RUTGERS
New Jersey Agricultural Experiment Station

NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 15 May to 28 May 2011, CDC Week 20/21

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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.

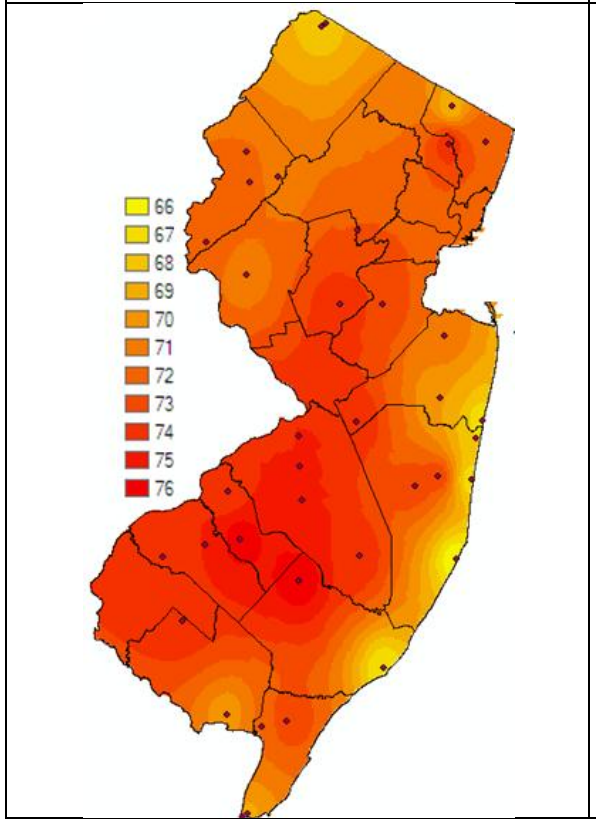
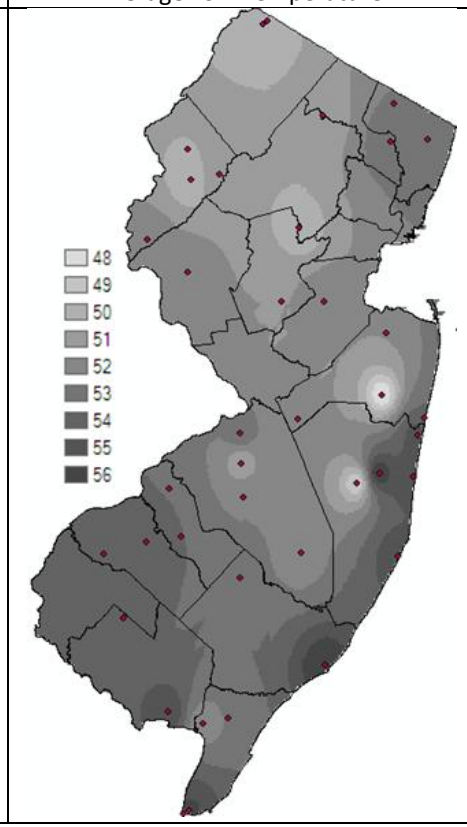
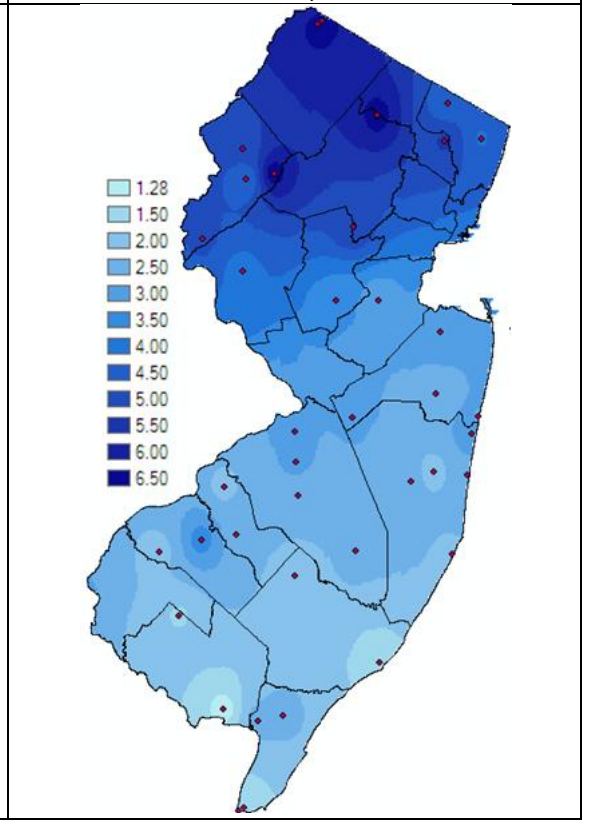
Summary Table – Week 20/21

	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	**0.17**	**0.76**	**0**	**0.74**	**1.50**	**0**	**0.02**	**0.02**	**0**	**0.00**	**0.01**	**0**
Coastal	**0.37**	**1.25**	**0**	**1.41**	**2.78**	**0**	**0.00**	**0.03**	**0**	**1.08**	**1.20**	**0**
Delaware Bayshore	**1.14**	**4.98**	**0**	**10.57**	**7.38**	**1**	**3.91**	**0.85**	**4**	**4.31**	**3.15**	**1**
Delaware River Basin	**0.00**	**4.27**	**0**	**0.00**	**1.04**	**0**	**0.00**	**0.04**	**0**	**0.00**	**0.01**	**0**
New York Metro	**0.14**	**1.85**	**0**	**0.83**	**2.83**	**0**	**0.00**	**0.01**	**0**	**0.01**	**0.03**	**0**
North Central Rural	**0.02**	**0.29**	**0**	**0.31**	**1.02**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Northwest Rural	**0.09**	**2.51**	**0**	**0.00**	**0.84**	**0**	**0.00**	**0.00**	**0**	**0.00**	**0.00**	**0**
Philadelphia Metro	**0.00**	**4.65**	**0**	**0.00**	**3.11**	**0**	**0.00**	**0.08**	**0**	**0.00**	**0.00**	**0**
Pinelands	**0.38**	**0.85**	**0**	**0.79**	**1.82**	**0**	**0.00**	**0.04**	**0**	**0.22**	**0.03**	**4**
Suburban Corridor	**0.58**	**1.42**	**0**	**2.50**	**0.86**	**4**	**0.00**	**0.05**	**0**	**0.00**	**0.01**	**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: A warming spring has resulted in an active beginning to the mosquito season here in New Jersey. The Delaware Bayshore shows considerable activity with high *Culex*, *Aedes sollicitans* and even *Coquillettidia perturbans* numbers compared to historical values in week 22. *Culex* populations are also high in the Suburban Corridor as is *Ae. sollicitans* in the Pinelands.

Climate Factors

Average High Temperature	Average Low Temperature	Total Precipitation
		

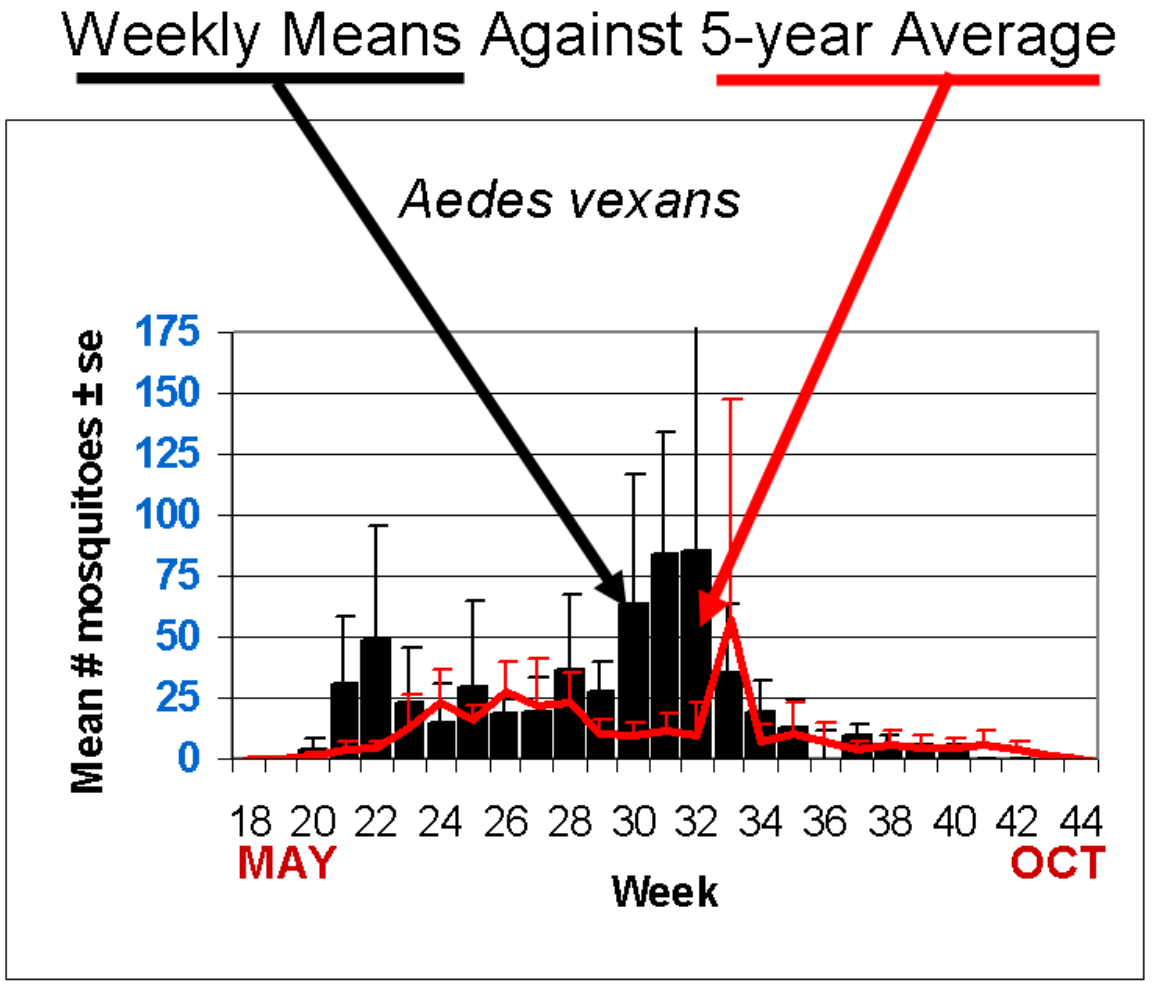
The three figures show the interpolation of average maximum and minimum temperature and total precipitation for the month of May in New Jersey. Data points are from about 35 weather stations maintained through the New Jersey Weather & Climate Network and the State Climatologist. Interpolation between points was performed using ArcMap 10.

In May, average high temperatures were highest through the suburban corridor and the Metropolitan areas. Cooler temperatures were found along the coast and in the northwestern corner of the state. Average low temperatures were highest along the coastal region (moderating effects of large bodies of water – i.e., the Atlantic Ocean). The northern portion of New Jersey experienced higher rainfall. In general, it was warmest in the urban/suburban areas during the day, warmer along the coast at night and wetter in the north.

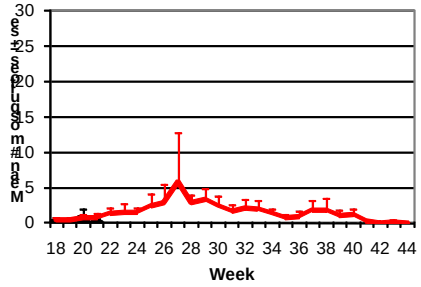
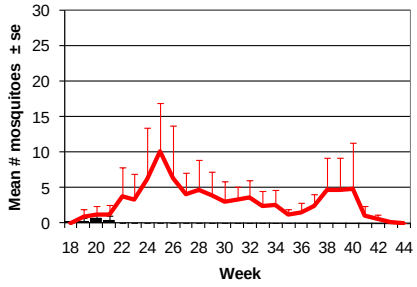
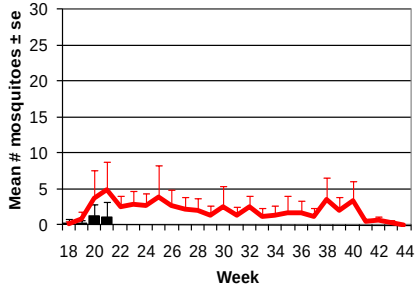
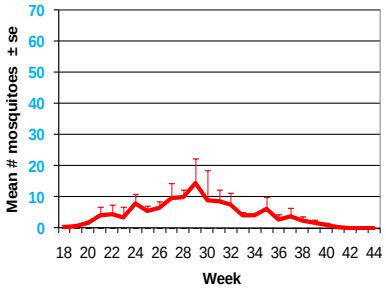
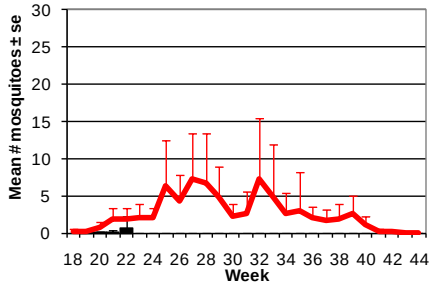
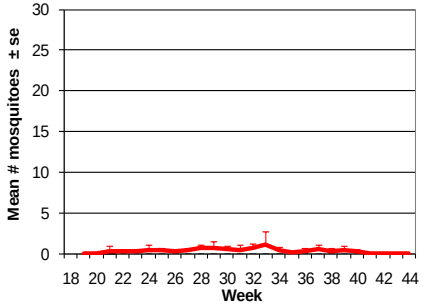
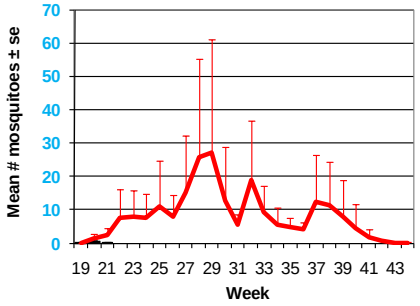
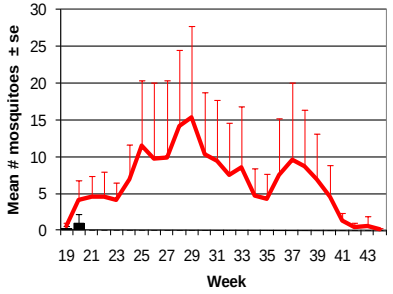
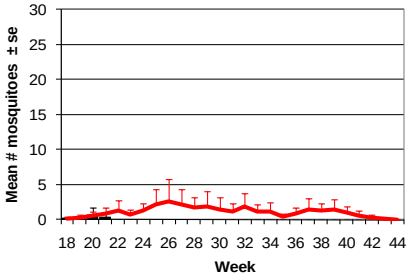
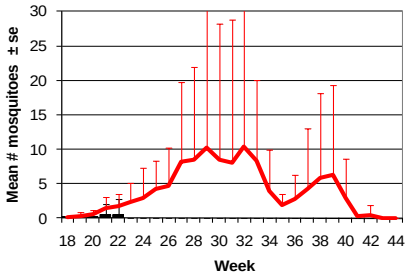
NJ Weather & Climate NETWORK

ONJSC at Rutgers University

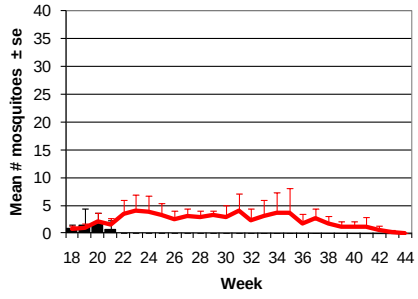
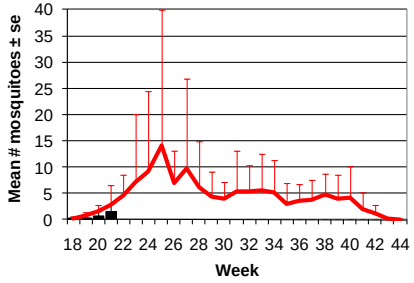
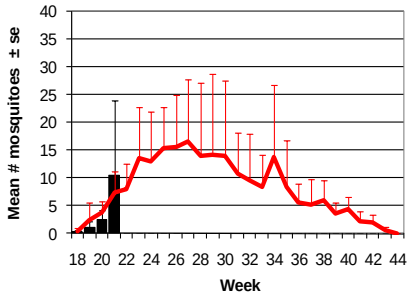
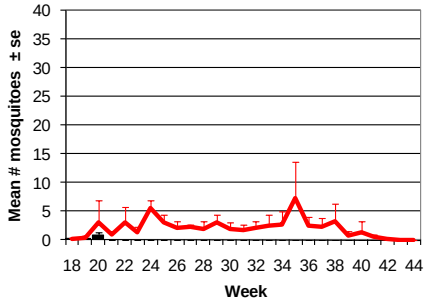
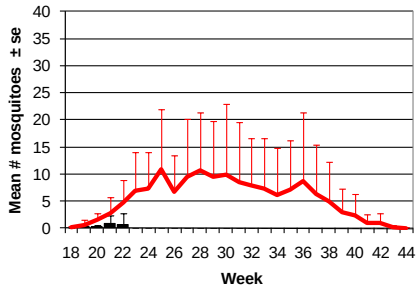
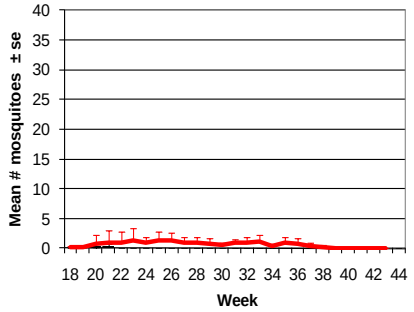
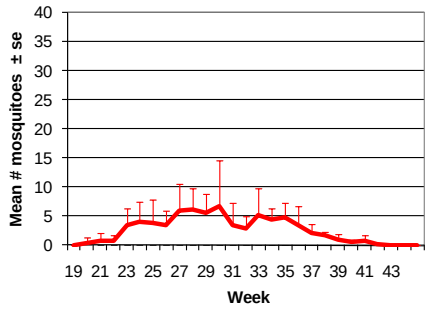
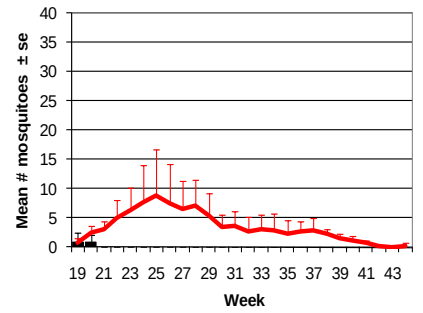
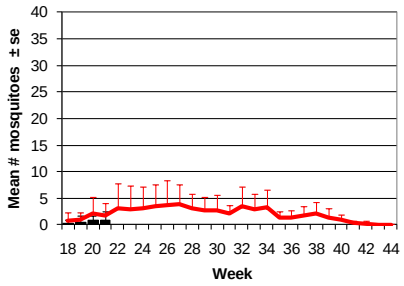
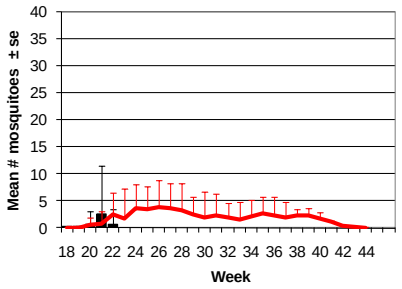
The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example 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 these weeks are from Atlantic, Burlington, Cape May, Cumberland, Hunterdon, Middlesex, Monmouth, Ocean, Salem, Somerset, Union and Warren counties. More counties are expected as their seasons begin. Note: County data is sent in at a variety of times during the week.



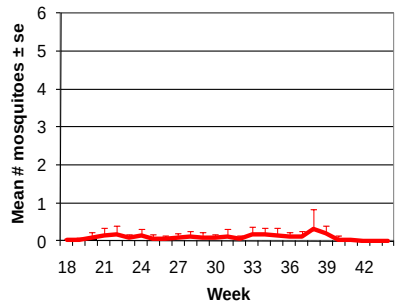
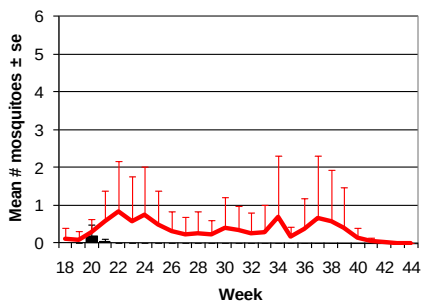
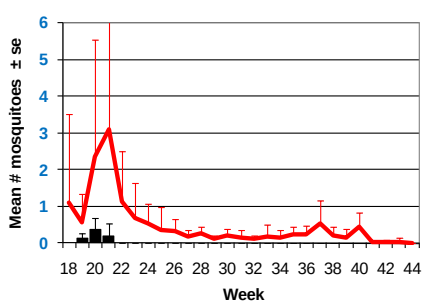
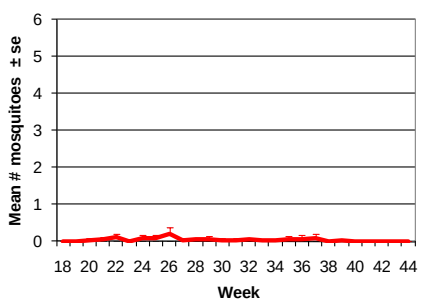
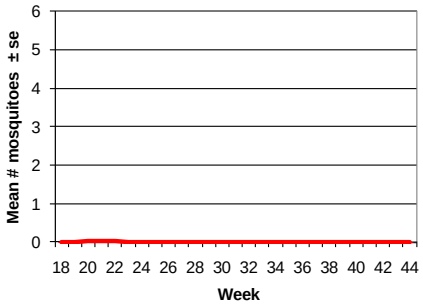
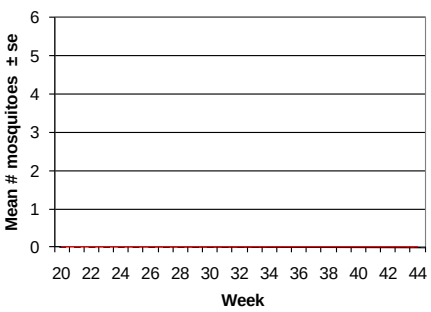
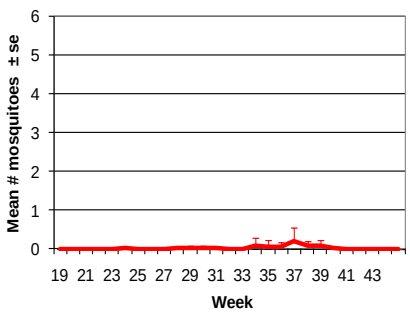
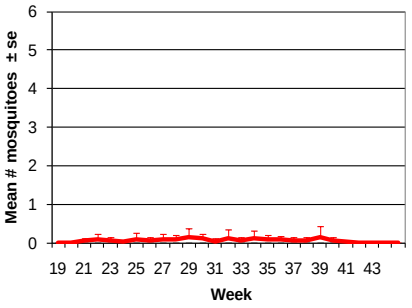
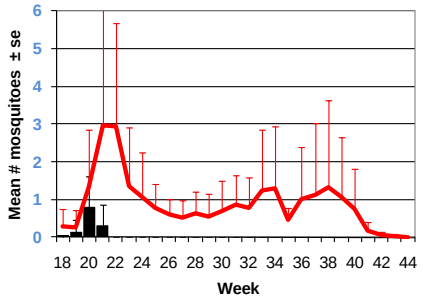
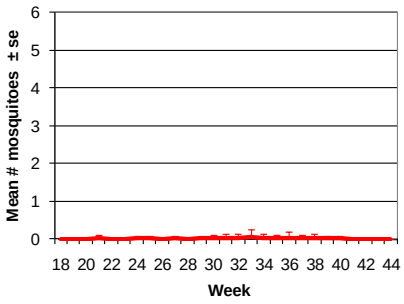
Aedes vexans - Fresh Floodwater Species
Multivoltine Aedine (*Ae. vexans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations are beginning the season with numbers similar or lower than historical values. This species takes advantage of precipitation, with eggs scattered around depressions and other areas where water easily gathers. During flooding, desiccant-resistant eggs become inundated with water and hatch. Later flooding of the same area will produce more *Ae. vexans*, especially if higher areas also become flooded. This species produces not only serious complaints, but potential health risks for the transmission of dog heartworm.	

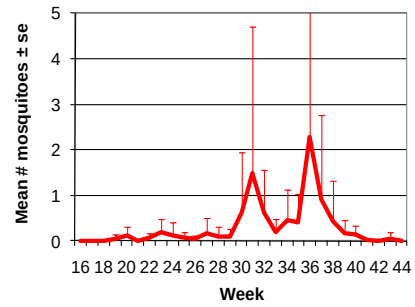
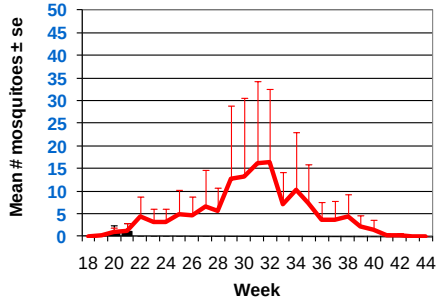
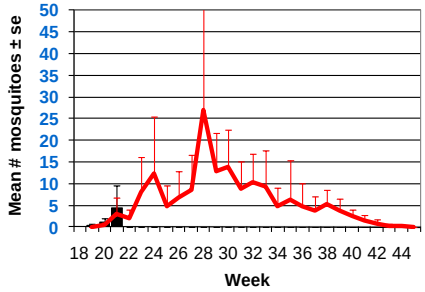
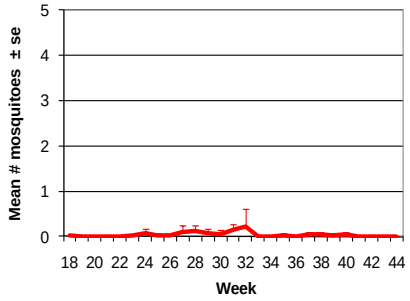
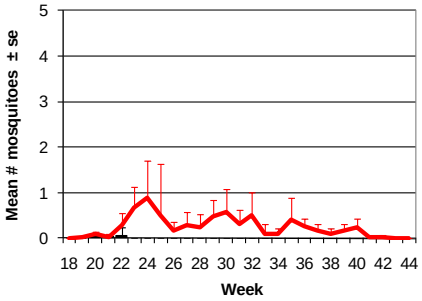
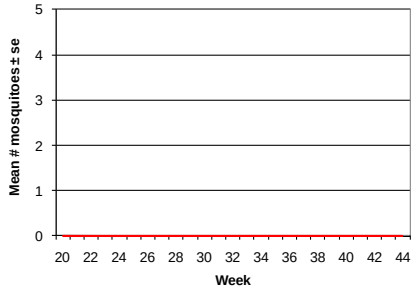
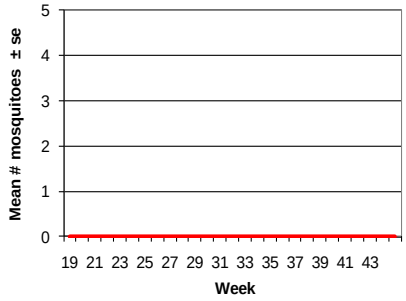
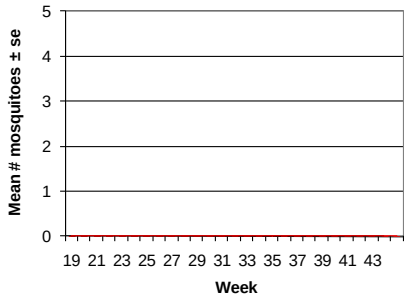
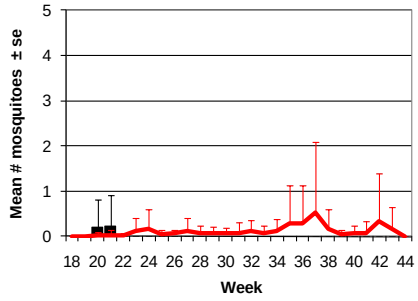
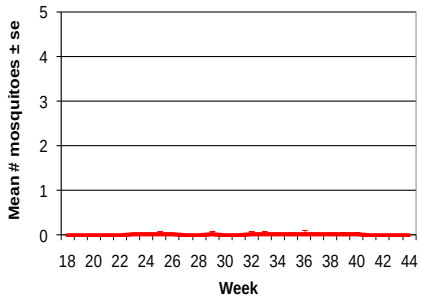
Culex Mix – Permanent Water Species
Multivoltine *Culex/Anopheles* (*Cx. pipiens* Type)

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. At this time of the season, *Cx. restuans* is emerging in numbers and likely contribute to a significant portion of the populations, particularly at inland sites. Abundance at the Delaware Bayshore, particularly from *Cx. salinarius,* is producing high numbers. Last year, these enzootic vectors of West Nile showed particularly high levels of virus despite lower abundances associated with drought conditions.	

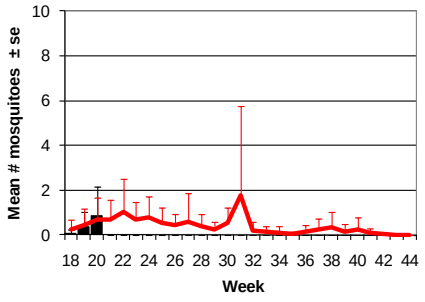
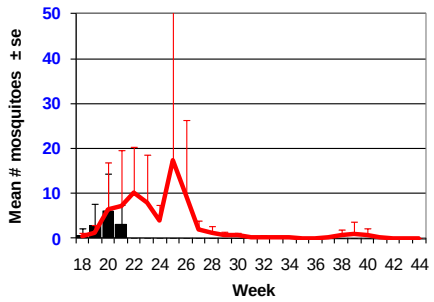
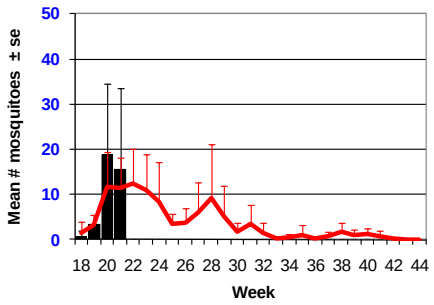
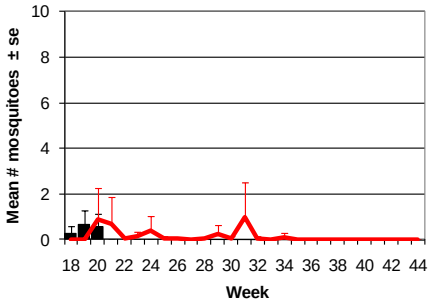
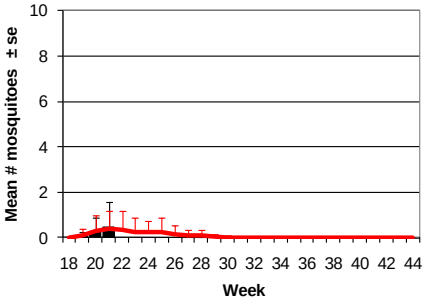
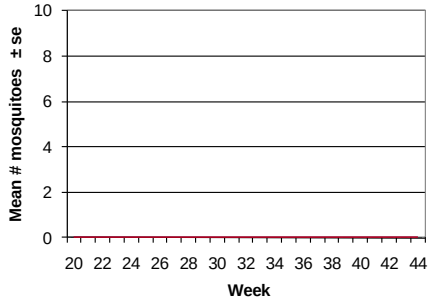
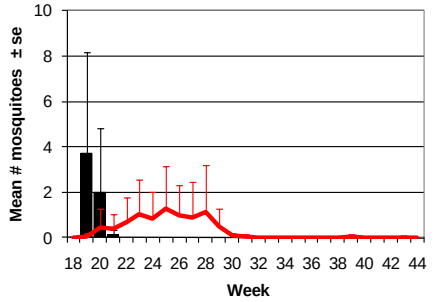
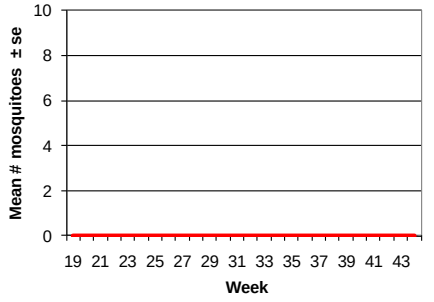
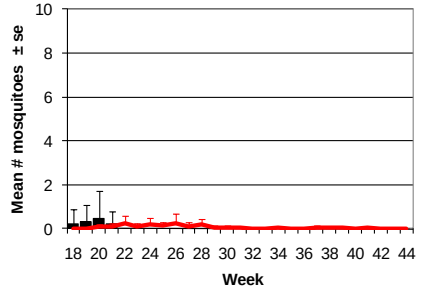
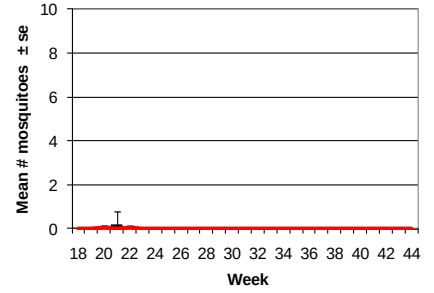
Culiseta melanura – Miscellaneous Group Unique (*Cs. melanura* Type)

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. This species overwinters in cedar and red maple swamps as larvae. Last year began with high abundances for this species until mid season, when numbers dropped back to historical levels, possibly due to a drought that occurred, reducing larval habitat. Currently, abundances appear to be at or below recent historical levels.	

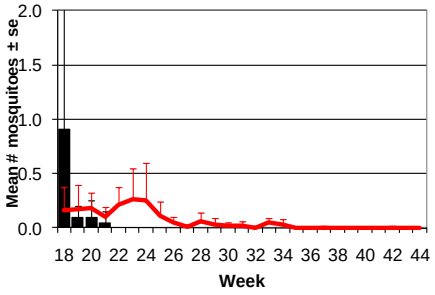
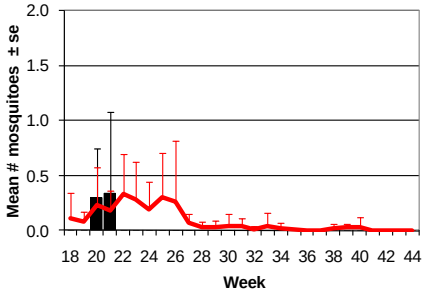
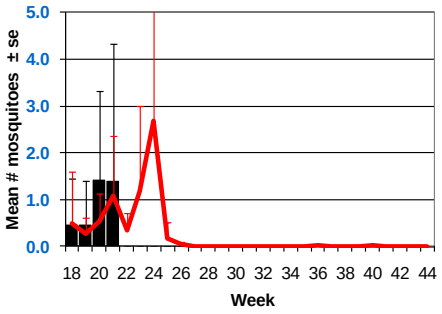
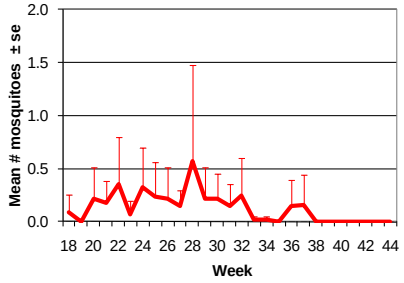
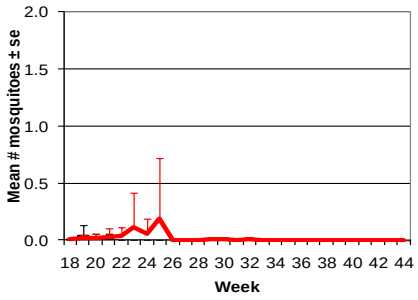
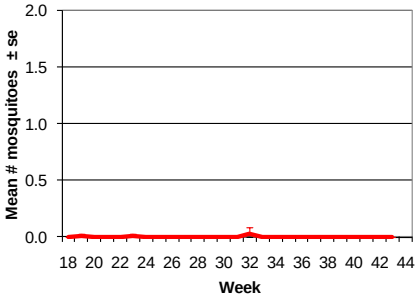
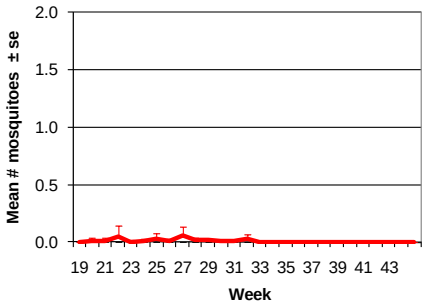
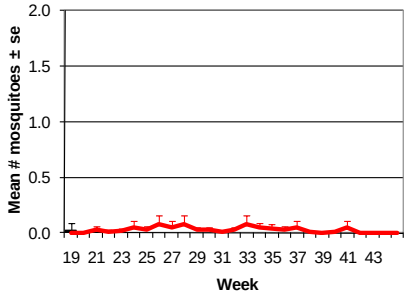
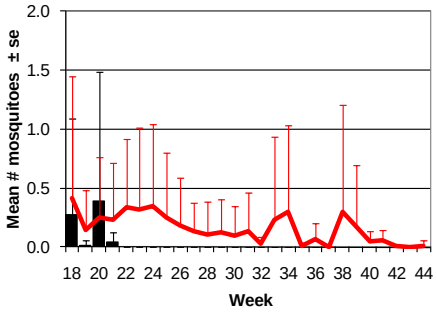
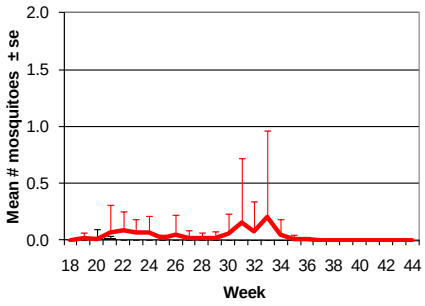
Aedes sollicitans - Salt Floodwater Species
Multivoltine Aedine (*Ae. sollicitans* Type)

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* is an aggressive biter that can fly a considerable distance from where it emerged and thus played a significant role in the development of mosquito control in New Jersey. Eggs are produced around areas high on the salt marsh under lunar tidal flooding conditions (as well as rainfall). *Ae. sollicitans* abundances are around historical levels, particularly in the area of highest concentration, the Coastal and Delaware Bayshore. There are above historical numbers in the Pineland, but these values are minor. Next Full Moon: 15 June.	

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

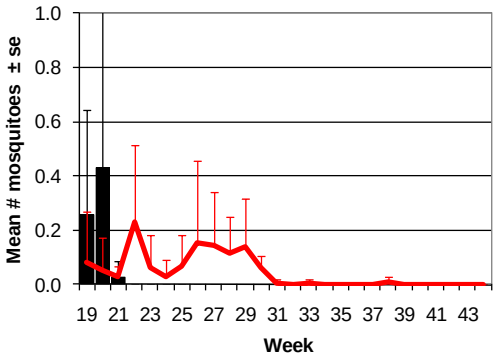
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes cantator* is another salt marsh species that responds to flooding conditions. It is often in association with *Ae. sollicitans* habitat, but generally comes out earlier, perhaps to avoid competition. *Ae. cantator* has a wider tolerance of saline conditions and can be found in habitats other than the salt marsh, such as agricultural areas with fertilizer salts, or, in the case of the Northwestern Rural region, a textile factory where higher than historical abundances were found this year. (Salts are used to set dyes onto cloth.) *Ae. cantator* is an inefficient vector for West Nile virus.	

Aedes canadensis canadensis – Spring Species
Univoltine Aedine (*Ae. canadensis* Type)

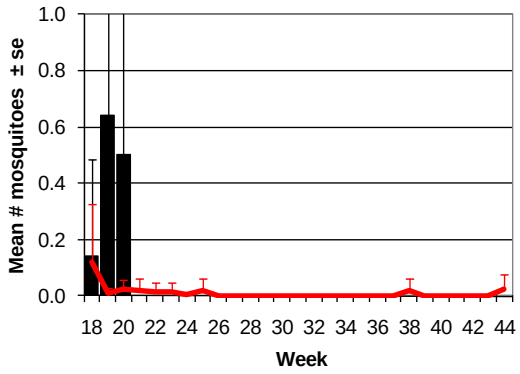
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes canadensis canadensis* is an early season mosquito common in New Jersey and can re-appear later in the summer. Often, this species will be out before the beginning of this program and thus its abundance it not fully recorded. From bogs to woodland pools, *Ae. canadensis* can be a serious biter and cosmopolitan in their choice of bloodmeals. This species may be a potential vector of dog heartworm, particularly for populations that emerge later in the season when warmer temperatures favor filarial development.	

Other Species – A number of early season species are recorded in the northern half of New Jersey in several regions. *Aedes sticticus* is a floodwater species often associated near river floodplains where increased spring waters contribute to their emergence. They can also emerge later in the season, but usually at lower abundances. This season shows high abundances in the Northwestern Rural and the Philadelphia Metro regions. *Aedes stimulans,* the Snow Pool mosquito, is one of the first species on the wing in New Jersey and will disappear after mid-summer. *Aedes cinereus* is found throughout New Jersey but does not apparently come to light traps readily. As with *Ae. stimulans, Ae. cinereus* is highly cold tolerant, and most abundant in the Northwest Rural region.

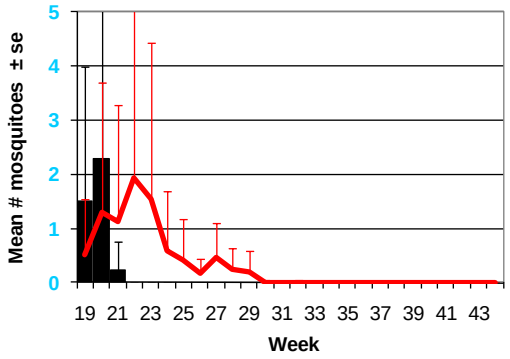
Northwest Rural – *Aedes sticticus* Spring Species, Univoltine Aedine, *Ae. canadensis canadensis* type.



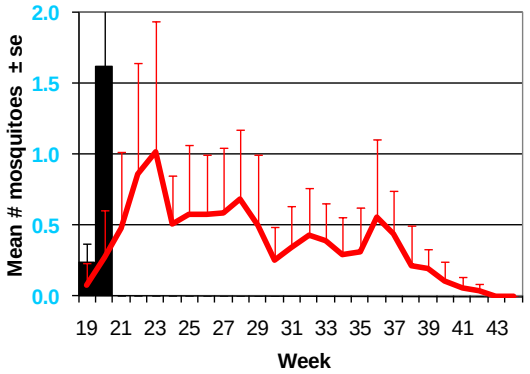
Philadelphia Metro – *Aedes sticticus* Spring Species, Univoltine Aedine, *Ae. canadensis canadensis* type.



Northwest Rural – *Aedes stimulans* Spring Species, Univoltine Aedine, *Ae. stimulans* type.



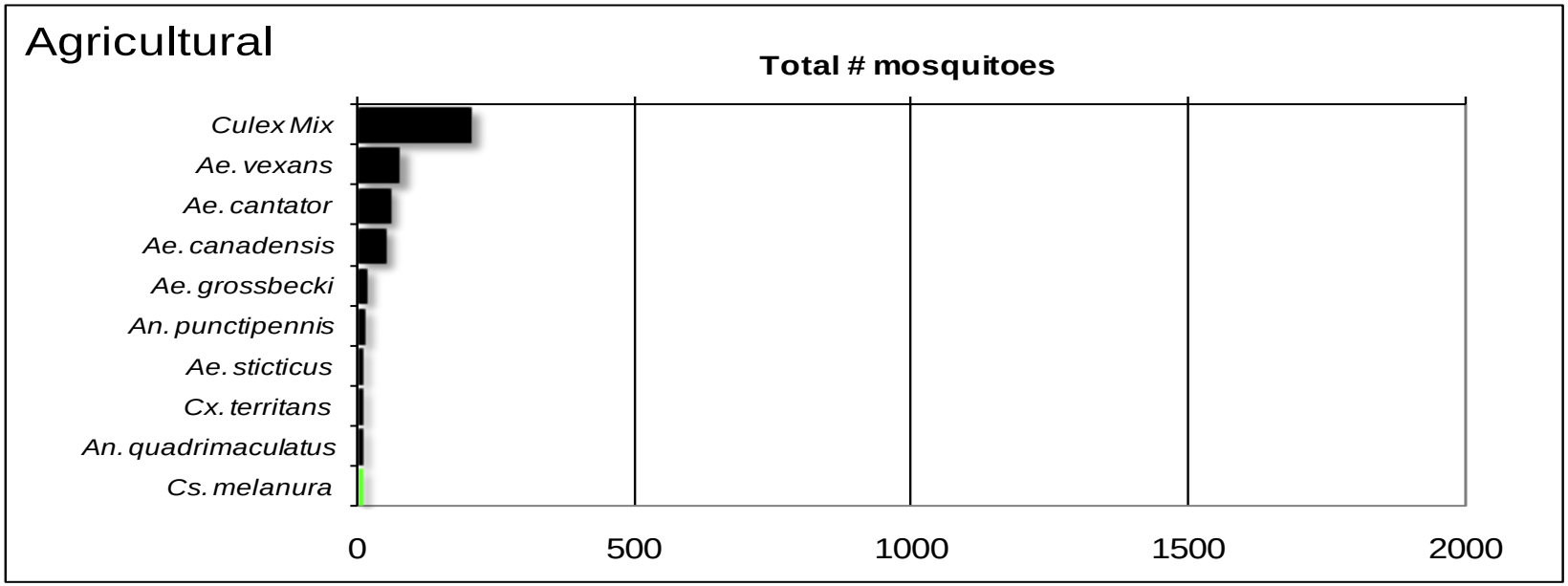
Northwest Rural – *Aedes cinereus*, Spring Species, Univoltine Aedine, *Aedes canadensis canadensis* type.

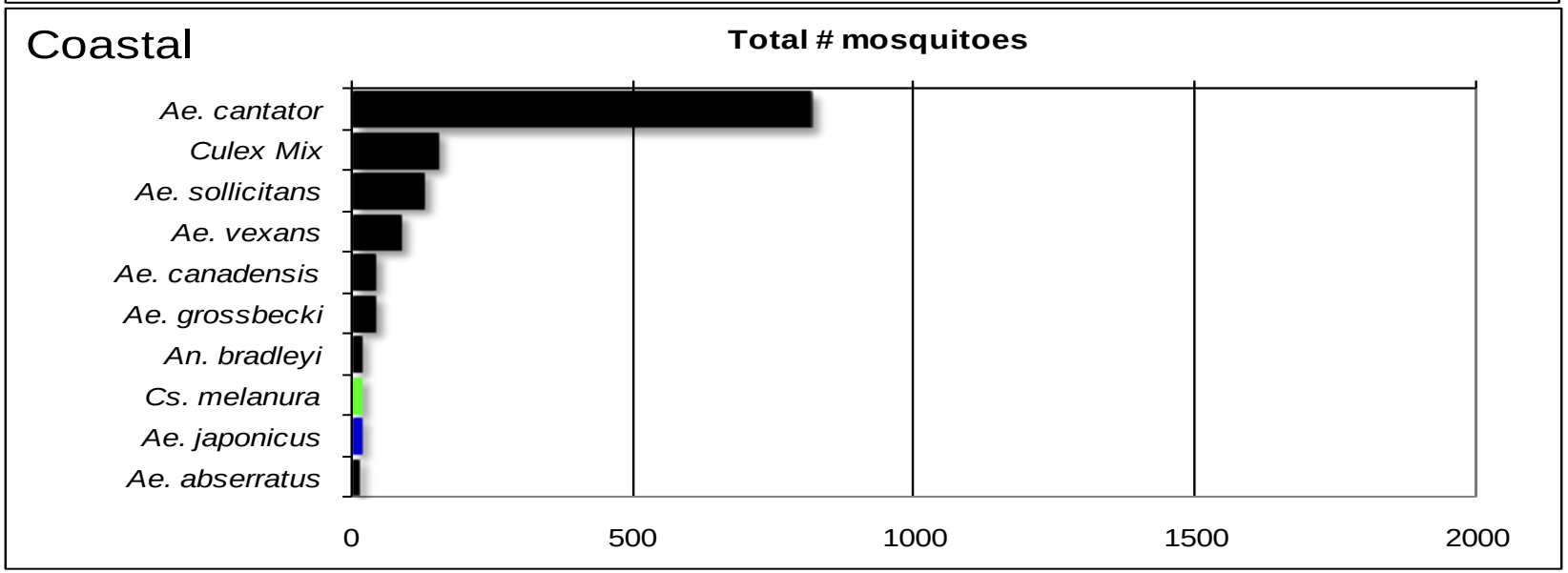


WNV *EEE*

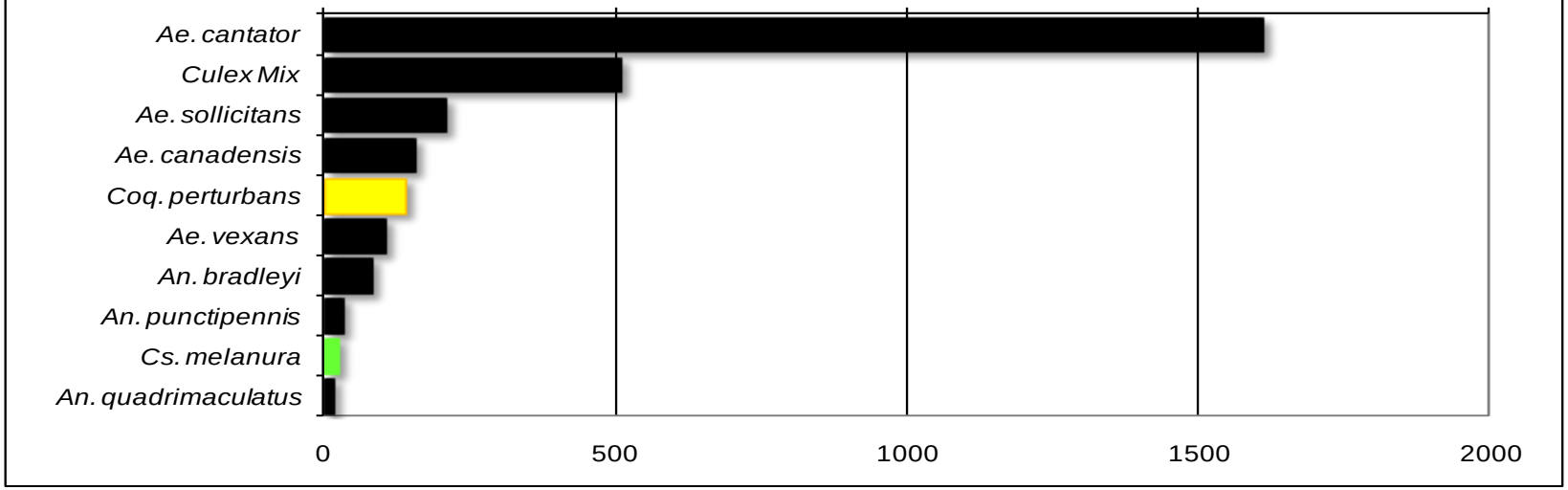
Top Ten Mosquito Species/Region - *Ae. albopictus,* *Ae. japonicus (invasives);* *Cs. melanura or Cx. erraticus* *Coq. perturbans*

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

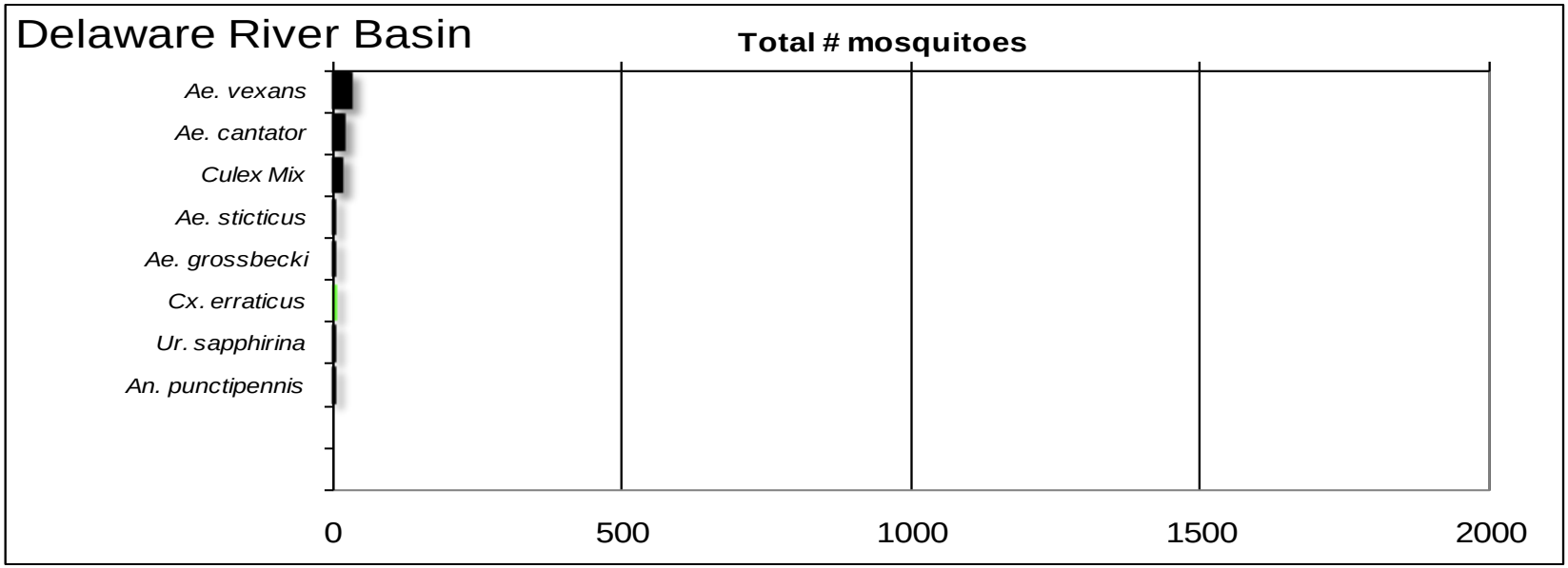




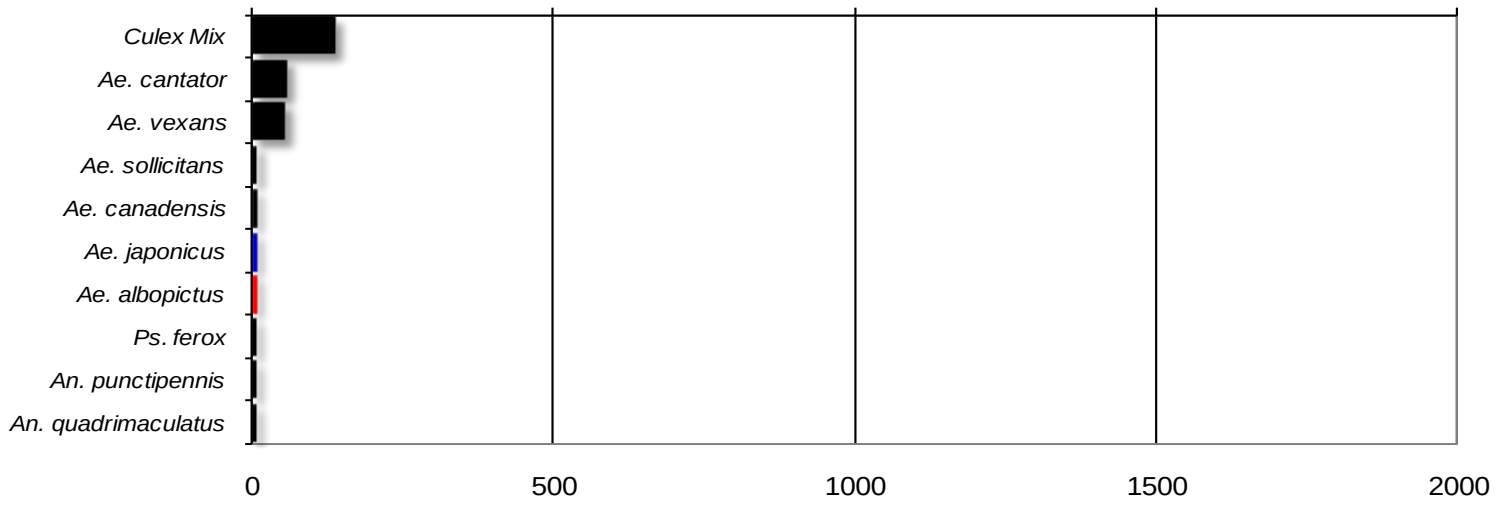
Delaware Bayshore



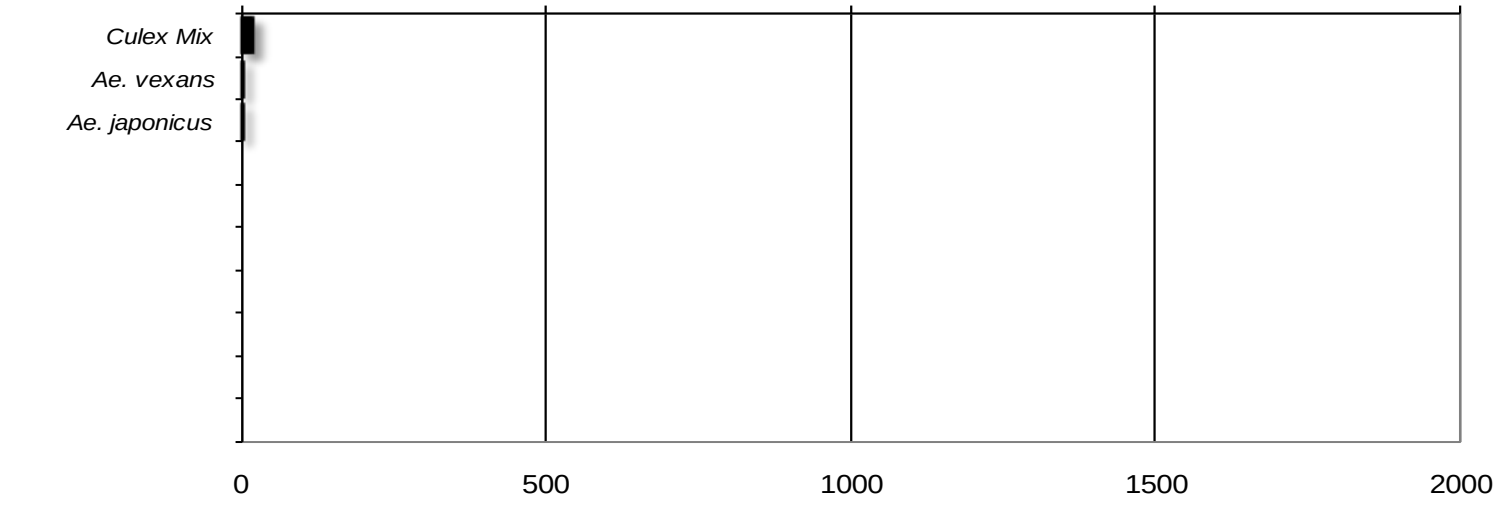
Delaware River Basin

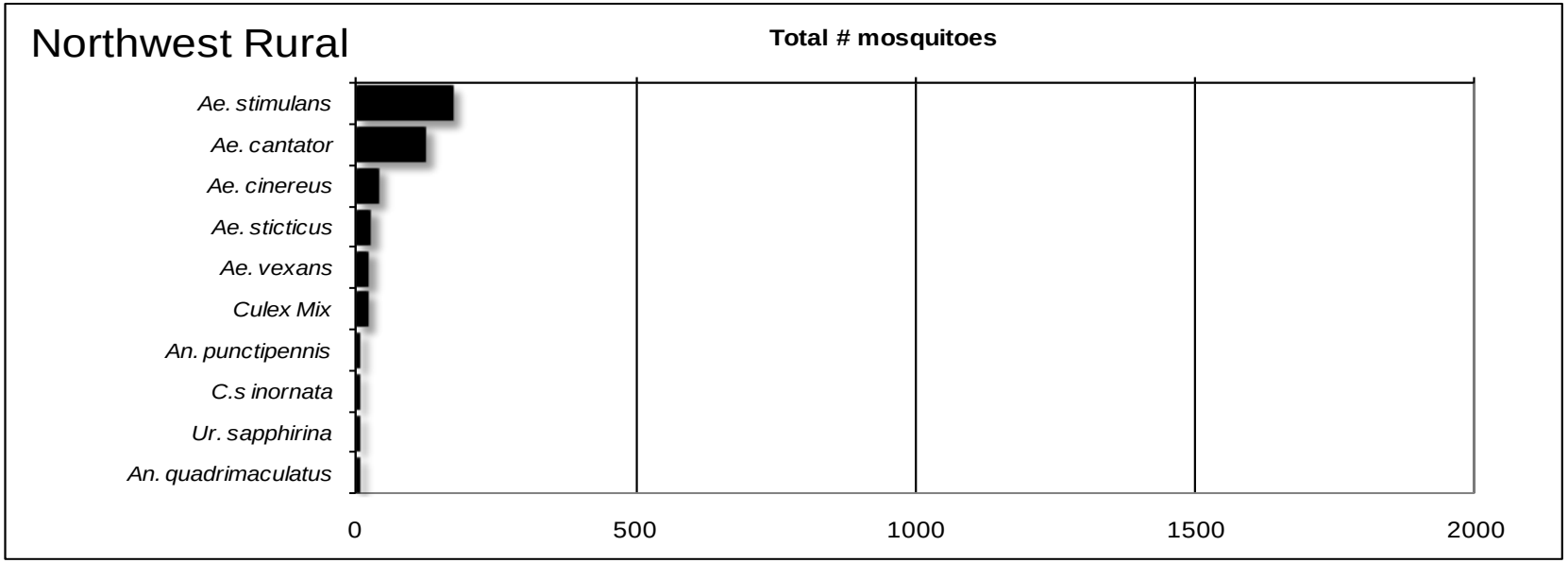


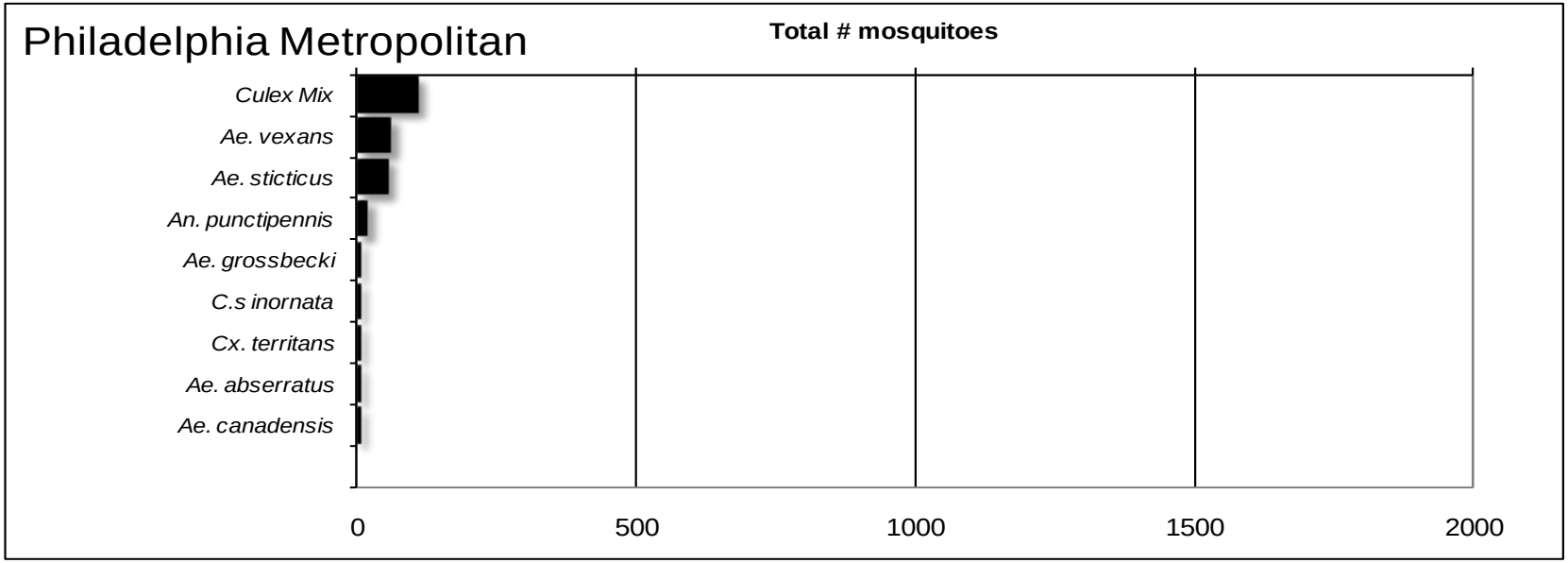
New York Metropolitan



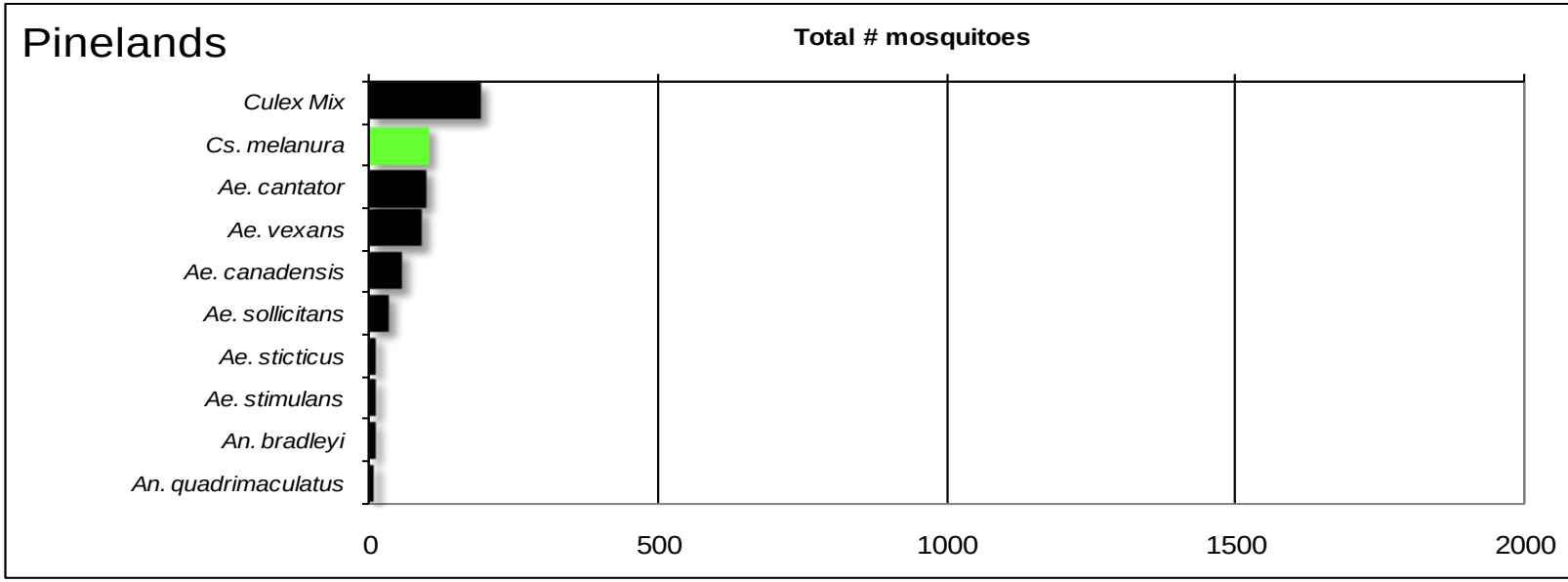
North Central Rural




Northwest Rural
Total # mosquitoes
Ae. stimulans
Ae. cantator
Ae. cinereus
Ae. sticticus
Ae. vexans
Culex Mix
An. punctipennis
C.s inornata
Ur. sapphirina
An. quadrimaculatus
0
500
1000
1500
2000


Philadelphia Metropolitan
Total # mosquitoes
Culex Mix
Ae. vexans
Ae. sticticus
An. punctipennis
Ae. grossbecki
C.s inornata
Cx. territans
Ae. abserratus
Ae. canadensis
0
500
1000
1500
2000

Pinelands



Suburban Corridor