VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 29: July 14 – July 20, 2013

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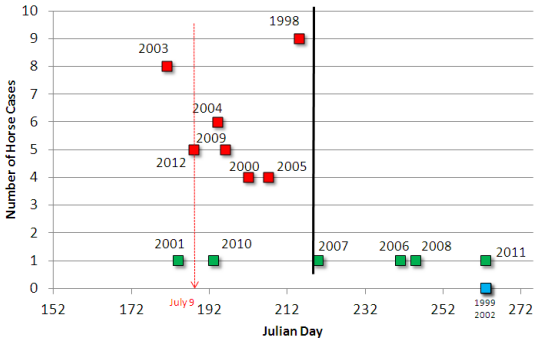
Culiseta melanura and Eastern Equine Encephalitis

SITE/Boxes	Inland / Coastal	Historic Population Mean	Current Weekly Mean	Total (Collected) Tested*	Total Pools (Submitted) Tested*	EEE Isolation Pools	MFIR
Bass River (Burlington Co.)/5	**Coastal**	0	0	11	5		
Green Bank (Burlington Co.)/25	**Coastal**	2.40	0.04	21 (22)	7 (8)		
Corbin City (Atlantic Co.)/25	**Coastal**	0.89	0.96	67 (91)	7 (8)		
Dennisville (Cape May Co.)/50	**Coastal**	3.85	0.04	32	5		
Winslow (Camden Co.)/50	**Inland**	1.18	4.20	576	17		
Centerton (Salem Co.)/50	**Inland**	2.13	2.48	410	12		
Turkey Swamp (Monmouth Co.)/44	**Inland**	1.18	0.98	157 (199)	8 (9)		
Glassboro (Gloucester Co.)/50	**Inland**	0.43	0.90	177	7		

*Current week (in parentheses) results pending.



Remarks: One positive EEE pools of *Cs. melanura* was detected in Cape May County, from a resting box apart from the traditional resting box sites. This pool was collected on 9 July. Graph to right shows pattern from past 15 years that often, when detection of first positive occurs prior to first week in August, multiple horse cases also occur.

For counties accessing the West Nile database: Results from samples recently tested at the Cape May labs will be entered soon (above table include samples currently not in the system).

To date 1451 *Cs. melanura* from 68 pools have been tested from the traditional resting box sites for an MFIR of 0 with an additional 3 pools of 67 mosquitoes to be tested. There has been no detection of EEE in samples collected at these sites.

Additional *Cs. melanura*: Ninety-four additional pools containing 2599 *Cs. melanura* have been tested from other sites using other traps in addition to resting boxes. One positive *Cs. melanura* pools from Cape May County have been detected. Note that MFIR value is a "rough estimate" as other data already completed may be pending for entry to the West Nile database and not reflected in the tables below.

Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD.**				
County	**Trap types***	**Number collected (pools)**	**Number of positives pools**	**MFIR**
Burlington	CO_2	2207 (38)		
Cape May	Gravid, RB	105 (17)	1	9.52*
Gloucester	RB	236 (20)		
Monmouth	CO_2	14 (2)		
Ocean	CO_2, RB	23 (14)		
Salem	CO_2	14 (3)		
TOTAL		**2599 (94)**	**1**	0.38*

Additional Species: The table below indicates non-*Cs. melanura* mosquitoes tested for EEE. Last year, *Culex erraticus*, a known enzootic vector and potential bridge vector, was found positive. Currently, no other species have been found positive.

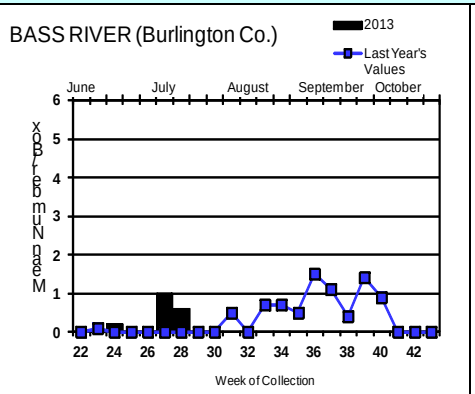
Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes atlanticus	1	44		
Aedes cantator	4	4		
Aedes sticticus	2	3		
Coquillettidia perturbans	1	71		
Culex erraticus	2	35		
Culex pipiens	62	660		
Culex restuans	2	2		
Culex salinarius	3	53		
Culex spp.	23	93		
State Total	**100**	**965**	**0**	**0.00**

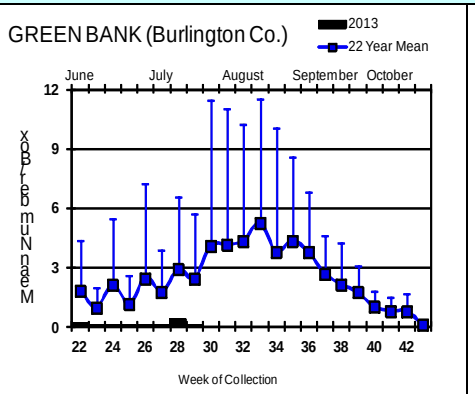
Horses and Humans: Currently there is no reported horse, other livestock or human cases.

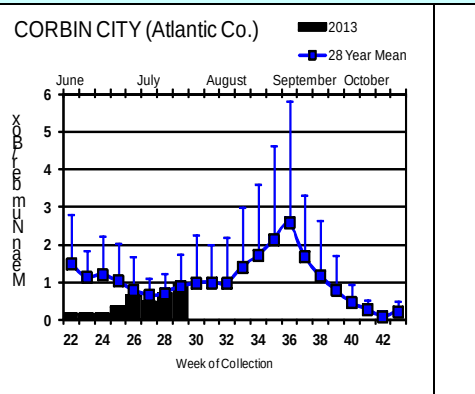
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

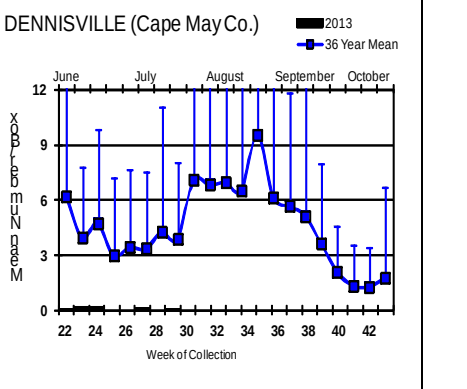
Culiseta melanura Population Graphs

Coastal

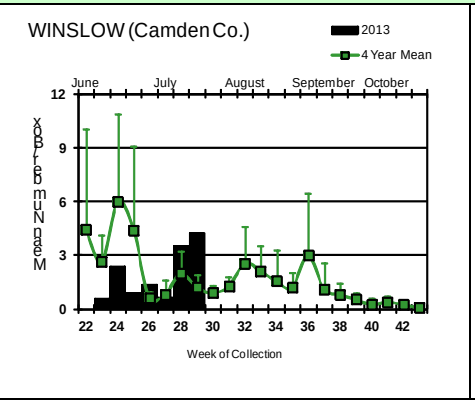


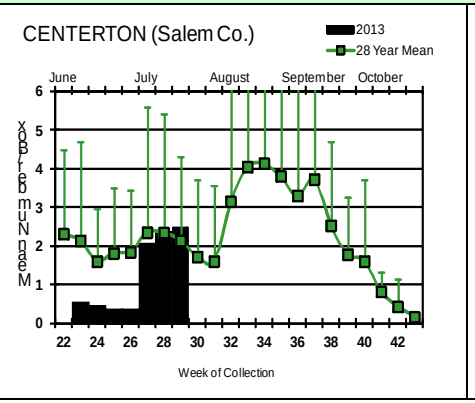


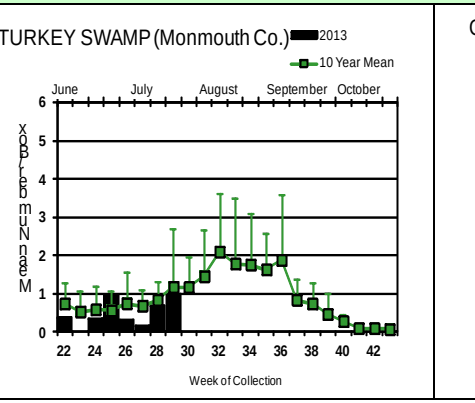


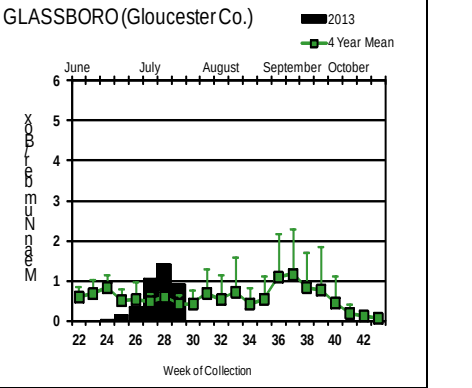


Inland









Cs. melanura numbers are variable throughout southern New Jersey. No *Cs. melanura* were collected at Bass River, and very few were found at Green Bank and Dennisville. Corbin City, Centerton and Turkey Swamp were well within historical values while Winslow and Glassboro populations were above historical trends.

Note axis change (from 12 to 6) on Bass River, Corbin City, Centerton, Turkey Swamp and Glassboro sites.

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

EEE in US (2013 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 3(AL) 4(GA) 16(FL) 1(SC)
- mosquito pools: 2(CT) 1(NJ)
- sentinel: 7(AL) 64/3 wild(FL)
- human: 2(FL)

West Nile Virus in US

West Nile in US (2013 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	1/98	0	0	3
Arkansas				0	0
California	155/228	396/555	12/27	0	1
Colorado		49/60			1
Connecticut		1/2			
Delaware					
DC		1			
Florida			49		
Georgia	0	0		0	0
Hawaii					
Idaho		6/20		1	
Illinois	1/2	39/87		0	0
Indiana	0	10		0	0
Iowa		0	1		2
Kansas		0			0
Kentucky					
Louisiana		6/16	9		
Maine		0		0	0
Maryland					
Mass.		1/10		0	0
Michigan	3			0	
Minnesota	1	1/2			
Mississippi		2/10		0	6/7
Missouri		0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana				0	0
Nebraska		4/11			1
Nevada		1/4			5
New Hampshire					
New Jersey	0	10/23		0	0
New Mexico					0
New York		5/7		0	0
North Carolina					
North Dakota	1	0		0	0
Ohio		1		1	
Oklahoma					
Oregon	1	11/32	0	0	0
Pennsylvania	1	4/30		0	0
Rhode Island					
South Carolina					
South Dakota	1	24			4
Tennessee	0	72/83		0	1
Texas		20/25		1	2
Utah		9/12	0	0	0
Vermont					
Virginia					
Washington	0	2		0	1
West Virginia		6/9			
Wisconsin	4/10	0		0	0
Wyoming		3			

* 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 22 July 2013

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	140	991		
Aedes atlanticus	3	47		
Aedes atropalpus	1	1		
Aedes canadensis canadensis	32	724		
Aedes cantator	15	92		
Aedes grossbecki	1	1		
Aedes japonicus	155	1088		
Aedes sticticus	3	5		
Aedes taeniorhynchus	2	4		
Aedes triseriatus	26	95		
Aedes trivittatus	5	57		
Aedes vexans	19	340		
Anopheles bradleyi	2	2		
Anopheles punctipennis	11	57		
Anopheles quadrimaculatus	9	82		
Coquillettidia perturbans	7	132		
Culex erraticus	5	45		
Culex pipiens	242	7300	1	0.137
Culex restuans	179	2124	1	0.471
Culex salinarius	4	58		
Culex spp.	1196	49561	21	0.424
Culex territans	1	1		
Culiseta melanura	147	3266		
Psorophora ciliata	1	1		
Psorophora columbiae	9	137		
Psorophora ferox	14	262		
Psorophora howardii	1	10		
State Total	**2230**	**66483**	**23**	**0.346**

Remarks: To date, 2230 pools of 66483 mosquitoes from 26 species have been tested. First positive was detected in a pool collected on 26 June in Middlesex County. All positive pools continue to be from *Culex* Mixed (*Culex pipiens, Cx. restuans, Cx. salinarius*). Currently, positive pools are from 9 counties (Bergen, Camden, Cape May, Hunterdon, Mercer, Middlesex, Monmouth, Somerset, Sussex). As with the EEE data, these tables may be incomplete as there could be data to be entered into the West Nile database and totals and MFIRs could be revised.

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

Last year the first horse was detected in mid July. No horse or other livestock have been reported positive in 2013 to date.

Bird testing began in mid-April. No positive birds have been reported. To date, 53 birds have been tested, all negative. Testing includes: American Crow (*Corvus brachyrhynchos* 0/3), Fish Crow (*C. ossifragus* 0/7), unidentified Crow (*Corvus* spp. 0/1), Blue Jay (*Cyanocitta cristata* 0/4), Hawk/Raptor (0/5) and other avian species (0/33). Counties submitting birds are Bergen, Burlington, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Monmouth, Morris, Ocean, Sussex, Union and Warren.

2013 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
23 / 2230 (0.010)	249 / 3410 (0.073)
2013 Positive Birds to date / Total Birds Submitted	This time last year
0 / 53 (0.0)	17 / 86 (0.198)

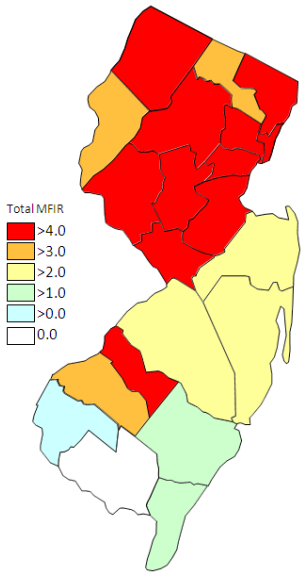
WNV Results by County through 22 July 2013

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**61**	**1192**		
	Aedes albopictus	4	22		
	Aedes canadensis canadensis	3	73		
	Aedes cantator	2	34		
	Aedes grossbecki	1	1		
	Aedes japonicus	3	12		
	Aedes sticticus	2	3		
	Aedes taeniorhynchus	1	3		
	Aedes triseriatus	2	8		
	Aedes vexans	4	117		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	1	11		
	Coquillettidia perturbans	3	25		
	Culex spp.	19	651		
	Culiseta melanura	10	99		
	Psorophora ciliata	1	1		
	Psorophora columbiae	1	1		
	Psorophora ferox	2	120		
	Psorophora howardii	1	10		
Bergen		**60**	**3666**	**4**	**1.091**
	Aedes japonicus	2	16		
	Culex spp.	58	3650	4	1.096
Burlington		**101**	**4217**		
	Aedes atlanticus	1	44		
	Aedes japonicus	3	21		
	Coquillettidia perturbans	1	71		
	Culex pipiens	2	15		
	Culex restuans	1	1		
	Culex salinarius	1	51		
	Culex spp.	43	1775		
	Culiseta melanura	49	2239		
Camden		**86**	**3318**	**5**	**1.507**
	Aedes albopictus	9	16		
	Aedes japonicus	5	27		
	Culex spp.	67	3093	5	1.617
	Culiseta melanura	5	182		
Cape May		**399**	**3320**	**1**	**0.301**
	Aedes albopictus	16	27		
	Aedes atropalpus	1	1		
	Aedes canadensis canadensis	1	1		

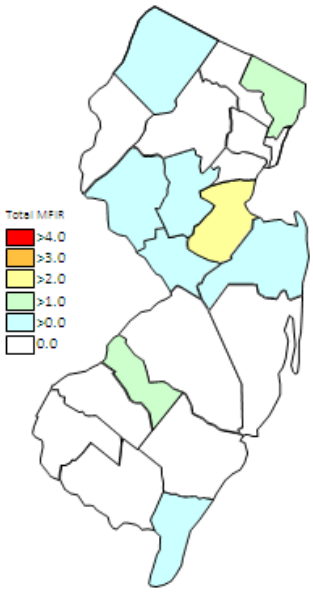
	Aedes cantator	5	5		
	Aedes japonicus	35	65		
	Aedes triseriatus	5	5		
	Aedes vexans	1	1		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	6	75		
	Culex erraticus	3	38		
	Culex pipiens	114	1249	1	0.801
	Culex restuans	164	1650		
	Culex salinarius	2	2		
	Culex spp.	24	81		
	Culex territans	1	1		
	Culiseta melanura	20	128		
Essex		**65**	**1258**		
	Aedes albopictus	15	36		
	Aedes japonicus	20	233		
	Culex spp.	30	989		
Gloucester		**165**	**6623**		
	Aedes albopictus	11	302		
	Aedes japonicus	12	173		
	Aedes triseriatus	1	30		
	Aedes vexans	2	87		
	Anopheles punctipennis	2	32		
	Coquillettidia perturbans	1	29		
	Culex pipiens	108	5634		
	Culiseta melanura	26	275		
	Psorophora ferox	2	61		
Hudson		**53**	**1604**		
	Culex spp.	53	1604		
Hunterdon		**120**	**5502**	**1**	**0.182**
	Culex spp.	120	5502	1	0.182
Mercer		**60**	**1416**	**1**	**0.706**
	Aedes albopictus	20	188		
	Aedes japonicus	3	15		
	Aedes triseriatus	1	2		
	Aedes vexans	3	103		
	Culex pipiens	16	400		
	Culex restuans	11	470		
	Culex salinarius	1	5		
	Culex spp.	5	233		
Middlesex		**94**	**3745**	**8**	**2.136**
	Aedes albopictus	2	12		
	Aedes japonicus	4	20		
	Culex spp.	88	3713	8	2.155
Monmouth		**150**	**1832**	**1**	**0.546**
	Aedes albopictus	19	99		
	Aedes atlanticus	2	3		
	Aedes canadensis canadensis	15	245		

	Aedes cantator	6	20		
	Aedes japonicus	17	73		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	7	28		
	Aedes trivittatus	4	7		
	Aedes vexans	4	13		
	Anopheles punctipennis	3	8		
	Coquillettidia perturbans	1	5		
	Culex erraticus	1	6		
	Culex restuans	2	2		
	Culex spp.	44	1001	1	0.999
	Culiseta melanura	16	211		
	Psorophora columbiae	2	66		
	Psorophora ferox	6	44		
Morris		**147**	**6503**		
	Culex spp.	147	6503		
Ocean		**129**	**1732**		
	Aedes albopictus	29	208		
	Aedes canadensis canadensis	12	392		
	Aedes cantator	2	33		
	Aedes japonicus	18	67		
	Aedes triseriatus	1	2		
	Aedes vexans	3	3		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	1	2		
	Culex spp.	47	999		
	Culiseta melanura	14	23		
Passaic		**76**	**2847**		
	Aedes albopictus	3	16		
	Aedes japonicus	8	115		
	Aedes triseriatus	3	5		
	Aedes trivittatus	1	50		
	Anopheles punctipennis	1	1		
	Culex spp.	59	2659		
	Psorophora ferox	1	1		
Salem		**69**	**630**		
	Aedes albopictus	11	58		
	Aedes japonicus	10	46		
	Aedes sticticus	1	2		
	Aedes triseriatus	6	15		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	3	7		
	Culex erraticus	1	1		
	Culex pipiens	2	2		
	Culex restuans	1	1		
	Culex spp.	17	311		
	Culiseta melanura	6	79		
	Psorophora columbiae	6	70		
	Psorophora ferox	3	36		

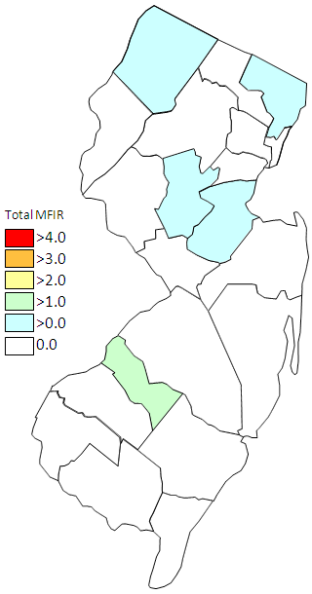
Somerset		**115**	**3535**	**1**	**0.283**
	Aedes japonicus	12	120		
	Aedes vexans	2	16		
	Culex spp.	101	3399	1	0.294
Sussex		**93**	**3851**	**1**	**0.260**
	Aedes japonicus	2	64		
	Culex spp.	90	3757	1	0.266
	Culiseta melanura	1	30		
Union		**63**	**3312**		
	Aedes albopictus	1	7		
	Aedes japonicus	1	21		
	Culex spp.	61	3284		
Warren		**124**	**6370**		
	Aedes canadensis canadensis	1	13		
	Culex spp.	123	6357		
Grand Total		**2230**	**66483**	**23**	**0.346**



Cumulative WNV activity in 2012.



WNV activity to 15 July 2013.



WNV activity last week, 2013.

Saint Louis Encephalitis (SLE) to 22 July 2013.

New Jersey will be selectively testing for SLE this year. 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 have been detected positive for SLE in 2013.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**8**	**200**		

	Aedes japonicus	1	8		
	Culex pipiens	7	192		
Cape May		**58**	**642**		
	Culex pipiens	58	642		
Grand Total		**66**	**842**		

La Crosse Encephalitis (LAC) through 22 July 2013.

New Jersey will be selectively testing for La Crosse (LAC) virus this year. 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 have been detected positive for LAC in 2013.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**2**	**2**		
	Aedes triseriatus	2	2		
Salem		**5**	**14**		
	Aedes triseriatus	5	14		
Grand Total		**7**	**16**		