VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE, LAC, DENV and CHIK

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CDC WEEK 25: 21 June to 27 June, 2015

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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**	0.13	0.0	4	3		
Green Bank (Burlington Co.)/25	**Coastal**	1.06	0.20	21 (22)	3 (4)		
Corbin City (Atlantic Co.)/25	**Coastal**	1.07	0.64	59 (75)	2 (3)		
Dennisville (Cape May Co.)/50	**Coastal**	2.82	0.04	100	4		
Winslow (Camden Co.)/50	**Inland**	3.39	0.88	478	11		
Centerton (Salem Co.)/50	**Inland**	1.74	0.62	235	7		
Turkey Swamp (Monmouth Co.)/50	**Inland**	0.56	0.10	7 (12)†	2 (3)		
Glassboro (Gloucester Co.)/36	**Inland**	0.44	0.31	78	4		

*Current week (in parentheses) results pending. †site totals adjusted for preseason (untested) numbers.

Remarks: No detection of EEE in the samples tested to date.

Traditional Resting Box Sites: No EEE positive *Cs. melanura* pools were detected at the state resting box sites since the season began. To date, 987 *Cs. melanura* from 37 pools have been tested for EEE with an additional 3 pools containing 22 *Cs. melanura* to be tested.

Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD.**				
County	**Trap types***	**Number collected (pools)**	**Number of positive pools**	**MFIR**
Atlantic	CO_2	2 (2)		
Burlington	CO_2	460 (10)		
Cape May	GR, RB	8 (3)		
Cumberland	CO_2, RB	44 (5)		
Middlesex	RB	18 (2)		
Ocean	RB	7 (3)		
TOTAL		**539 (25)**		

Additional *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas. Additional pools from these sites were not positive.

Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes cantator	2	8		
Aedes sollicitans	2	45		
Anopheles crucians	1	1		
Anopheles punctipennis	1	2		
Coquillettidia perturbans	14	240		
Culex pipiens	19	143		
Culex salinarius	1	2		
Culex sp.	3	5		
State Total	**43**	**446**		

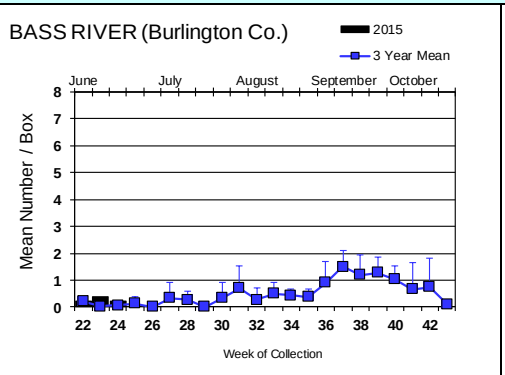
Additional Species: Six (+) additional species were tested for EEE and no positives were detected.

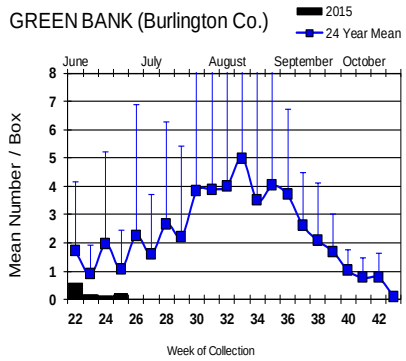
Horses and Humans: No horses or humans have been reported with EEE.

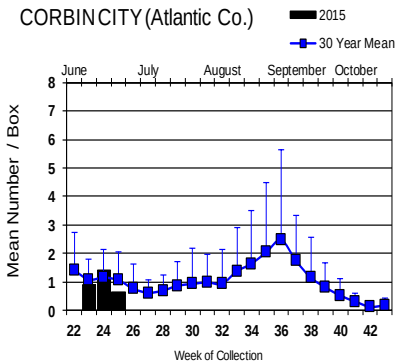
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

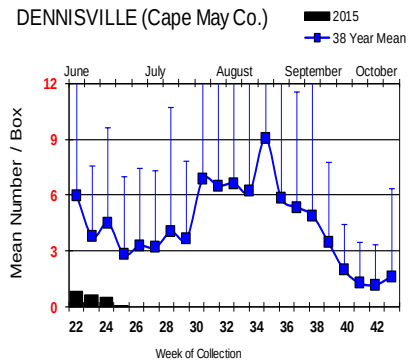
Culiseta melanura Population Graphs

Coastal

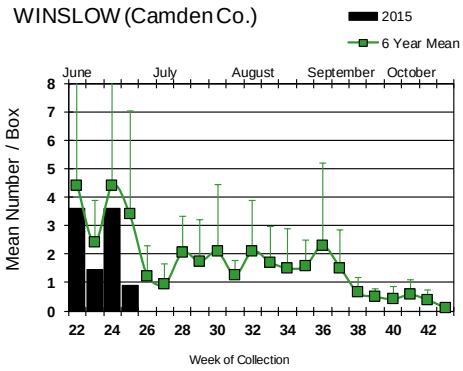


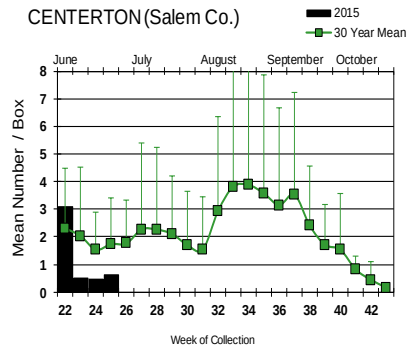


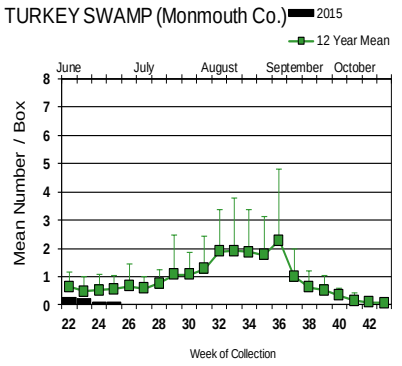


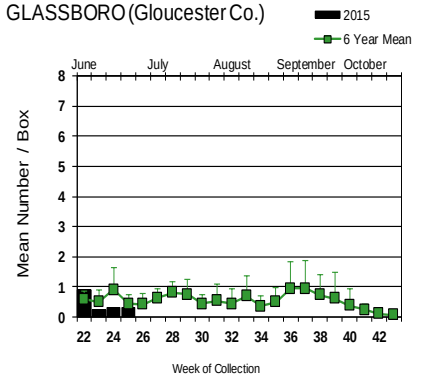


Inland









As with last week, no populations of *Cs. melanura* at the traditional resting box sites were significantly above historical averages in the past week.

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

EEE in US (2015 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: FL(6)
- mosquito pools:
- sentinel: FL(30)
- human:

West Nile Virus Positive Organisms in US, 2015

West Nile in US (2015 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					
Alaska					
Arizona	0	2		0	0
Arkansas				0	0
California	77/101	119/180	1/3		0
Colorado		0			0
Connecticut		0			0
Delaware					1
DC					0
Florida			8		
Georgia	0	0		0	0
Hawaii					
Idaho	0	2		0	0
Illinois	0	1/3		0	0
Indiana	0	1/3			0
Iowa					
Kansas		0			1
Kentucky				0	
Louisiana					
Maine					
Maryland					
Mass.		0		0	0
Michigan	3				
Minnesota					
Mississippi		1		0	0
Missouri		0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana					
Nebraska	0	1		0	0
Nevada		7			
New Hampshire					
New Jersey	0	1		0	0
New Mexico					1
New York		3			
North Carolina					
North Dakota	0	0		0	0
Ohio		2			
Oklahoma					2
Oregon	0	0	0	0	0
Pennsylvania	1	4/7			
Rhode Island		0		0	0
South Carolina					
South Dakota		1			
Tennessee		6			
Texas		19			3
Utah					
Vermont					
Virginia					
Washington	2	1		0	0
West Virginia					
Wisconsin	3	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 29 June 2015

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	30	47		
Aedes atlanticus	1	6		
Aedes canadensis canadensis	6	22		
Aedes cantator	5	108		
Aedes japonicus	42	166		
Aedes sollicitans	2	45		
Aedes triseriatus	5	55		
Aedes trivittatus	1	2		
Aedes vexans	7	159		
Anopheles crucians	1	1		
Anopheles punctipennis	2	4		
Anopheles quadrimaculatus	8	102		
Coquillettidia perturbans	15	241		
Culex erraticus	1	1		
Culex pipiens	51	1785		
Culex restuans	51	603		
Culex salinarius	3	38		
Culex sp.	255	8973	1	0.111
Culiseta melanura	63	1531		
Psorophora ciliata	2	8		
Psorophora ferox	3	7		
Grand Total	**554**	**13904**	**1**	**0.072**

Remarks: To date, 554 pools of 13,904 mosquitoes from 20 species have been tested, with 1 positive pool detected. This first positive of the season occurred in Middlesex County, in a pool of mixed *Culex*, collected on the 22nd of June.

Humans, Horses and Wild Birds: No human cases of WNV have been reported. For further information, see http://www.state.nj.us/health/cd/westnile/techinfo.shtml.

No horse cases have been detected.

Bird testing began in mid-April. No positive birds have been reported. To date, 10 birds have been tested. Species includes: American Crow (*Corvus brachyrhynchos* 0/1) Fish Crow (*Corvus ossifragus* 0/3), Blue Jay (*Cyanocitta cristata* 0/1), Hawk/Raptor (0/1) and other avian species (0/4). Counties (positives) submitting birds are Atlantic, Essex, Hunterdon, Mercer, Morris, Ocean, Salem and Warren.

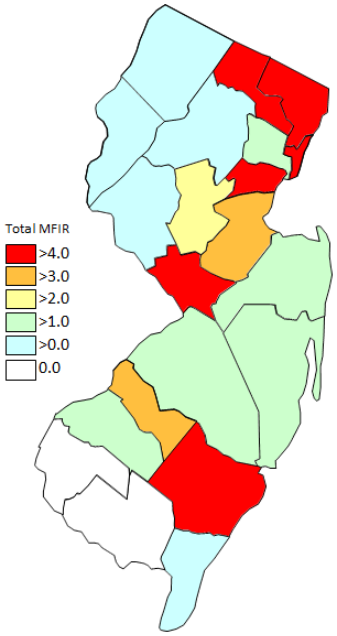
WNV Results by County through 29 June 2015

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**23**	**623**		
	Aedes japonicus	3	5		
	Aedes vexans	1	4		
	Coquillettidia perturbans	3	13		
	Culex spp.	11	539		
	Culiseta melanura	4	61		
	Psorophora ferox	1	1		

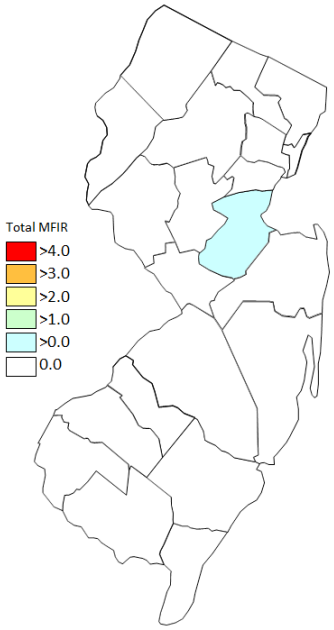
Burlington		**26**	**873**		
	Culex spp.	10	388		
	Culiseta melanura	16	485		
Camden		**42**	**1605**		
	Aedes albopictus	2	7		
	Aedes japonicus	5	20		
	Culex spp.	23	1099		
	Culiseta melanura	11	478		
	Psorophora ferox	1	1		
Cape May		**89**	**686**		
	Aedes canadensis canadensis	2	2		
	Aedes cantator	2	8		
	Aedes japonicus	20	65		
	Aedes triseriatus	1	1		
	Anopheles quadrimaculatus	4	75		
	Coquillettidia perturbans	5	154		
	Culex pipiens	19	143		
	Culex restuans	27	126		
	Culex salinarius	1	2		
	Culex spp.	1	2		
	Culiseta melanura	7	108		
Cumberland		**26**	**364**		
	Aedes albopictus	1	1		
	Aedes atlanticus	1	6		
	Aedes cantator	1	2		
	Aedes japonicus	1	6		
	Aedes sollicitans	2	45		
	Aedes triseriatus	1	4		
	Aedes trivitattus	1	2		
	Aedes vexans	2	150		
	Anopheles quadrimaculatus	3	23		
	Coquillettidia perturbans	3	50		
	Culex restuans	1	1		
	Culex spp.	2	22		
	Culiseta melanura	5	44		
	Psorophora ciliata	2	8		
Essex		**26**	**291**		
	Aedes albopictus	1	1		
	Aedes japonicus	4	14		
	Culex spp.	20	271		
	Psorophora ferox	1	5		
Gloucester		**33**	**1628**		
	Culex spp.	29	1550		
	Culiseta melanura	4	78		
Hudson		**14**	**694**		
	Culex spp.	14	694		
Hunterdon		**23**	**1150**		
	Culex spp.	23	1150		

Mercer		**32**	**590**		
	Aedes albopictus	2	8		
	Aedes vexans	4	5		
	Coquillettidia perturbans	1	10		
	Culex pipiens	3	92		
	Culex restuans	22	475		
Middlesex		**38**	**1670**	**1**	**0.599**
	Aedes albopictus	10	11		
	Culex spp.	26	1641	1	0.609
	Culiseta melanura	2	18		
Monmouth		**41**	**516**		
	Aedes albopictus	7	10		
	Aedes canadensis canadensis	3	17		
	Aedes cantator	2	98		
	Aedes japonicus	1	7		
	Anopheles crucians	1	1		
	Anopheles punctipennis	2	4		
	Anopheles quadrimaculatus	1	4		
	Coquillettidia perturbans	1	1		
	Culex erraticus	1	1		
	Culex salinarius	2	36		
	Culex spp.	16	320		
	Culiseta melanura	4	17		
Morris		**30**	**957**		
	Culex spp.	30	957		
Ocean		**27**	**340**		
	Aedes albopictus	5	7		
	Aedes canadensis canadensis	1	3		
	Aedes japonicus	4	24		
	Culex spp.	14	299		
	Culiseta melanura	3	7		
Salem		**20**	**377**		
	Aedes albopictus	2	2		
	Aedes japonicus	2	4		
	Coquillettidia perturbans	2	13		
	Culex restuans	1	1		
	Culex spp.	6	122		
	Culiseta melanura	7	235		
Somerset		**25**	**558**		
	Aedes triseriatus	1	4		
	Culex spp.	24	554		
Sussex		**24**	**561**		
	Aedes japonicus	2	21		
	Aedes triseriatus	2	46		
	Culex spp.	20	494		
Warren		**15**	**421**		

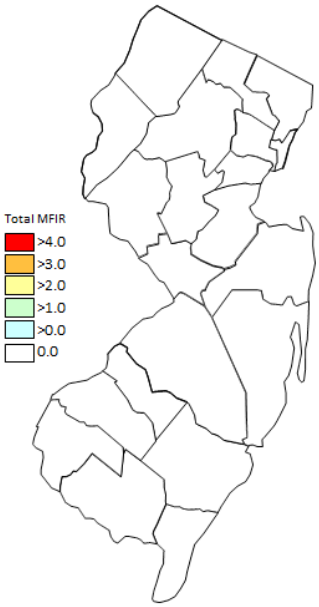
Culex spp.	15	421		
Grand Total	**554**	**13904**	**1**	**0.072**



Cumulative WNV activity in 2014.



WNV activity to 29 June 2015.



WNV activity last week, 2015.

Saint Louis Encephalitis (SLE) 2015.

New Jersey will be testing for SLE this year only when adjacent states show human activity. 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.

County	Species	Pools	Mosquitoes	Positives	MFIR
Grand Total					

La Crosse Encephalitis (LAC) 2015.

New Jersey will be testing for LAC this year only when adjacent states show human activity. 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).

County	Species	Pools	Mosquitoes	Positives	MFIR
Grand Total					

Dengue (DENV) to 29 June 2015.

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. There are currently 40 imported human cases in New Jersey, no local transmission.

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

No pools have tested positive in 2015.

County	Species	DENV1		DENV2		DENV3		DENV4		Positives	MFIR
		Pool	Mos.	Pool	Mos.	Pool	Mos.	Pool	Mos.		
Camden		**1**	**5**	**1**	**5**	**1**	**5**	**1**	**5**		
		1	5	1	5	1	5	1	5		
Cumberland		**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**		
		1	1	1	1	1	1	1	1		

Mercer	**2**	**8**	**2**	**8**	**2**	**8**	**2**	**8**		
	2	8	2	8	2	8	2	8		
Middlesex	**10**	**11**	**10**	**11**	**10**	**11**	**10**	**11**		
	10	11	10	11	10	11	10	11		
Monmouth	**7**	**10**	**7**	**10**	**7**	**10**	**7**	**10**		
	7	10	7	10	7	10	7	10		
Salem	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**		
	2	2	2	2	2	2	2	2		
Grand Total	**23**	**37**	**23**	**37**	**23**	**37**	**23**	**37**		

Chikungunya (CHIK) to 29 June 2015.

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 have tested positive in 2015. Currently, there are 13 imported human cases reported in New Jersey.

County	Species	Pools	Mosquitoes	Positives	MFIR
Camden		**1**	**5**		
	Aedes albopictus	1	5		
Cumberland		**1**	**1**		
	Aedes albopictus	1	1		
Mercer		**2**	**8**		
	Aedes albopictus	2	8		
Middlesex		**10**	**11**		
	Aedes albopictus	10	11		
Monmouth		**7**	**10**		
	Aedes albopictus	7	10		
Salem		**2**	**2**		
	Aedes albopictus	2	2		
Grand Total		**23**	**37**		