RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 27 June to 3 July 2010, CDC Week 26

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Center for Vector Biology

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of the 21 county mosquito control agencies of New Jersey.

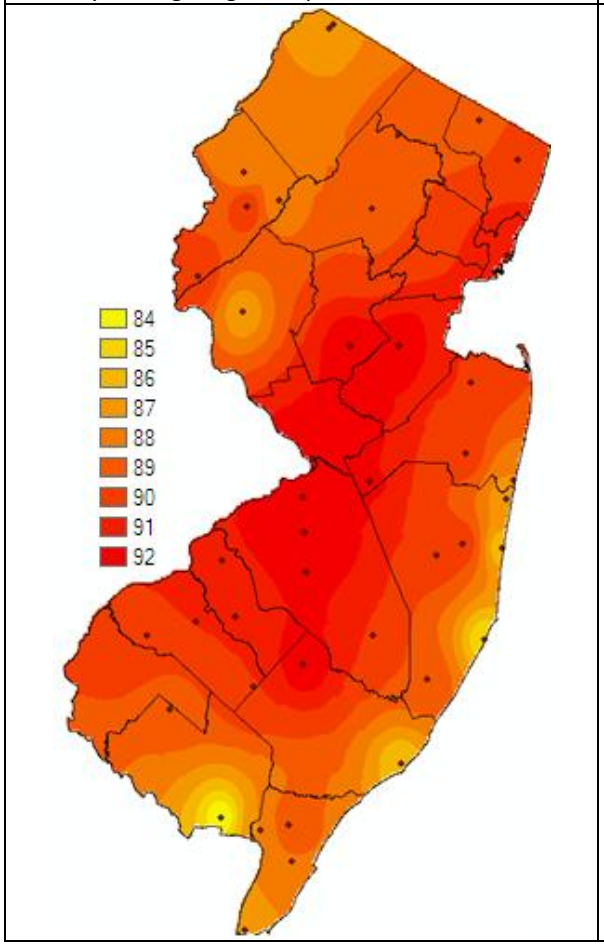
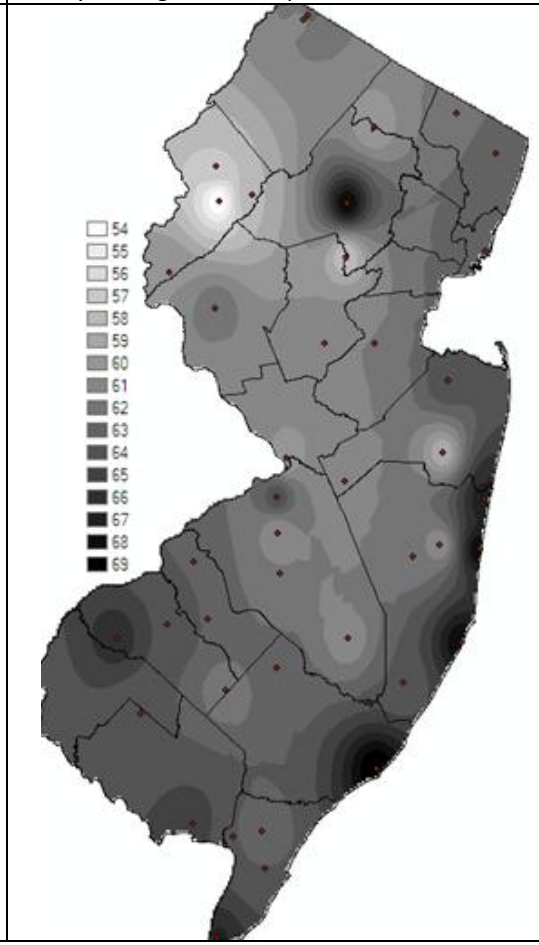
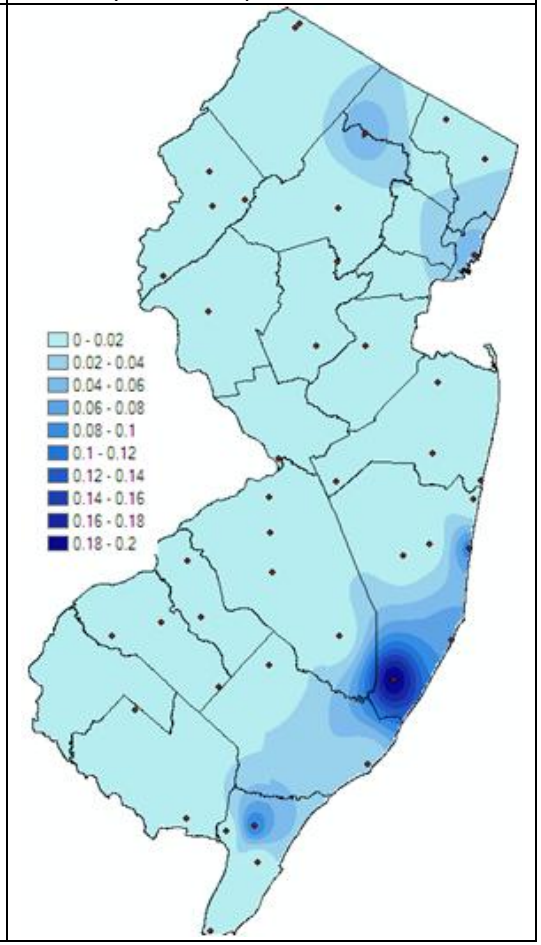
Summary table – Week 26

	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	**0.09**	**3.12**	**0**	**0.09**	**2.59**	**0**	**0.06**	**0.80**	**0**	**0.00**	**0.10**	**0**
Coastal	**0.67**	**6.76**	**0**	**1.78**	**7.11**	**0**	**0.44**	**1.15**	**0**	**1.27**	**9.29**	**0**
Delaware Bayshore	**0.63**	**2.75**	**0**	**9.34**	**17.67**	**0**	**1.57**	**1.38**	**1**	**0.71**	**6.74**	**0**
Delaware River Basin	**0.11**	**7.44**	**0**	**0.25**	**4.61**	**0**	**0.00**	**0.31**	**0**	**0.00**	**0.01**	**0**
New York Metro	**0.37**	**4.37**	**0**	**3.44**	**6.87**	**0**	**0.20**	**0.29**	**0**	**0.17**	**0.17**	**0**
North Central Rural	**0.27**	**0.26**	**1**	**0.16**	**1.28**	**0**	**0.02**	**0.09**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.86**	**7.87**	**0**	**0.40**	**4.06**	**0**	**2.52**	**1.62**	**2**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.00**	**10.24**	**0**	**0.00**	**7.82**	**0**	**0.00**	**1.23**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.18**	**2.78**	**0**	**0.49**	**3.61**	**0**	**0.43**	**1.61**	**0**	**0.03**	**0.08**	**0**
Suburban Corridor	**0.41**	**4.58**	**0**	**0.29**	**2.03**	**0**	**0.35**	**0.84**	**0**	**0.00**	**0.02**	**0**

*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: *Coquillettidia perturbans* abundances have started to decrease, but numbers are still high in the Delaware Bayshore and Northwest Rural regions. The North Central Rural region is also experiencing a slight elevation of *Aedes vexans*, but numbers are still low overall.

Climate Factors

May Average High Temperatures 1 Jul to 7 Jul	May Average Low Temperatures 1 Jul to 7 Jul	May Total Precipitation 1 Jul to 7 Jul
		

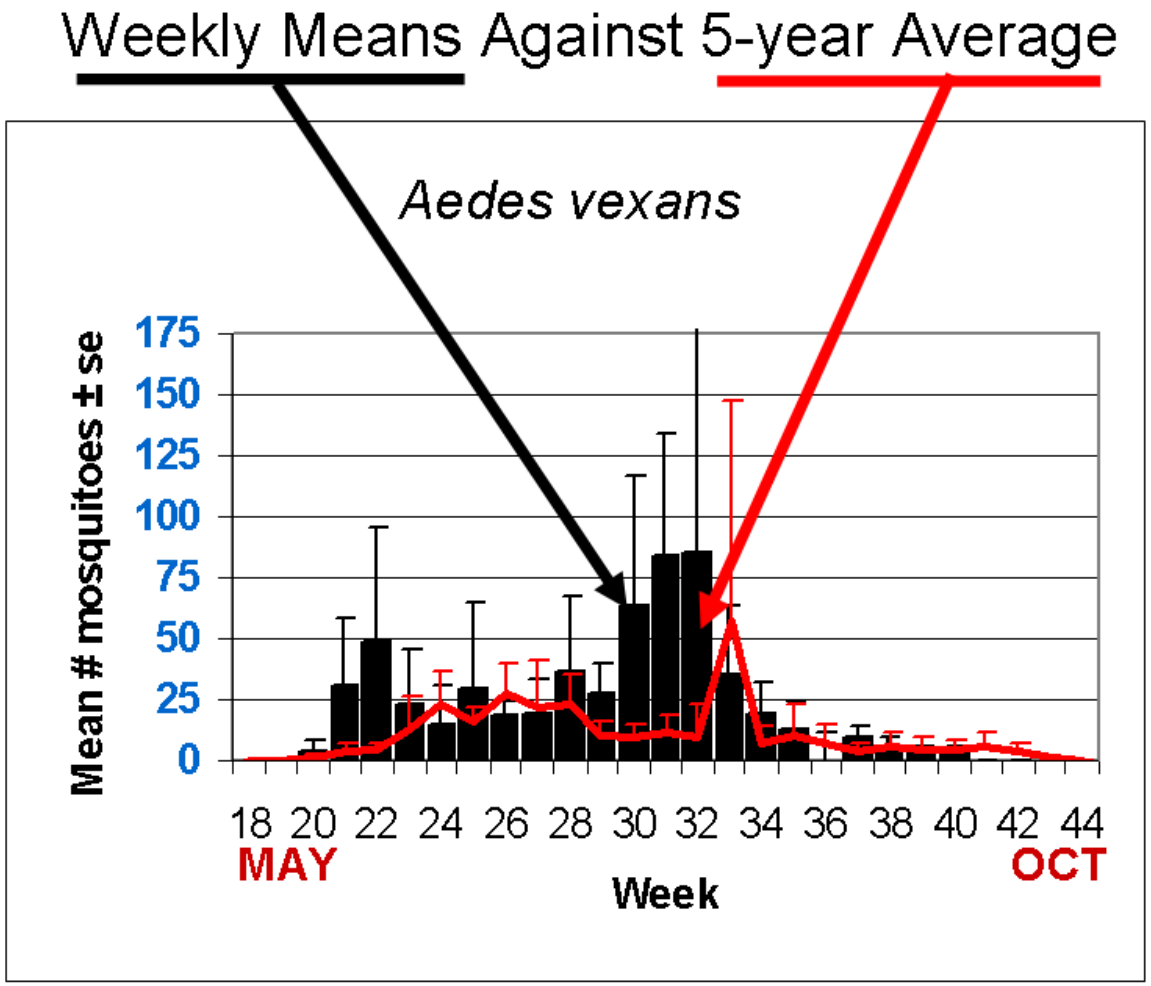
The three figures show the interpolation of average maximum and minimum temperature and total precipitation from July 1 to July 7, 2010 in New Jersey. Data points are from 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 9.2.

It has been hot and dry throughout New Jersey. Coastal areas are cooler during the day, but retain heat during the night. Very little precipitation has occurred during this past week, a continuation of the drought.

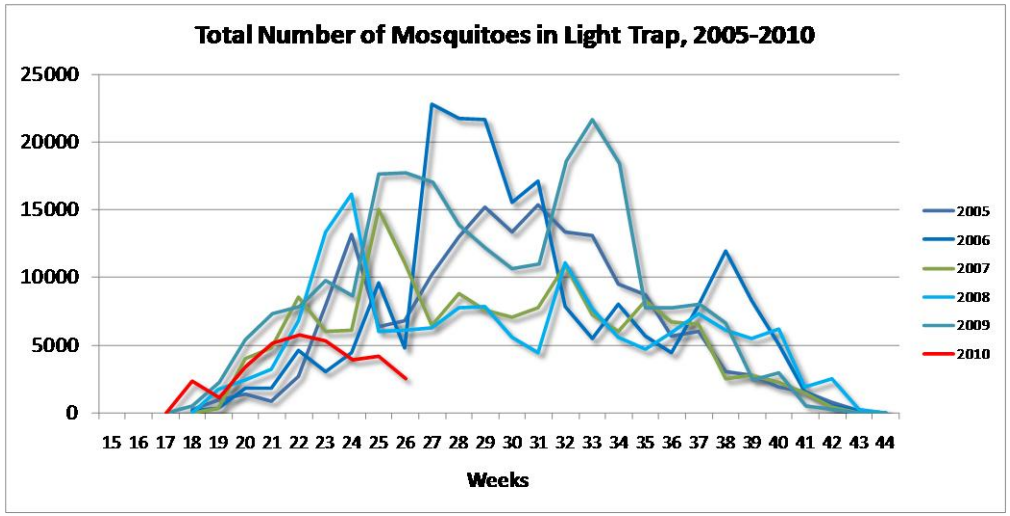
NJ Weather & Climate NETWORK

ONJSC at Rutgers University

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, Cape May, Essex, Hudson, Hunterdon, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties. Note: Previous week's data are from Atlantic, Bergen, Camden, Cape May, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Somerset, Sussex, Union and Warren counties.

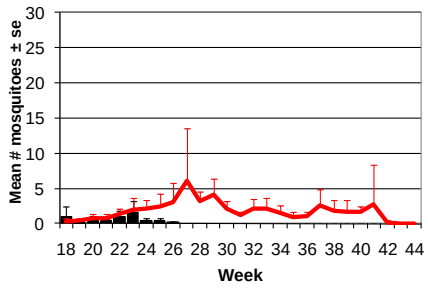
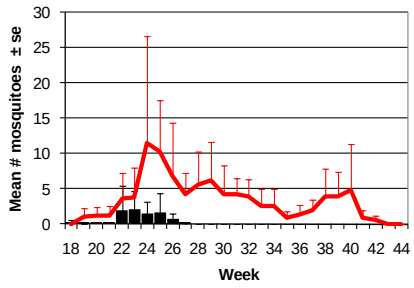
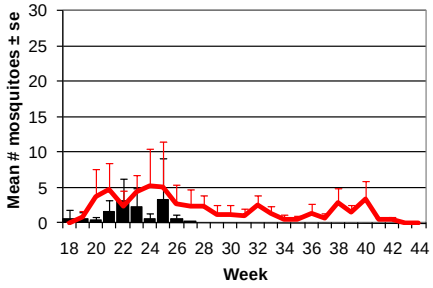
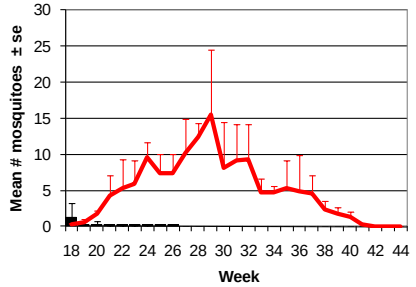
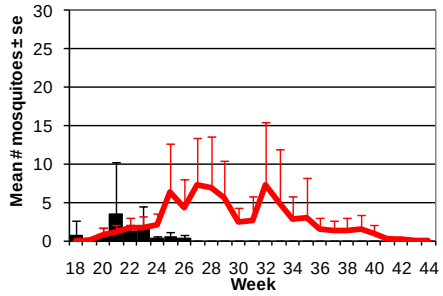
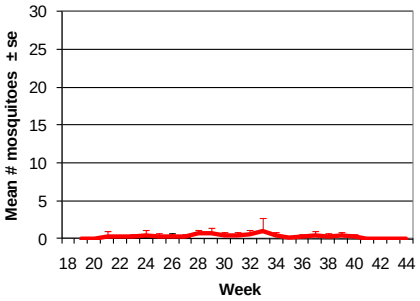
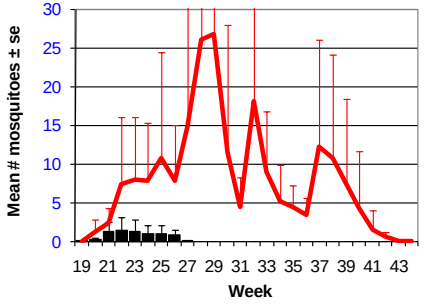
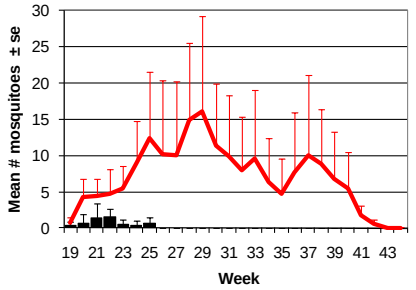
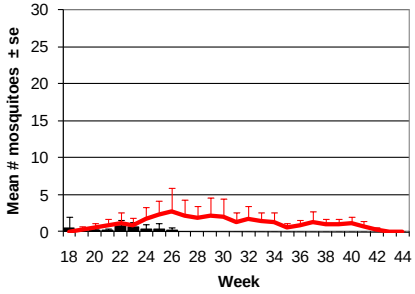
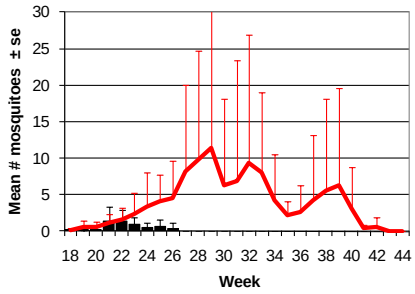


Drought Conditions and Habitat



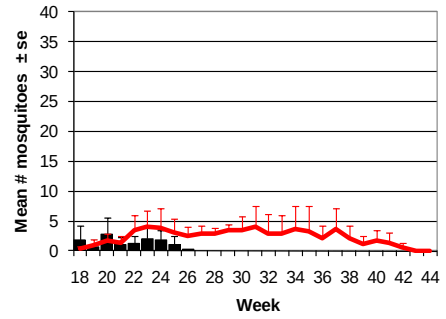
The lack of habitat due to the “abnormal dryness” that New Jersey and much of the Northeast is experiencing is having an effect on the numbers of mosquitoes that are being produced. The graph to the left shows the total number of mosquitoes caught in New Jersey light traps within this program. Numbers for this year appear to be typical, except for two points. The first is the amount of mosquitoes during week 18 when this program usually begins. These numbers were higher than in the recent past history, and it was reflected in certain mosquito species whose early numbers were above historical values. The second point is for the past three weeks (24, 25 and 26). These values are the lowest recorded for these weeks from 2005 through this year. This reflects what counties are telling us: there are few mosquitoes present to date. This will change significantly if and when we get substantial rainfall to produce the habitats that are currently missing.

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

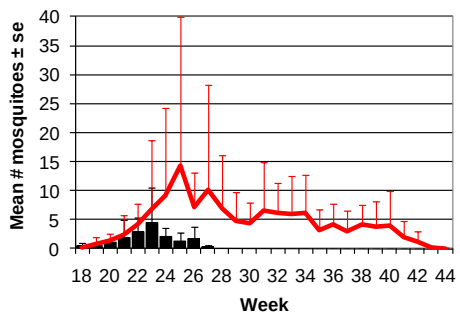
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* low abundances have remained at low levels throughout the state. Rain is predicted for parts of New Jersey, but the probability of rain is 60% or less for the next few days: Southern Jersey: http://kamala.cod.edu/nj/latest.fpus51.KPHI.html Northern Jersey: http://kamala.cod.edu/nj/latest.fpus51.KOKX.html This suggests that local populations may emerge if precipitation occurs and this effect may be widely scattered.	

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

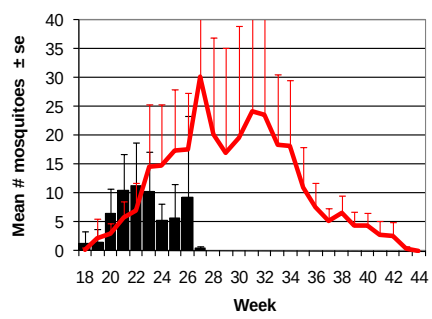
Agricultural



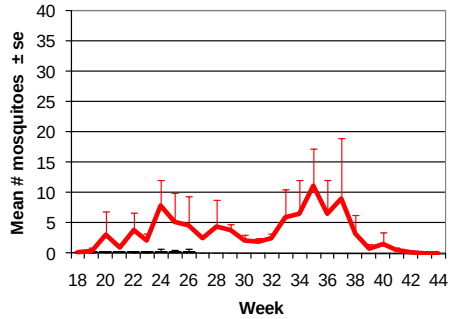
Coastal



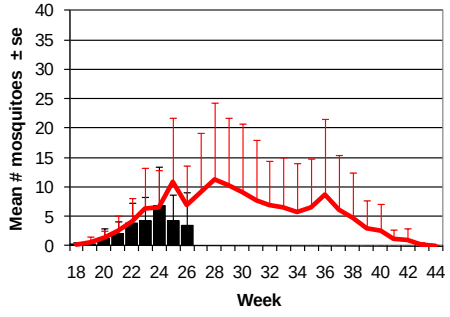
Delaware Bayshore



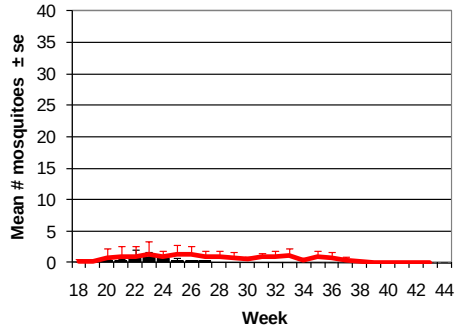
Delaware River Basin



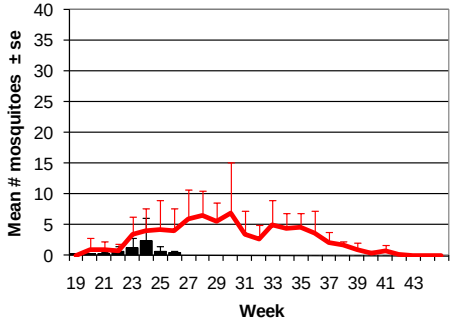
New York Metro



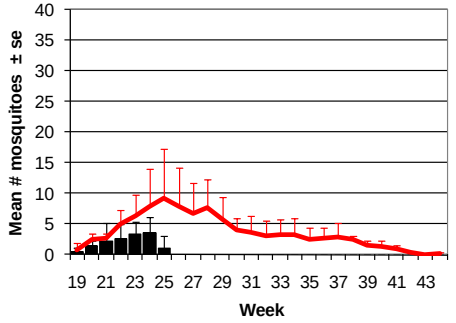
North Central Rural



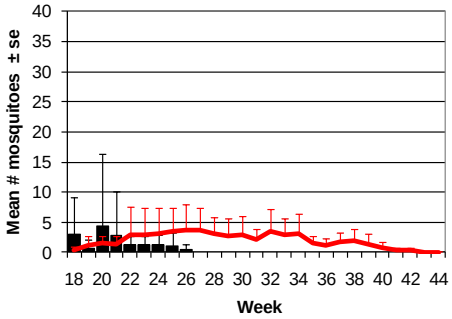
Northwestern Rural



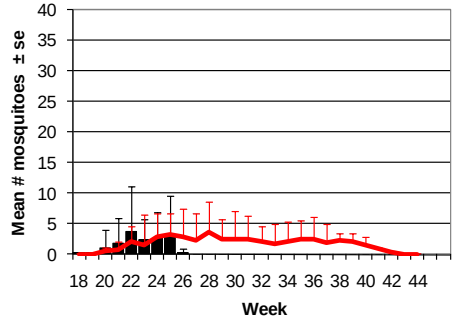
Philadelphia Metro



Pinelands



Suburban Corridor

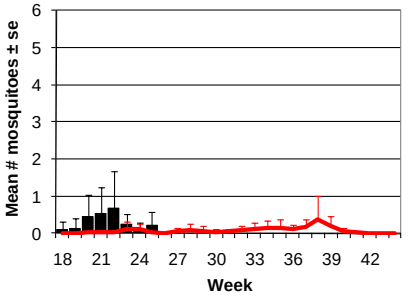
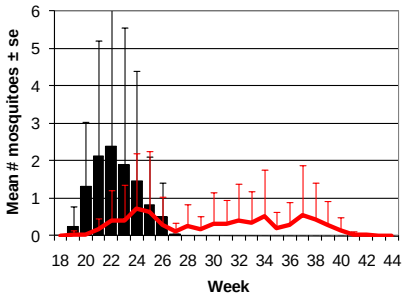
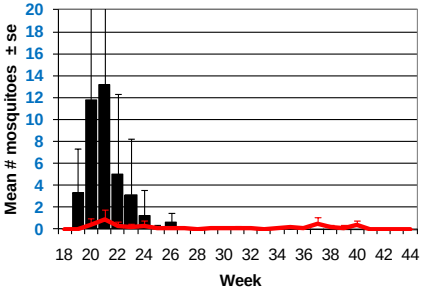
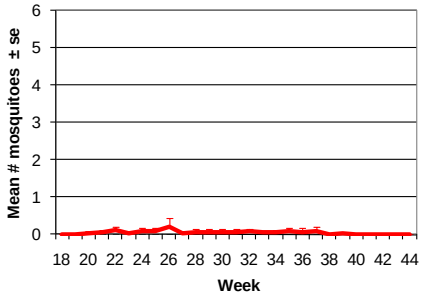
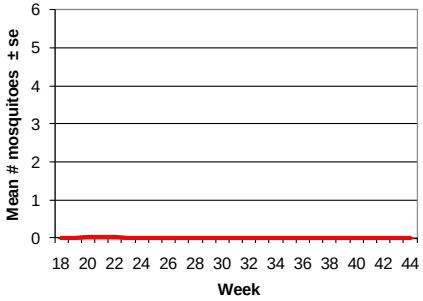
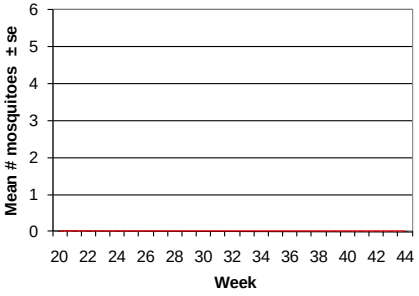
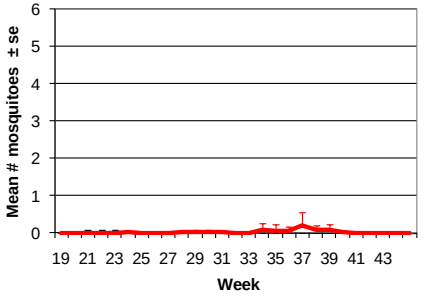
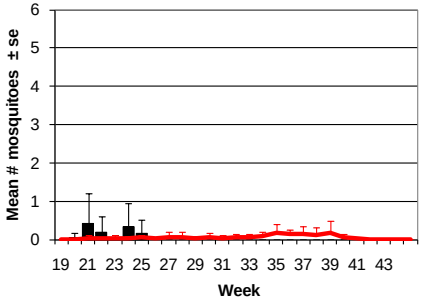
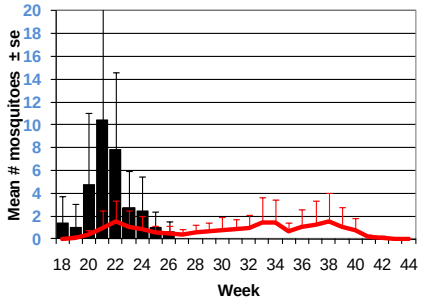
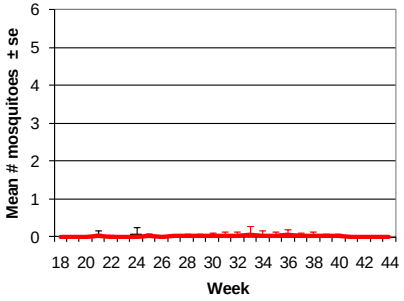


Comments

Culex Mix is represented by three species of *Culex* mosquitoes: *Cx. pipiens, Cx. restuans* and *Cx. salinarius*. These mosquitoes are usually grouped together as there is considerable difficulty in separating them to species easily after travelling through the grind of the light trap, often in the company of protesting moths and beetles.

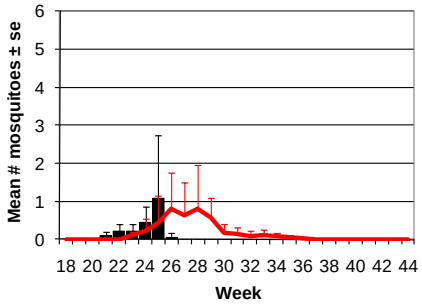
Culex populations are now beginning to show levels that could become significantly below historical values for some regions, such as the Northwestern should the abnormally dry conditions continue.

Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

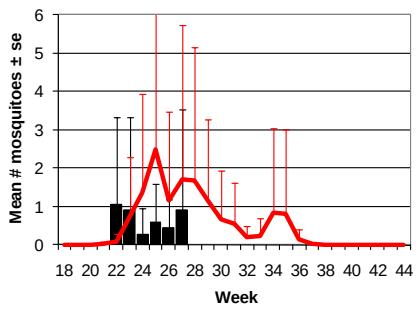
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Culiseta melanura*, the enzootic ornithophilic vector of eastern equine encephalitis, have continued to decrease from the previous week, except for the Delaware Bayshore. This region has shown a slight increase from the previous week. It is too early to determine if this is part of the normal, slow increase toward the second generation emergence (perhaps including some 1st and 2nd overwintering instars) or merely part of the normal variation seen in populations.	

Coquillettidia perturbans – Miscellaneous Group
Monotypic (*Coq. perturbans* Type)

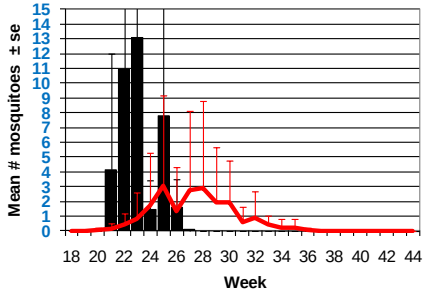
Agricultural



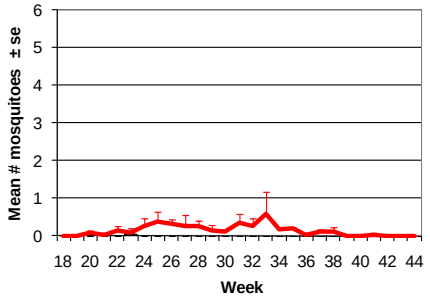
Coastal



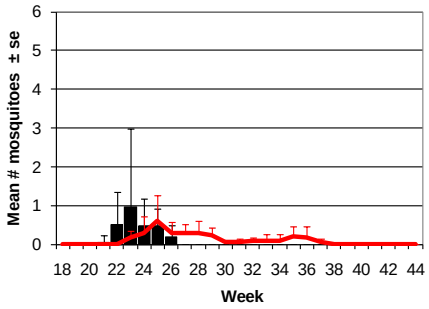
Delaware Bayshore



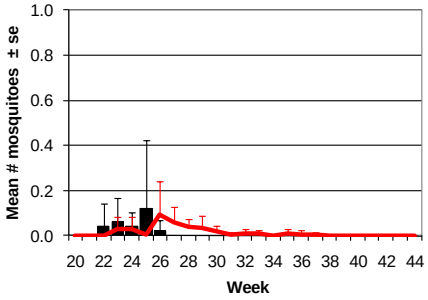
Delaware River Basin



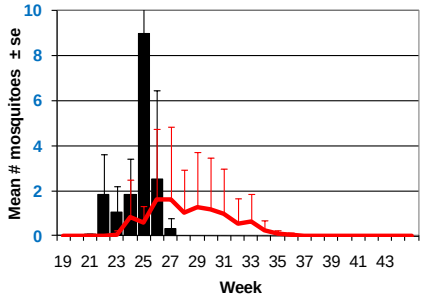
New York Metro



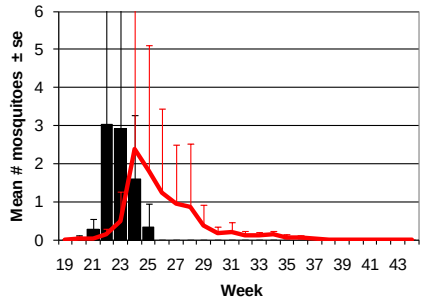
North Central Rural



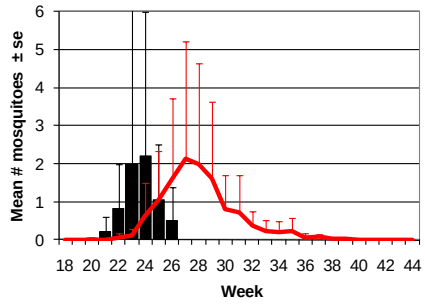
Northwestern Rural



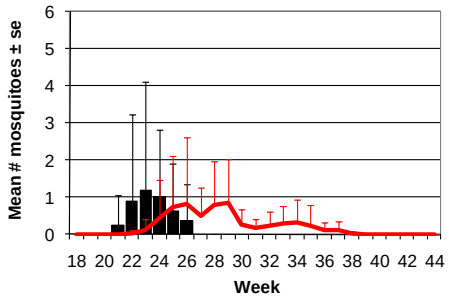
Philadelphia Metro



Pinelands

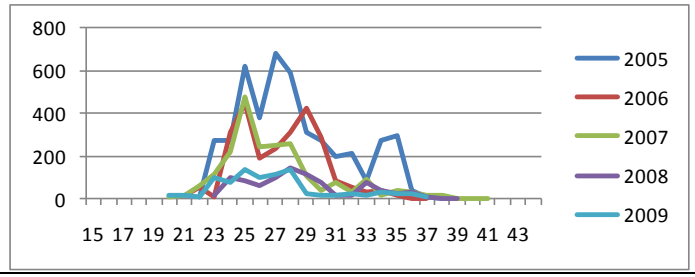


Suburban Corridor



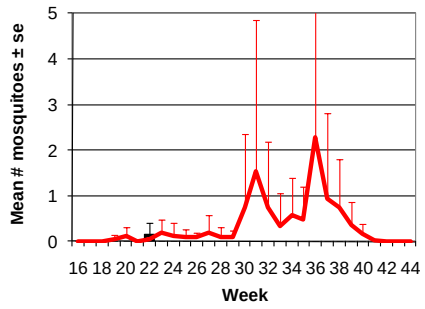
Comments

Coquillettidia perturbans have decreased for all regions except for the Coastal region. It would appear that a true shift in the population presence of this species has occurred, with emergence beginning earlier in the season and possibly ending earlier. Some historical data suggests later emergences can occur (graph shows *Coq. perturbans* weekly numbers – note 2005):

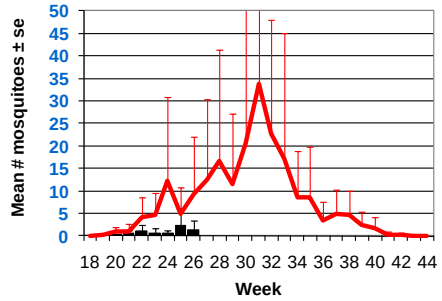


Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

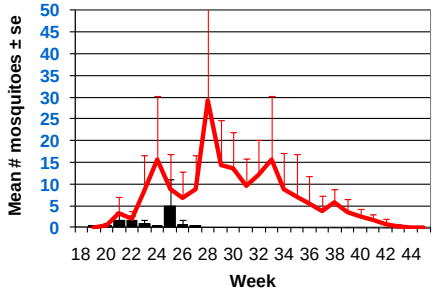
Agricultural



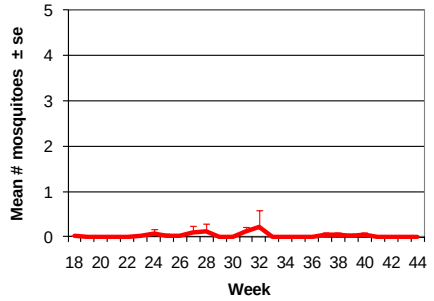
Coastal



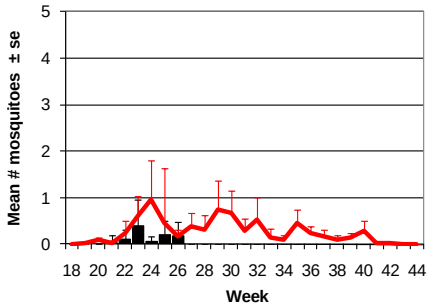
Delaware Bayshore



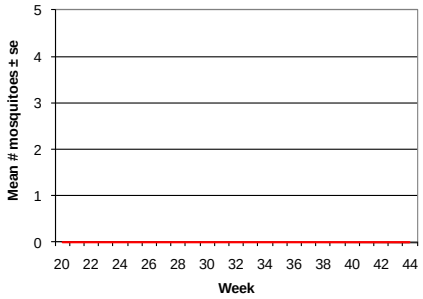
Delaware River Basin



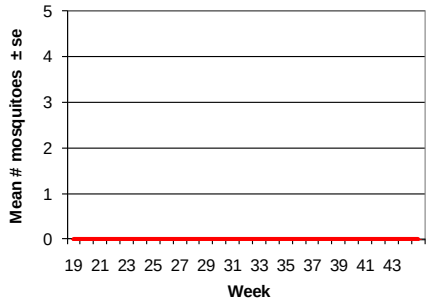
New York Metro



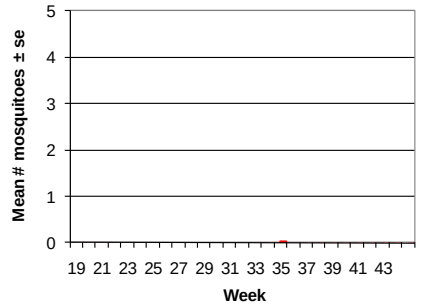
North Central Rural



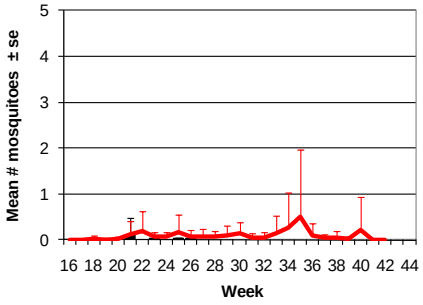
Northwestern Rural



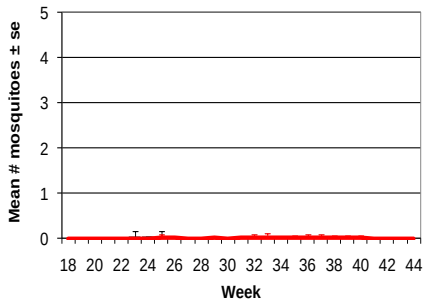
Philadelphia Metro



Pinelands



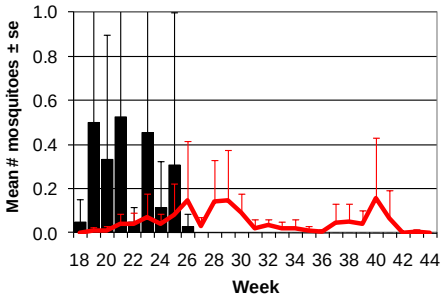
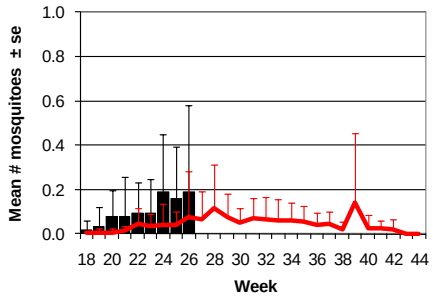
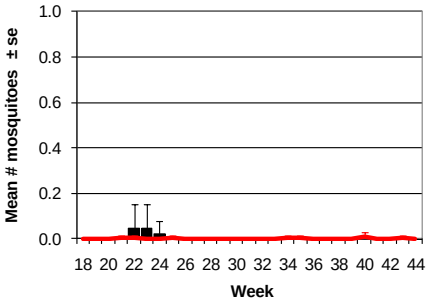
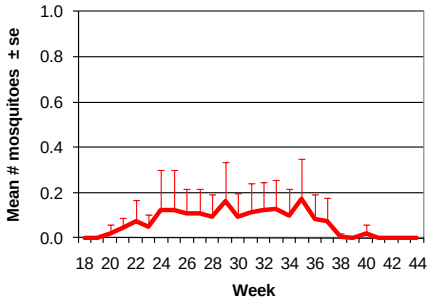
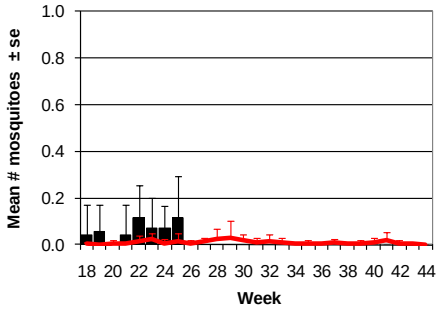
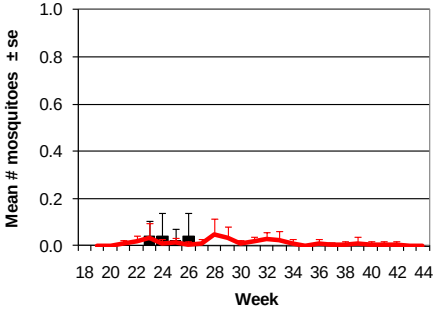
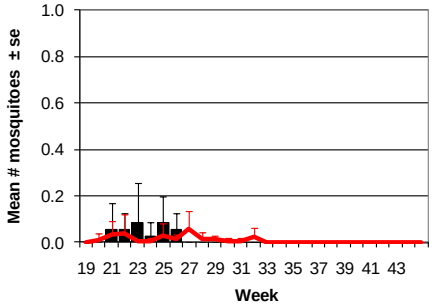
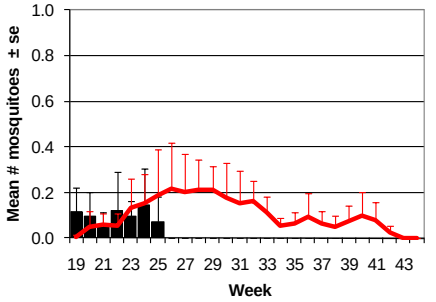
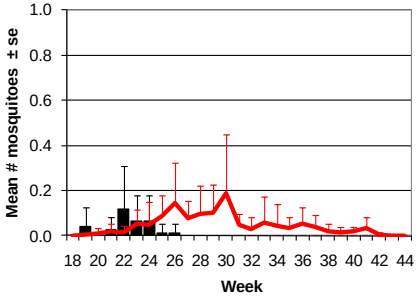
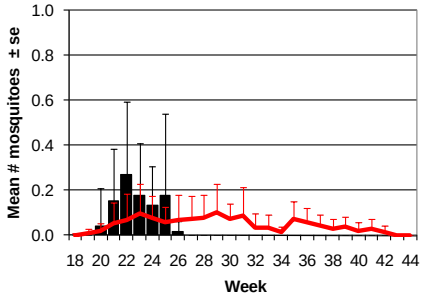
Suburban Corridor



Comments

Aedes sollicitans population numbers continue to be low at the two regions of highest production, the Coastal and the Delaware Bayshore. The abundance in the New York Metro region was as high as historical trends. Past full moon occurred on July 26th.

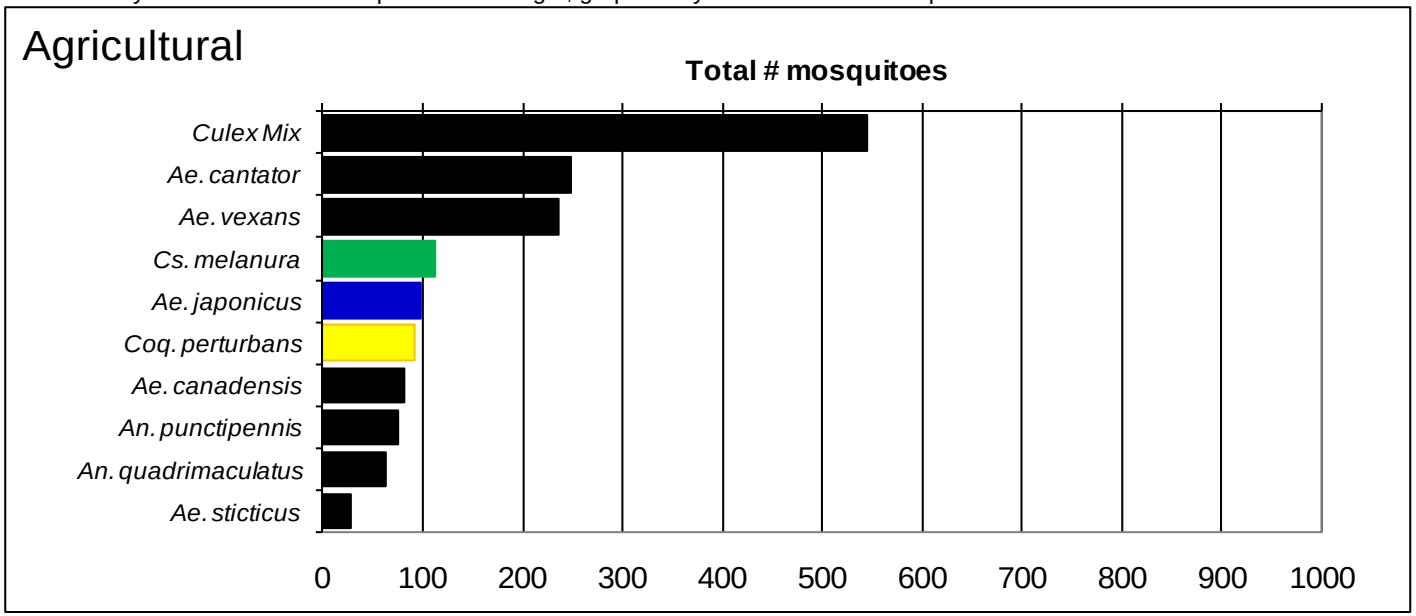
Aedes japonicus – Container Species
Multivoltine Aedine (*Ae. triseriatus* Type)

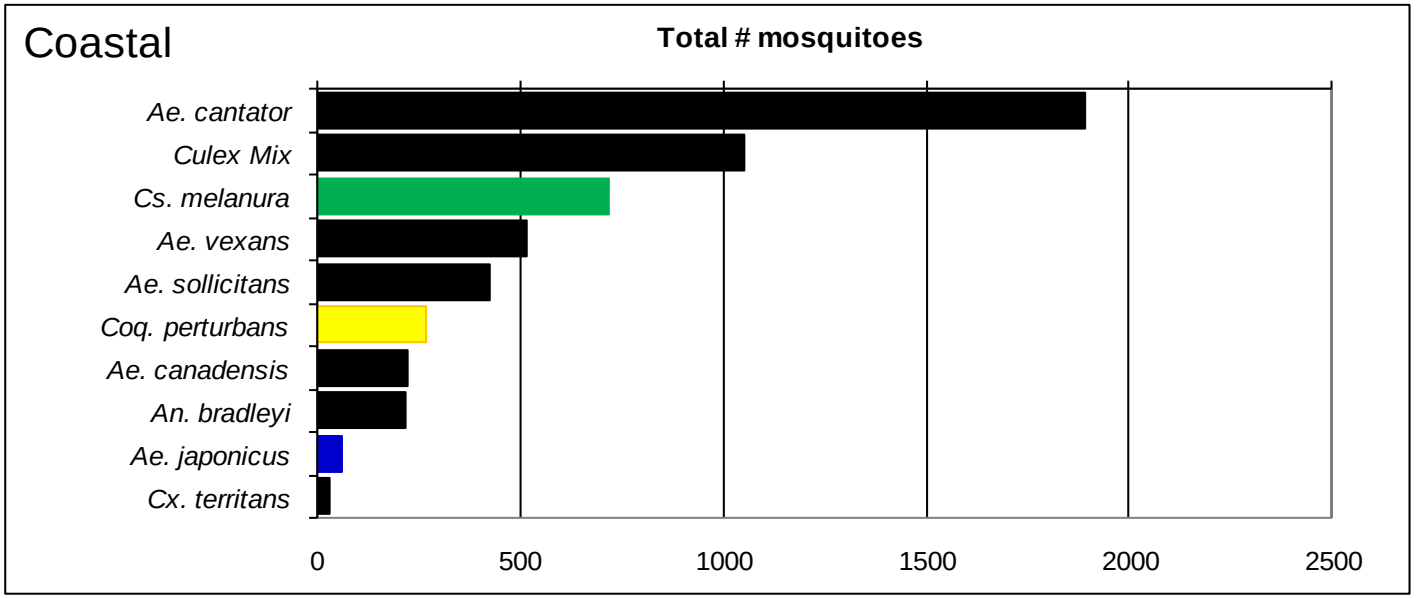
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes japonicus*, a hardy cold-tolerant species, has shown higher than historical numbers for several regions over several weeks. But now, numbers appear to be declining in some regions as possible habitat may be drying up, including Agricultural, Pinelands and the Suburban Corridor. Coastal and New York Metro region populations still appear strong.	

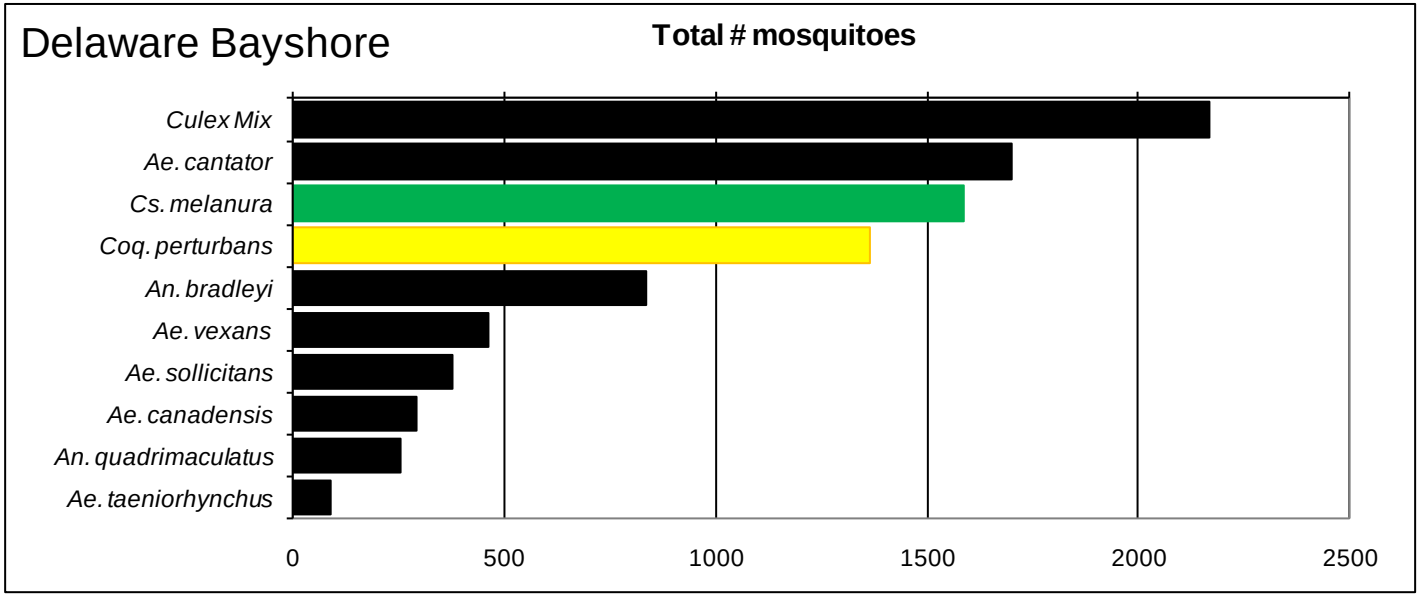
WNV *EEE*

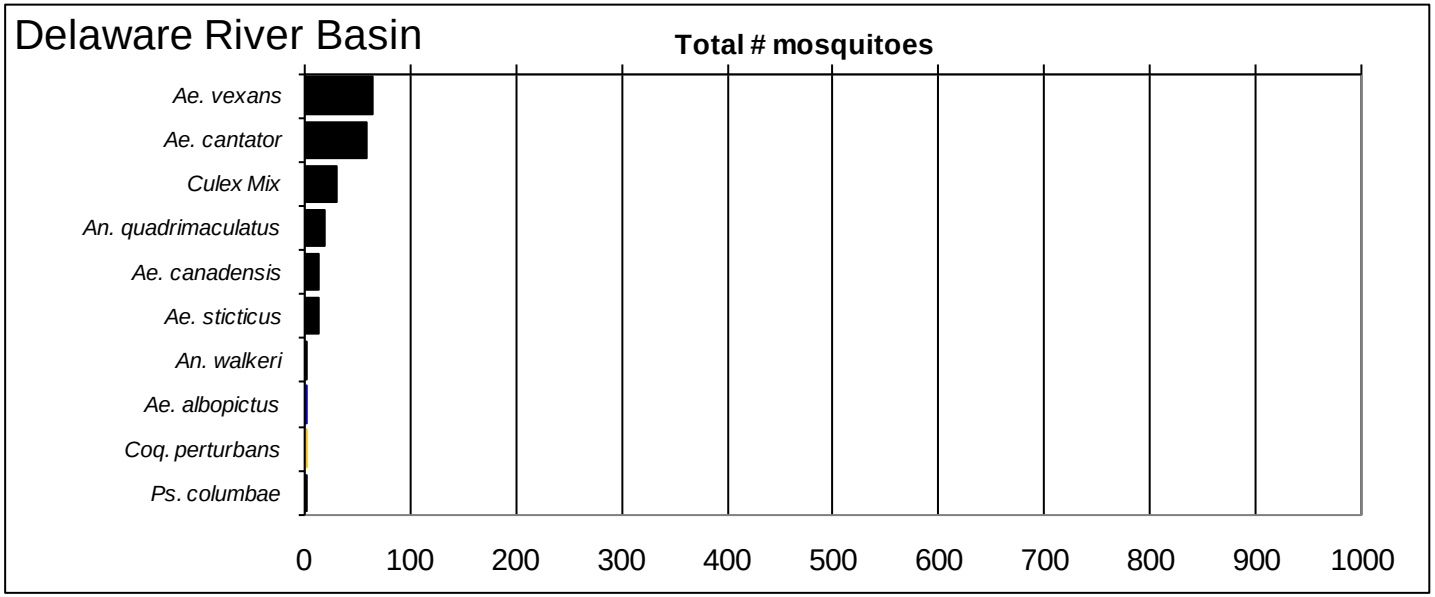
Top Ten Cumulative Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

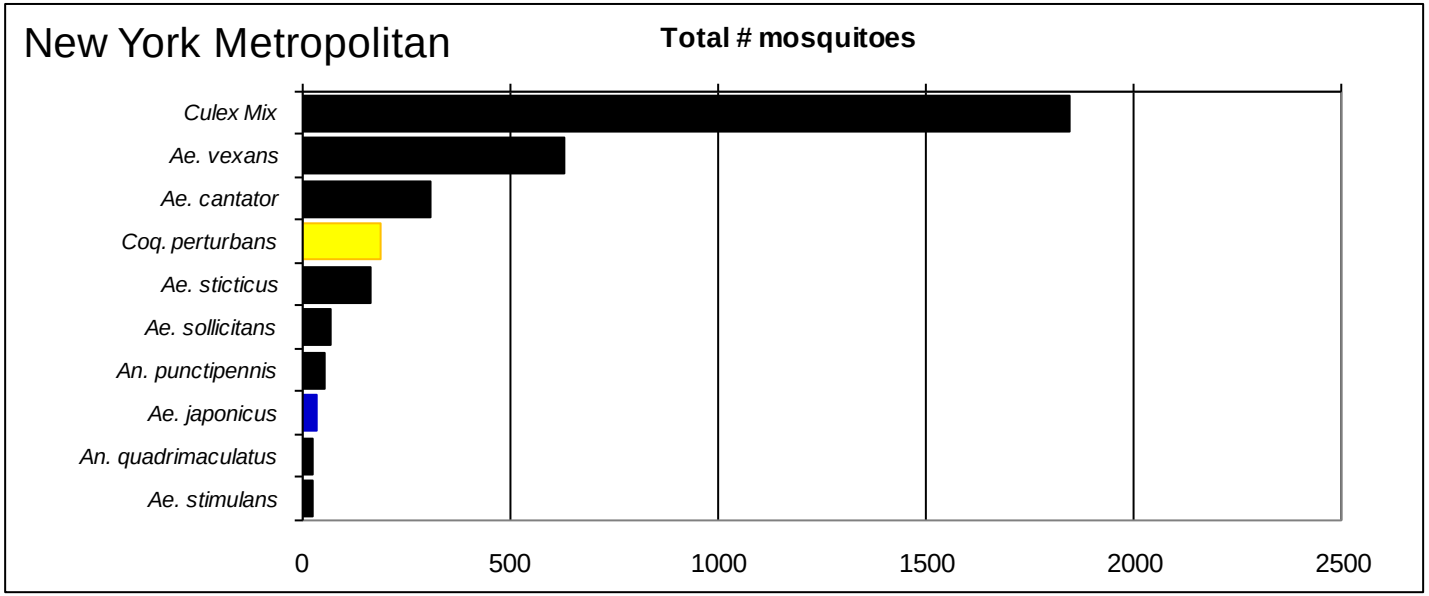
Note: In early season when fewer species are caught, graphs may show less than ten species listed.

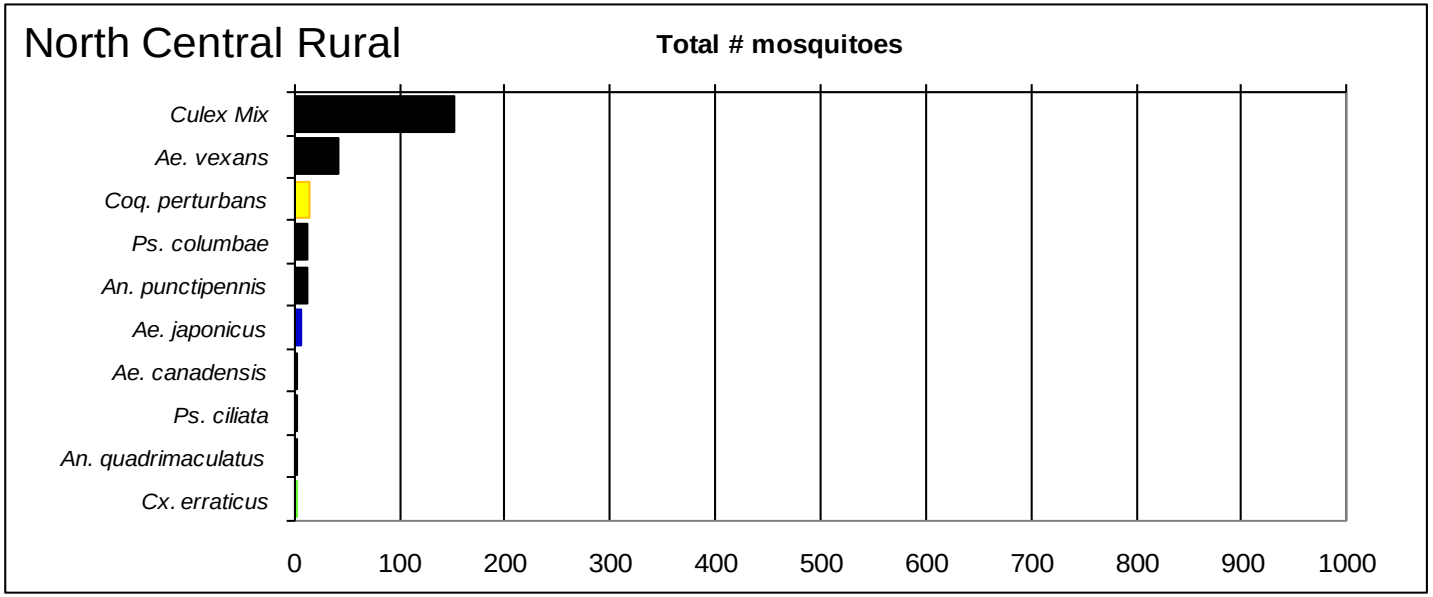


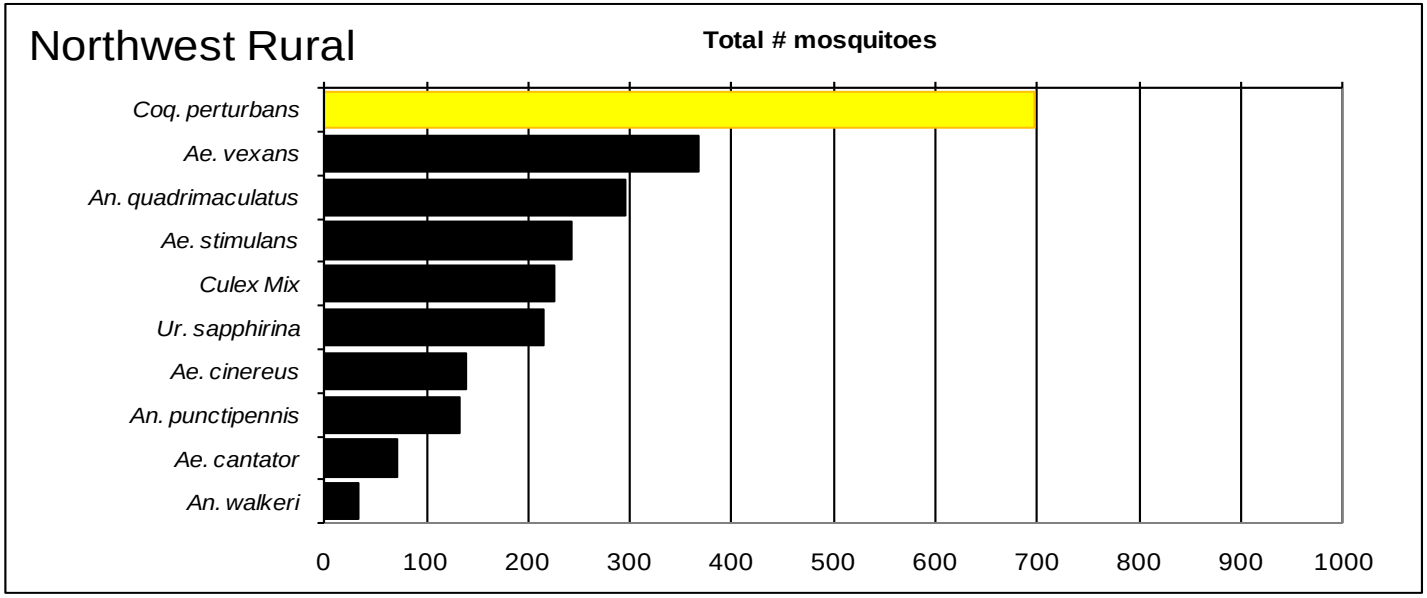


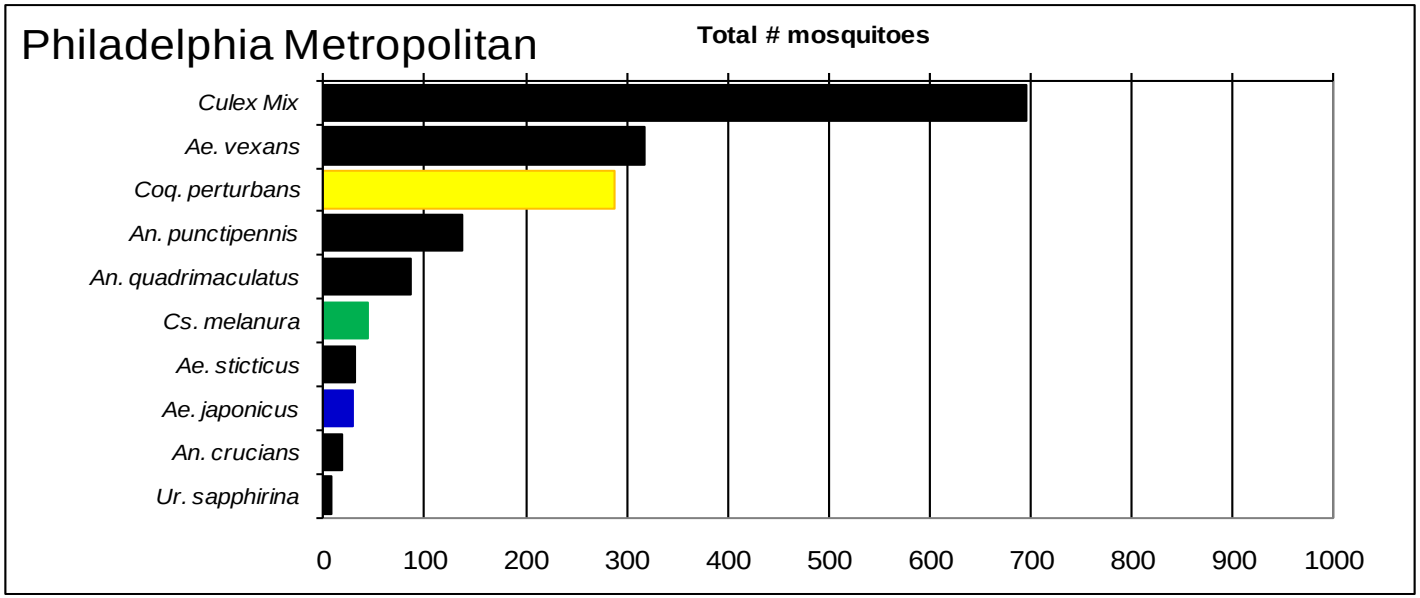

Delaware Bayshore
Total # mosquitoes
Culex Mix
Ae. cantator
Cs. melanura
Coq. perturbans
An. bradleyi
Ae. vexans
Ae. sollicitans
Ae. canadensis
An. quadrimaculatus
Ae. taeniorhynchus
0
500
1000
1500
2000
2500

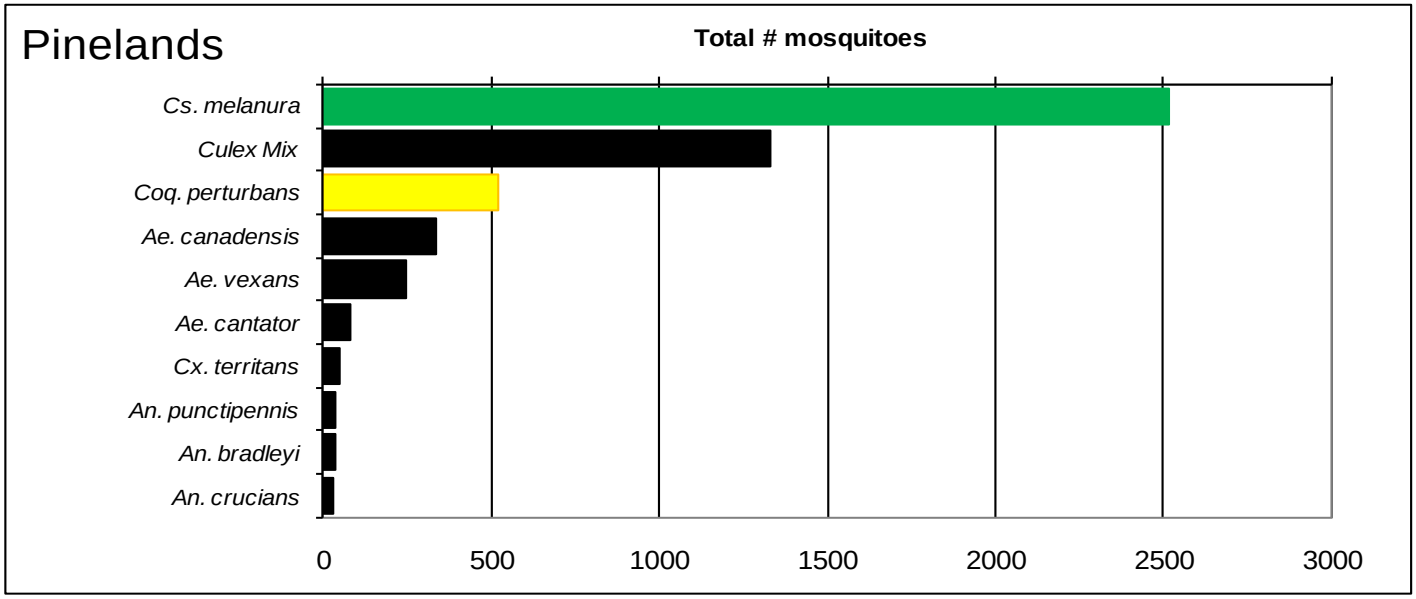

Delaware River Basin
Total # mosquitoes
Ae. vexans
Ae. cantator
Culex Mix
An. quadrimaculatus
Ae. canadensis
Ae. sticticus
An. walkeri
Ae. albopictus
Coq. perturbans
Ps. columbae
0
100
200
300
400
500
600
700
800
900
1000

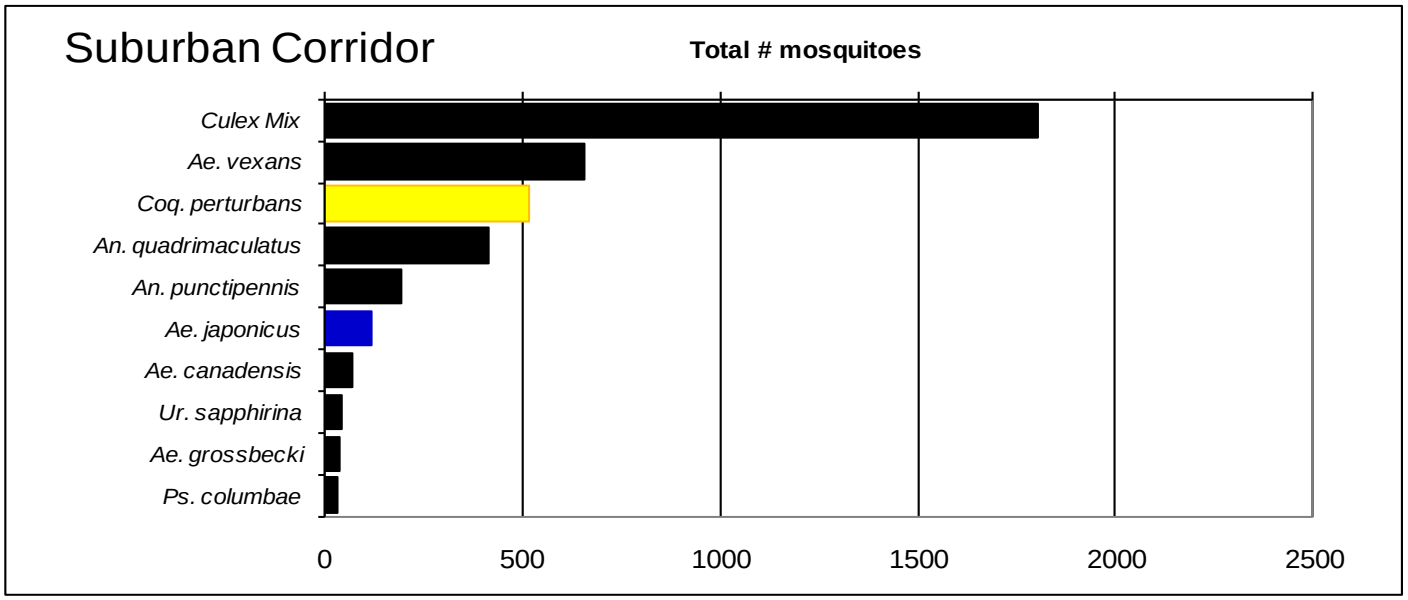

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. cantator
Coq. perturbans
Ae. sticticus
Ae. sollicitans
An. punctipennis
Ae. japonicus
An. quadrimaculatus
Ae. stimulans
0
500
1000
1500
2000
2500


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
Ps. columbae
An. punctipennis
Ae. japonicus
Ae. canadensis
Ps. ciliata
An. quadrimaculatus
Cx. erraticus
0
100
200
300
400
500
600
700
800
900
1000


Northwest Rural
Total # mosquitoes
Coq. perturbans
Ae. vexans
An. quadrimaculatus
Ae. stimulans
Culex Mix
Ur. sapphirina
Ae. cinereus
An. punctipennis
Ae. cantator
An. walkeri
0
100
200
300
400
500
600
700
800
900
1000


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
An. punctipennis
An. quadrimaculatus
Cs. melanura
Ae. sticticus
Ae. japonicus
An. crucians
Ur. sapphirina
0
100
200
300
400
500
600
700
800
900
1000


Pinelands
Total # mosquitoes
Cs. melanura
Culex Mix
Coq. perturbans
Ae. canadensis
Ae. vexans
Ae. cantator
Cx. territans
An. punctipennis
An. bradleyi
An. crucians
0
500
1000
1500
2000
2500
3000


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
Coq. perturbans
An. quadrimaculatus
An. punctipennis
Ae. japonicus
Ae. canadensis
Ur. sapphirina
Ae. grossbecki
Ps. columbae
0
500
1000
1500
2000
2500