

VECTOR SURVEILLANCE IN NEW JERSEY

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

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 CDC WEEK 25: 19 June to 25 June, 2016



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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	0.10	0.00	0	0		
Green Bank (Burlington Co.)/25	Coastal	1.02	0.00	2	2		
Corbin City (Atlantic Co.)/25	Coastal	1.05	0.24	39	5		
Dennisville (Cape May Co.)/50	Coastal	2.75	0.08	27	4		
Winslow (Camden Co.)/50	Inland	2.98	1.90	281	7		
Centerton (Salem Co.)/50	Inland	1.70	0.20	47	4		
Turkey Swamp (Monmouth Co.)/50	Inland	0.52	0.04	11 (13)	4 (5)		
Glassboro (Gloucester Co.)/50	Inland	0.42	0.46	54	4		

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

Remarks: Currently, there are no reports of positive EEE pools. In 2015, the first detection of EEE in a pool of *Culiseta melanura* was collected at the Winslow resting box site on the 27th of July.

Traditional Resting Box Sites: 461 *Cs. melanura* from 30 pools have been tested for EEE, with 1 pool of 2 *Cs. melanura* to be tested. No positives have been detected. Statewide, 1024 *Cs. melanura* have been tested, with no positives. 2459 specimens from 10 other species have also been tested, with no reported positives.

		Additional <i>Cs. melanura</i> trapped by counties *traps with positives indicated in BOLD .			
County	Trap types*	Pools	Mosquitoes	Positives	MFIR
Atlantic	Co ₂ , RB	8	65		
Burlington	Co ₂	13	224		
Cape May	CDC, GR, RB	19	49		
Cumberland	RB	1	3		
Middlesex	RB	12	200		
Ocean	Co ₂ , GR	7	22		
TOTAL		60	563		

Additional *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. No positives have been detected.

Species other than <i>Cs. melanura</i>	Pools	Mosquitoes	Positives	MFIR
<i>Aedes cantator</i>	14	40		
<i>Aedes sollicitans</i>	2	56		
<i>Anopheles bradleyi</i>	3	8		
<i>Anopheles crucians</i>	1	4		
<i>Anopheles punctipennis</i>	2	2		
<i>Coquillettidia perturbans</i>	19	318		
<i>Culex erraticus</i>	1	2		
<i>Culex pipiens</i>	135	1594		
<i>Culex salinarius</i>	32	392		
<i>Culex</i> sp.	16	43		
State Total	225	2459		

Additional Species: Ten additional species were tested for EEE. No positive pools have been detected.

Horses and Humans: No positive horse or humans have been reported. Last year one positive horse was reported.

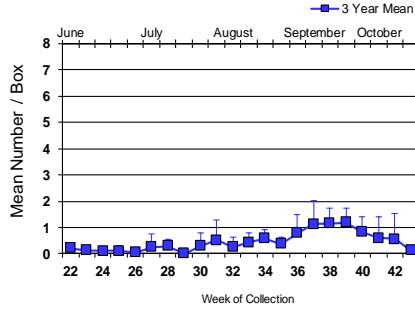
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of

Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

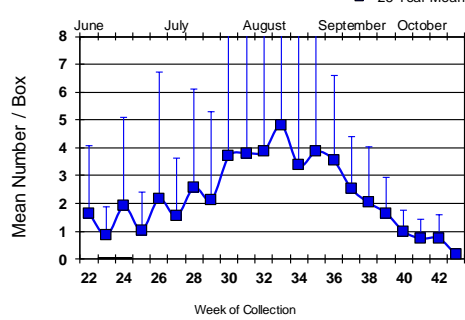
Culiseta melanura Population Graphs

Coastal

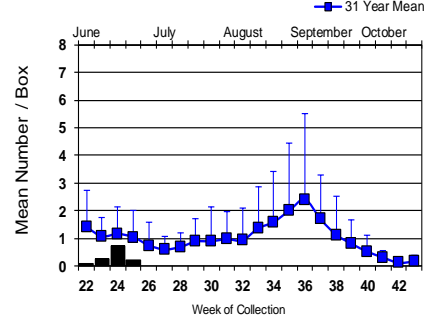
BASS RIVER (Burlington Co.)



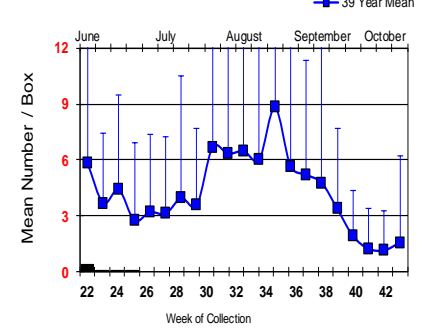
GREEN BANK (Burlington Co.)



CORBINCITY (Atlantic Co.)

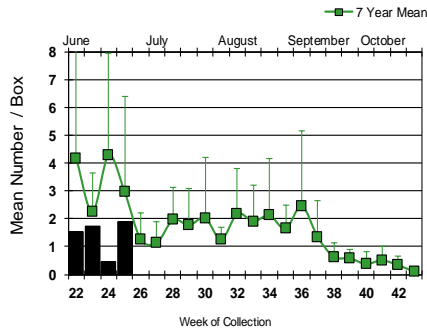


DENNISVILLE (Cape May Co.)

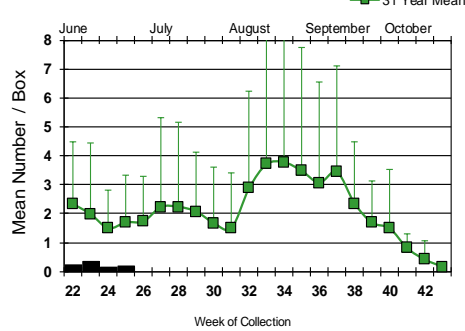


Inland

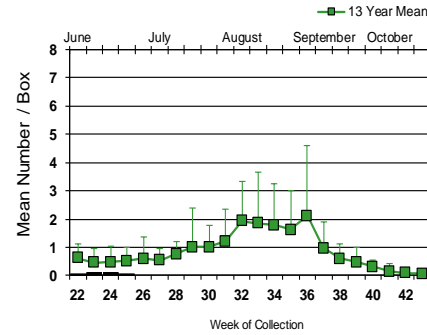
WINSLOW (Camden Co.)



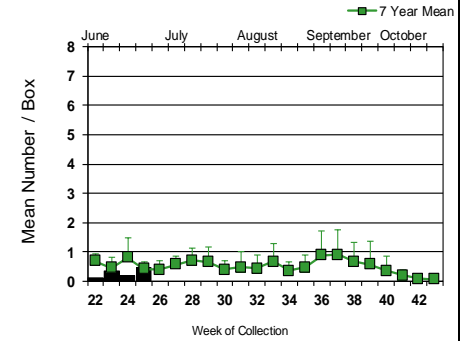
CENTERTON (Salem Co.)




TURKEY SWAMP (Monmouth Co.)



GLASSBORO (Gloucester Co.)



Currently, low numbers continue to be reported at most sites. Light trap data are also showing populations at historical values. No positive pools have been detected to date.

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

EEE in US (2016 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: FL(4) NC(2) SC(2)
- mosquito pools:
- sentinel: FL(32) GA(2) TX(12)
- human:

West Nile Virus Positive Organisms in US, 2016

West Nile in US (2016 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	4/8	0	0	2/8
Arkansas				0	0
California	118/277	127264	4		0
Colorado					
Connecticut		0			0
Delaware					
DC					
Florida		1	39		
Georgia		0			0
Hawaii					
Idaho					
Illinois	1/2	8/14		0	1
Indiana	0	1		0	0
Iowa					
Kansas		0			0
Kentucky				0	
Louisiana					0
Maine					
Maryland					
Mass.		0		0	0
Michigan					
Minnesota					
Mississippi		2			1/3
Missouri		0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana					
Nebraska		2/3		0	1
Nevada					
New Hampshire					
New Jersey		1		0	0
New Mexico					
New York					
North Carolina					
North Dakota	1	0		0	0
Ohio		1		0	0
Oklahoma					
Oregon	0	0	0	0	0
Pennsylvania	2	2/8			
Rhode Island		0			
South Carolina					
South Dakota					
Tennessee					
Texas		2/32		1	1
Utah					
Vermont					
Virginia					
Washington	0	2		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 25 June 2016

Species	Pools	Mosquitoes	Positives	MFIR
<i>Aedes albopictus</i>	70	186		
<i>Aedes atropalpus</i>	6	19		
<i>Aedes canadensis canadensis</i>	17	329		
<i>Aedes cantator</i>	19	223		
<i>Aedes grossbecki</i>	1	1		
<i>Aedes japonicus</i>	109	474		
<i>Aedes sollicitans</i>	2	56		
<i>Aedes triseriatus</i>	23	47		
<i>Aedes vexans</i>	7	85		
<i>Anopheles bradleyi</i>	3	8		
<i>Anopheles crucians</i>	1	4		
<i>Anopheles punctipennis</i>	6	12		
<i>Anopheles quadrimaculatus</i>	10	70		
<i>Coquillettidia perturbans</i>	21	371		
<i>Culex erraticus</i>	2	6		
<i>Culex pipiens</i>	137	1712		
<i>Culex restuans</i>	258	3930		
<i>Culex salinarius</i>	33	402		
<i>Culex</i> sp.	333	14364	1	0.070
<i>Culex territans</i>	3	40		
<i>Culiseta melanura</i>	92	1026		
<i>Psorophora ferox</i>	1	1		
Grand Total	1154	23366	1	0.043

Remarks: To date, 1154 pools of 23,366 mosquitoes from 22 species have been tested, with one positive pool detected. This first positive pool of *Culex* Mix was collected on 14 June in Monmouth County.

Humans, Horses and Wild Birds: No humans or horses have been reported. Last year 26 humans and one horse were positive. Onset for humans began in early August and the onset for the horse case began in September. For further information, see <http://www.state.nj.us/health/cd/westnile/techinfo.shtml>.

Birds are no longer routinely tested in New Jersey.

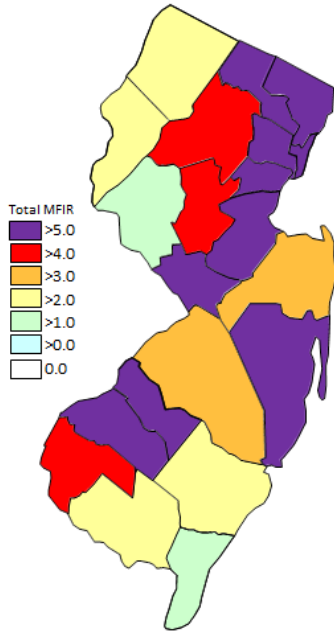
WNV Results by County through 25 June 2016

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		28	538		
	<i>Aedes vexans</i>	2	64		
	<i>Coquillettidia perturbans</i>	5	40		
	<i>Culex pipiens</i>	2	118		
	<i>Culex restuans</i>	2	47		
	<i>Culex salinarius</i>	1	10		
	<i>Culex</i> spp.	3	155		
	<i>Culiseta melanura</i>	13	104		
Burlington		50	2072		

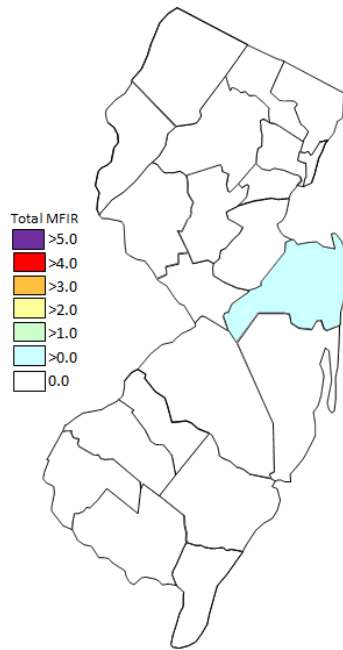
	<i>Aedes albopictus</i>	2	22		
	<i>Aedes atropalpus</i>	1	9		
	<i>Aedes japonicus</i>	3	80		
	<i>Aedes triseriatus</i>	3	8		
	<i>Anopheles crucians</i>	1	4		
	<i>Culex salinarius</i>	5	172		
	<i>Culex</i> spp.	22	1553		
	<i>Culiseta melanura</i>	13	224		
Camden		14	485		
	<i>Aedes japonicus</i>	2	8		
	<i>Culex</i> spp.	5	196		
	<i>Culiseta melanura</i>	7	281		
Cape May		556	4698		
	<i>Aedes albopictus</i>	13	16		
	<i>Aedes atropalpus</i>	5	10		
	<i>Aedes canadensis canadensis</i>	5	8		
	<i>Aedes cantator</i>	14	40		
	<i>Aedes japonicus</i>	65	140		
	<i>Aedes sollicitans</i>	1	3		
	<i>Aedes triseriatus</i>	15	30		
	<i>Aedes vexans</i>	2	3		
	<i>Anopheles bradleyi</i>	3	8		
	<i>Anopheles punctipennis</i>	2	3		
	<i>Anopheles quadrimaculatus</i>	9	69		
	<i>Coquillettidia perturbans</i>	11	265		
	<i>Culex erraticus</i>	1	2		
	<i>Culex pipiens</i>	135	1594		
	<i>Culex restuans</i>	209	2239		
	<i>Culex salinarius</i>	24	113		
	<i>Culex</i> spp.	15	38		
	<i>Culex territans</i>	3	40		
	<i>Culiseta melanura</i>	23	76		
	<i>Psorophora ferox</i>	1	1		
Cumberland		7	166		
	<i>Aedes albopictus</i>	1	1		
	<i>Aedes sollicitans</i>	1	53		
	<i>Culex salinarius</i>	3	107		
	<i>Culex</i> spp.	1	2		
	<i>Culiseta melanura</i>	1	3		
Gloucester		4	54		
	<i>Culiseta melanura</i>	4	54		
Hudson		17	834		
	<i>Culex</i> spp.	17	834		
Hunterdon		20	809		
	<i>Culex</i> spp.	20	809		
Mercer		49	1656		
	<i>Aedes albopictus</i>	1	2		
	<i>Culex restuans</i>	46	1642		

<i>Culex</i> spp.	2	12		
Middlesex	41	1701		
<i>Culex</i> spp.	28	1500		
<i>Culiseta melanura</i>	13	201		
Monmouth	101	1059	1	0.944
<i>Aedes albopictus</i>	40	117		
<i>Aedes canadensis canadensis</i>	11	251		
<i>Aedes cantator</i>	5	183		
<i>Aedes grossbecki</i>	1	1		
<i>Aedes japonicus</i>	7	14		
<i>Aedes triseriatus</i>	1	1		
<i>Aedes vexans</i>	2	17		
<i>Anopheles punctipennis</i>	4	9		
<i>Anopheles quadrimaculatus</i>	1	1		
<i>Coquillettidia perturbans</i>	1	1		
<i>Culex erraticus</i>	1	4		
<i>Culex</i> spp.	22	448	1	2.232
<i>Culiseta melanura</i>	5	12		
Morris	44	1587		
<i>Aedes albopictus</i>	1	2		
<i>Culex</i> spp.	43	1585		
Ocean	56	919		
<i>Aedes albopictus</i>	10	24		
<i>Aedes canadensis canadensis</i>	1	70		
<i>Aedes japonicus</i>	13	52		
<i>Aedes triseriatus</i>	1	4		
<i>Culex restuans</i>	1	2		
<i>Culex</i> spp.	21	743		
<i>Culiseta melanura</i>	9	24		
Passaic	60	1838		
<i>Aedes japonicus</i>	14	64		
<i>Aedes triseriatus</i>	1	1		
<i>Aedes vexans</i>	1	1		
<i>Culex</i> spp.	44	1772		
Salem	20	186		
<i>Aedes albopictus</i>	3	4		
<i>Aedes japonicus</i>	2	2		
<i>Aedes triseriatus</i>	2	3		
<i>Coquillettidia perturbans</i>	4	65		
<i>Culex</i> spp.	5	65		
<i>Culiseta melanura</i>	4	47		
Somerset	7	233		
<i>Culex</i> spp.	7	233		
Sussex	40	1866		
<i>Aedes japonicus</i>	2	112		
<i>Culex</i> spp.	38	1754		

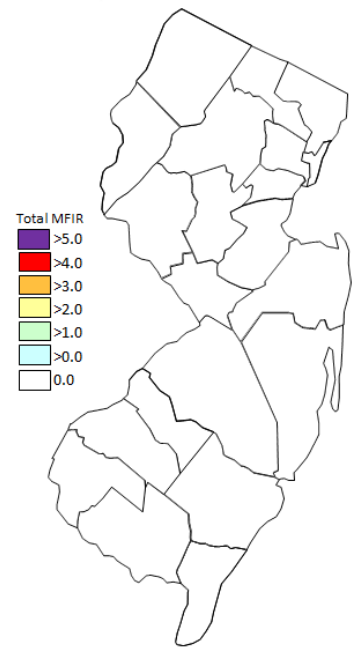
Warren	40	2665		
<i>Culex</i> spp.	40	2665		
Grand Total	1154	23366	1	0.043



Cumulative WNV activity in 2015.



WNV activity to 25 June 2016.



WNV activity last week, 2016.

Saint Louis Encephalitis (SLE) to 25 June 2016.

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.

Currently, there are no reported positive pools of SLE for 2016.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		22	1553		
	<i>Culex</i> spp.	22	1553		
Cape May		150	1632		
	<i>Culex pipiens</i>	135	1594		
	<i>Culex</i> spp.	15	38		
Grand Total		172	3185		

La Crosse Encephalitis (LAC) to 25 June 2016.

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).

Currently, there are no reported positive pools of LAC for 2016.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		9	119		
	<i>Aedes albopictus</i>	2	22		
	<i>Aedes atropalpus</i>	1	9		
	<i>Aedes japonicus</i>	3	80		
	<i>Aedes triseriatus</i>	3	8		
Grand Total		9	119		

Dengue (DENV) to 25 June 2016.

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 2016.

County	Species	DENV1		DENV2		DENV3		DENV4		Positives	MFIR
		Pool	Mos.	Pool	Mos.	Pool	Mos.	Pool	Mos.		
Cumberland		1	1	1	1	1	1	1	1		
	<i>Aedes albopictus</i>	1	1	1	1	1	1	1	1		
Middlesex		1	1	1	1	1	1	1	1		
	<i>Culiseta melanura</i>	1	1	1	1	1	1	1	1		
Monmouth		35	105	35	105	35	105	35	105		
	<i>Aedes albopictus</i>	35	105	35	105	35	105	35	105		
Morris		1	2	1	2	1	2	1	2		
	<i>Aedes albopictus</i>	1	2	1	2	1	2	1	2		
Salem		3	4	3	4	3	4	3	4		
	<i>Aedes albopictus</i>	3	4	3	4	3	4	3	4		
Grand Total		41	113	41	113	41	113	41	113		

Chikungunya (CHIK) to 25 June 2016.

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 2016.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		13	16		
	<i>Aedes albopictus</i>	13	16		
Cumberland		1	1		
	<i>Aedes albopictus</i>	1	1		
Middlesex		1	1		
	<i>Culiseta melanura</i>	1	1		
Monmouth		35	105		
	<i>Aedes albopictus</i>	35	105		
Morris		1	2		
	<i>Aedes albopictus</i>	1	2		
Salem		3	4		
	<i>Aedes albopictus</i>	3	4		
Grand Total		54	129		

Zika (ZIKV) to 25 June 2016.

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 2016.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		13	16		

	<i>Aedes albopictus</i>	13	16		
Monmouth		6	8		
	<i>Aedes albopictus</i>	6	8		
Grand Total		19	24		