VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 33: August 11 – August 17, 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**	0.70	0.80	28 (32)	7 (8)		
Green Bank (Burlington Co.)/17	**Coastal**	5.42	4.11	150 (220)	11 (13)		
Corbin City (Atlantic Co.)/25	**Coastal**	1.42	1.32	145 (178)	11 (12)		
Dennisville (Cape May Co.)/50	**Coastal**	6.49	1.12	203	11		
Winslow (Camden Co.)/20	**Inland**	2.10	0.65	1204	29		
Centerton (Salem Co.)/50	**Inland**	4.03	1.30	703	21		
Turkey Swamp (Monmouth Co.)/44	**Inland**	1.78	4.86	333 (547)	13 (18)		
Glassboro (Gloucester Co.)/50	**Inland**	0.72	0.56	275	12		

*Current week (in parentheses) results pending.

Remarks: One additional pool of *Cs. melanura* was positive for EEE, collected in Cape May County at a site not part of the traditional resting box sites. To date, 6 positive EEE pools (*Cs. melanura* and *Cx. salinarius*) have been collected in New Jersey, all from Cape May County. One presumptive horse case in Cape May County has been reported. *Cs. melanura* populations on the eastern side of the state have risen in several areas (see population graphs page 3).

Traditional Resting Box Sites: To date 3041 *Cs. melanura* from 115 pools have been tested from the traditional resting box sites with an additional 9 pools of 321 mosquitoes to be tested. There has been no detection of EEE in samples collected at these sites.

Additional *Cs. melanura*: One hundred seventy-four additional pools containing 4487 *Cs. melanura* have been tested from other sites using other traps in addition to resting boxes. A total of 4 positive *Cs. melanura* pools from Cape May County have been detected to date. 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	3377 (58)		
Cape May	Gravid, RB	541 (45)	5	9.24*
Gloucester	RB	431 (38)		
Monmouth	CO_2	14 (2)		
Ocean	CO_2, RB	92 (25)		
Salem	CO_2	32 (6)		
TOTAL		**4487 (174)**	**5**	1.11*

Additional Species: The table below indicates non-*Cs. melanura* mosquitoes tested for EEE. First positive in a non-*Cs. melanura* species was a pool of *Cx. salinarius* collected 3 August in Cape May County.

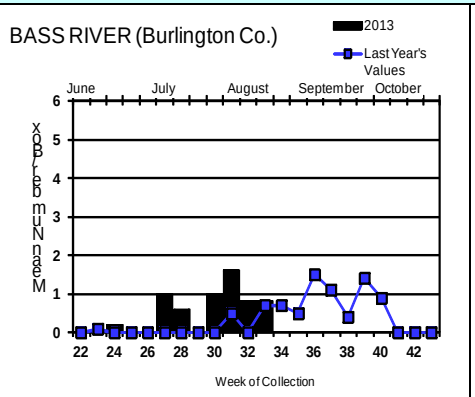
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes atlanticus	1	44		
Aedes cantator	8	8		
Aedes sollicitans	1	10		
Aedes sticticus	2	3		
Aedes triseriatus	1	17		
Anopheles bradleyi	1	1		
Anopheles punctipennis	2	50		
Coquillettidia perturbans	5	104		
Culex erraticus	22	837		
Culex pipiens	145	1756		
Culex restuans	2	2		
Culex salinarius	21	205	1	4.88
Culex spp.	46	272		
State Total	**258**	**3310**	**1**	**0.30**

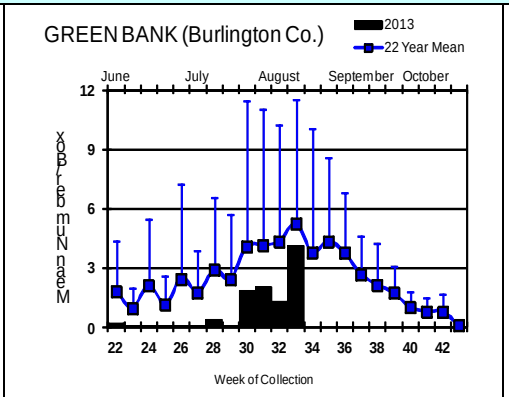
Horses and Humans: Currently there are no reported human cases. One presumptive horse case is reported in Cape May County. This horse had a date of onset 2 August and was euthanized the following day. Vaccination history is unknown.

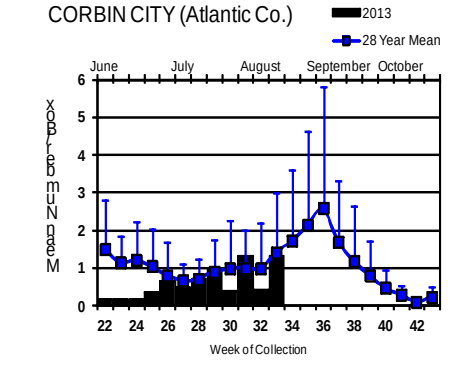
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

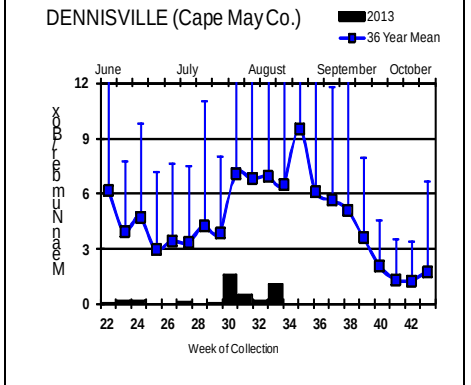
Culiseta melanura Population Graphs

Coastal

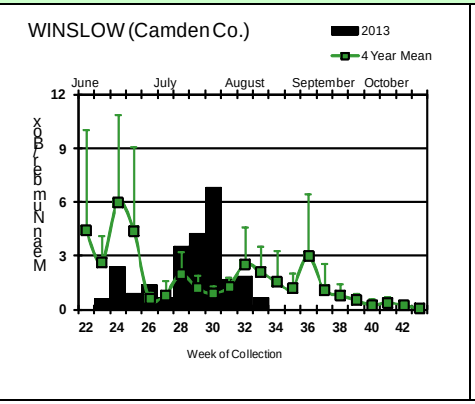


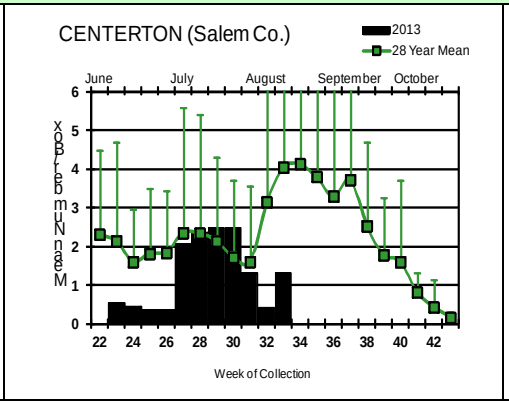


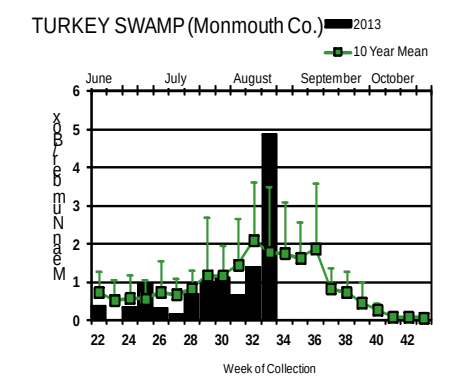


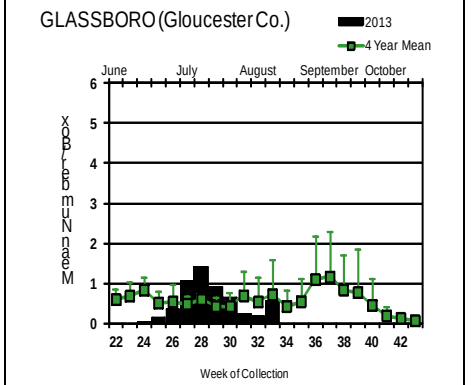


Inland









Cs. melanura numbers in several eastern populations in New Jersey rose from the previous week (Green Bank, Corbin City, Dennisville and most notably, Turkey Swamp). As the second generation of *Cs. melanura* continues to emerge, amplification of EEE should continue. Transmission to a horse has occurred, yet another indication of the need for caution when in areas of *Cs. melanura* habitat.

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: 4(AL) 1(AR) 25(FL) 10(GA) 2(LA) 2(MA) 1(MD) 1(MI) 2(MS) 7(NC) 1(NJ) 1(TX) 1(SC)
- mosquito pools: 2(CT) 1(GA) 7(MA) 1(ME) 5(NJ) 10(NY) 7(VA) 5(VT)
- sentinel: 3(AL) 96/4 wild(FL) 1(GA) 1(NC) 12(VA)
- human: 2(FL) 1(GA)

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					1
Alaska					
Arizona	0	103/148	0	1	5/8
Arkansas				0	1
California	581/705	1171/1349	160/174	5/8	18/37
Colorado		266/271		1	2/24
Connecticut		21/29			
Delaware			1/6		
DC		5			
Florida			55/61	1	
Georgia	0	28		0	1/2
Hawaii					
Idaho		47/51		2	2/5
Illinois	18/30	511/741		0	0
Indiana	0	101/136		1	1
Iowa		1/4	3	2	3
Kansas		0			1
Kentucky					
Louisiana		63/97	31/38	3/4	8/9
Maine		0		0	0
Maryland		1/2			
Mass.		80/122		0	0
Michigan	8/11	1		0	1
Minnesota	1	9/25		1	16/18
Mississippi		33/34		0	12/15
Missouri		0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana	1	1/6		0	0
Nebraska		45/69			4/11
Nevada		14/22			6/7
New Hampshire		3			
New Jersey	8/13	119/257		0	1
New Mexico					1/3
New York		187/244		1	2
North Carolina					
North Dakota	4	13		0	8/16
Ohio		1/21		1	
Oklahoma					1
Oregon	1	47	0	0	1
Pennsylvania	3/6	444/584		0	2
Rhode Island		1			
South Carolina					
South Dakota	1/4	172/192		2	21/35
Tennessee	0	239/321		0	1
Texas	1	108/155		1	6/9
Utah		25	0	0	0
Vermont		7/9			
Virginia		5	2		
Washington	0	6/7		0	1
West Virginia		12/16			
Wisconsin	31/45	2		0	1/2
Wyoming		25/39		1	2/5

* 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 17 August 2013

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	337	3016	1	0.332
Aedes atlanticus	3	47		
Aedes atropalpus	2	2		
Aedes canadensis canadensis	34	733		
Aedes cantator	20	98		
Aedes grossbecki	1	1		
Aedes japonicus	253	1672	1	0.598
Aedes sollicitans	4	33		
Aedes sticticus	3	5		
Aedes taeniorhynchus	5	25		
Aedes triseriatus	55	157		
Aedes trivittatus	6	58		
Aedes vexans	34	509		
Anopheles bradleyi	7	17		
Anopheles punctipennis	19	128	1	7.813
Anopheles quadrimaculatus	37	539		
Coquillettidia perturbans	13	185		
Culex erraticus	26	850		
Culex pipiens	419	12563	28	2.229
Culex restuans	320	4324	13	3.006
Culex salinarius	24	222		
Culex spp.	2056	91106	210	2.305
Culex territans	5	6		
Culiseta melanura	303	7497	3	0.400
Orthopodomyia signifera	2	2		
Psorophora ciliata	2	3		
Psorophora columbiae	15	153		
Psorophora ferox	20	320		
Psorophora howardii	1	10		
State Total	**4026**	**124281**	**257**	**2.058**

Remarks: To date, 4026 pools of 124281 mosquitoes from 28 species have been tested, with 257 positive pools detected. First positive was detected in a pool collected on 26 June in Middlesex County. Positive pools continue to be detected primarily in the enzootic vectors Potential bridge vectors are also being detected, with positive pools in *Aedes albopictus, Aedes japonicus* and *Anopheles punctipennis*.

Humans, Horses and Wild Birds: One human case from Burlington County has been reported by the Department of Health, with onset date of 5 August. 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. Thirteen positive birds have been reported, mostly corvids. To date, 86 birds have been tested. Testing includes: American Crow (*Corvus brachyrhynchos* 0/4), Fish Crow (*C. ossifragus* 4/15), unidentified Crow (*Corvus* spp. 2/4), Blue Jay (*Cyanocitta cristata* 5/9), Hawk/Raptor (0/8) and other avian species (2/46). Counties (positives) submitting birds are Bergen, Burlington, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Salem, Sussex, Union and Warren.

2013 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
257 / 4026 (0.064)	653 / 4700 (0.139)
2013 Positive Birds to date / Total Birds Submitted	This time last year
13 / 86 (0.151)	48 / 151 (0.318)

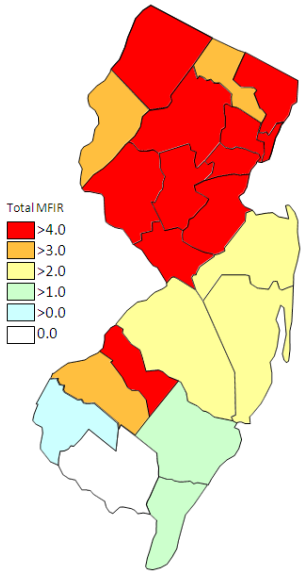
WNV Results by County through 17 August 2013

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**105**	**2017**	**1**	**0.496**
	Aedes albopictus	8	87		
	Aedes canadensis canadensis	4	81		
	Aedes cantator	3	36		
	Aedes grossbecki	1	1		
	Aedes japonicus	5	17		
	Aedes sollicitans	1	21		
	Aedes sticticus	2	3		
	Aedes taeniorhynchus	4	24		
	Aedes triseriatus	3	9		
	Aedes vexans	8	181		
	Anopheles bradleyi	3	7		
	Anopheles punctipennis	1	11		
	Anopheles quadrimaculatus	2	6		
	Coquillettidia perturbans	4	28		
	Culex erraticus	1	59		
	Culex spp.	30	1102	1	0.907
	Culiseta melanura	17	186		
	Psorophora ciliata	1	1		
	Psorophora columbiae	2	2		
	Psorophora ferox	4	145		
	Psorophora howardii	1	10		
Bergen		**120**	**8107**	**38**	**4.687**
	Aedes japonicus	3	32		
	Culex spp.	117	8075	38	4.706
Burlington		**149**	**6341**	**12**	**1.892**
	Aedes albopictus	3	62		
	Aedes atlanticus	1	44		
	Aedes japonicus	4	42		
	Aedes triseriatus	1	17		
	Coquillettidia perturbans	1	71		
	Culex pipiens	2	15		
	Culex restuans	1	1		
	Culex salinarius	1	51		
	Culex spp.	59	2483	10	4.027
	Culiseta melanura	76	3555	2	0.563
Camden		**180**	**6182**	**19**	**3.073**
	Aedes albopictus	22	127		
	Aedes japonicus	20	80		
	Culex spp.	109	4771	19	3.982
	Culiseta melanura	29	1204		

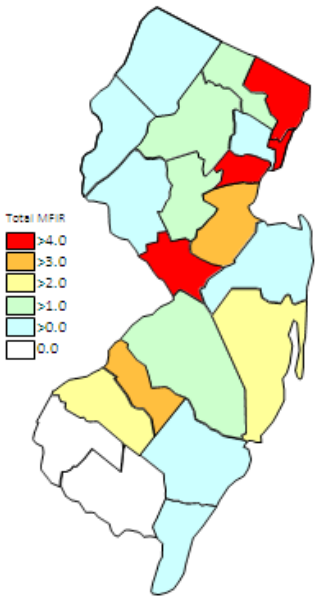
Cape May		**789**	**7310**	**6**	**0.821**
	Aedes albopictus	51	98		
	Aedes atropalpus	2	2		
	Aedes canadensis canadensis	1	1		
	Aedes cantator	9	9		
	Aedes japonicus	56	114		
	Aedes sollicitans	1	10		
	Aedes triseriatus	14	16		
	Aedes vexans	2	2		
	Anopheles bradleyi	2	2		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	23	501		
	Culex erraticus	21	706		
	Culex pipiens	214	2574	5	1.943
	Culex restuans	269	2385		
	Culex salinarius	19	153		
	Culex spp.	44	156		
	Culex territans	5	6		
	Culiseta melanura	52	570	1	1.754
	Orthopodomyia signifera	2	2		
	Psorophora ferox	1	2		
Essex		**125**	**2071**	**2**	**0.966**
	Aedes albopictus	44	209		
	Aedes japonicus	36	382		
	Culex spp.	45	1480	2	1.351
Gloucester		**275**	**11260**	**23**	**2.043**
	Aedes albopictus	13	452		
	Aedes japonicus	12	173		
	Aedes triseriatus	1	30		
	Aedes vexans	3	107		
	Anopheles punctipennis	5	89	1	11.236
	Coquillettidia perturbans	2	46		
	Culex pipiens	182	9539	22	2.306
	Culiseta melanura	54	736		
	Psorophora ferox	3	88		
Hudson		**112**	**5569**	**28**	**5.028**
	Culex spp.	112	5569	28	5.028
Hunterdon		**200**	**9462**	**6**	**0.634**
	Culex spp.	200	9462	6	0.634
Mercer		**140**	**3552**	**16**	**4.505**
	Aedes albopictus	36	308		
	Aedes japonicus	11	48	1	20.833
	Aedes triseriatus	2	4		
	Aedes vexans	5	124		
	Culex erraticus	1	3		
	Culex pipiens	19	433	1	2.309
	Culex restuans	47	1935	13	6.718
	Culex salinarius	1	5		
	Culex spp.	18	692	1	1.445

Middlesex		**171**	**6345**	**21**	**3.310**
	Aedes albopictus	10	152		
	Aedes japonicus	4	20		
	Culex spp.	157	6173	21	3.402
Monmouth		**213**	**2772**	**2**	**0.722**
	Aedes albopictus	42	623		
	Aedes atlanticus	2	3		
	Aedes canadensis canadensis	15	245		
	Aedes cantator	6	20		
	Aedes japonicus	22	90		
	Aedes sollicitans	1	1		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	12	35		
	Aedes trivittatus	5	8		
	Aedes vexans	5	14		
	Anopheles punctipennis	7	18		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	1	5		
	Culex erraticus	1	6		
	Culex restuans	2	2		
	Culex spp.	59	1199	2	1.668
	Culiseta melanura	22	389		
	Psorophora columbiae	3	68		
	Psorophora ferox	6	44		
Morris		**235**	**10579**	**11**	**1.040**
	Culex spp.	235	10579	11	1.040
Ocean		**219**	**3087**	**9**	**2.915**
	Aedes albopictus	56	529	1	1.890
	Aedes canadensis canadensis	13	393		
	Aedes cantator	2	33		
	Aedes japonicus	27	95		
	Aedes triseriatus	3	6		
	Aedes vexans	8	15		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	3	4		
	Culex salinarius	3	13		
	Culex spp.	77	1904	8	4.202
	Culiseta melanura	25	92		
Passaic		**129**	**4535**	**5**	**1.103**
	Aedes albopictus	10	41		
	Aedes japonicus	14	157		
	Aedes triseriatus	6	11		
	Aedes trivittatus	1	50		
	Aedes vexans	1	50		
	Anopheles punctipennis	1	1		
	Culex spp.	94	4223	5	1.184
	Psorophora ferox	2	2		
Salem		**154**	**2821**		
	Aedes albopictus	18	77		

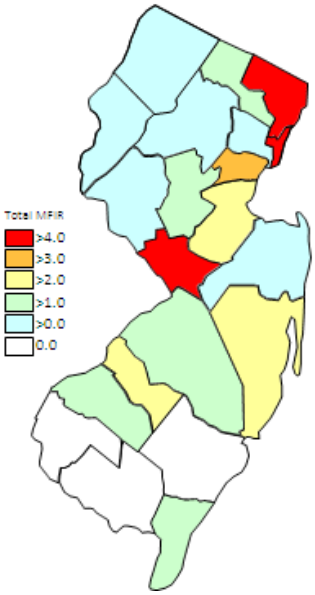
	Aedes japonicus	14	64		
	Aedes sollicitans	1	1		
	Aedes sticticus	1	2		
	Aedes triseriatus	10	19		
	Anopheles bradleyi	2	8		
	Anopheles punctipennis	2	5		
	Anopheles quadrimaculatus	11	31		
	Coquillettidia perturbans	2	31		
	Culex erraticus	2	76		
	Culex pipiens	2	2		
	Culex restuans	1	1		
	Culex spp.	46	1645		
	Culiseta melanura	27	735		
	Psorophora ciliata	1	2		
	Psorophora columbiae	10	83		
	Psorophora ferox	4	39		
Somerset		**189**	**5037**	**9**	**1.787**
	Aedes albopictus	14	100		
	Aedes japonicus	16	161		
	Aedes triseriatus	3	10		
	Aedes vexans	2	16		
	Culex spp.	154	4750	9	1.895
Sussex		**175**	**8385**	**6**	**0.716**
	Aedes japonicus	3	90		
	Culex spp.	171	8265	6	0.726
	Culiseta melanura	1	30		
Union		**149**	**8403**	**35**	**4.165**
	Aedes albopictus	10	151		
	Aedes japonicus	6	107		
	Culex spp.	133	8145	35	4.297
Warren		**197**	**10446**	**8**	**0.766**
	Aedes canadensis canadensis	1	13		
	Culex spp.	196	10433	8	0.767
Grand Total		**4026**	**124281**	**257**	**2.068**



Cumulative WNV activity in 2012.



WNV activity to 17 August 2013.



WNV activity last week, 2013.

Saint Louis Encephalitis (SLE) to 17 August 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		**24**	**886**		
	Aedes albopictus	3	62		
	Aedes japonicus	1	8		
	Culex pipiens	20	816		
Cape May		**141**	**1738**		
	Culex pipiens	141	1738		
Grand Total		**165**	**2624**		

La Crosse Encephalitis (LAC) through 17 August 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
Burlington		**1**	**17**		
	Aedes triseriatus	1	17		
Cape May		**10**	**12**		
	Aedes triseriatus	10	12		
Salem		**8**	**17**		
	Aedes triseriatus	8	17		
Grand Total		**19**	**46**		