VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE, LAC, DENV, CHIK and ZIKV

Prepared by Lisa M. Reed, Diana Carle and Dina Fonseca
Center for Vector Biology, Rutgers University

CDC WEEK 23: Start to 8 June, 2018

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Culiseta melanura and Eastern Equine Encephalitis

SITE/Boxes	Inland or Coastal	Historic Population Mean	Current Weekly Mean	Total Tested* (Collected)	Total Pools Tested* (Submitted)	EEE Isolation Pools	MFIR
Bass River (Burlington Co.)/5	**Coastal**	0.08	0.00	0	0		
Green Bank (Burlington Co.)/25	**Coastal**	0.79	0.00	0	0		
Corbin City (Atlantic Co.)/25	**Coastal**	1.04	0.60	(15)	(1)		
Dennisville (Cape May Co.)/50	**Coastal**	3.50	2.82	141	3		
Winslow (Camden Co.)/50	**Inland**	2.17	3.98	199	4		
Centerton (Salem Co.)/50	**Inland**	1.88	0.72	36	1		
Turkey Swamp (Monmouth Co.)/50	**Inland**	0.40	0.12	(6)	(1)		
Glassboro (Gloucester Co.)/50	**Inland**	0.40	0.30	15	1		

*Current week (in parentheses) results pending. ‡ corrected from previous week NC=no collection

Remarks: Last year, a total of 18 positive EEE pools, all in *Culiseta* melanura were detected, along with 6 positive horses and no human cases. At the start of the 2018 season, there are no detections of EEE among submitted mosquito pools.

Statewide, 395 *Cs. melanura* from 13 pools have been tested (and 21 additional specimens from 2 pools to be tested), with no positive pools detected for an overall *Cs. melanura* MFIR of 0.000. 179 specimens from 2 other species have also been tested, with no positives detected. Overall MFIR for all species statewide is 0.000.

Traditional Resting Box Sites: 412 *Cs. melanura* from 9 (plus two pools of 21 to be tested) pools have been tested in 2018 for EEE. No EEE positive pools have been detected from these sites.

	Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD.**				
County	**Trap types***	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Cape May	GR	4	4	0	0
TOTAL		**4**	**4**	**0**	**0**

Additional County-set *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. No new positives have been collected since the previous nine positive pools.

Horses and Humans: Last year, there were 6 horses detected with EEE. EEE is nearly always fatal for those horses without a complete vaccination history. Horses in New Jersey that have gone down in the past with EEE have either an incomplete vaccination history or NO vaccination history. ***Horse owners are urged to make sure their horses are up to date on their vaccinations. Horse cases are known to occur through October and sometimes into November (see link below).*** Other sensitive species are non-native birds, such as Ostriches/Emus and Gallinaceous birds such as pheasants of Eurasian origins.

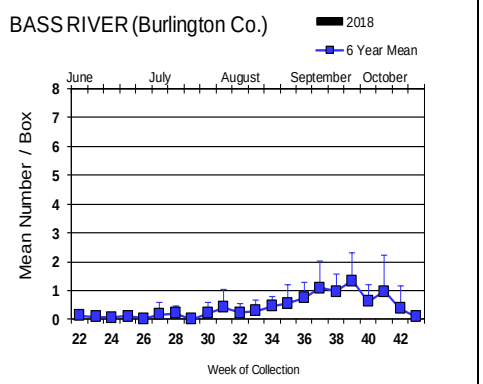
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

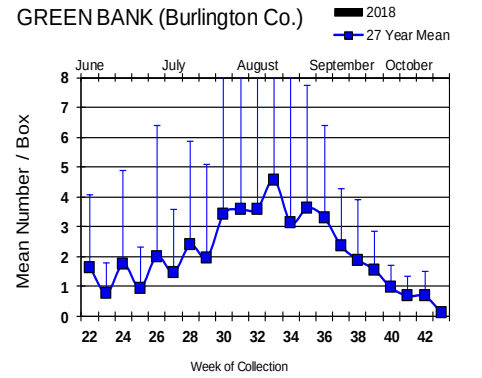
Additional Species: Two additional species were tested for EEE. No additional positives were detected.

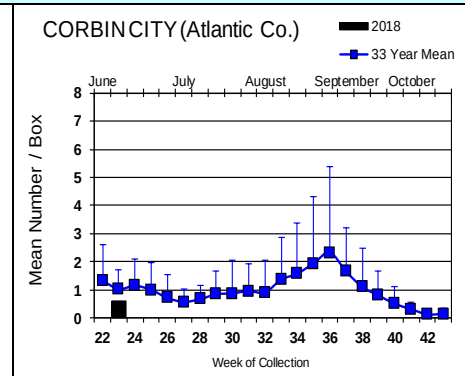
Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Culex pipiens	16	176		
Culex salinarius	2	3		
State Total	18	179		

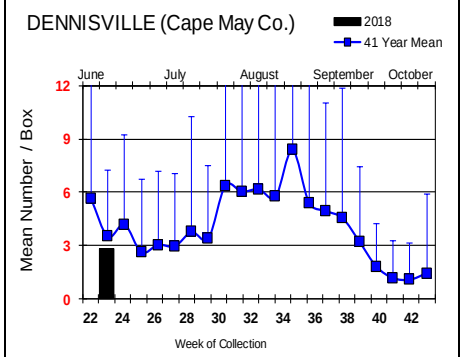
Culiseta melanura Populations

Coastal

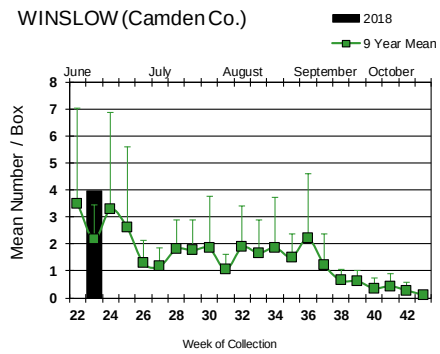


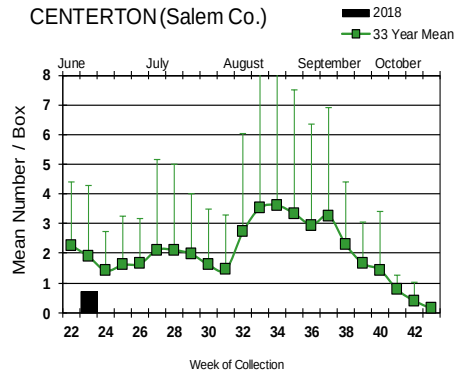


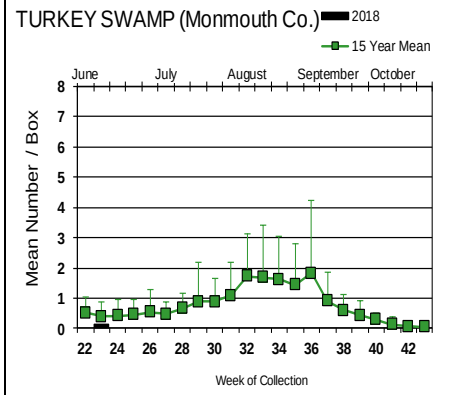


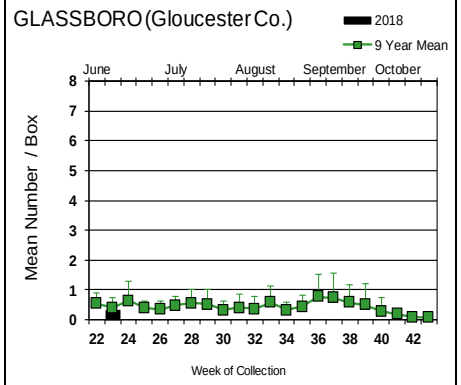


Inland









No positive *Culiseta melanura* pools were collected rom the traditional resting box sites through the current week. The Winslow population was above historical values, reflecting higher early season populations in the Pinelands (see Adult Mosquito Surveillance report from this week: http://vectorbio.rutgers.edu/reports/mosquito/

= Positive pool(s) detected (red = melanura, purple = other species).

EEE in US (2018 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: FL(17/1 mule)
- mosquito pools: FL(1)
- sentinel: FL(45/5 owl emus)
- human:

West Nile Virus Positive Organisms in US, 2018

West Nile in US (2017 cumulative cases): Single black values indicate no change from previous week. Black values / red values equals previous week/New totals.
Note: Data reported by all states should be considered provisional and subject to change. Sources for this table can be found here.

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Alabama					0
Alaska					
Arizona	0	7	0	0	1
Arkansas		0			0
California	9	3/2	0	0	0
Colorado		0			0
Connecticut		0			0
Delaware					
DC					
Florida			2/24	0	0
Georgia					
Hawaii					
Idaho	0	0		0	0
Illinois		9		0	0
Indiana	0	0		0	0
Iowa					
Kansas		0		0	0
Kentucky				0	0
Louisiana	0	0		0	0
Maine		0			0
Maryland	0	0		0	0
Mass.		0		0	0
Michigan	0	0		0	0
Minnesota					
Mississippi					
Missouri		0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana				0	0
Nebraska		0		0	0
Nevada					
New Hampshire					
New Jersey		0		0	0
New Mexico					
New York					
North Carolina					
North Dakota					
Ohio		1		0	0
Oklahoma					
Oregon	0	0	0	0	0
Pennsylvania	0	1		0	0
Rhode Island					
South Carolina					
South Dakota					
Tennessee					
Texas		4			
Utah					
Vermont					
Virginia					
Washington	0	0		0	0
West Virginia					
Wisconsin	1	0		0	0
Wyoming					

* Can include other species (e.g., dogs, cows) reported positive.

Protocol: New Jersey Department of Health (NJDH Public Health Environmental and Agricultural Laboratories, PHEAL) and the Cape May County Department of Mosquito Control tests mosquito pools using RT-PCR Taqman techniques.

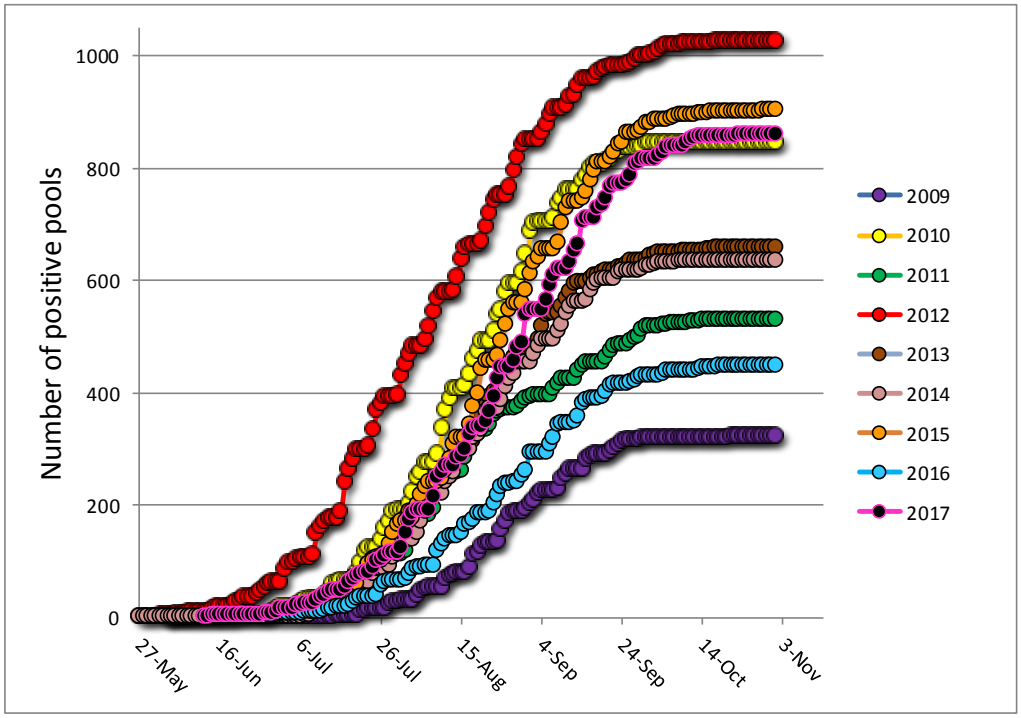
Mosquito Species Submitted and Tested for West Nile Virus Testing through 8 June 2018

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	4	6		
Aedes canadensis canadensis	2	6		
Aedes japonicus	8	49		
Anopheles punctipennis	1	2		
Anopheles quadrimaculatus	7	260		
Culex pipiens	16	176		
Culex restuans	22	206		
Culex salinarius	2	3		
Culiseta melanura	13	395		
Grand Total	**75**	**1103**		

Remarks: To date, 75 pools of 1,103 mosquitoes from 9 species have been tested. No positive WNV pools have been detected. Last year, the first positive *Culex* Mix pool was detected in Sussex County on 12 June. In 2016, the first positive pool of *Culex* Mix was collected on 14 June in Monmouth County.

Humans, Horses and Wild Birds: Currently, no horse or human cases of WNV have been detected. In 2017, eight human cases of WNV were detected and two horse cases were detected. For further information, see http://www.nj.gov/health/cd/statistics/arboviral-stats/ .

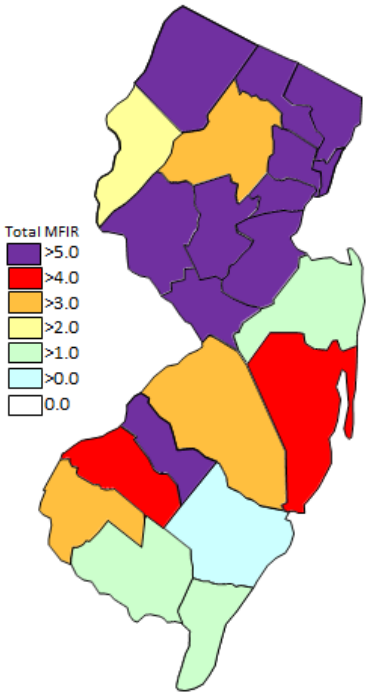
Birds are no longer routinely tested in New Jersey.



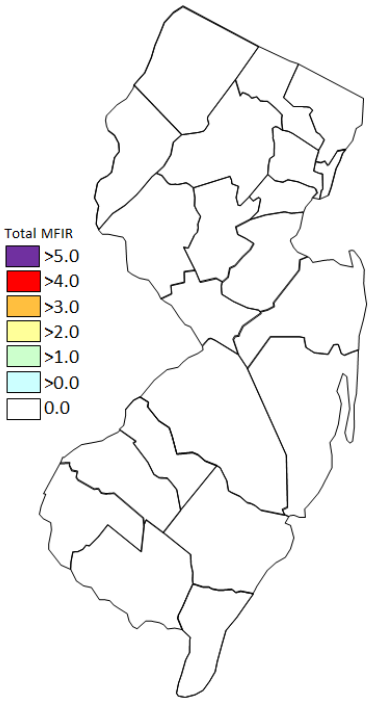
Above is a graph showing cumulative number of positive pools for the previous 9 years, inclusive of the most active (2012) and least active (2009) years. The cumulative increase for 2017 (black markers with pink borders) has surpassed 2010 with the number of positive pools. There are no positives to graph for 2018 yet.

WNV Results by County through 8 June 2018.

County	Species	Pools	Mosquitoes	Positives	MFIR
Camden		**4**	**199**		
	Culiseta melanura	4	199		
Cape May		**69**	**853**		
	Aedes albopictus	4	6		
	Aedes canadensis canadensis	2	6		
	Aedes japonicus	8	49		
	Anopheles punctipennis	1	2		
	Anopheles quadrimaculatus	7	260		
	Culex pipiens	16	176		
	Culex restuans	22	206		
	Culex salinarius	2	3		
	Culiseta melanura	7	145		
Gloucester		**1**	**15**		
	Culiseta melanura	1	15		
Salem		**1**	**36**		
	Culiseta melanura	1	36		
Grand Total		**75**	**1103**		



Cumulative WNV activity in 2017.



WNV activity to 8 June 2018.

WNV activity last week, 2018

Saint Louis Encephalitis (SLE) to 8 June 2018.

New Jersey will be primarily testing for SLE this year only when adjacent states show human activity (Cape May tests mosquitoes in the Cape May lab independently). SLE has had previous activity in New Jersey, most notably in 1964 and 1975 (CDC's SLE website), the latter prompting the surveillance reporting by Rutgers. SLE is a flavivirus and has a similar transmission pattern to West Nile, with *Culex* species as the predominant vectors.

No pools of SLE have tested positive for 2018. No human cases have been reported.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**16**	**176**		
	Culex pipiens	16	176		
Grand Total		**16**	**176**		

La Crosse Encephalitis (LAC) to 8 June 2018.

New Jersey will be primarily testing for LAC this year only when adjacent states show human activity (Cape May tests mosquitoes in the Cape May lab independently). New Jersey has had 3 cases of this encephalitic disease since 1964 (see CDC's LAC website). The mortality is low but like other encephalitides, LAC can have both personal (lasting neurological sequelae) and economic impacts. LAC is a bunyavirus with a transmission cycle involving mosquitoes such as *Aedes triseriatus* and small mammals such as squirrels and chipmunks. LAC can not only infect *Aedes albopictus* but transovarial transmission was also demonstrated.
(Tesh and Gubler 1975 Laboratory studies of transovarial transmission of La Crosse and other arboviruses by *Aedes albopictus* and *Culex fatigans.* American Journal of Tropical Medicine and Hygiene 24(5):876-880).

No pools of LAC have been tested yet for 2018. No human cases have been reported.

County	Species		Positives	MFIR
Grand Total				

Dengue (DENV) to 8 June 2018.

New Jersey will be selectively testing for DENV (including serotypes) this year. Dengue has not had a history of local transmission here in New Jersey, but each year, travelers can bring virus back from areas in the world with virus activity. This is significant as humans are NOT dead-end hosts and thus there is the potential for local transmission (i.e., New Jersey mosquitoes biting a sick person and then biting and transmitting the disease to someone else) to be established. DENV is a flavivirus but unlike WNV, *Aedes* mosquitoes are predominant vectors. In New Jersey, *Aedes albopictus* is a candidate for local transmission. There are 4 serotypes tested for Dengue.

Note Same pools of *Ae. albopictus* are tested for the four serotypes of Dengue as well as Chikungunya.

No pools of Dengue have been tested yet in 2018. Last year, there were 9 travel-related human cases in NJ.

County	Species	DENV1		DENV2		DENV3		DENV4		Pos.	MFIR
		Pool	Mos.	Pool	Mos.	Pool	Mos.	Pool	Mos.		
Grand Total											

Chikungunya (CHIK) to 8 June 2018.

New Jersey will be selectively testing for CHIK this year. Chikungunya is similar in symptoms to Dengue, a "breakbone" fever and has a low mortality rate. But this virus has had recent worldwide activity, and in the past year has come to the Western Hemisphere. As with Dengue, transmission can occur when a mosquito bites an infected human, then bites an uninfected human who subsequently becomes ill. CHIK is an alphavirus with *Aedes* mosquitoes as potential vectors. In New Jersey, *Aedes albopictus* is the mosquito of interest.

No pools of CHIK have been tested yet in 2018. Last year, there were 10 travel-related human cases in NJ.

County	Species	Pools	Mosquitoes	Positives	MFIR
Grand Total					

Zika (ZIKV) to 8 June 2018.

New Jersey will be selectively testing for ZIKV this year. Zika is an emerging arboviral threat with significant health consequences for fetuses and recent activity in the Western Hemisphere. Humans are potential hosts that can transmit through sexual activity. ZIKV is a flavivirus with *Aedes* mosquitoes as potential vectors. In New Jersey, *Aedes albopictus* is the mosquito of interest.

No pools have tested positive in 2018. There is currently 1 travel-related human case in NJ.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**4**	**6**		
	Aedes albopictus	4	6		
Grand Total		**4**	**6**		