# NEW JERSEY STATEWIDE SURVEILLANCE

## Week 36 Report for 4 September to 10 September, 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.

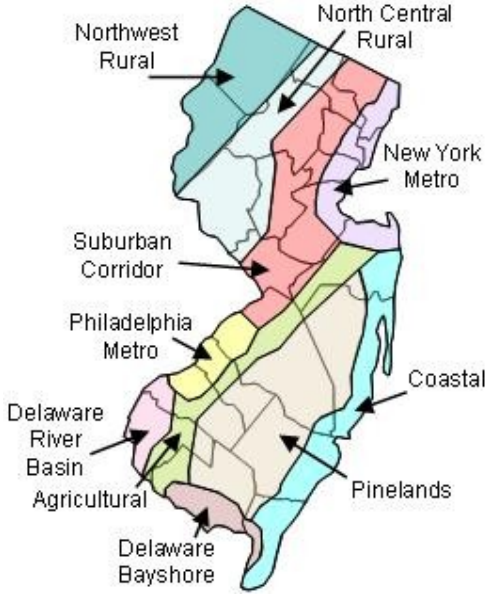



Figure 1b. Trap lat-long locations.

## Summary table – Week 36

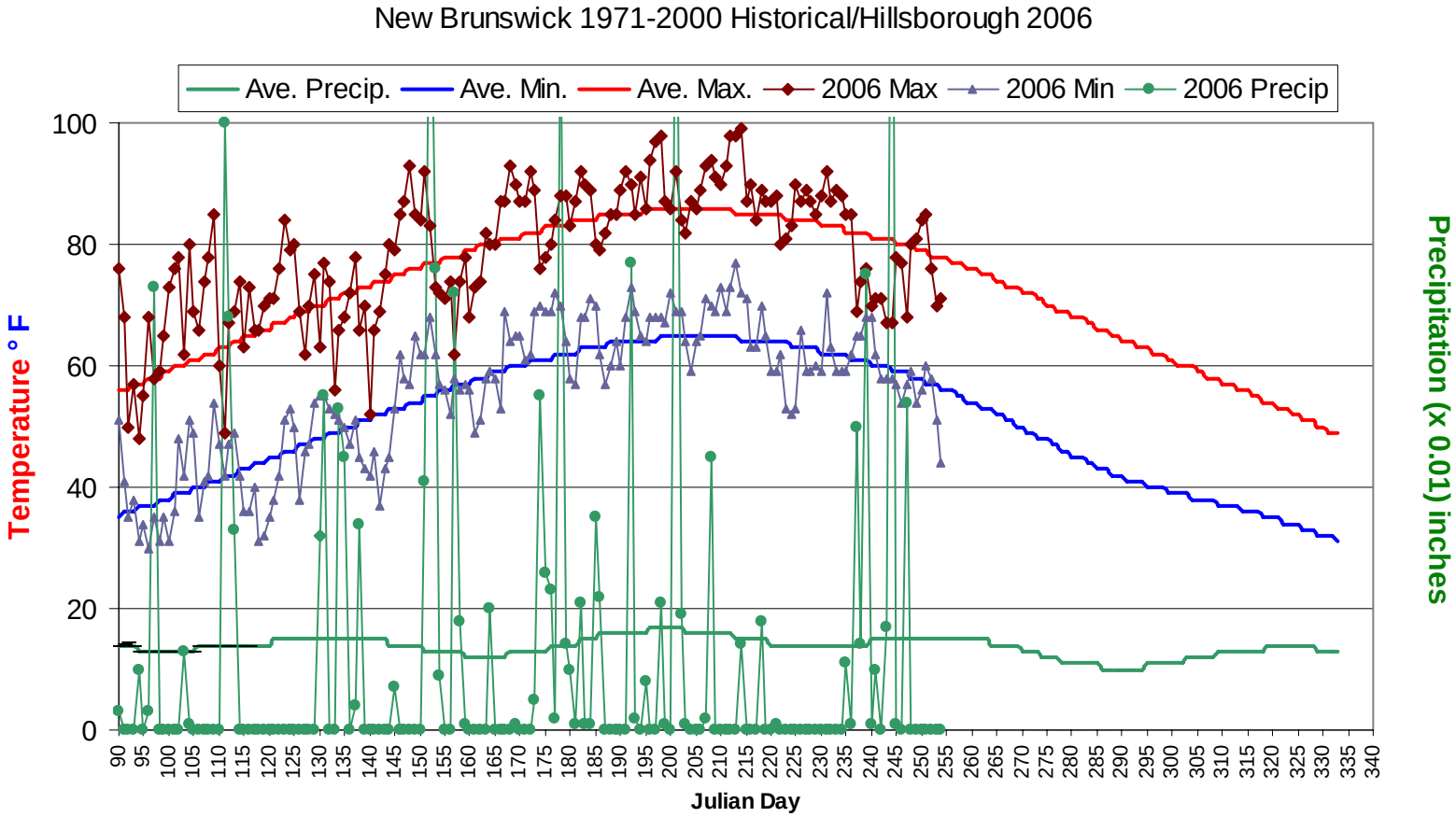
| | *Aedes vexans* | | *Culex complex* | | *Coquillettidia perturbans* | | *Ochlerotatus sollicitans* | |
|---|---|---|---|---|---|---|---|---|
| **Region** | This Week | Average* | This Week | Average* | This Week | Average* | This Week | Average* |
| **Agricultural** | **0.00** | **3.42** | **2.05** | **12.02** | **0.02** | **0.03** | **10.90** | **0.67** |
| **Coastal** | **0.29** | **3.28** | **0.24** | **3.10** | **0.00** | **1.36** | **0.32** | **14.34** |
| **Delaware Bayshore** | **0.00** | **1.29** | **7.79** | **16.83** | **0.00** | **0.55** | **0.38** | **9.46** |
| **Delaware River Basin** | **0.00** | **10.21** | **0.00** | **14.28** | **0.00** | **0.22** | **0.00** | **0.23** |
| **New York Metro** | **0.26** | **2.66** | **2.71** | **4.81** | **0.01** | **0.01** | **0.00** | **0.75** |
| **North Central Rural** | **0.04** | **0.75** | **0.04** | **0.71** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Northwest Rural** | **0.33** | **15..15** | **0.33** | **6.07** | **0.00** | **0.06** | **0.00** | **0.00** |
| **Philadelphia Metro** | **0.77** | **11.34** | **1.02** | **4.89** | **0.03** | **0.23** | **0.00** | **0.00** |
| **Pinelands** | **0.00** | **3.02** | **0.49** | **3.52** | **0.01** | **0.20** | **0.00** | **0.08** |
| **Suburban Corridor** | **0.18** | **3.98** | **0.30** | **2.26** | **0.00** | **0.45** | **0.00** | **0.04** |

* 5-year running mean.

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

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

## *Climate Data*

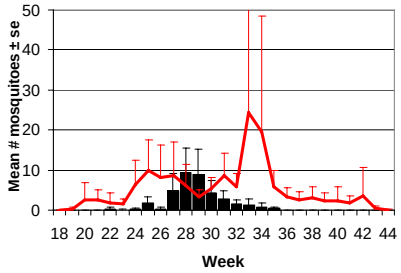
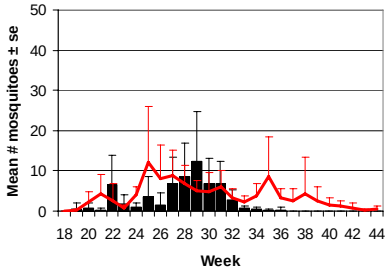
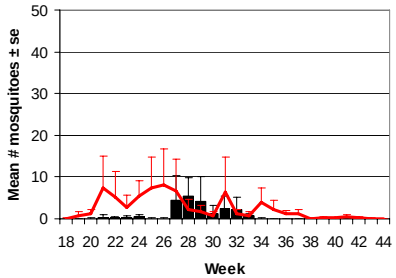
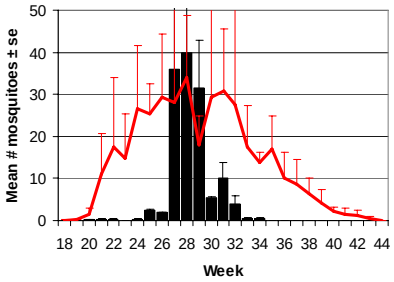
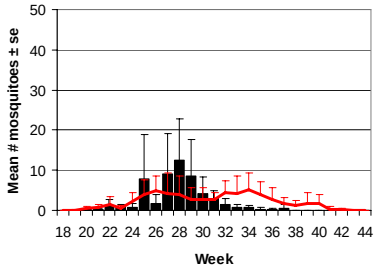
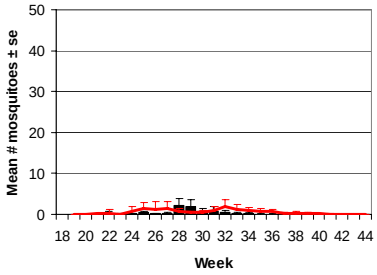
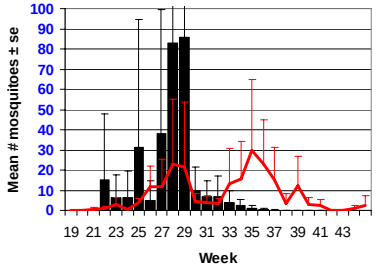
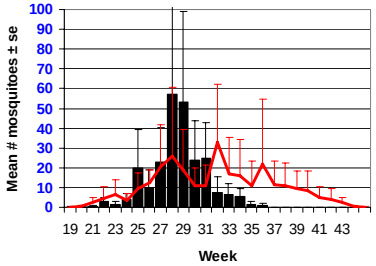
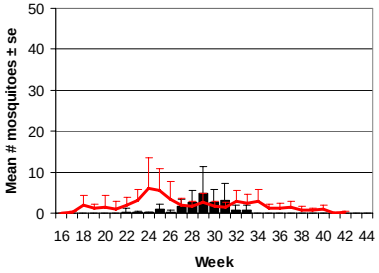
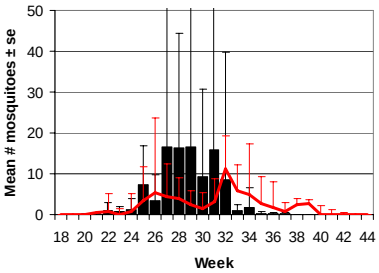



This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station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

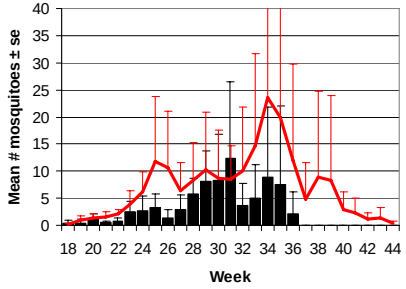
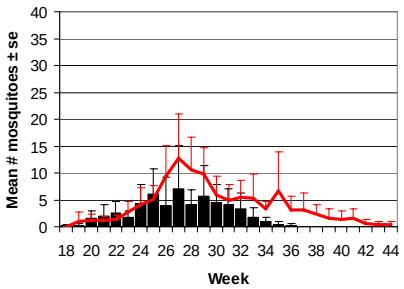
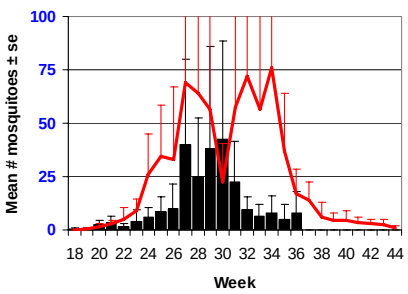
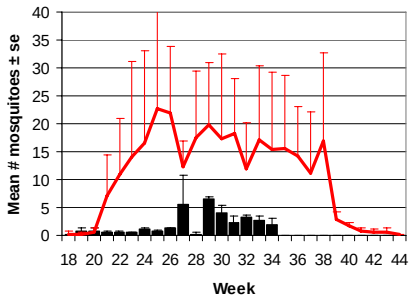
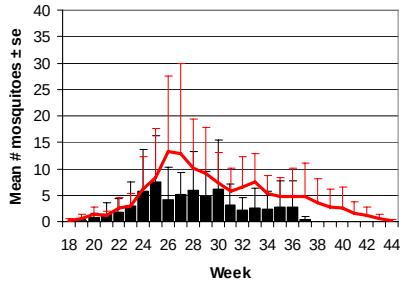
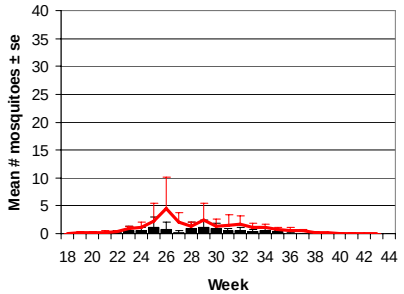
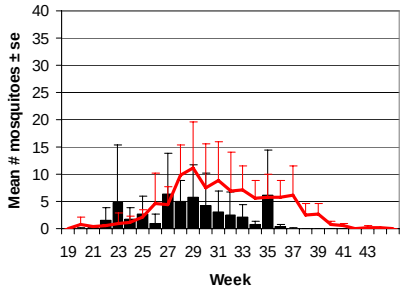
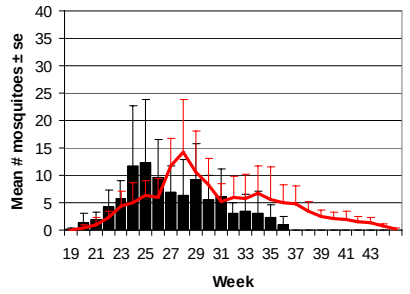
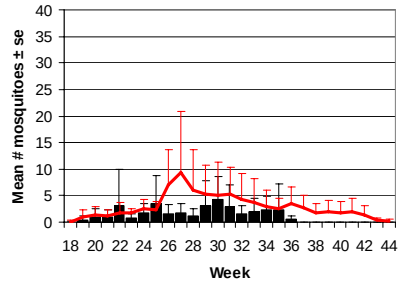
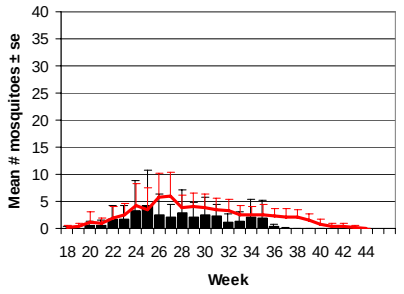
The state climatologist has an extensive amount of climatological historical data as well as stations reporting current conditions and forecasts:

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

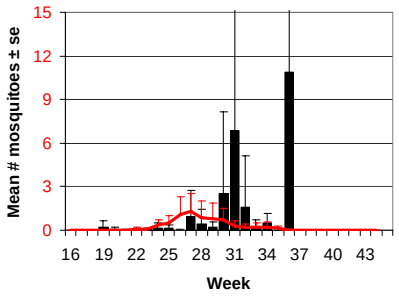
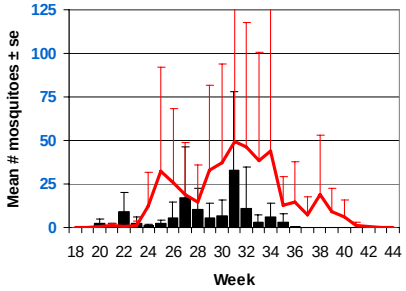
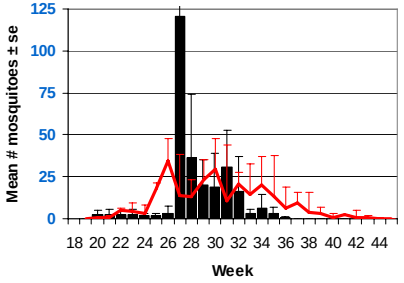
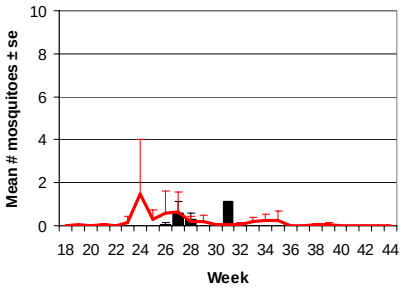
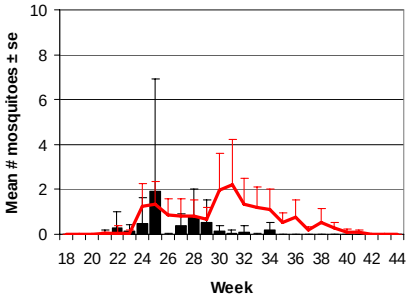
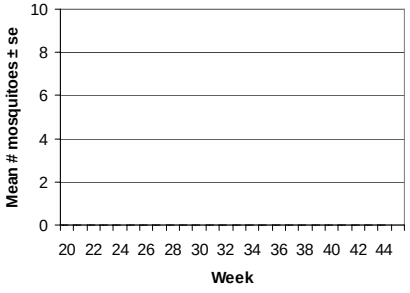
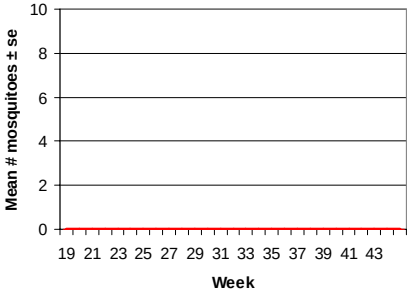
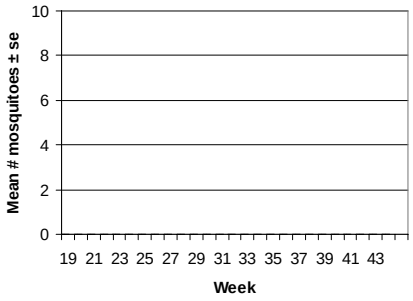
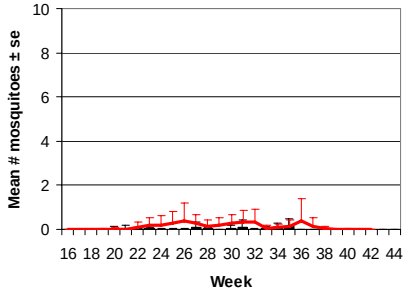
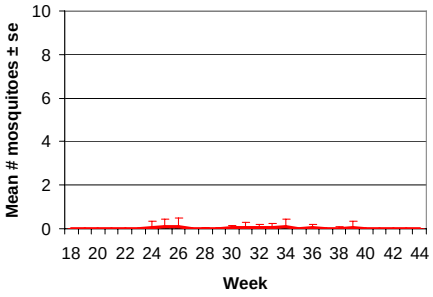
# *Aedes vexans - Fresh Floodwater Species*

| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | Population abundances for *Aedes vexans* continue their decline and are likely to be sharply reduced in areas such as the Northwestern Rural, where nighttime temperatures have been dropping recently. Current averages in all regions continue well below their historical averages. | |

# *Culex Complex - Multivoltine Culex Species*

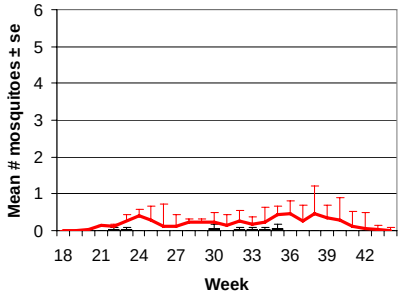
| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | Culex populations continue their seasonal decline. As with *Ae. vexans*, mean number of mosquitoes per week are below historical values. Two different trends, however, are seen between the two genera: *Culex* numbers tend to be somewhat suppressed in comparison with recent historical trends and the peak population means are usually less than the historical trends. *Aedes vexans* also demonstrated suppressed numbers, but the trends appeared more severe with peak population numbers often larger than historical trends. This would seem to correspond with the life history pattern differences between the steady permanent water *Culex* resistant to perturbations versus the ephemeral floodwater *Aedes.*<br>Vector surveillance indicate that *Culex* MIR for WN continues to hold at a value reported corresponding with human or horse transmission* in NY.<br><br>* V. Kulakesera et al, West Nile Virus Infection in Mosquitoes, Birds, Horses, and Humans, Staten Island, New York, 2000. EID, 7(4): 722-725.<br>http://www.cdc.gov/ncidod/eid/vol7no4/kulasekera.htm | |

# *Ochlerotatus sollicitans - Salt Marsh Floodwater Species*

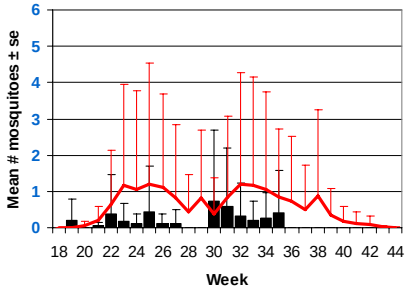
| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | A significant number of *Ochlerotatus sollicitans* were recorded in the most southerly agricultural light trap, a site that is highly influenced by its proximity to the coast, but is of an agricultural ecology. This may signal the last emergence on the Bayshore side. Activity on the Coastal side appears to be waning quickly. | |

# *Culiseta melanura* – Miscellaneous Group

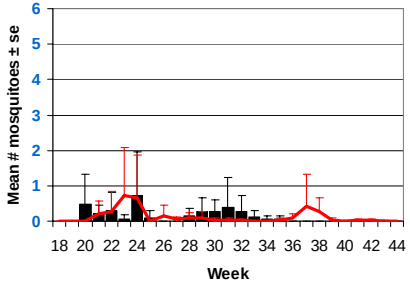
## Agricultural



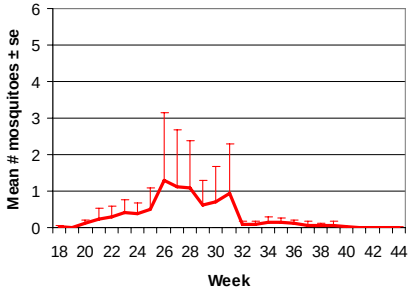

## Coastal



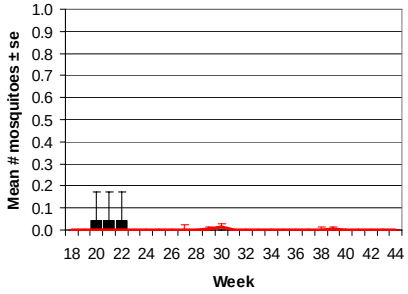

## Delaware Bayshore



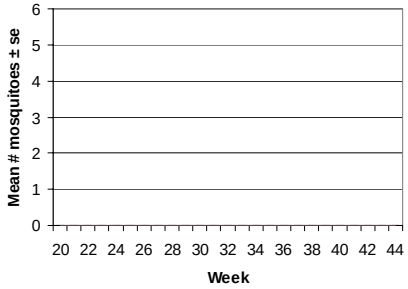

## Delaware River Basin



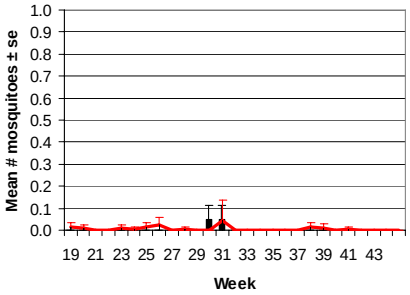

## New York Metro



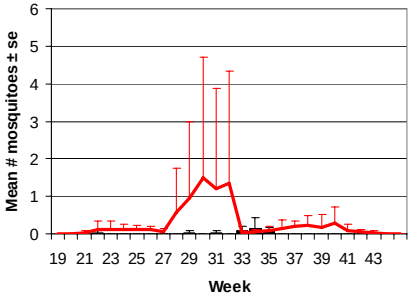

## North Central Rural



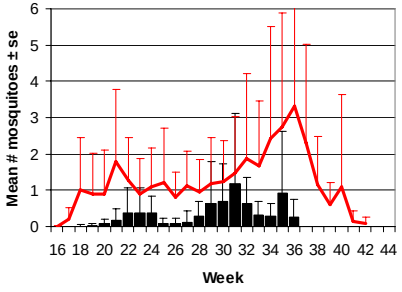

## Northwestern Rural



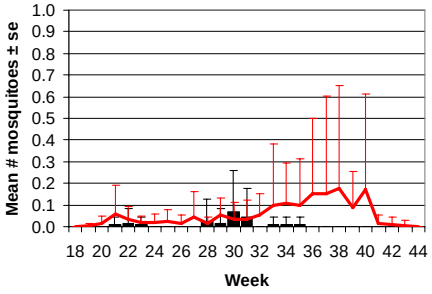

## Philadelphia Metro




## Pinelands




## Suburban Corridor

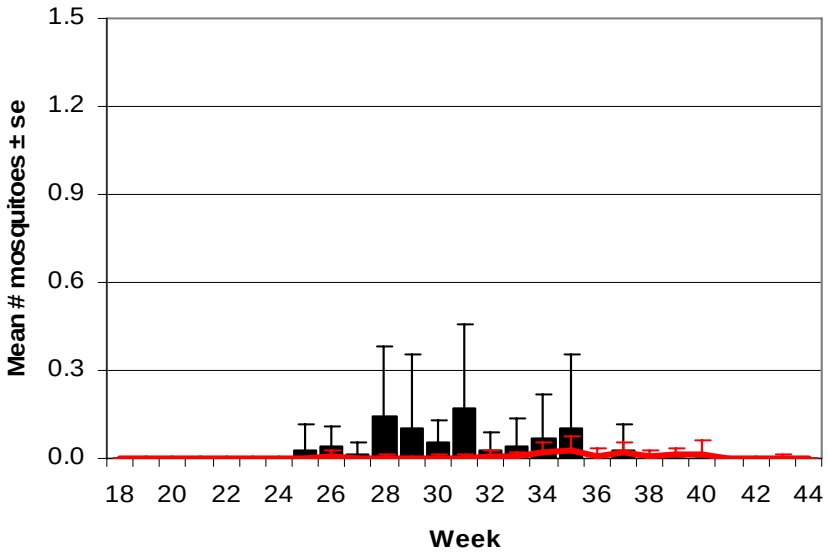



## Comments

*Culiseta melanura* populations continue to decline despite the weak spurt of activity in the Pinelands and Coastal regions. EEE activity has not yet been reported in this species from Vector surveillance traps (also showing low numbers). This species is extremely efficient in transmitting EEE.

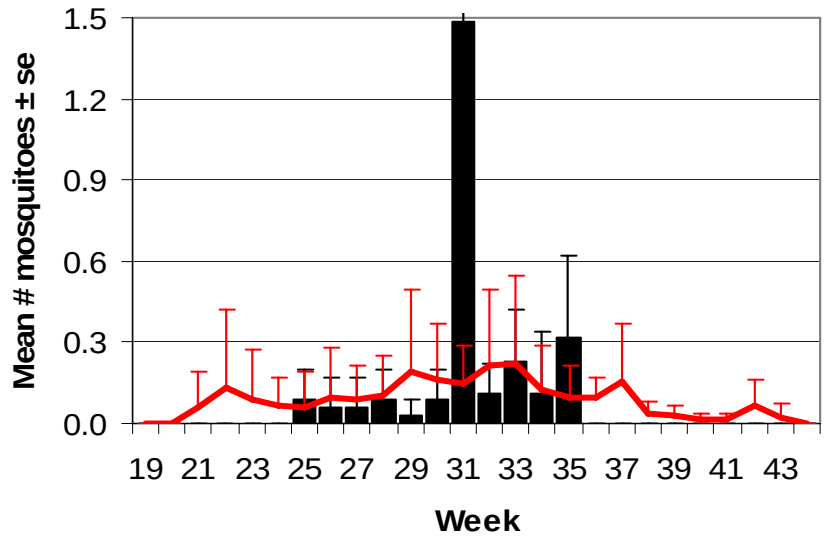
*Aedes albopictus* in the New York Metro, Philadelphia Metro, and Suburban Corridor.

New York Metro

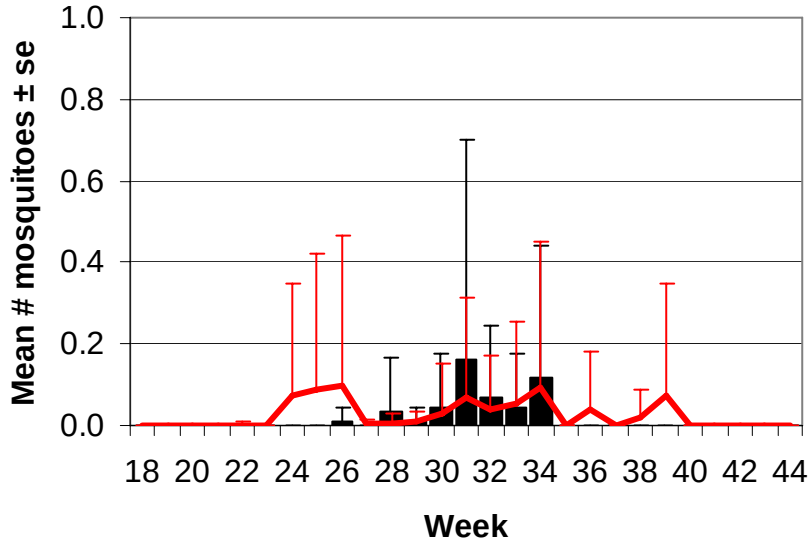



The Philadelphia Metro region had a considerable number of *Aedes albopictus* (reflected as one or two per night per trap – not a huge number in itself, but significant in comparison with the rest of the trapping data). In addition, the New York Metro region has also shown numbers higher than historical trends. While values are low, it should be noted that 1) light trap absolute numbers may be misleading in suggesting that overall population numbers are low when in fact, the species is not attracted to the trap, and 2) the ability of *Ae. albopictus* to transmit WN is high.

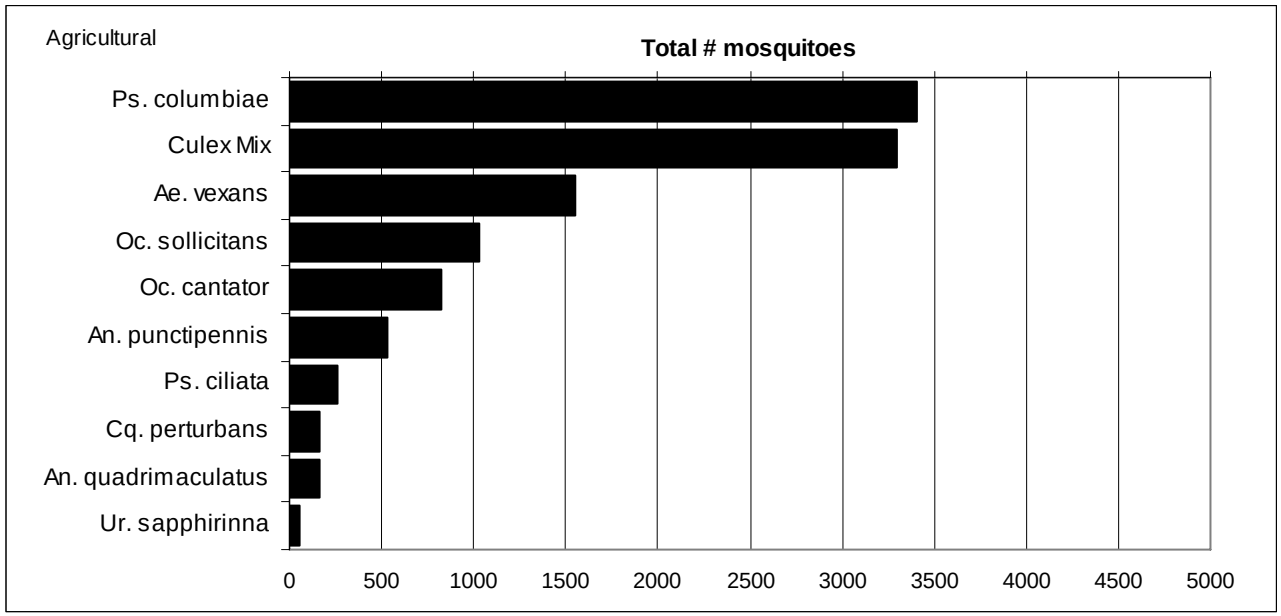
Philadelphia Metro

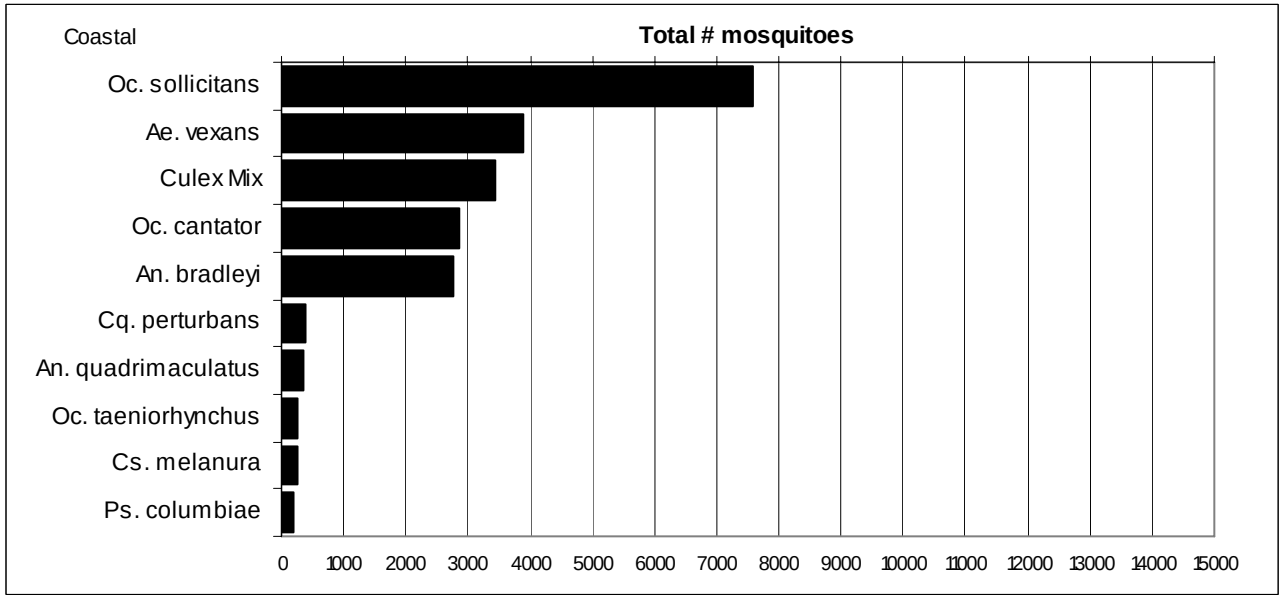


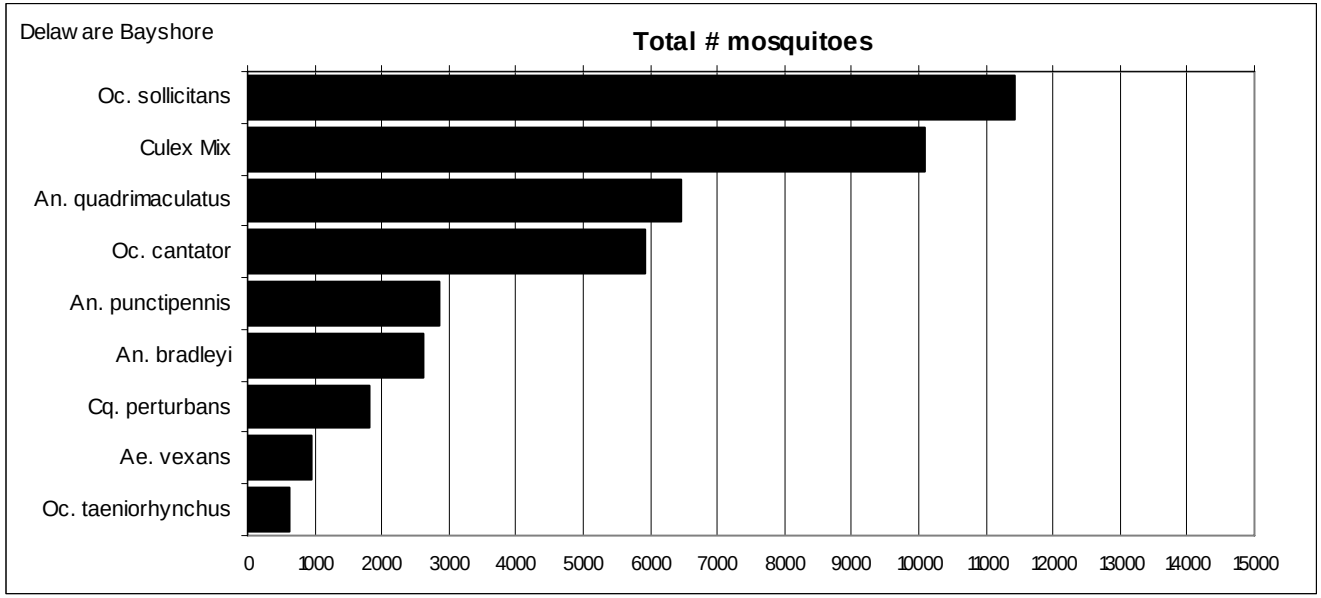

Suburban Corridor

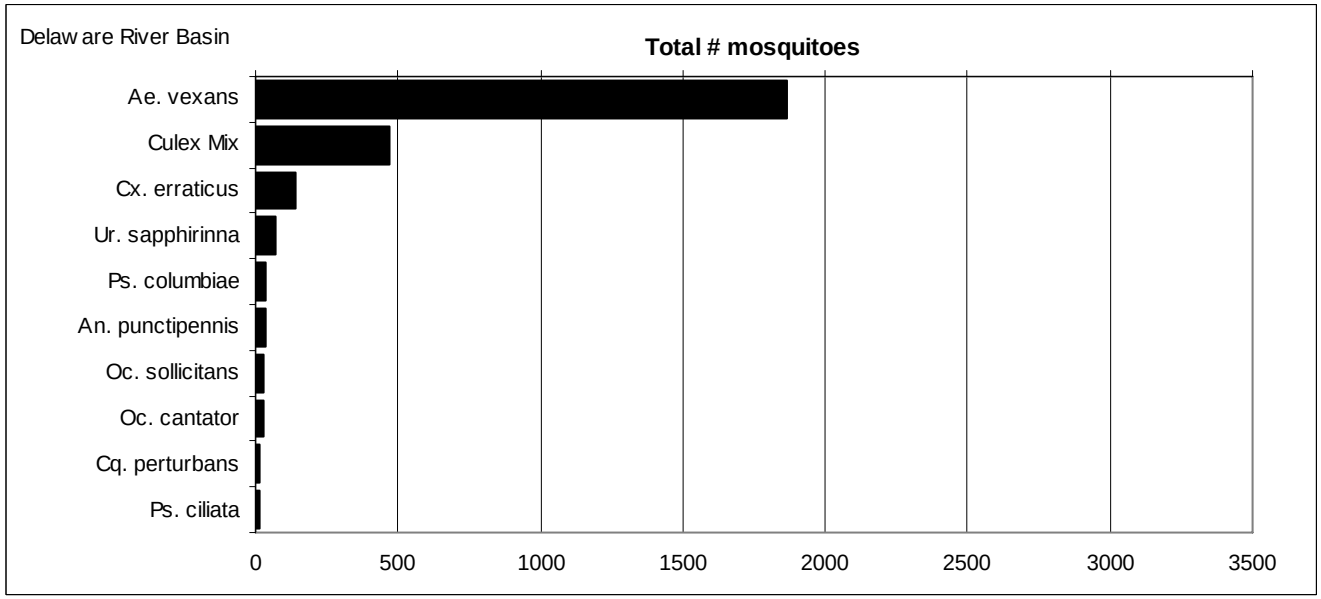


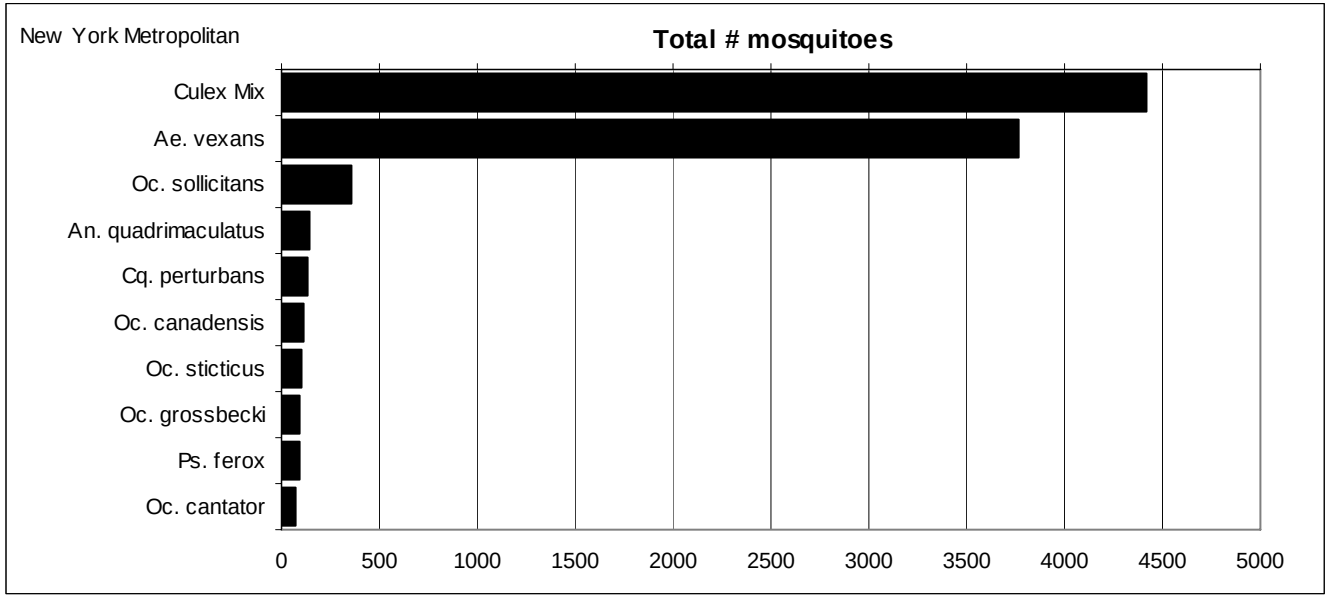
Top Ten cumulative species for each region to date.

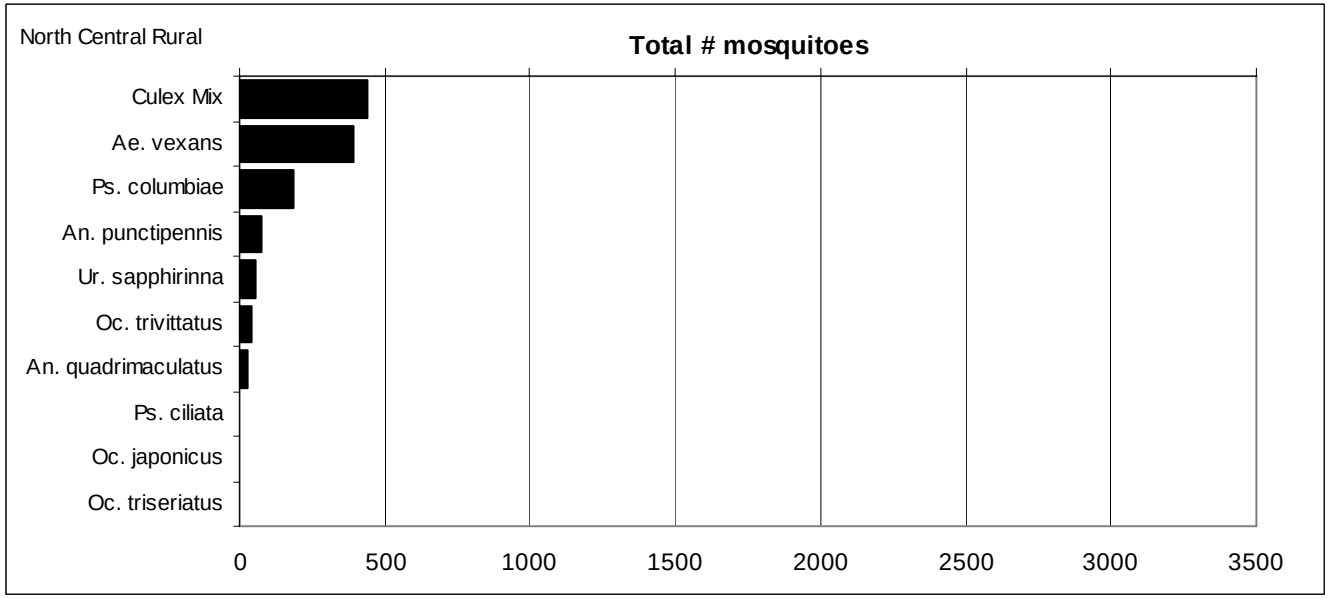


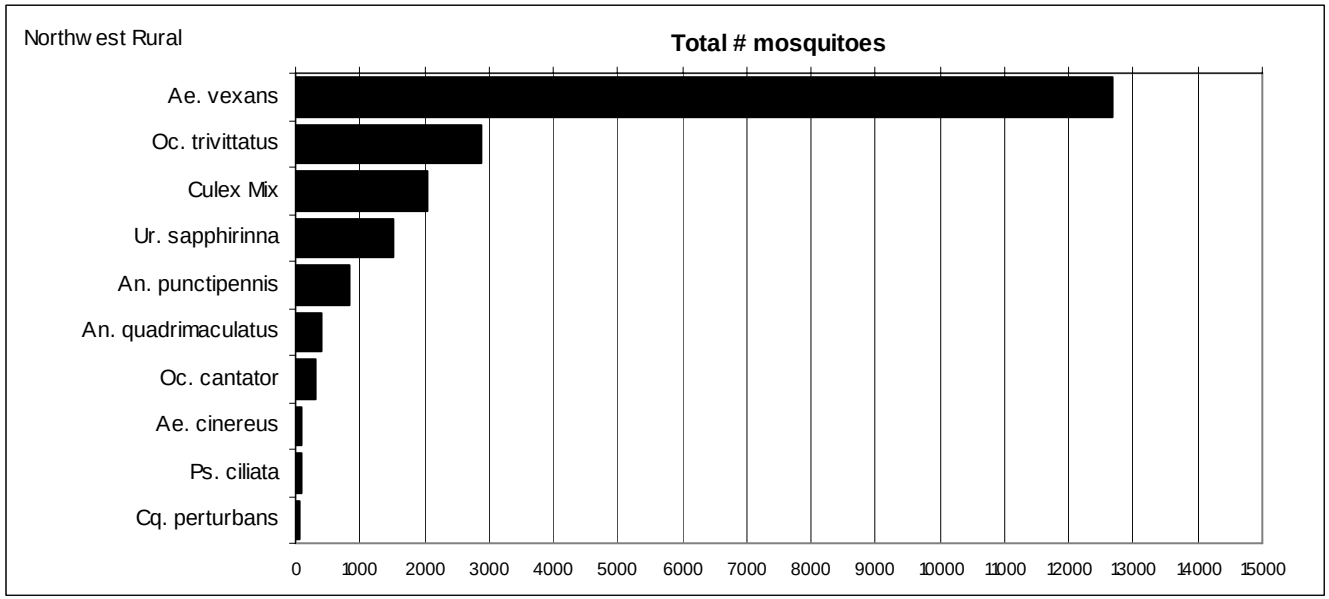



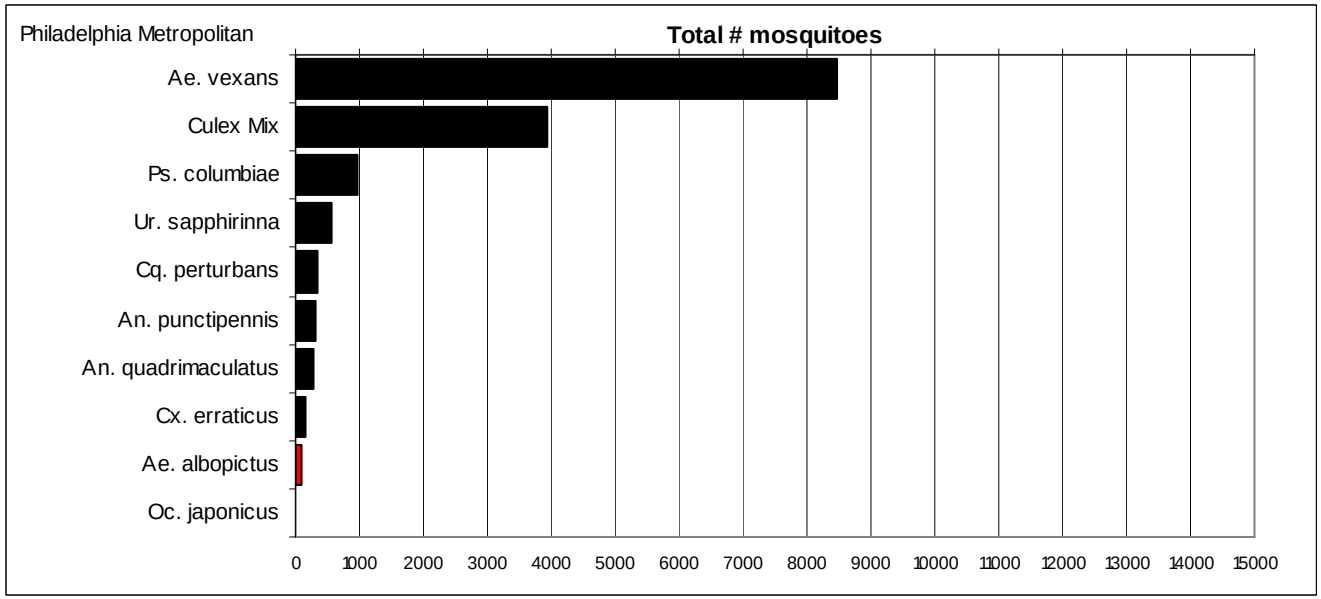

Delaware Bayshore
Total # mosquitoes
Oc. sollicitans
Culex Mix
An. quadrimaculatus
Oc. cantator
An. punctipennis
An. bradleyi
Cq. perturbans
Ae. vexans
Oc. taeniorhynchus
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000
11000
12000
13000
14000
15000

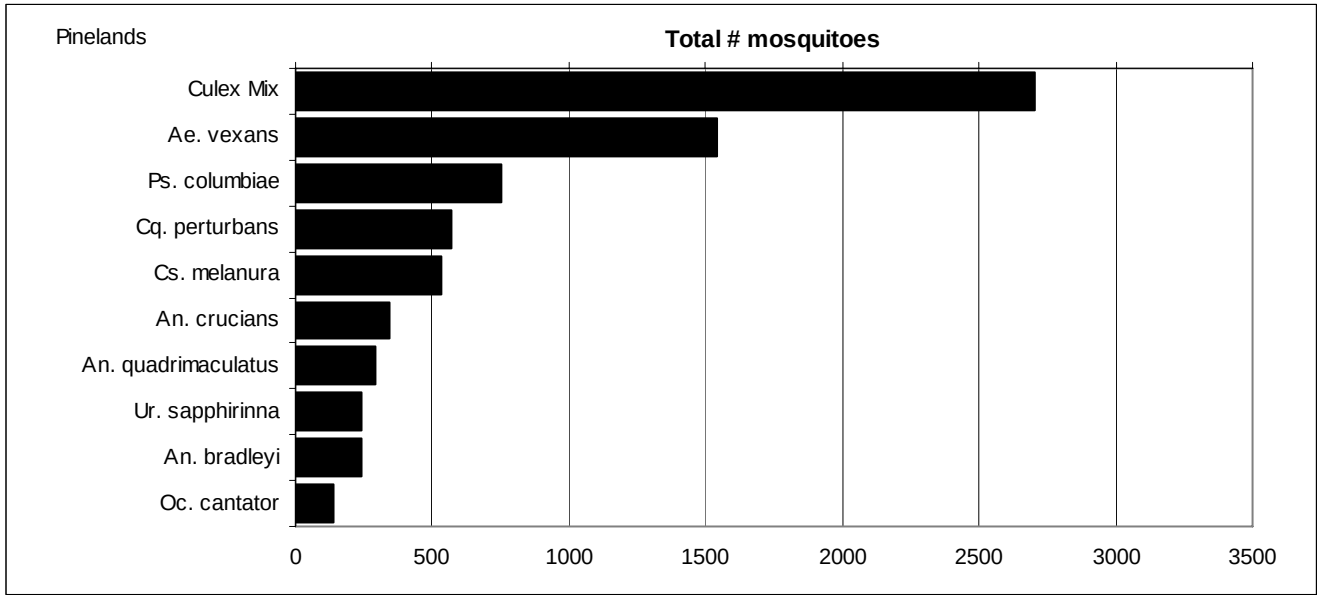

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Cx. erraticus
Ur. sapphirinna
Ps. columbiae
An. punctipennis
Oc. sollicitans
Oc. cantator
Cq. perturbans
Ps. ciliata
0
500
1000
1500
2000
2500
3000
3500

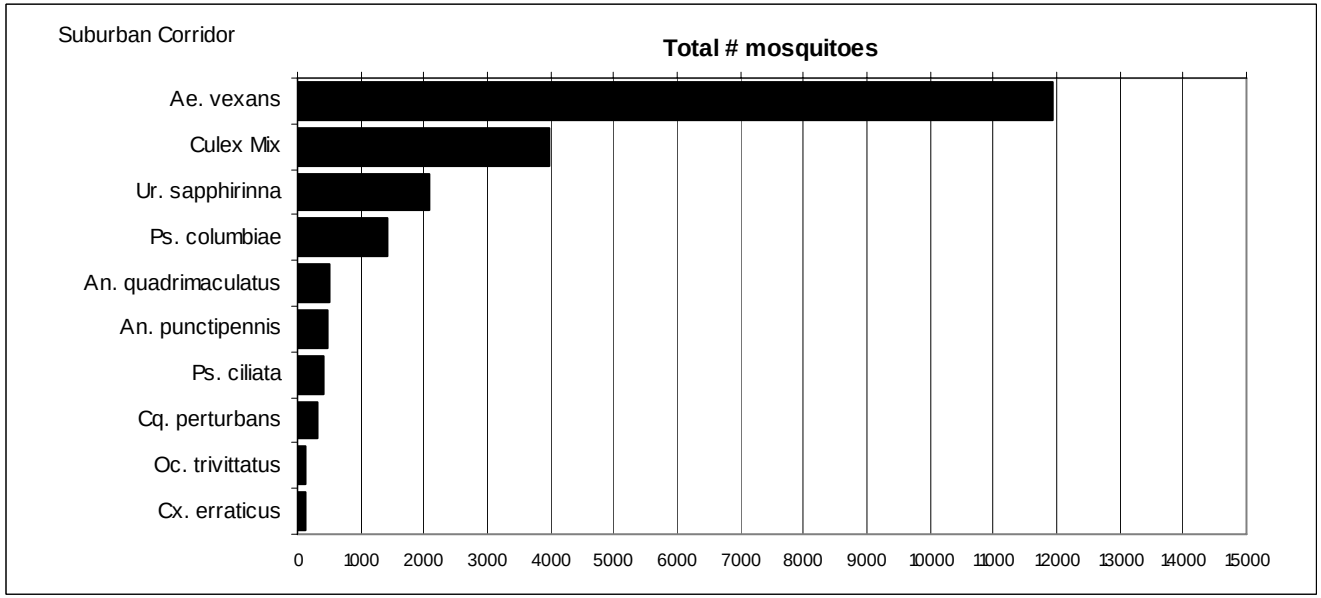

New York Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Oc. sollicitans
An. quadrimaculatus
Cq. perturbans
Oc. canadensis
Oc. sticticus
Oc. grossbecki
Ps. ferox
Oc. cantator
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. vexans
Ps. columbiae
An. punctipennis
Ur. sapphirinna
Oc. trivittatus
An. quadrimaculatus
Ps. ciliata
Oc. japonicus
Oc. triseriatus
0
500
1000
1500
2000
2500
3000
3500


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


Pinelands
Total # mosquitoes
Culex Mix
Ae. vexans
Ps. columbiae
Cq. perturbans
Cs. melanura
An. crucians
An. quadrimaculatus
Ur. sapphirinna
An. bradleyi
Oc. cantator
0
500
1000
1500
2000
2500
3000
3500


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