have indicated. While the gross map for the USGS Water Resources division suggest a higher-than-normal amount of water coming through the watershed for southern regions of NJ, a closer inspection of the Maurice River drainage shows no higher-than-normal output at Norma nor Bivalve. The Agricultural region and, to a smaller extent, the Pinelands region are both collecting this aggressive biter inland, revealing the migratory nature of *Oc. sollicitans*.	

Culiseta melanura – Miscellaneous Group

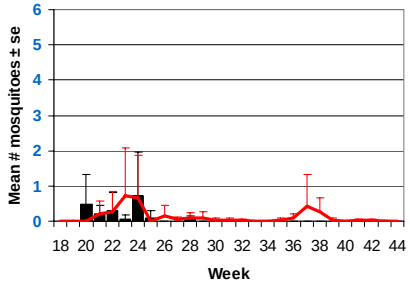
Agricultural



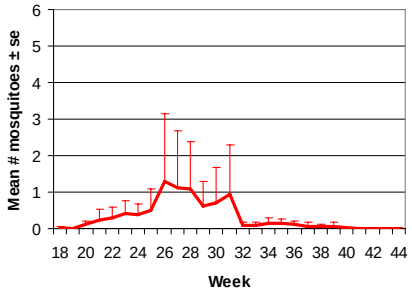
Coastal



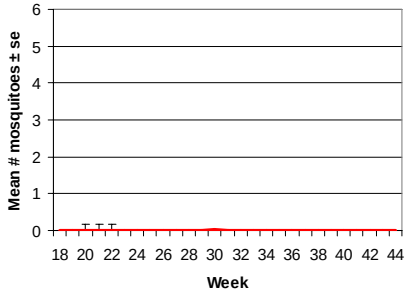
Delaware Bayshore



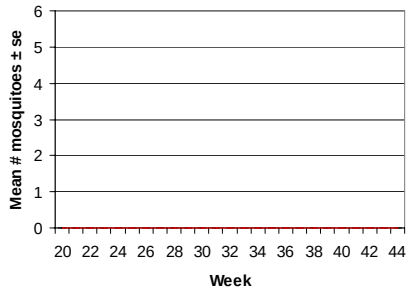
Delaware River Basin



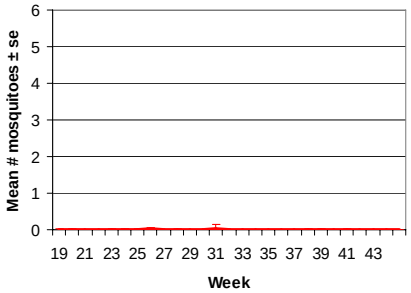
New York Metro



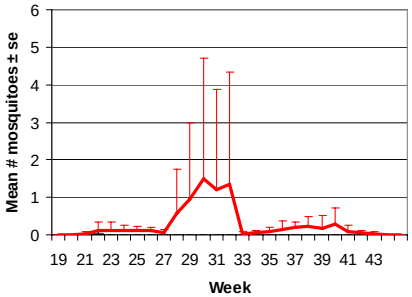
North Central Rural



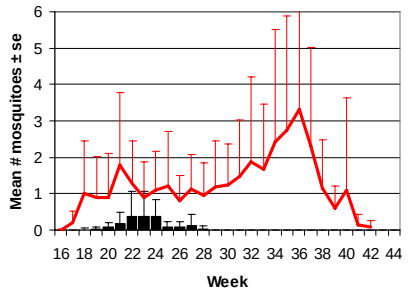
Northwestern Rural



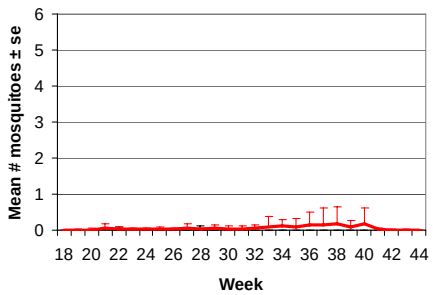
Philadelphia Metro



Pinelands



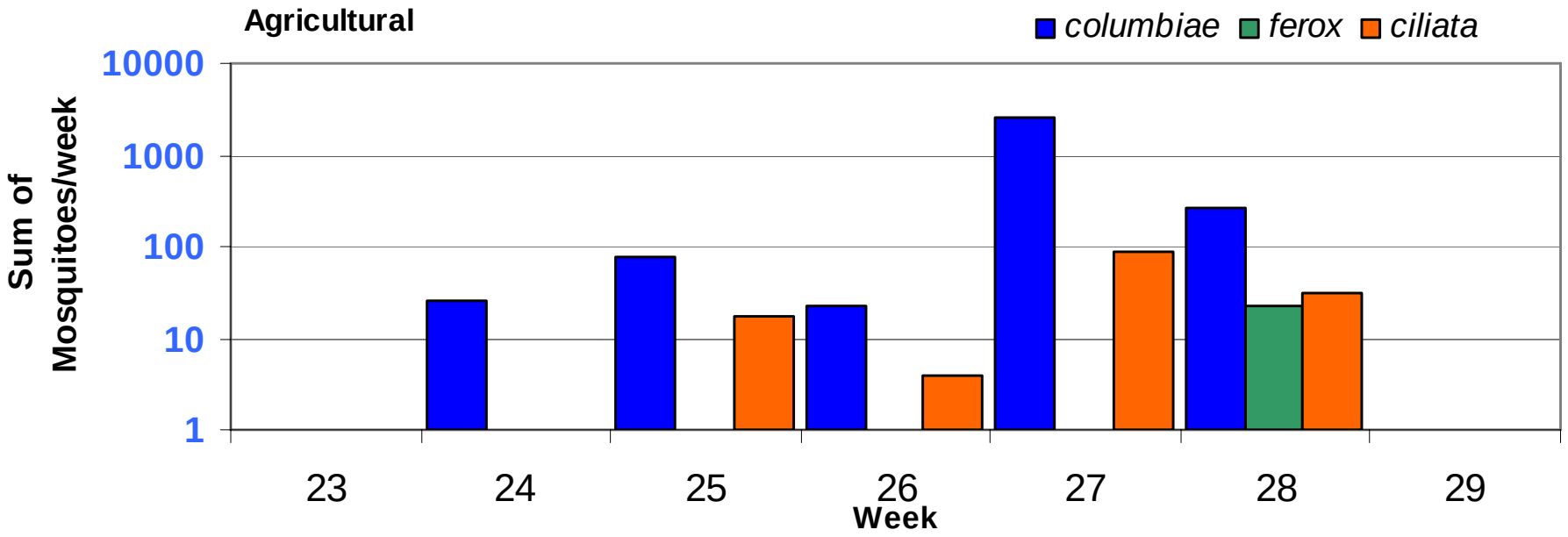
Suburban Corridor



Comments

Culiseta melanura populations remain at significantly low levels in the Pinelands and have yet to make an appearance in the Delaware River Basin. No EEE virus isolations have occurred in specimens sent to the State Health Labs and time may be running down for any significant amplification in the avian hosts.

Predator-Prey patterns. The *Psorophora* mosquitoes show patterns typical of a predator-prey relationship: abundant *Ps. columbiae* emerge earlier and are preyed upon by the less abundant, but larger, *Ps. ciliata*. This rise and decline of both predator and prey can occur for another cycle later this season. According to Andis and Meek (1985), younger instars of *Ps. columbiae* are more affected by predation than other mortality causes, with older instars more likely to survive to emergence. This would likely contribute to a two cycle season. *Psorophora ferox,* another fairly large mosquito, can be found in pools of long-standing water. This mosquito will deliver a rather painful bite (the name derives from the word for "ferocious"), although reportedly less painful than its larger brethren, *Ps. ciliata*.



Andis, M. D., and C. L. Meek 1985 Mortality and survival patterns for the immature stages of Psorophora columbiae. J. Amer. Mos. Control Assoc., 1985 Sep;1(3):357-62.