# NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report 3 June to 9 June 2018, CDC Week 23

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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.

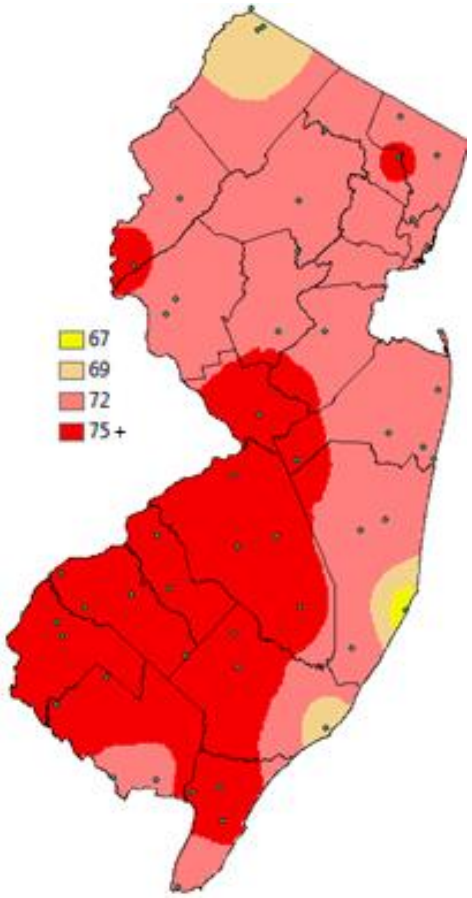
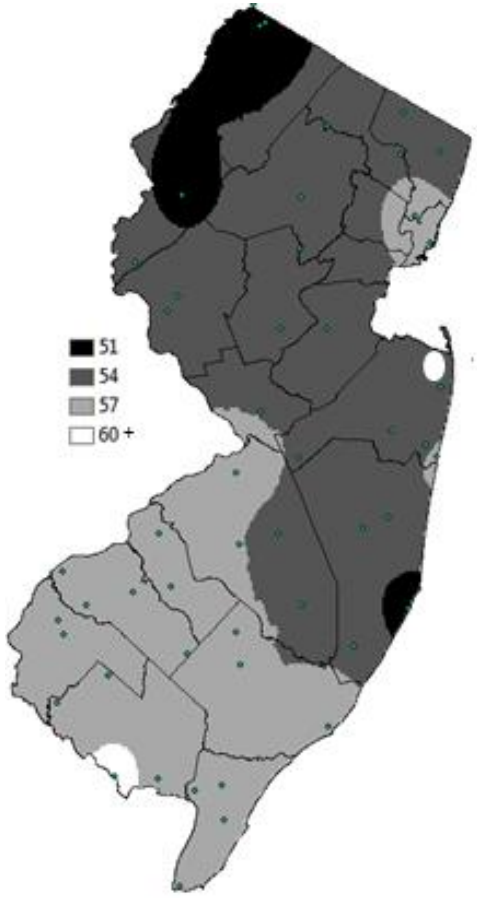
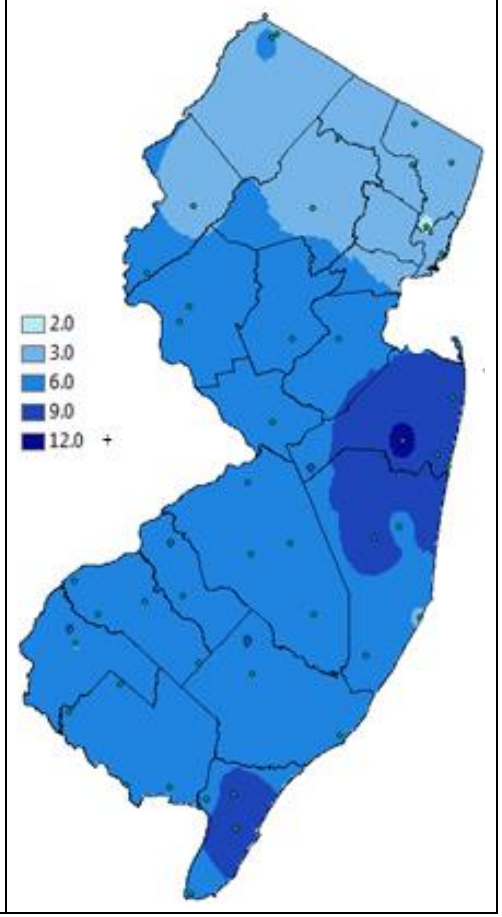
## *Summary Table – Week 23*

| | ***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 | **12.48** | **1.28** | **4** | **4.86** | **0.94** | **4** | **0.02** | **0.08** | **0** | **0.00** | **0.01** | **0** |
| Coastal | **5.86** | **1.10** | **4** | **1.21** | **2.13** | **0** | **0.03** | **0.07** | **0** | **1.76** | **0.62** | **4** |
| Delaware Bayshore | **0.00** | **1.79** | **0** | **0.00** | **4.31** | **0** | **0.00** | **1.37** | **0** | **0.00** | **0.17** | **0** |
| Delaware River Basin | **31.29** | **1.39** | **4** | **8.86** | **0.80** | **4** | **0.00** | **0.07** | **0** | **0.29** | **0.00** | |
| New York Metro | **2.03** | **2.43** | **0** | **2.57** | **2.72** | **0** | **0.10** | **0.02** | **4** | **0.21** | **0.23** | **0** |
| North Central Rural | **0.00** | **0.14** | **0** | **0.14** | **0.48** | **0** | **0.00** | **0.02** | **0** | **0.00** | **0.00** | **0** |
| Northwest Rural | **0.00** | **3.11** | **0** | **0.00** | **1.70** | **0** | **0.00** | **0.03** | **0** | **0.00** | **0.00** | **0** |
| Philadelphia Metro | **0.00** | **2.02** | **0** | **0.00** | **2.35** | **0** | **0.00** | **0.03** | **0** | **0.00** | **0.00** | **0** |
| Pinelands | **2.82** | **0.49** | **4** | **1.10** | **0.85** | **1** | **0.45** | **0.04** | **4** | **0.00** | **0.00** | **0** |
| Suburban Corridor | **1.34** | **3.75** | **0** | **1.84** | **1.09** | **2** | **0.00** | **0.21** | **0** | **0.05** | **0.00** | |

*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. nd=no data reported.

State Summary: Continued rainfall has produced abundant *Aedes vexans* populations in the Agricultural, Coastal, Delaware River Basin and Pinelands regions. Also elevated are *Culex* Mix in the Agricultural and Delaware River Basin regions along with increased numbers in the Pinelands and the Suburban Corridor. *Aedes sollicitans* populations are increased in the Coastal, Delaware River Basin and the Suburban Corridor (the latter two with increases over recent historical levels of “0.”)

# *Climate Factors*

| Average High Temperature | Average Low Temperature | Total Precipitation |
|---|---|---|
|  |  |  |



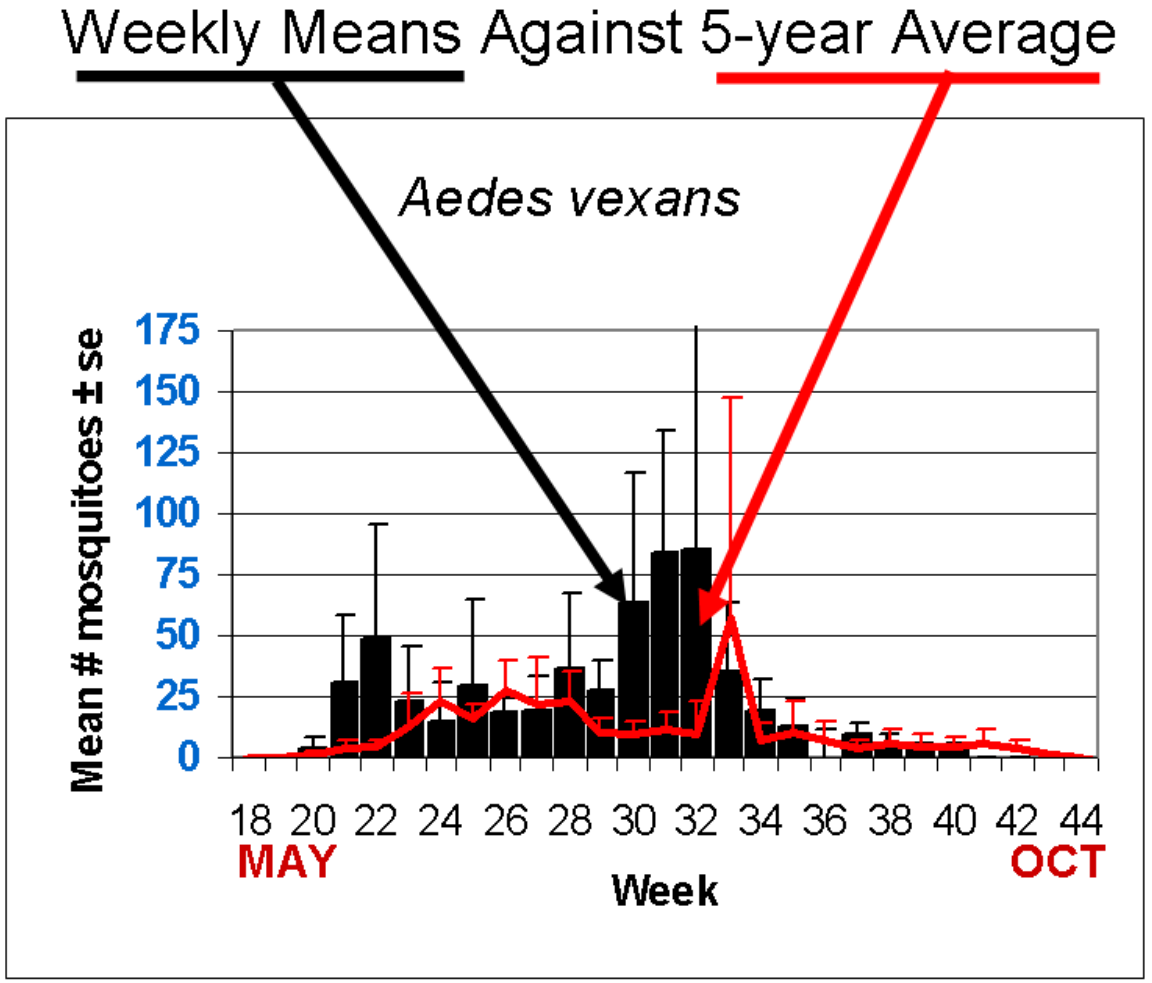




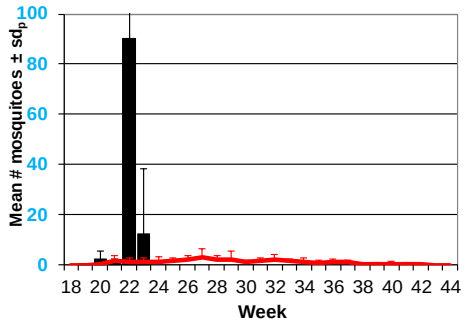
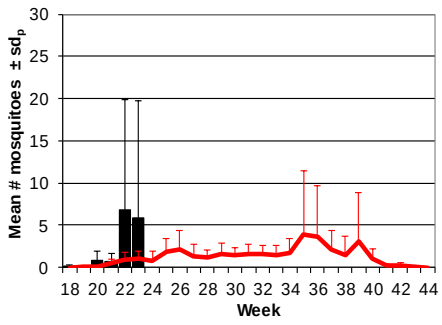
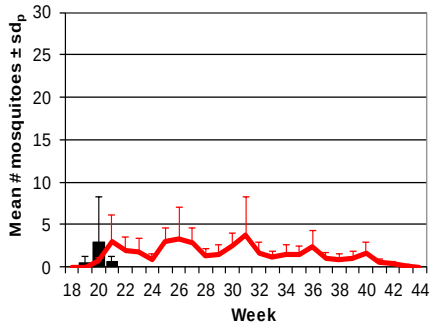
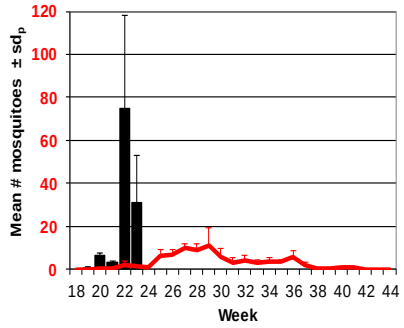
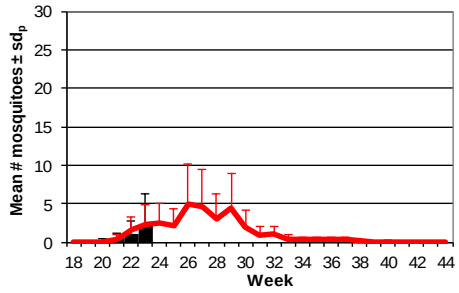
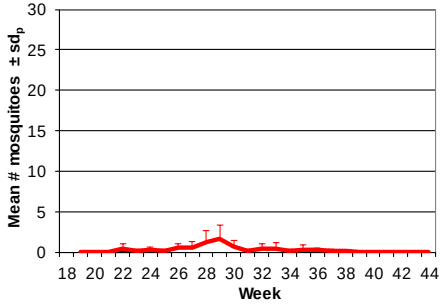
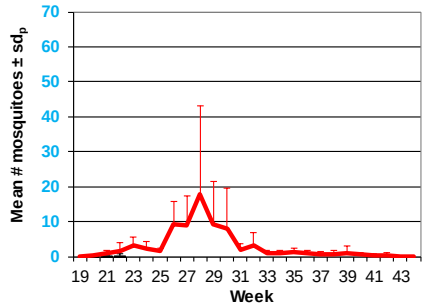
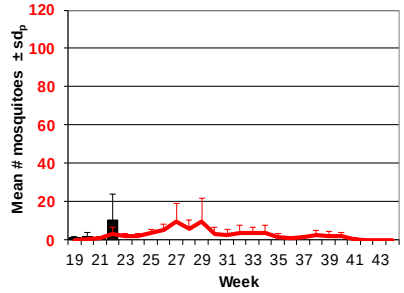
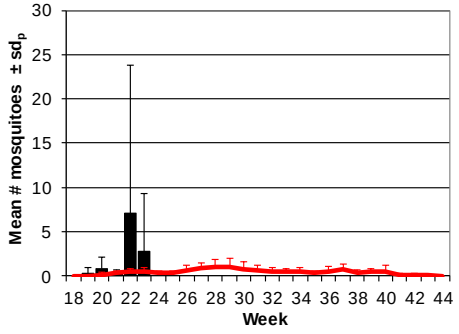
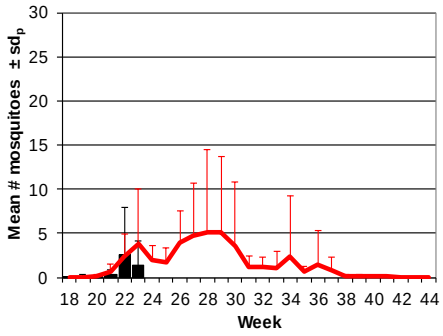
The three figures show the interpolation of average maximum (°F) and minimum temperature (°F) and total precipitation (inches) for 30 days prior to 1 June 2018 in New Jersey. Data points are from about 54 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.1.

ONJSC at Rutgers University NJ Weather & Climate NETWORK

**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, Essex, Hunterdon, Mercer, Middlesex, Monmouth, Passaic, Salem, and Union counties. Data for the previous week are from Atlantic, Bergen, Burlington, Essex, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Union and Warren counties.

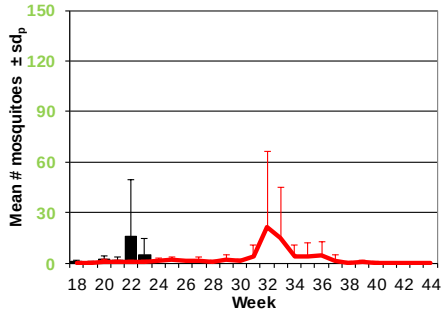


# *Aedes vexans* - Fresh Floodwater Species
# Multivoltine Aedine (*Ae. vexans* Type)

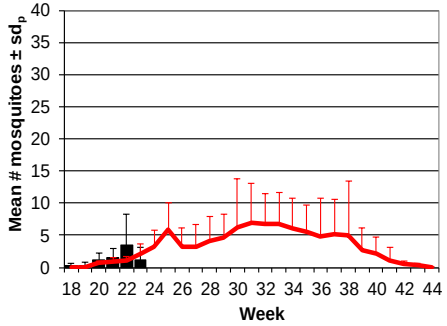
| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | *Aedes vexans* is the model for fresh floodwater species. With abundant precipitation, this species can emerge in very significant numbers. Precipitation patterns have continued from the previous week, resulting in significant populations emerging in the Agricultural, Coastal, Delaware River Basin and the Pinelands. According to the US Drought Monitor (http://droughtmonitor.unl.edu/) New Jersey has not been in drought conditions since early this year, as suggested by the early season patterns of this floodwater species. | |

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

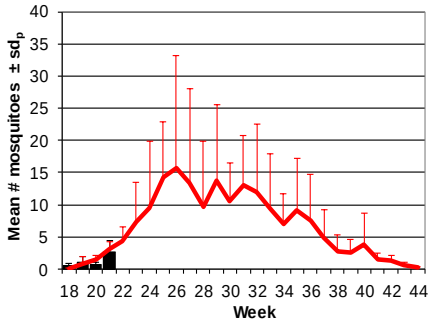
## Agricultural



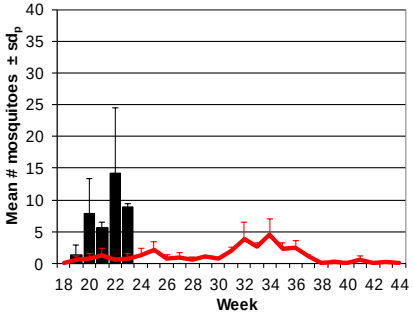

## Coastal



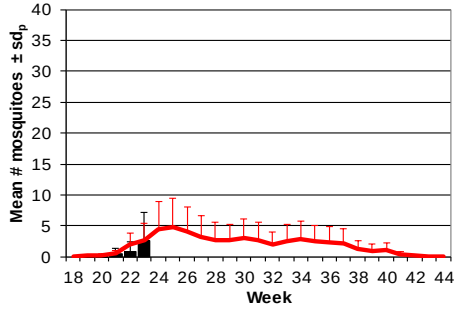

## Delaware Bayshore



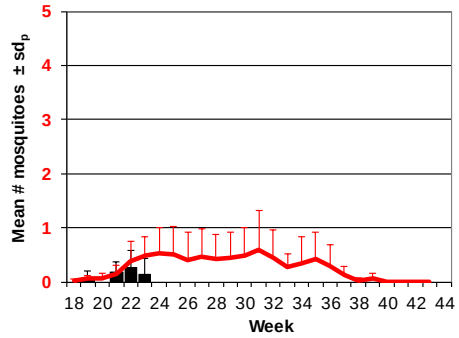

## Delaware River Basin



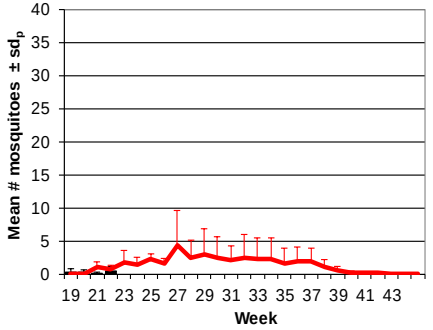

## New York Metro



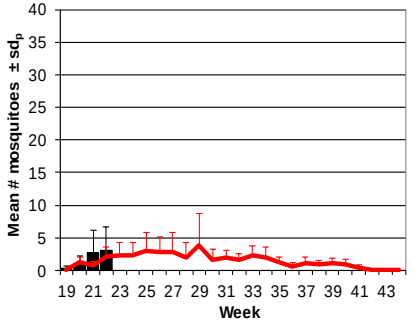

## North Central Rural



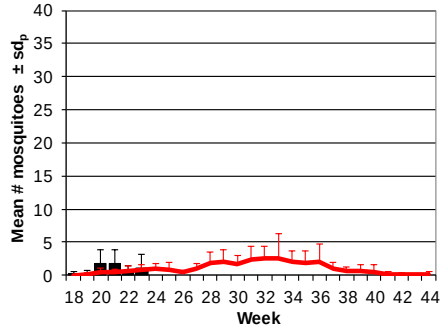

## Northwestern Rural



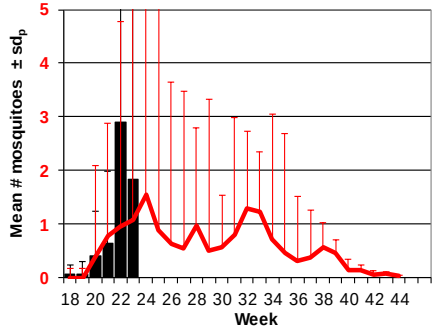

## Philadelphia Metro




## Pinelands




## Suburban Corridor

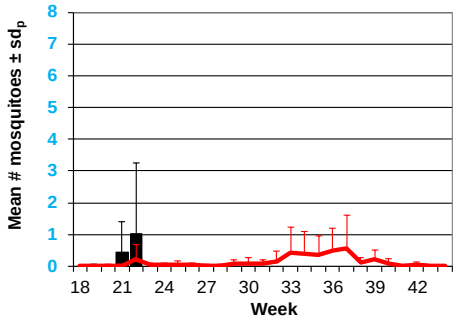



## Comments

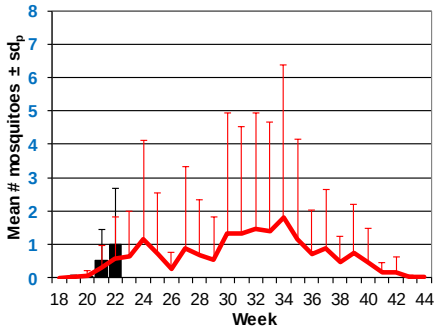
*Culex* Mix is composed of *Culex pipiens, Cx. restuans* and *Cx. salinarius*. These three species (especially *pipiens* and *restuans*) are often difficult to tell apart after encountering the damaging blades of the New Jersey light trap. Populations in most regions are close to historical values, but several regions, such as the Agricultural and the Delaware River Basin, show significant activity, likely *Cx. restuans*. The Pinelands and the Suburban Corridor also show increased activity but to a less level. These species are the enzootic vectors for West Nile virus and likely also play a role in transmission to mammals despite their ornithophilic predilections.

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

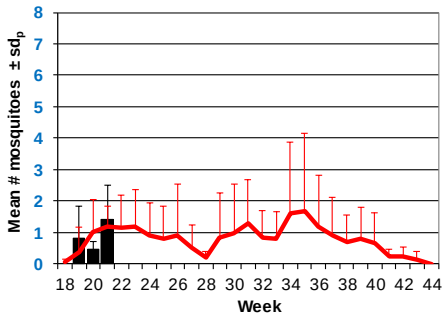
## Agricultural



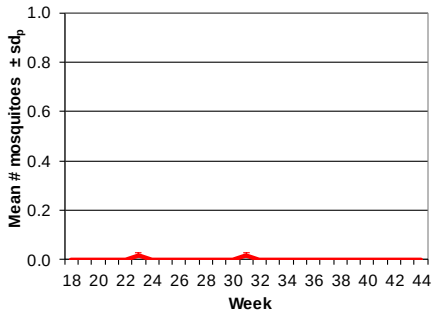

## Coastal



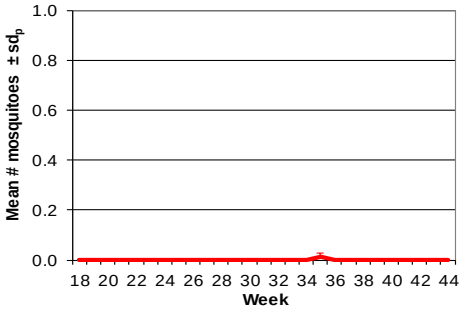

## Delaware Bayshore



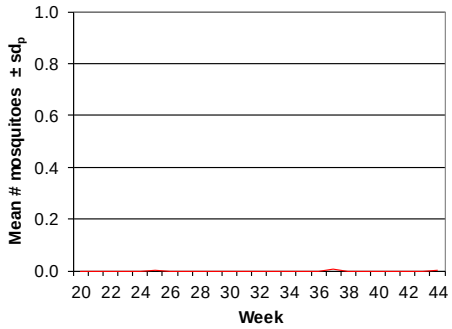

## Delaware River Basin



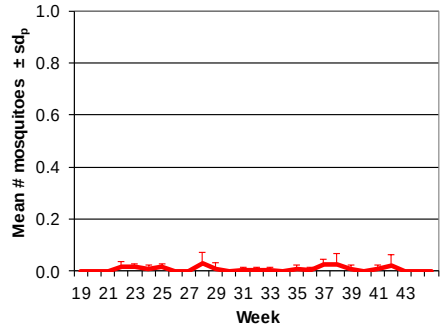

## New York Metro



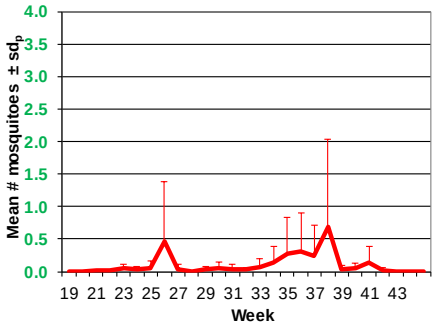

## North Central Rural



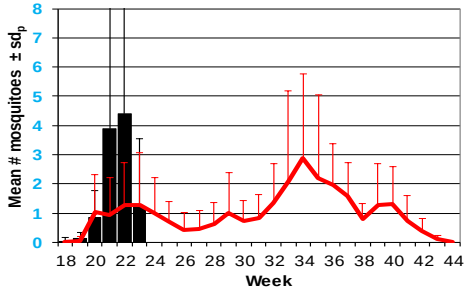

## Northwestern Rural



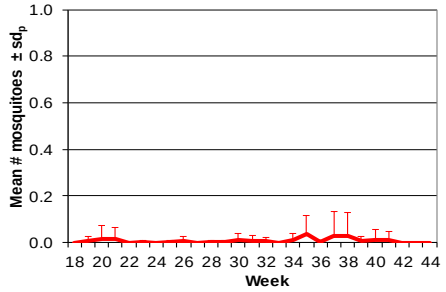

## Philadelphia Metro




## Pinelands




## Suburban Corridor

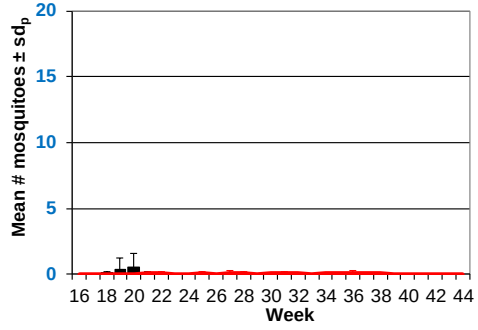
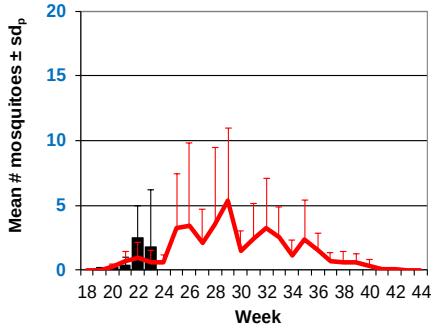
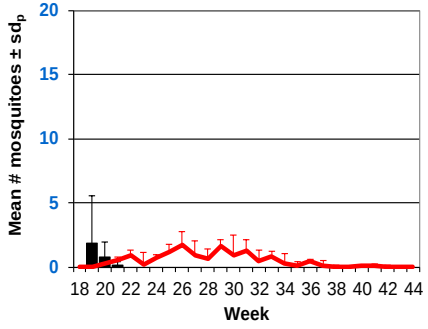
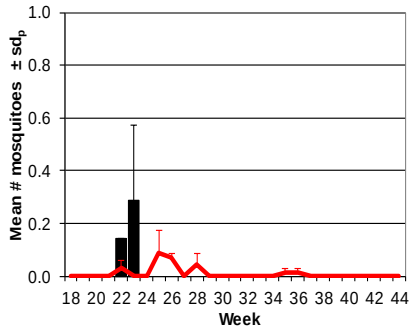
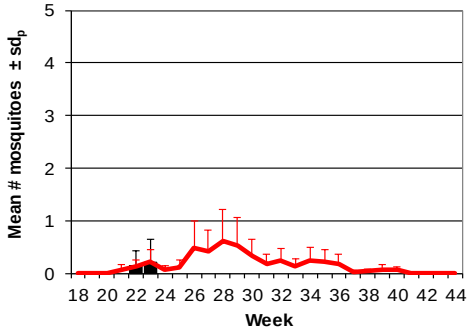
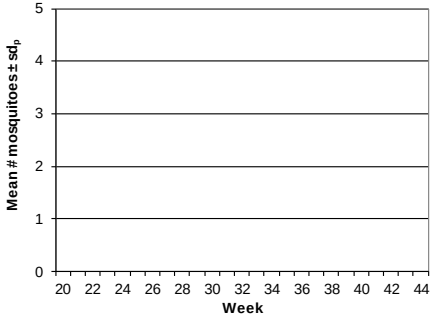
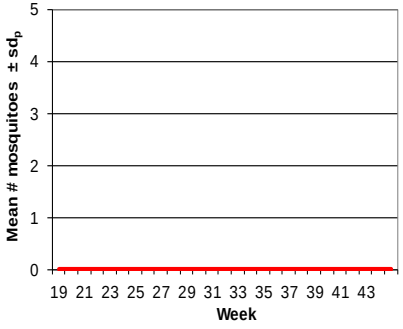
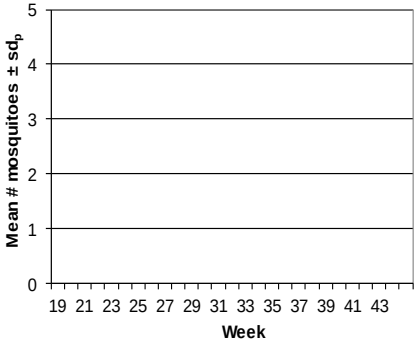
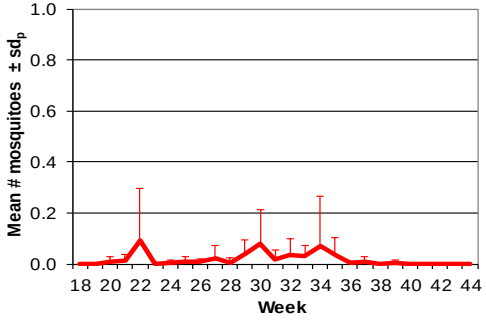
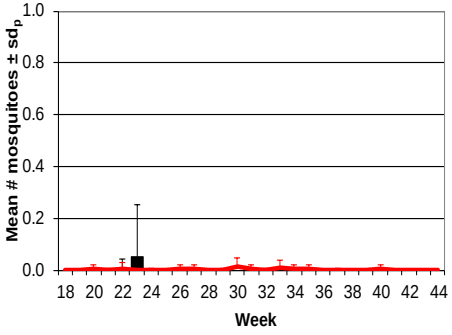



## Comments

*Culiseta melanura* is the enzootic ornithophilic vector of eastern equine encephalitis. With New Jersey getting out of drought conditions, an abundance of water likely increases the survival of overwintering larvae in red maple or Atlantic cedar swamps. Early season numbers are tracking within historical values for the Agricultural, Coastal and Delaware Bayshore regions while the Pinelands are displaying significant numbers.

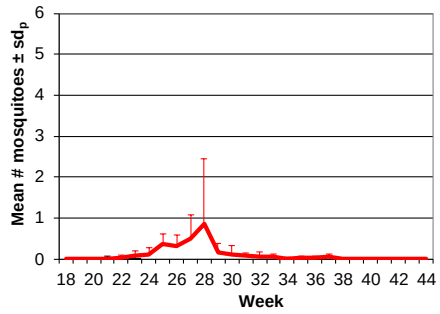
All horse owners should make sure their horses are up to date on the vaccination schedules: http://www.aaep.org/custdocs/adultvaccinationchart.pdf

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

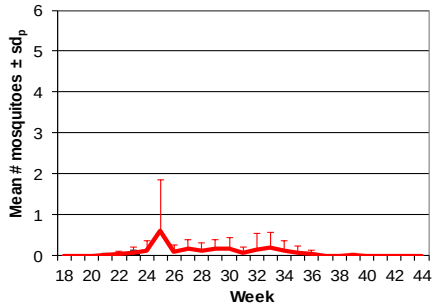
| Agricultural | Coastal | Delaware Bayshore | Delaware River Basin |
|---|---|---|---|
|  |  |  |  |
| **New York Metro** | **North Central Rural** | **Northwestern Rural** | **Philadelphia Metro** |
|  |  |  |  |
| **Pinelands** | **Suburban Corridor** | **Comments** | |
|  |  | *Aedes sollicitans* is a salt floodwater species and responds to both lunar tidal patterns as well as rainfall. Numbers for this species has been in decline for the past several years, although there have been small increases lately. Currently, significant populations are seen in the Coastal regions and, of particular note, in the Delaware River Basin and the Suburban Corridor where numbers are elevated compared to a recent historical running mean (5 years) of zero.<br><br>The next full moon occurs on the 28th of June. | |

# *Coquillettidia perturbans*
# Monotypic (*Coquillettidia perturbans* Type)

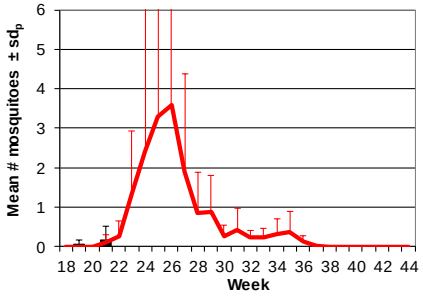
## Agricultural



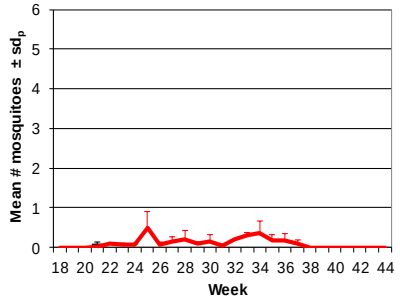

## Coastal



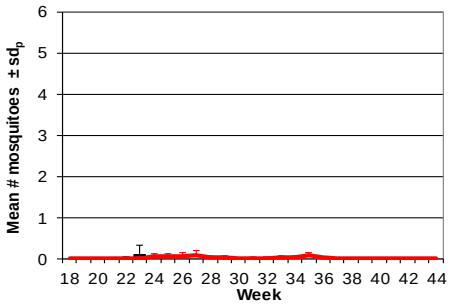

## Delaware Bayshore



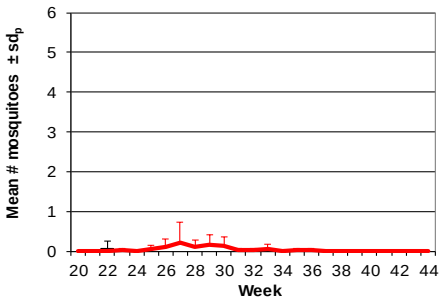

## Delaware River Basin



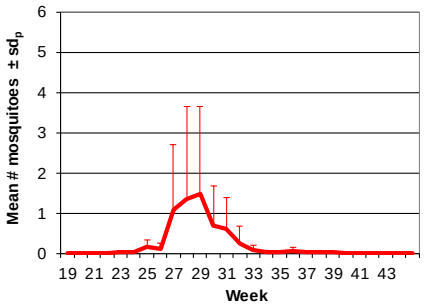

## New York Metro



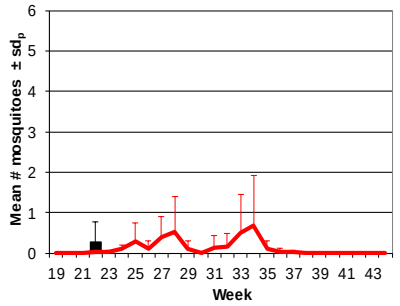

## North Central Rural



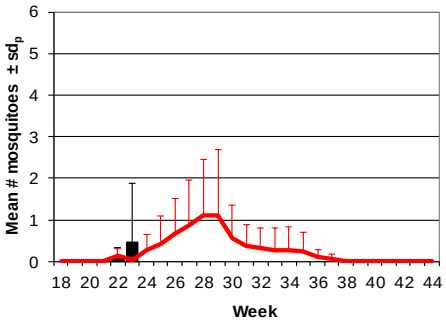

## Northwestern Rural



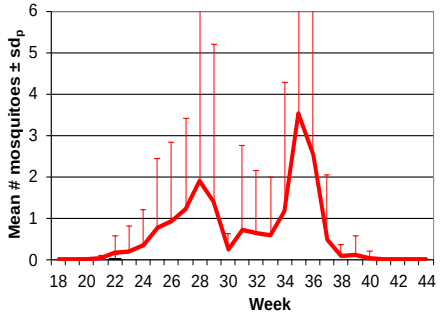

## Philadelphia Metro




## Pinelands




## Suburban Corridor



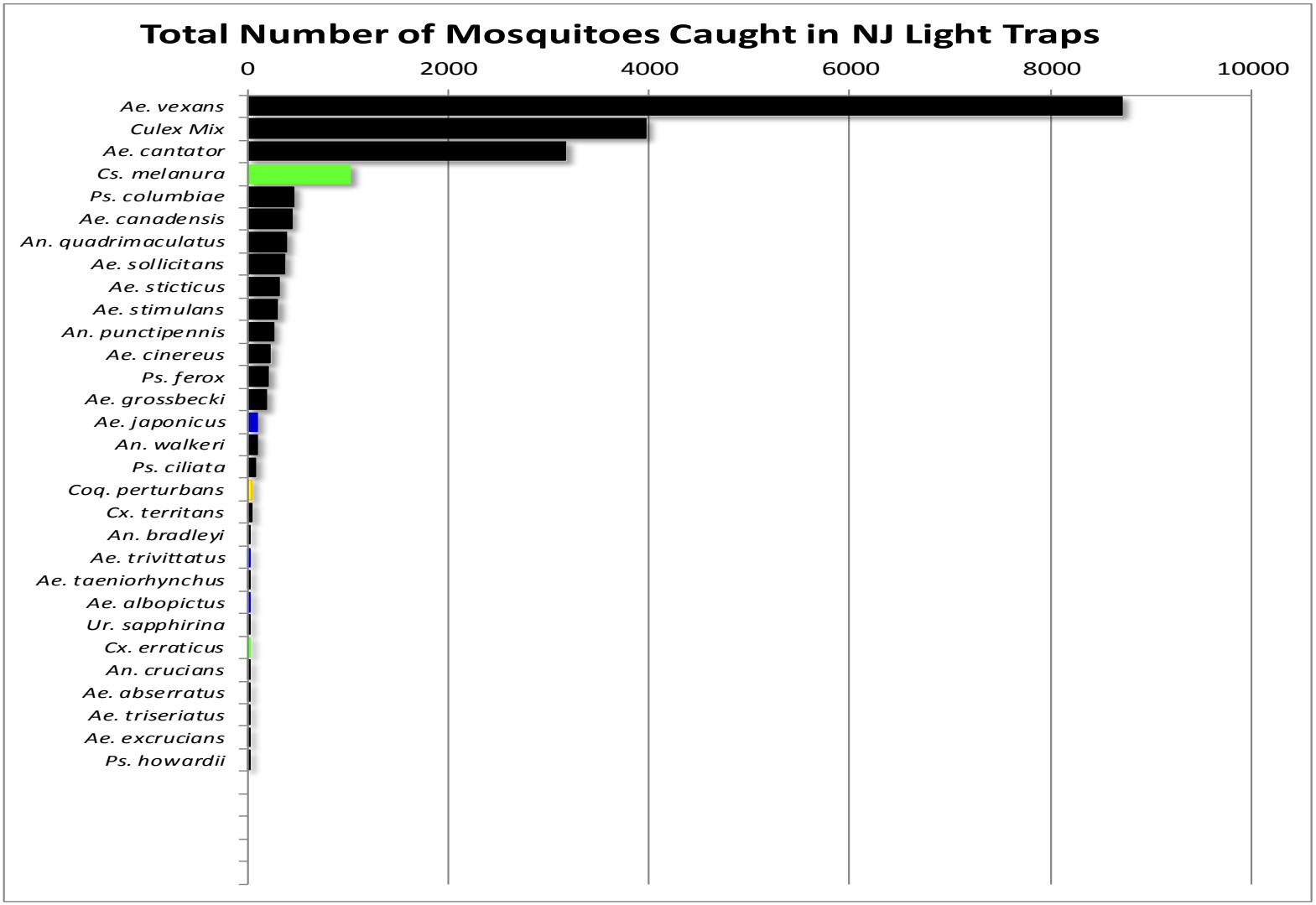

## Comments

*Coquillettidia perturbans* populations are located in cattail swamps and other wetlands with emergent vegetation, often making control of their numbers dependent on controlling water depth. This mid-season species is a potential inland vector of EEE and should be monitored closely when the arbovirus is present. Although a low absolute value, the population in the New York Metropolitan region was above historical values. More significant was the increase in the Pinelands.

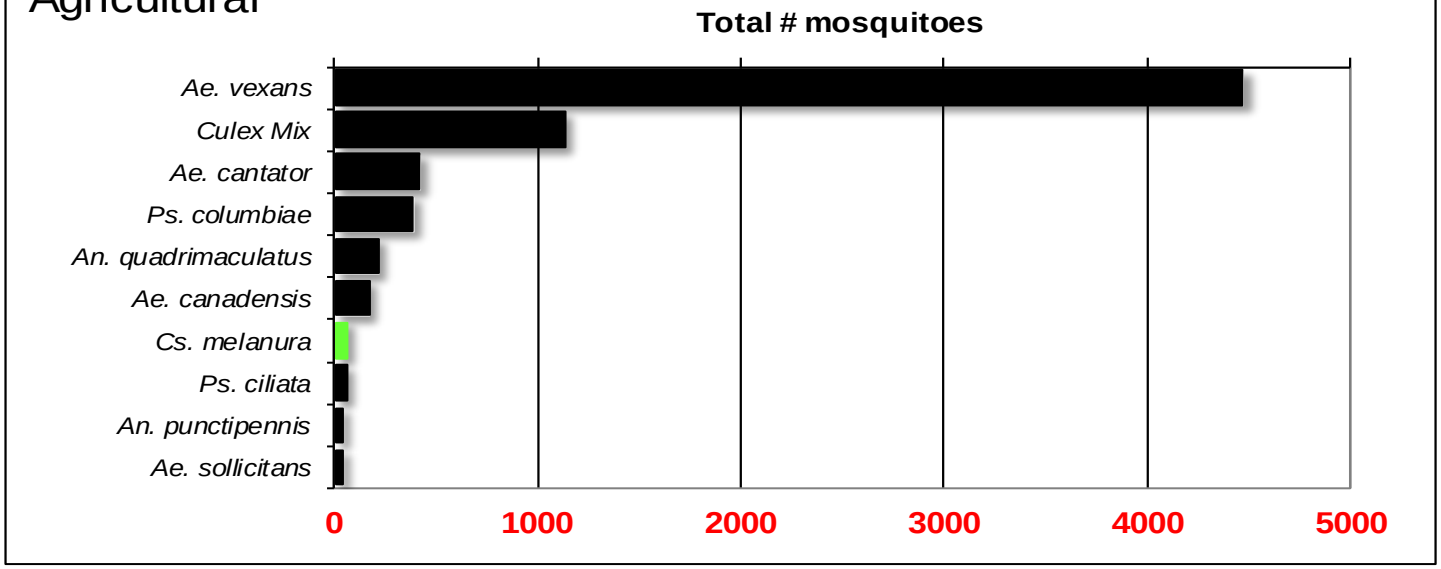
*WNV* *EEE*

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

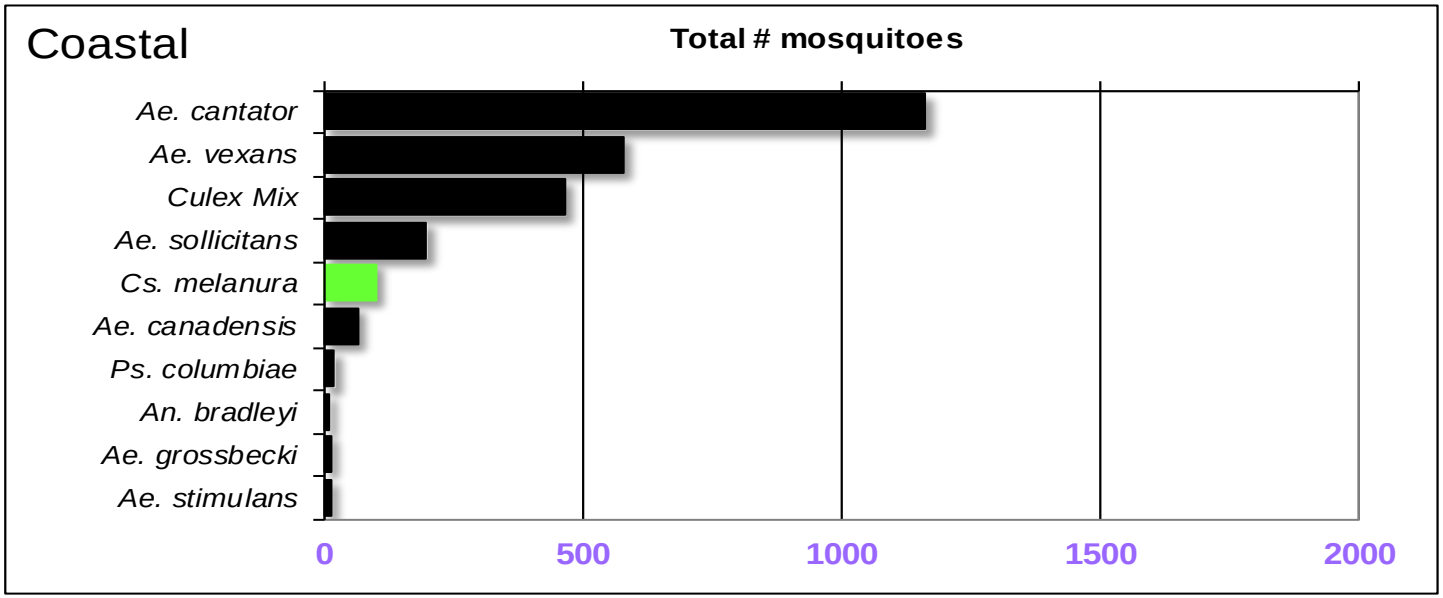
Note: In early season when fewer species are caught, graphs may show less than ten species/region or 25 statewide.

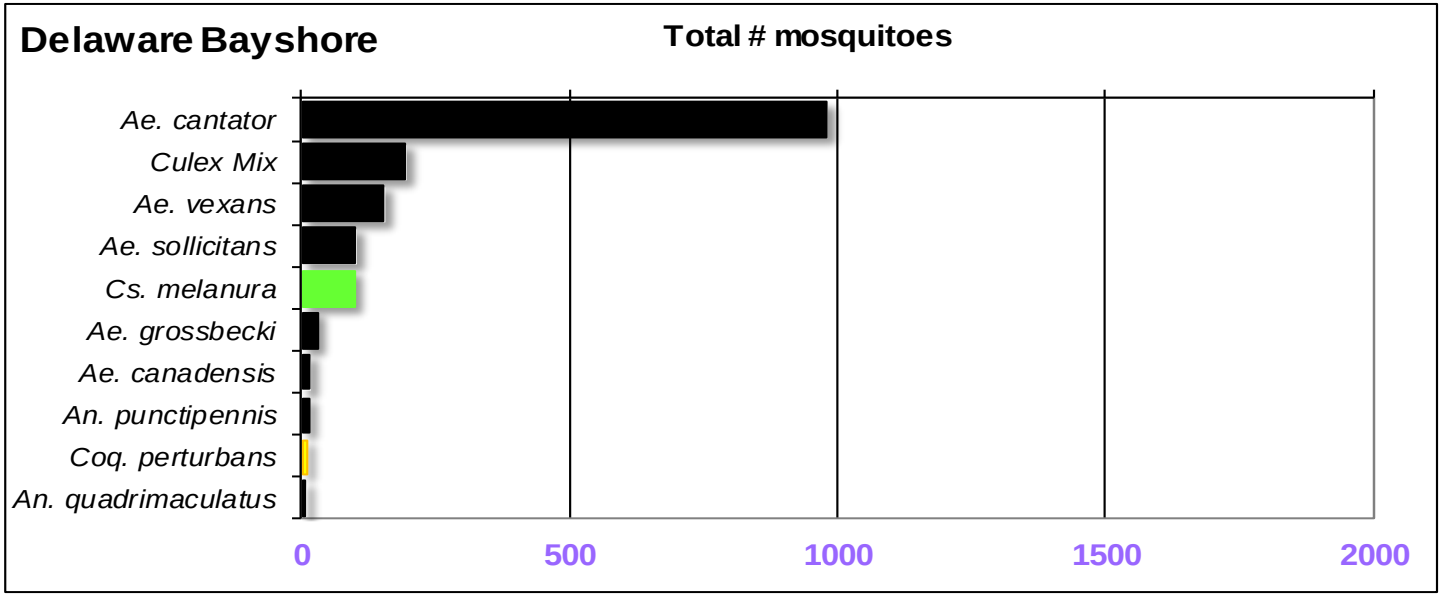


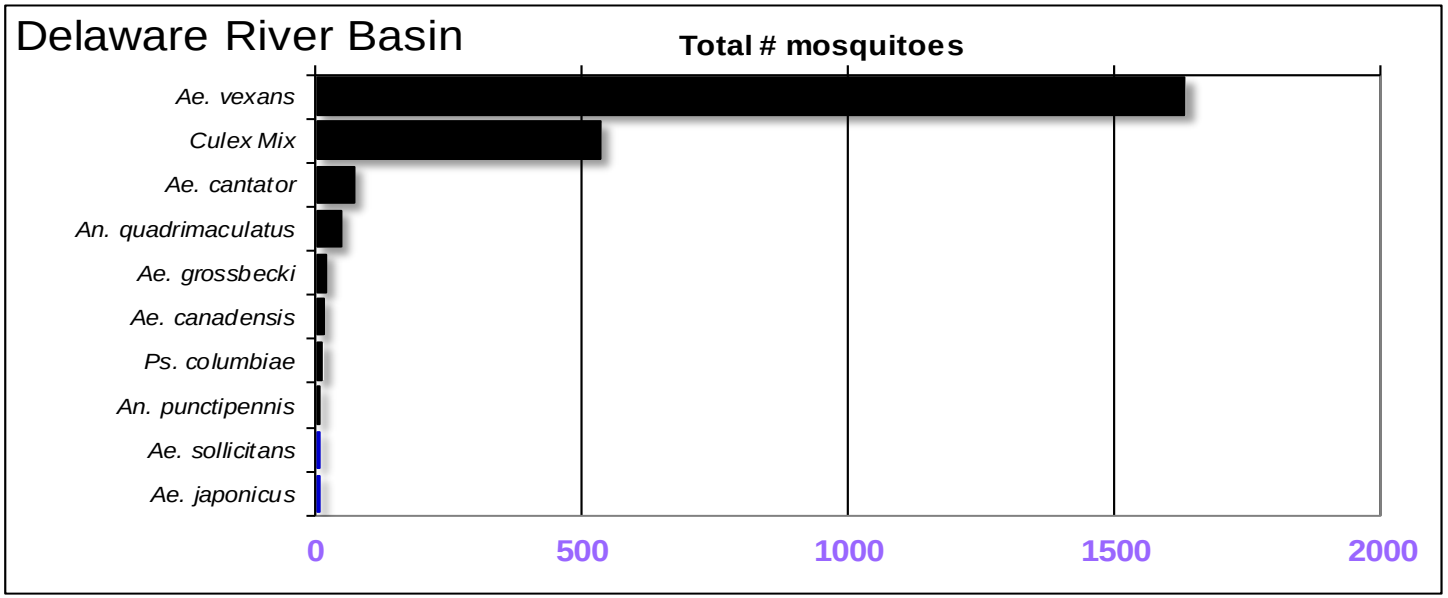
## Agricultural

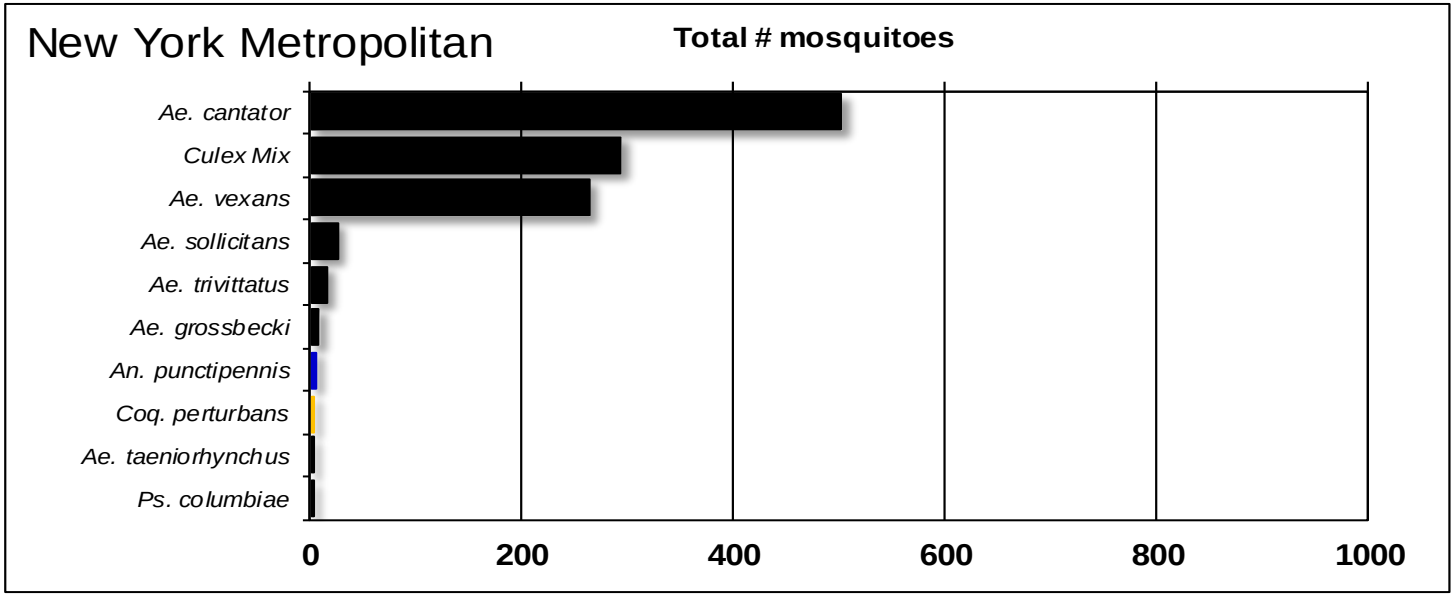


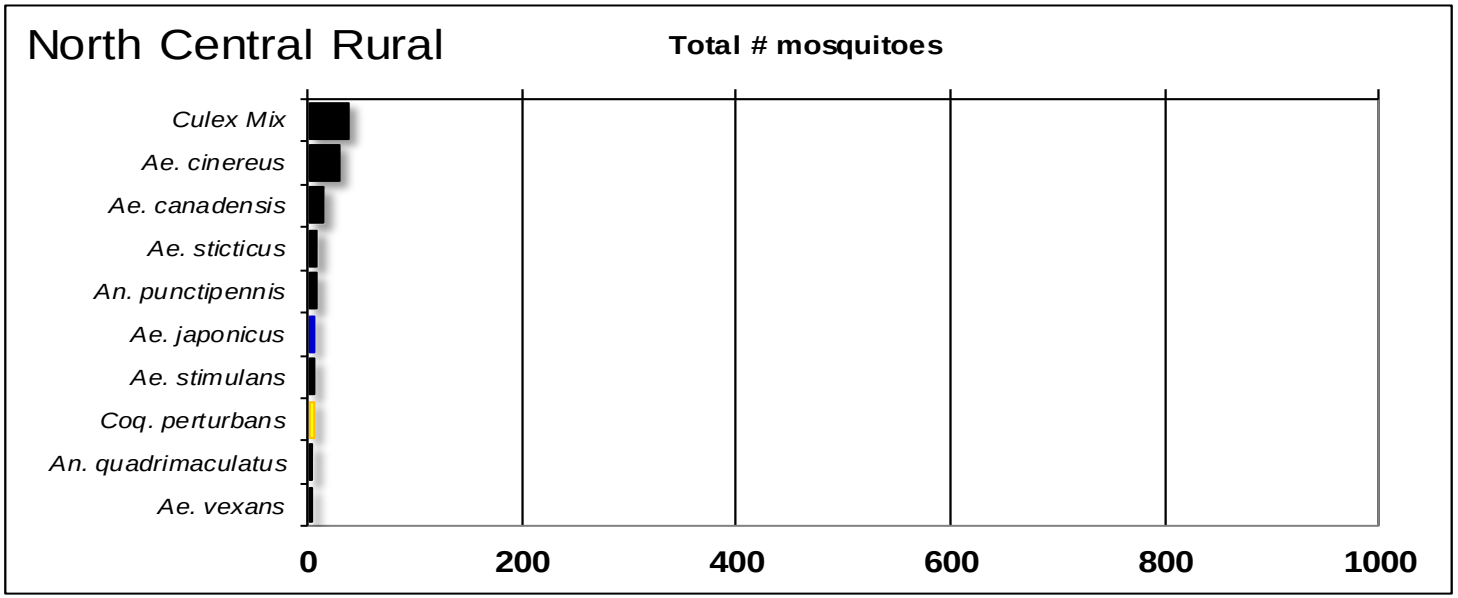

## Coastal

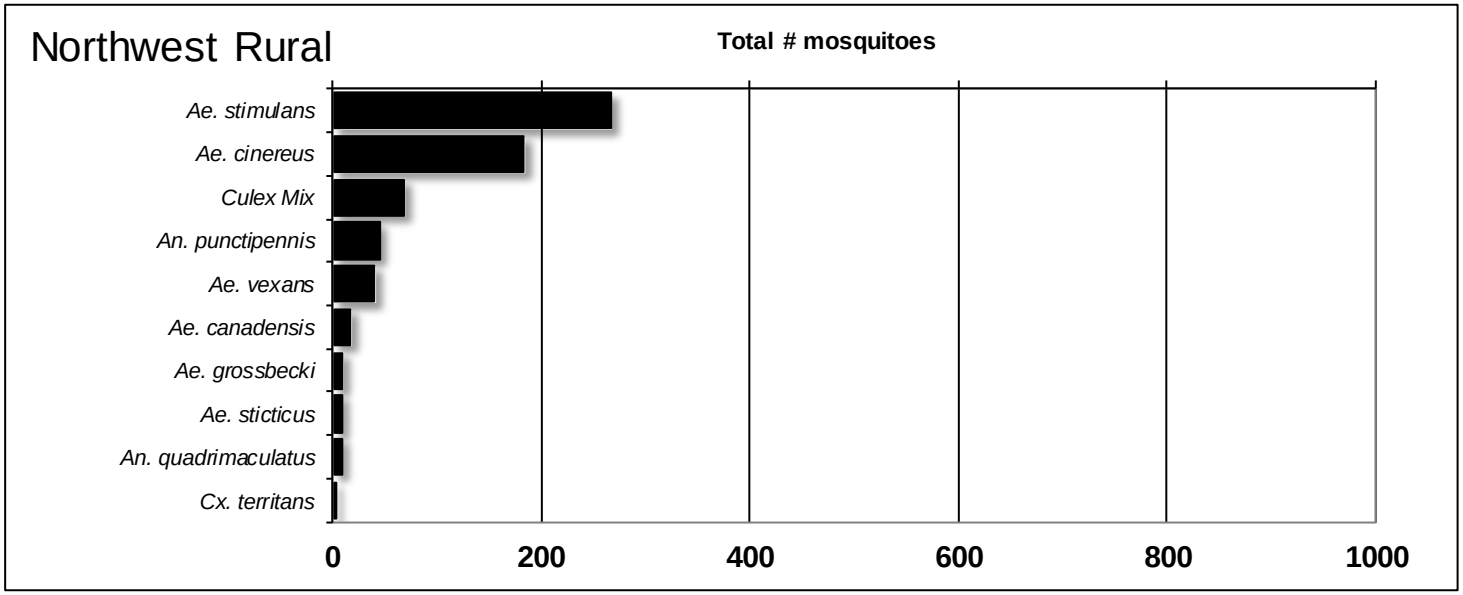


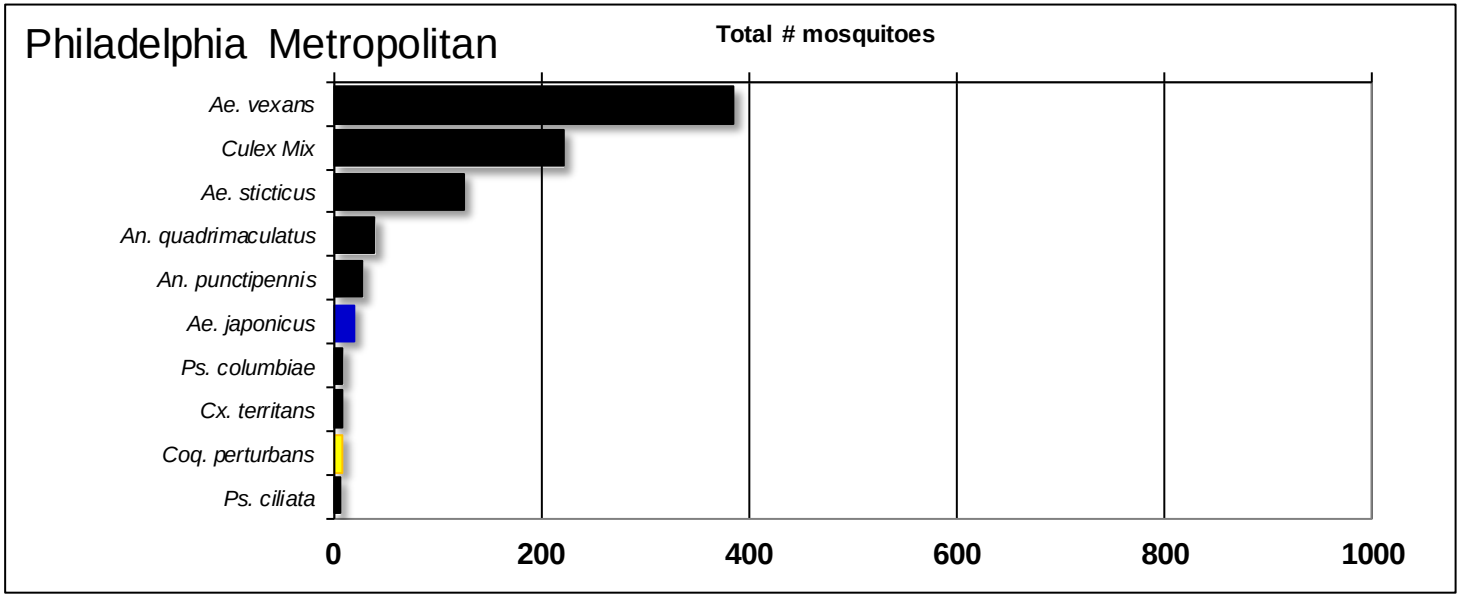

Delaware Bayshore
Total # mosquitoes
Ae. cantator
Culex Mix
Ae. vexans
Ae. sollicitans
Cs. melanura
Ae. grossbecki
Ae. canadensis
An. punctipennis
Coq. perturbans
An. quadrimaculatus
0
500
1000
1500
2000

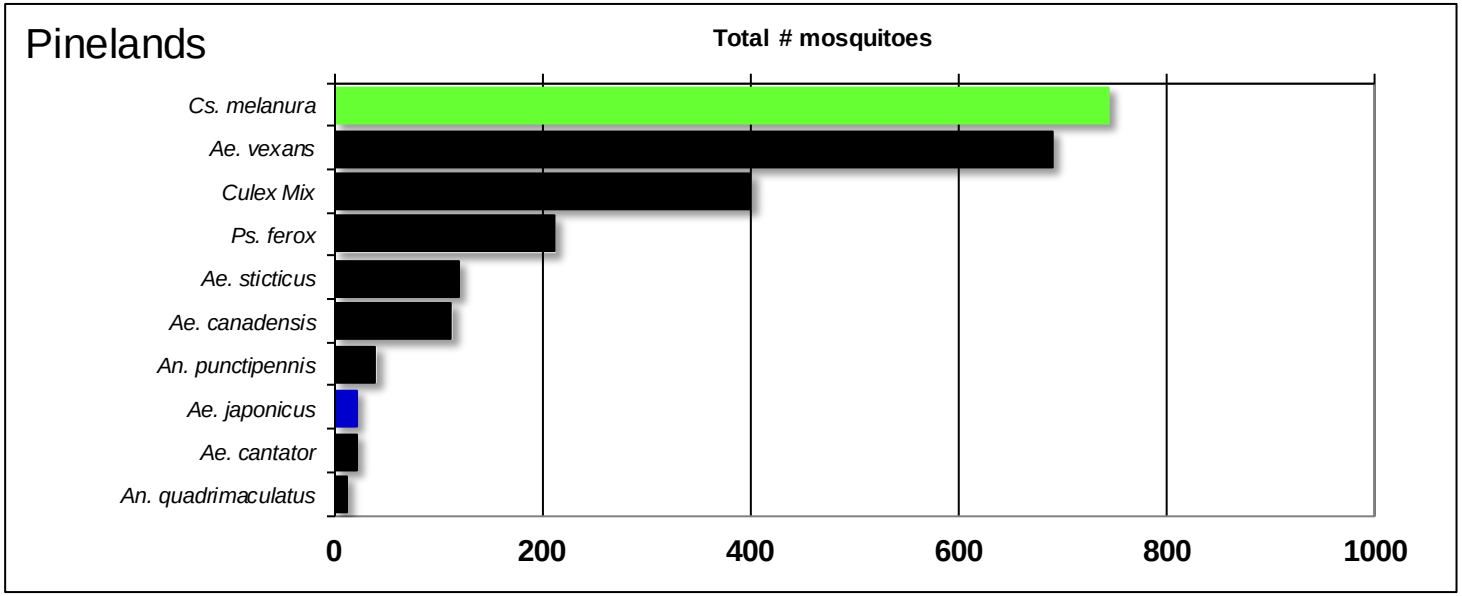

Delaware River Basin
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. cantator
An. quadrimaculatus
Ae. grossbecki
Ae. canadensis
Ps. columbiae
An. punctipennis
Ae. sollicitans
Ae. japonicus
0
500
1000
1500
2000

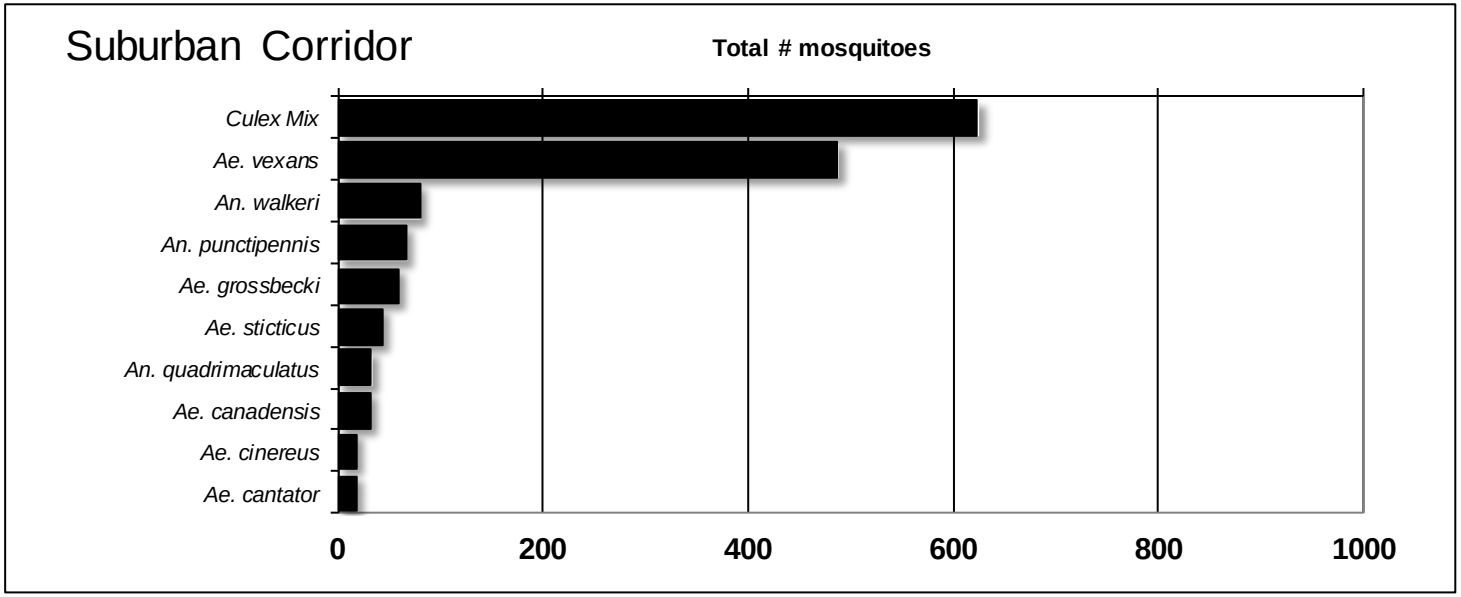

New York Metropolitan
Total # mosquitoes
Ae. cantator
Culex Mix
Ae. vexans
Ae. sollicitans
Ae. trivittatus
Ae. grossbecki
An. punctipennis
Coq. perturbans
Ae. taeniorhynchus
Ps. columbiae
0
200
400
600
800
1000


North Central Rural
Total # mosquitoes
Culex Mix
Ae. cinereus
Ae. canadensis
Ae. sticticus
An. punctipennis
Ae. japonicus
Ae. stimulans
Coq. perturbans
An. quadrimaculatus
Ae. vexans
0
200
400
600
800
1000


Northwest Rural
Total # mosquitoes
Ae. stimulans
Ae. cinereus
Culex Mix
An. punctipennis
Ae. vexans
Ae. canadensis
Ae. grossbecki
Ae. sticticus
An. quadrimaculatus
Cx. territans
0
200
400
600
800
1000


Philadelphia Metropolitan
Total # mosquitoes
Ae. vexans
Culex Mix
Ae. sticticus
An. quadrimaculatus
An. punctipennis
Ae. japonicus
Ps. columbiae
Cx. territans
Coq. perturbans
Ps. ciliata
0
200
400
600
800
1000


Pinelands
Total # mosquitoes
Cs. melanura
Ae. vexans
Culex Mix
Ps. ferox
Ae. sticticus
Ae. canadensis
An. punctipennis
Ae. japonicus
Ae. cantator
An. quadrimaculatus
0
200
400
600
800
1000


Suburban Corridor
Total # mosquitoes
Culex Mix
Ae. vexans
An. walkeri
An. punctipennis
Ae. grossbecki
Ae. sticticus
An. quadrimaculatus
Ae. canadensis
Ae. cinereus
Ae. cantator
0
200
400
600
800
1000