NEW JERSEY STATEWIDE SURVEILLANCE

Week 31 Report for 30 July to 5 August, 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 borders.

Figure 1b. Trap lat-long locations.

Summary table – Week 31

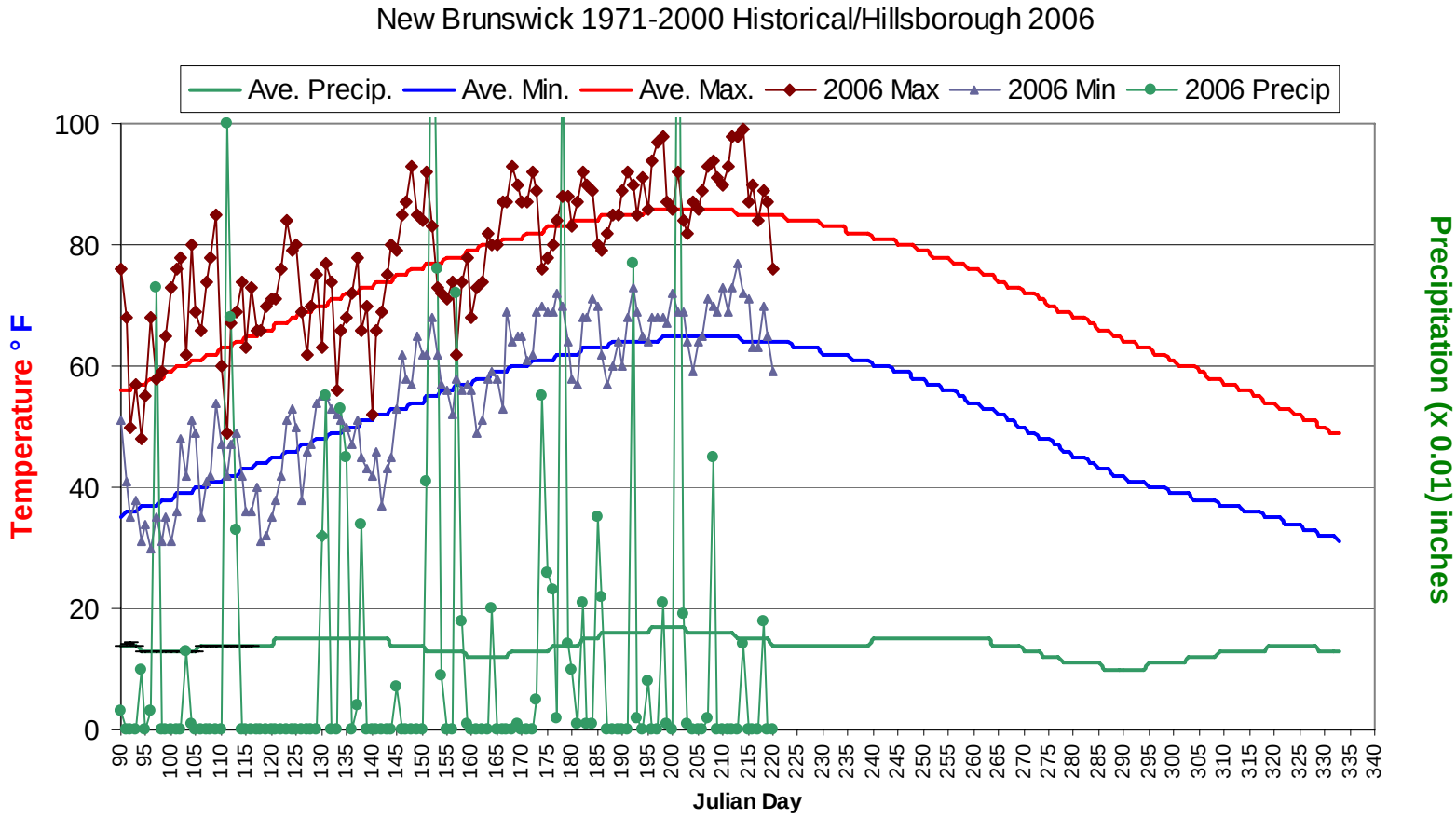
	Aedes vexans		*Culex complex*		*Coquillettidia perturbans*		*Ochlerotatus sollicitans*	
Region	This Week	Average*	This Week	Average*	This Week	Average*	This Week	Average*
Agricultural	1.76	8.57**	11.33	8.57**	0.12	0.30	6.83	2.82
Coastal	2.22	6.03	1.32	5.00	0.03	0.89	14.83	49.64
Delaware Bayshore	0.48	6.48	16.60	57.27	0.55	6.31	22.57	20.49
Delaware River Basin	10.00	30.77	2.29	18.31	0.00	0.26	1.14	0.04
New York Metro	2.99	2.68	3.13	5.81	0.01	0.08	0.07	2.22
North Central Rural	0.33	0.99	0.37	1.31	0.00	0.10	0.00	0.00
Northwest Rural	2.74	3.34	0.43	6.89	0.00	0.11	0.00	0.00
Philadelphia Metro	12.43	32.86	1.88	5.99	0.00	0.18	0.00	0.00
Pinelands	0.40	2.56	0.43	5.21	0.18	0.86	0.00	0.21
Suburban Corridor	14.81	5.87	1.51	3.38	0.01	1.36	0.00	0.07

* 5-year running mean.
** Not a typo. Both values are the same.

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 one or both weeks; 20 of 21 counties reporting.

Climate Data

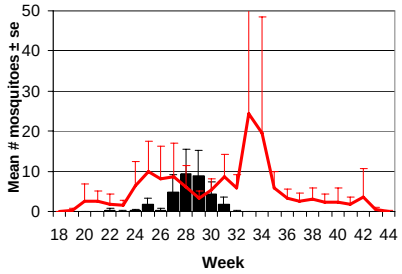
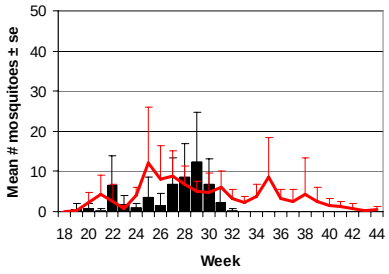
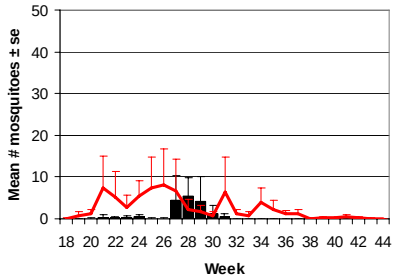
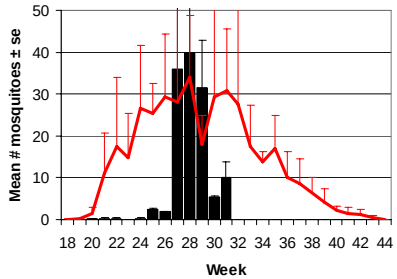
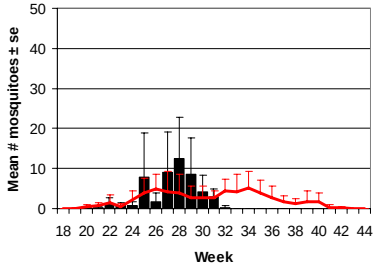
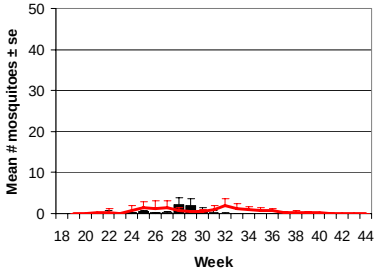
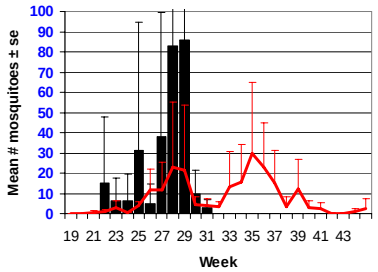
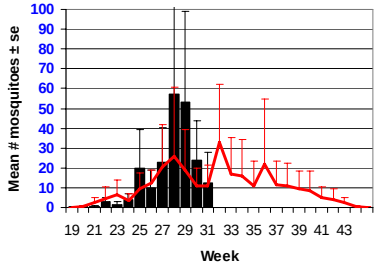
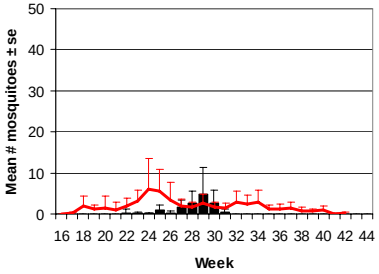
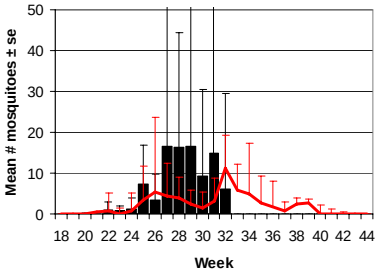


This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station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

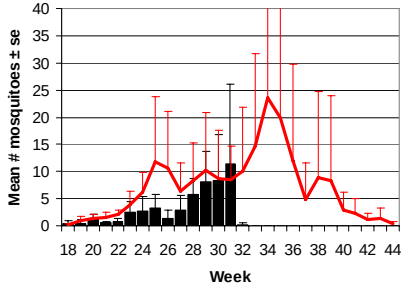
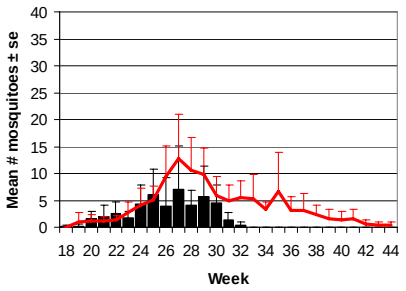
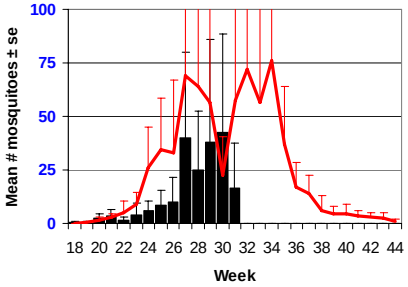
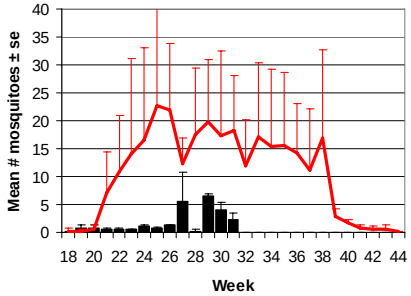
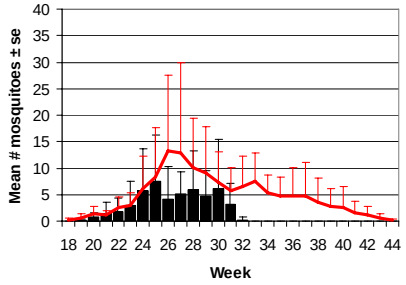
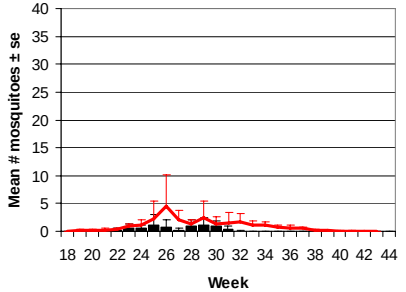
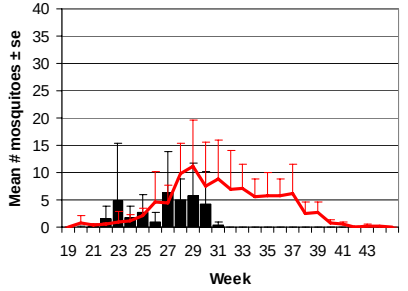
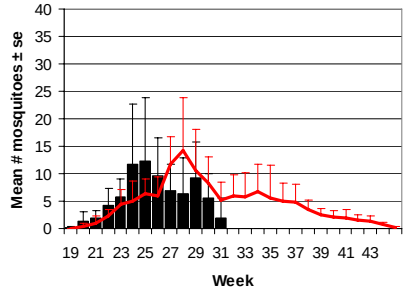
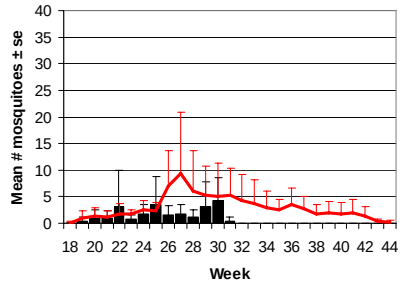
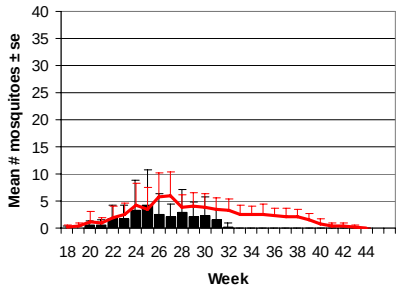
The state climatologist has an extensive amount of climatological historical data as well as stations reporting current conditions and forecasts:

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

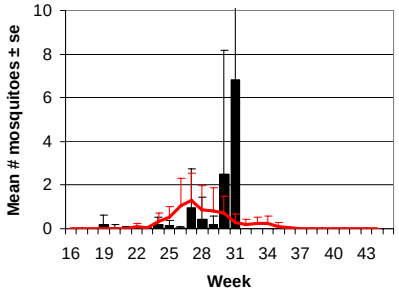
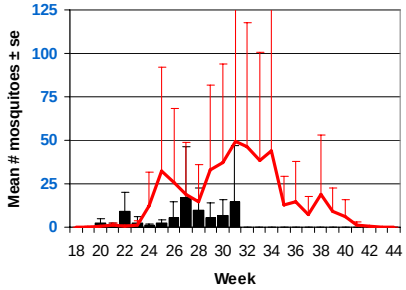
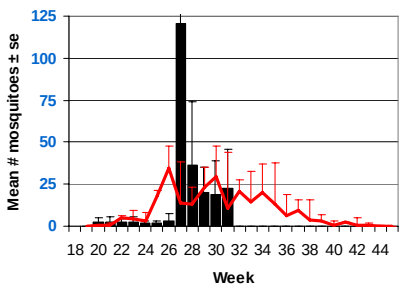
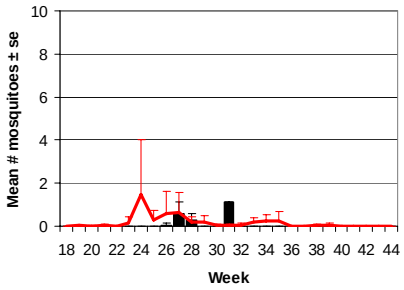
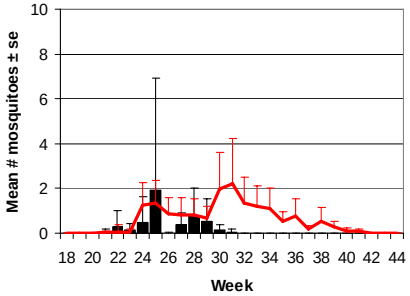
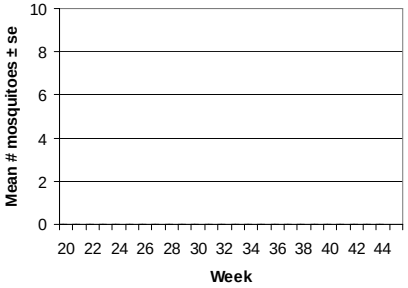
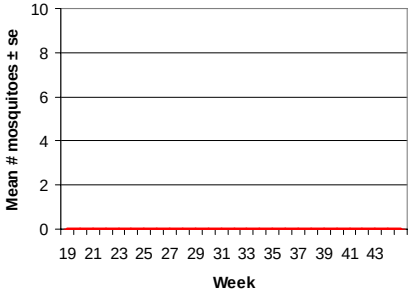
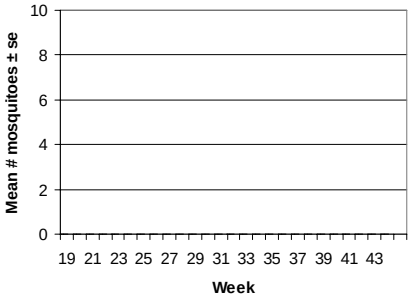
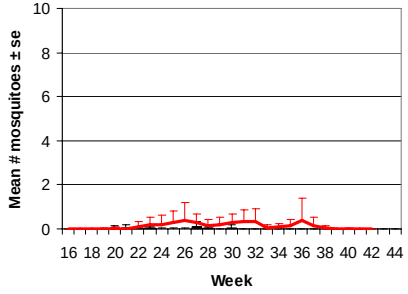
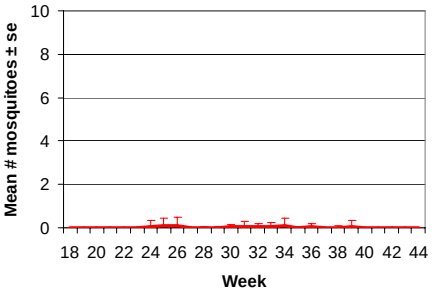
Aedes vexans - Fresh Floodwater Species

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		Recent rainfall activity has provided considerable habitat for *Aedes vexans* emergences. Most regions are showing robust populations after a rather innocuous seasonal beginning. Populations that have been knocked back after spectacular emergences (Delaware River Basin, Northwestern Rural and the Philadelphia Metro regions) are likely to continue having significant emergences until weather patterns stop creating optimal larval habitat.	

Culex Complex - Multivoltine Culex Species

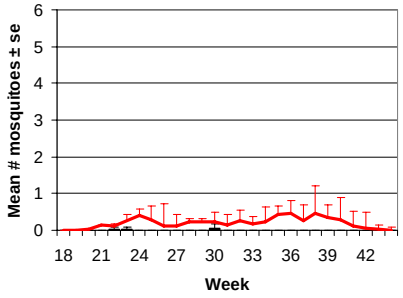
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		West Nile positive mosquito pools of *Culex* continue to be found and general virus amplification is likely now ongoing through local juvenile bird populations. To date, no other genus has been found to be positive for WN virus. Population level in most regions will have peaked, and should now slowly decline in numbers. The Agricultural and the Delaware regions appear, at least historically, to have peak onset dates that occur later. However, there is considerable variation for peak dates in these sites, as compared to the rest of the regions.	

Ochlerotatus sollicitans - Salt Marsh Floodwater Species

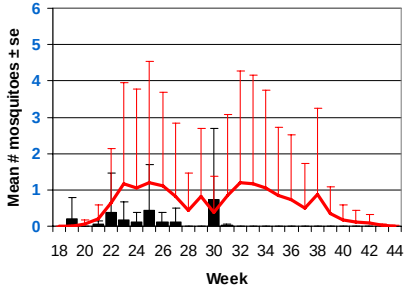
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Ochlerotatus sollicitans* populations are at the lower end of typical spectrum in the Coastal region and the cycle of lunar flooding events that trigger emergences is clearly visible. Even more evident is the migratory effects of host-seeking females traveling inland. Cohorts that emerged in large numbers in the Delaware Bayshore region during Week 27 have arrived in some inland sites (although those in the more southern Agricultural sites likely arrived from more local areas).	

Culiseta melanura – Miscellaneous Group

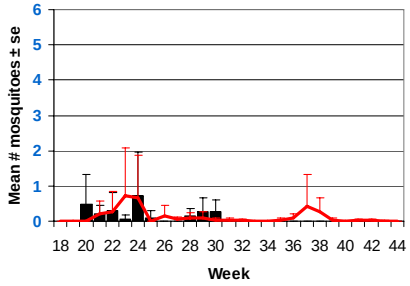
Agricultural



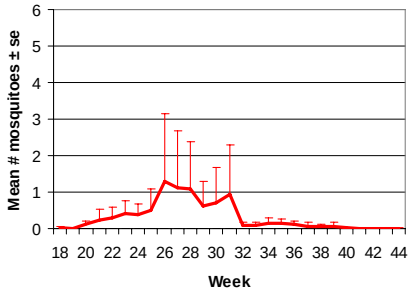
Coastal



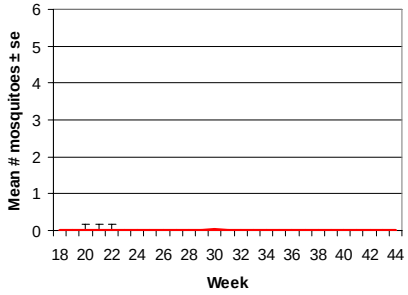
Delaware Bayshore



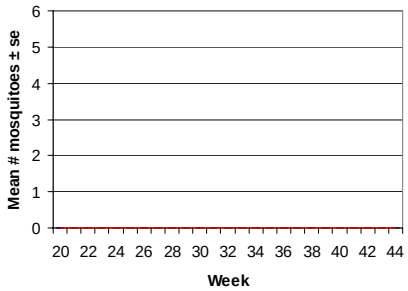
Delaware River Basin



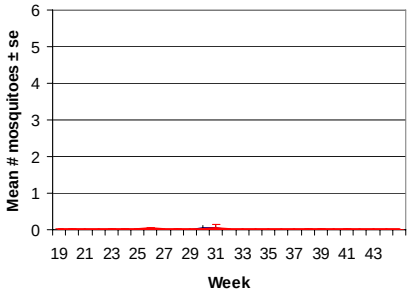
New York Metro



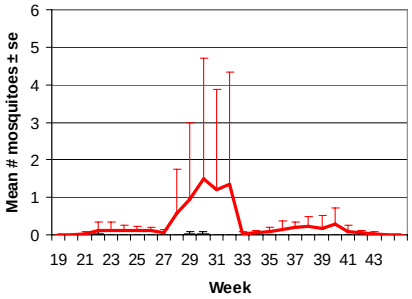
North Central Rural



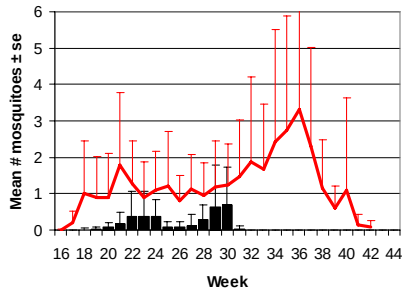
Northwestern Rural



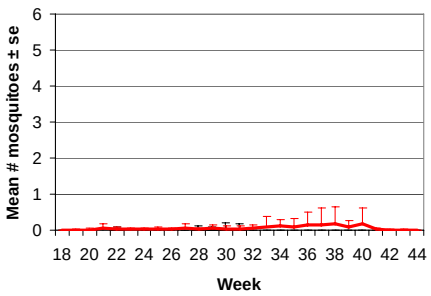
Philadelphia Metro



Pinelands



Suburban Corridor



Comments

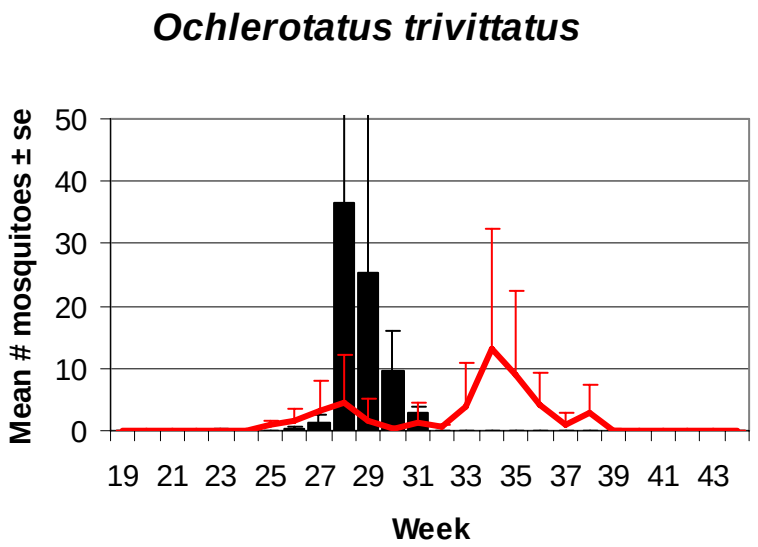
Culiseta melanura populations continue in their unremarkable seasonal development. More significant is the lack of finding positive vector (EEE) surveillance pools of specimens caught in resting boxes. Although viral activity can occur at lowered vector population levels, amplification in avian hosts is likely reduced and as such, virus is less likely to cross over into the bridge vector populations. However, being only halfway through the mosquito season, vigilance is continued.

"Although the news is good, our biggest threat right now is complacency.... If we don't maintain our vigilance, it will come back and bite us." - Dr. Allison McGeer (who happened to be talking about antibiotic resistance, but is appropriate under most surveillance situations).

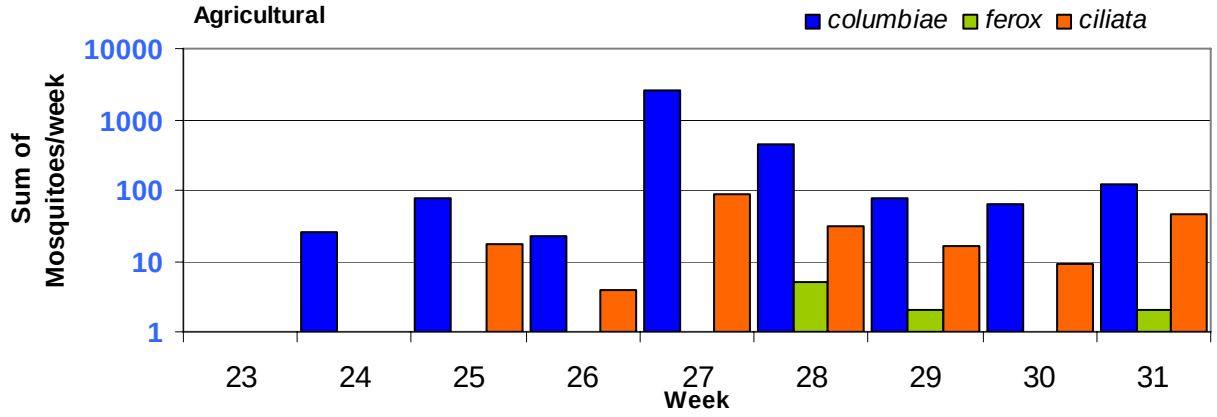
Ochlerotatus trivittatus in the Northwestern Rural region of New Jersey, August 2006.

Oc. trivittatus is an aggressive mosquito when meal-hunting and will deliver a rather painful bite and thus is a significant mosquito in the Northwestern Region of Warren and Sussex counties. Duryea (1990) indicated that light trap counts are not as representative as landing rate counts, and therefore, the position of *Oc. trivittatus* in the Top Ten lists should be taken into consideration (and as should any species that does not respond well to the trap types from which the data were taken).

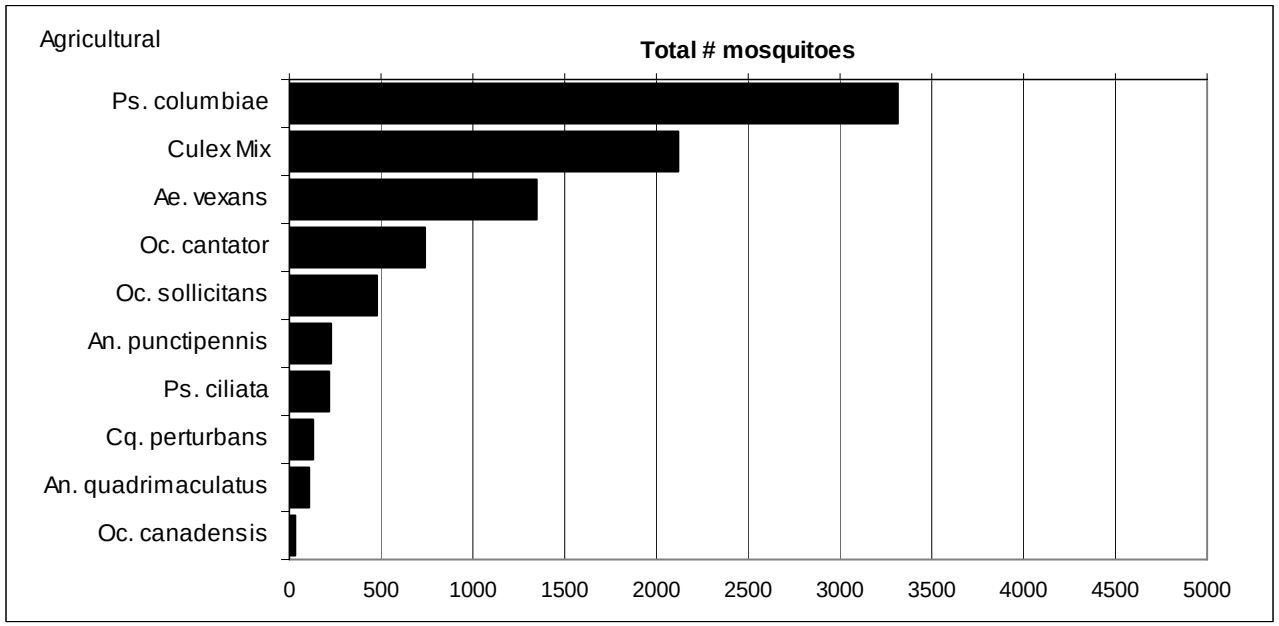
Duryea, R. D. 1990. *Aedes trivittatus* in New Jersey. Proceedings of the New Jersey Mosquito Control Assoc. pp. 73-78

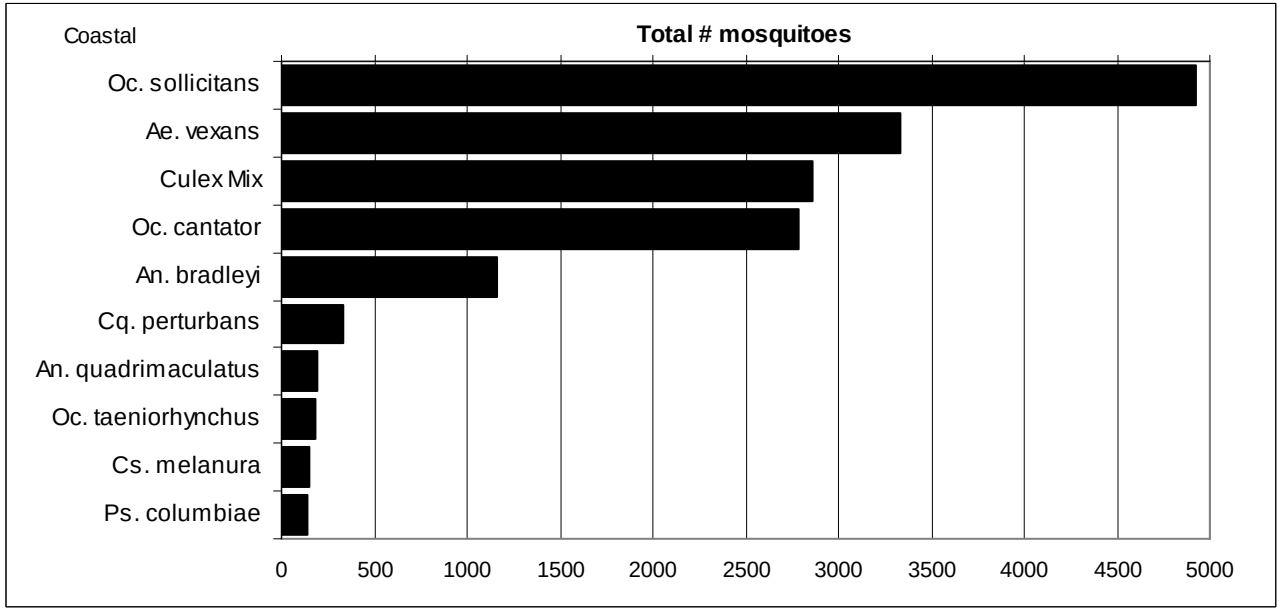


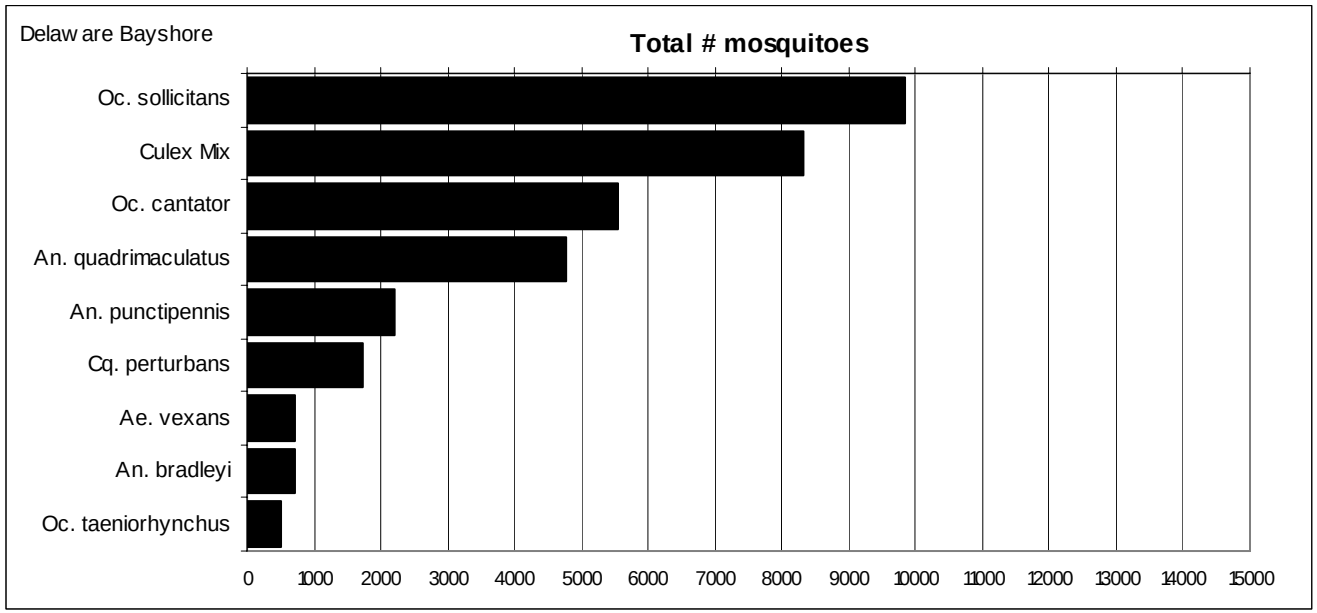
The Psorophora, cont'd. And the Predator-Prey cycle peaks again.:

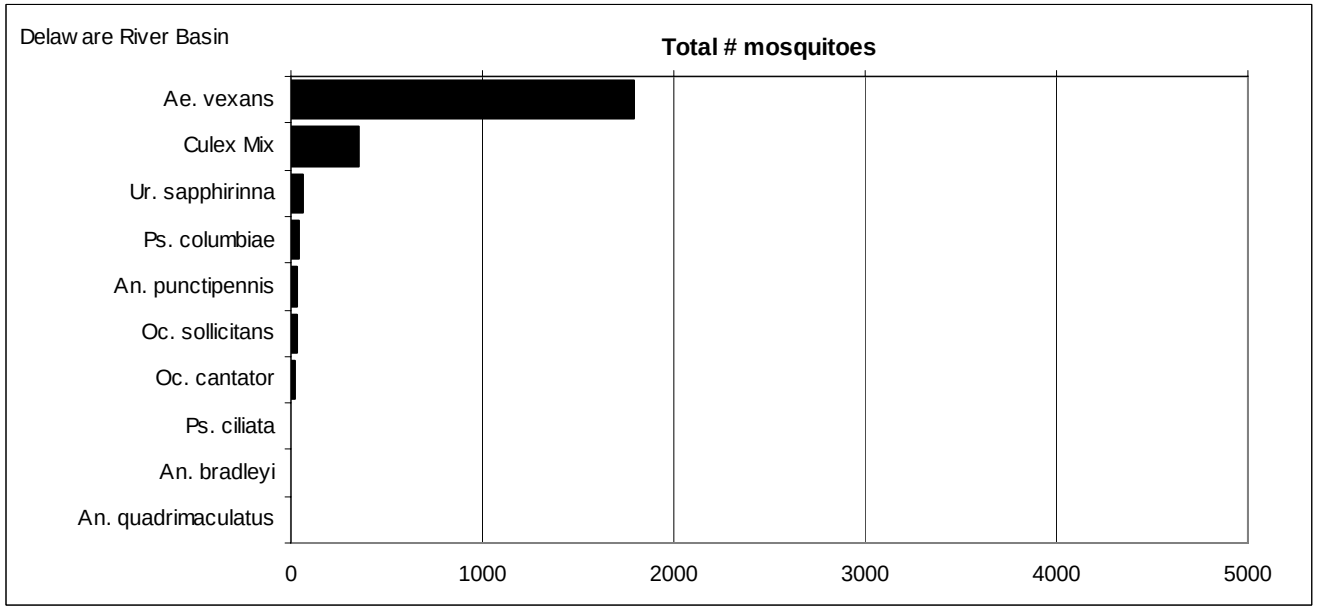


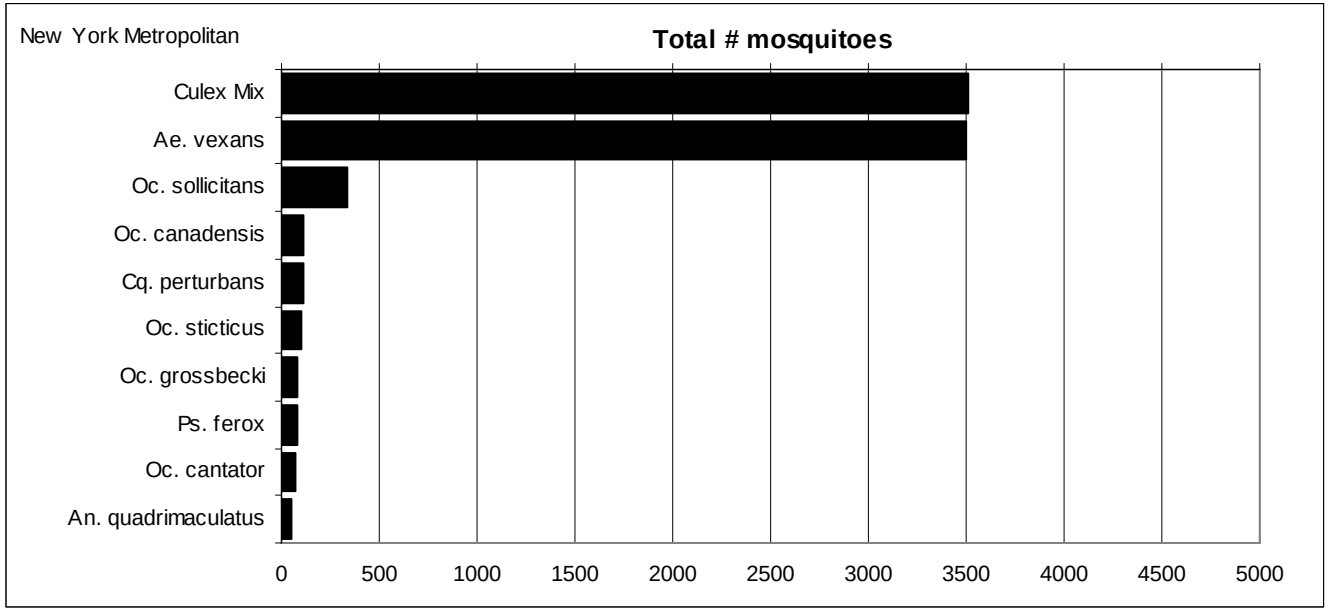
Top Ten species (cumulative) for each region to date, 2006.

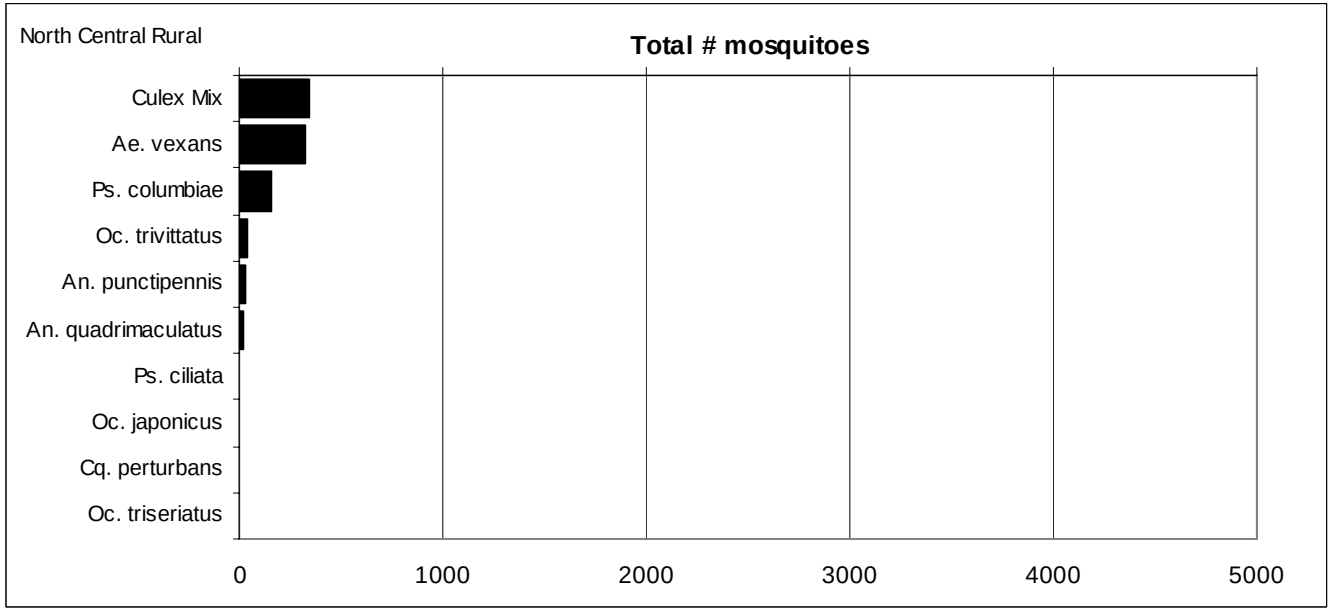


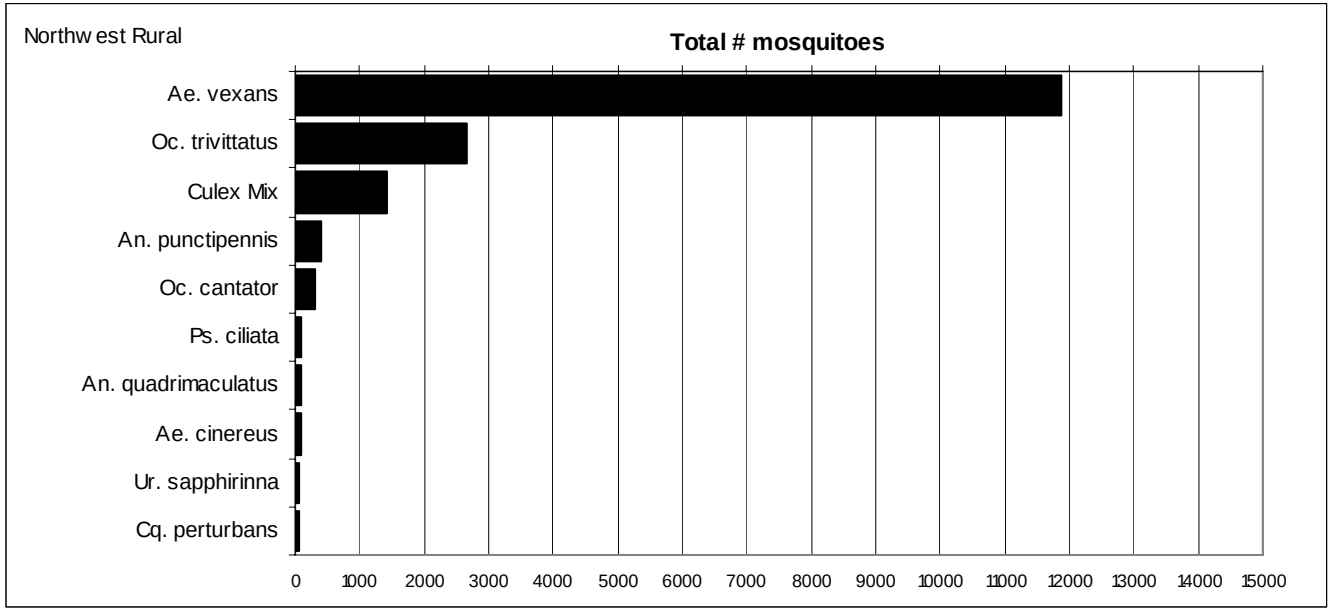


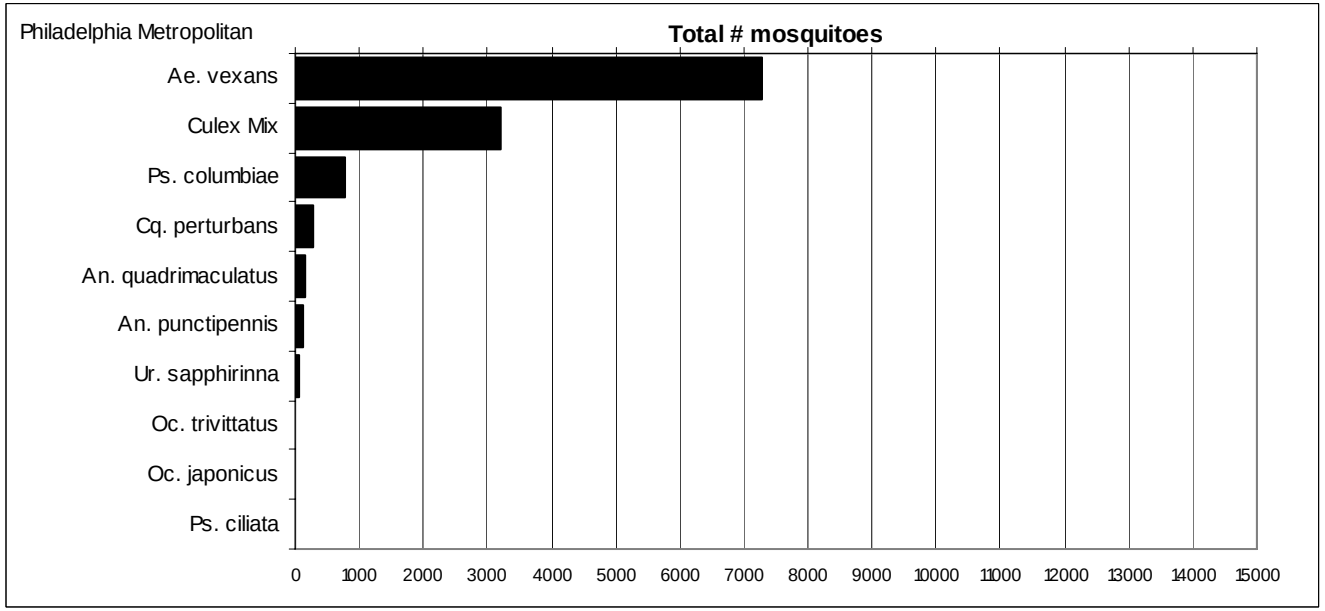

Delaware Bayshore
Total # mosquitoes
Oc. sollicitans
Culex Mix
Oc. cantator
An. quadrimaculatus
An. punctipennis
Cq. perturbans
Ae. vexans
An. bradleyi
Oc. taeniorhynchus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000

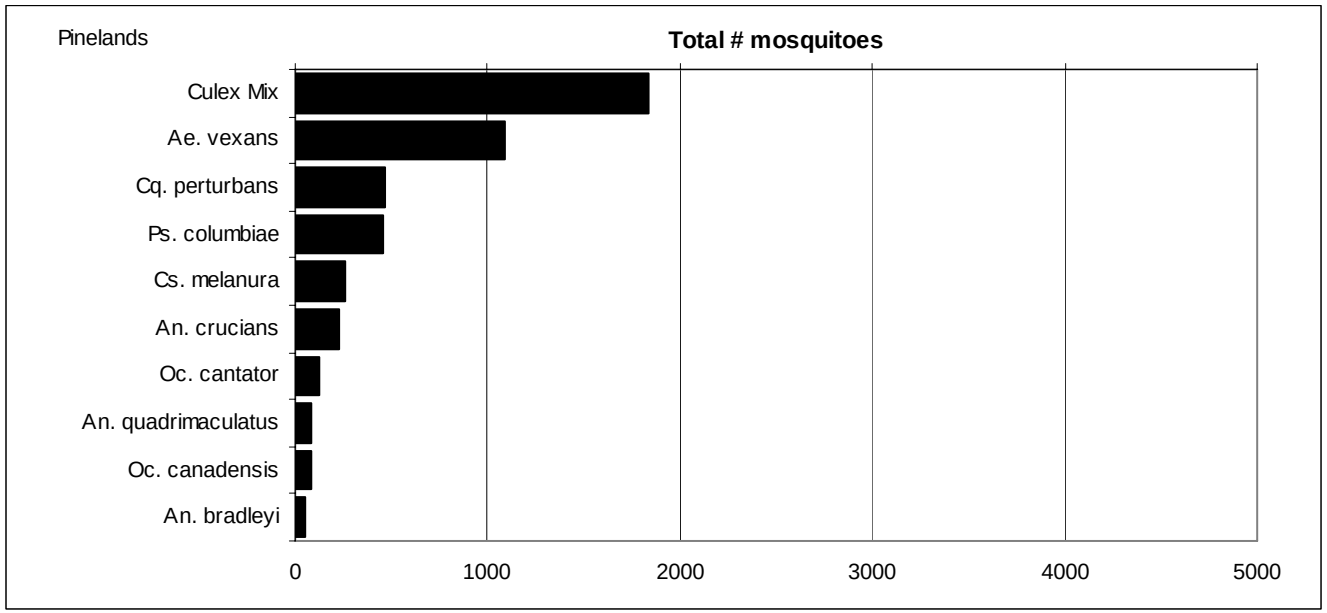

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ur. sapphirinna
Ps. columbiae
An. punctipennis
Oc. sollicitans
Oc. cantator
Ps. ciliata
An. bradleyi
An. quadrimaculatus
0
1000
2000
3000
4000
5000

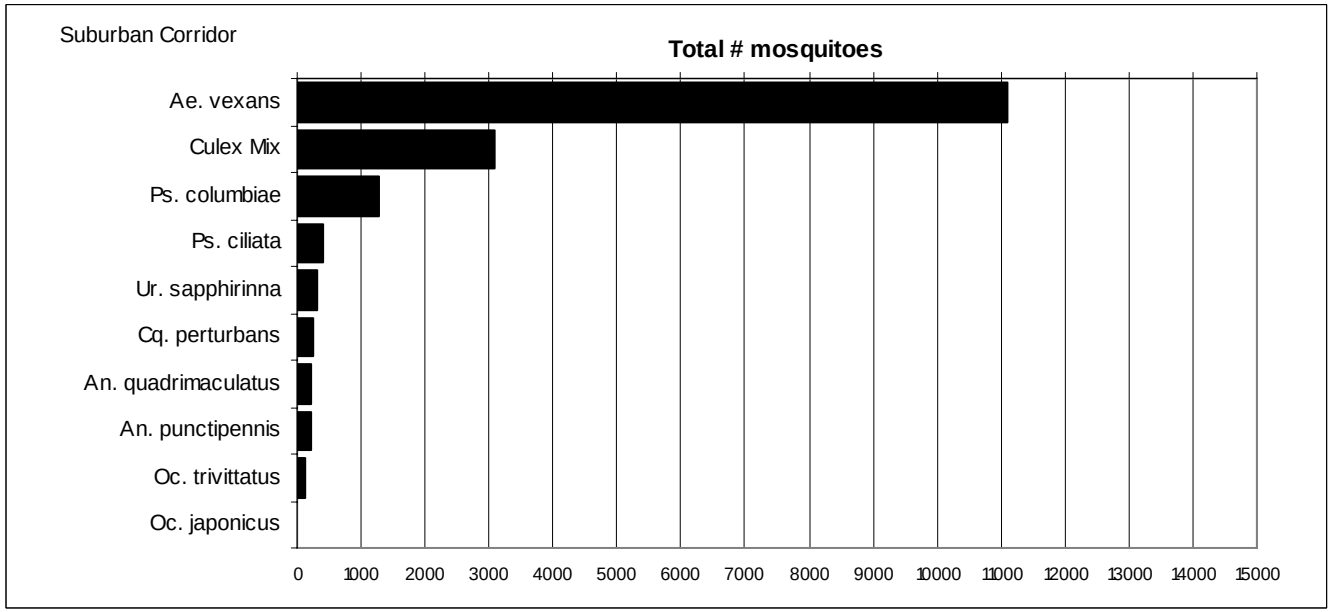

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Oc. sollicitans
Oc. canadensis
Cq. perturbans
Oc. sticticus
Oc. grossbecki
Ps. ferox
Oc. cantator
An. quadrimaculatus
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
Ps. columbiae
Oc. trivittatus
An. punctipennis
An. quadrimaculatus
Ps. ciliata
Oc. japonicus
Cq. perturbans
Oc. triseriatus
0
1000
2000
3000
4000
5000


Northwest Rural
Total # mosquitoes
Ae. vexans
Oc. trivittatus
Culex Mix
An. punctipennis
Oc. cantator
Ps. ciliata
An. quadrimaculatus
Ae. cinereus
Ur. sapphirinna
Cq. perturbans
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
Ps. columbiae
Cq. perturbans
An. quadrimaculatus
An. punctipennis
Ur. sapphirinna
Oc. trivittatus
Oc. japonicus
Ps. ciliata
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000


Pinelands
Total # mosquitoes
Culex Mix
Ae. vexans
Cq. perturbans
Ps. columbiae
Cs. melanura
An. crucians
Oc. cantator
An. quadrimaculatus
Oc. canadensis
An. bradleyi
0
1000
2000
3000
4000
5000


Suburban Corridor
Total # mosquitoes
Ae. vexans
Culex Mix
Ps. columbiae
Ps. ciliata
Ur. sapphirinna
Cq. perturbans
An. quadrimaculatus
An. punctipennis
Oc. trivittatus
Oc. japonicus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000