VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 32: August 4 – August 10, 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**	0.00	0.80	24 (28)	6 (7)		
Green Bank (Burlington Co.)/25	**Coastal**	4.32	1.28	118 (150)	10 (11)		
Corbin City (Atlantic Co.)/25	**Coastal**	0.98	0.44	134 (145)	10 (11)		
Dennisville (Cape May Co.)/50	**Coastal**	6.94	0.20	147	9		
Winslow (Camden Co.)/50	**Inland**	2.53	1.84	1191	28		
Centerton (Salem Co.)/50	**Inland**	3.13	0.42	637	19		
Turkey Swamp (Monmouth Co.)/43	**Inland**	2.09	1.40	273 (333)	11 (13)		
Glassboro (Gloucester Co.)/50	**Inland**	0.72	0.18	247	11		

*Current week (in parentheses) results pending.

Remarks: Two additional pools positive for EEE have been detected in the past week. Both pools were from Cape May collected on 3 August, and both were not from the traditional resting box sites. One pool was of *Cs. melanura*, the second pool was *Culex salinarius*. To date, 5 positive EEE pools have been collected in New Jersey, all from Cape May County.

Traditional Resting Box Sites: To date 2771 *Cs. melanura* from 104 pools have been tested from the traditional resting box sites with an additional 5 pools of 107 mosquitoes to be tested. There has been no detection of EEE in samples collected at these sites.

Additional *Cs. melanura*: One hundred fifty-five additional pools containing 3953 *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. 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	2145 (53)		
Cape May	Gravid, RB	383 (41)	4	10.44*
Gloucester	RB	335 (33)		
Monmouth	CO_2	14 (2)		
Ocean	CO_2, RB	44 (20)		
Salem	CO_2	32 (6)		
TOTAL		**3953 (155)**	**4**	1.01*

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

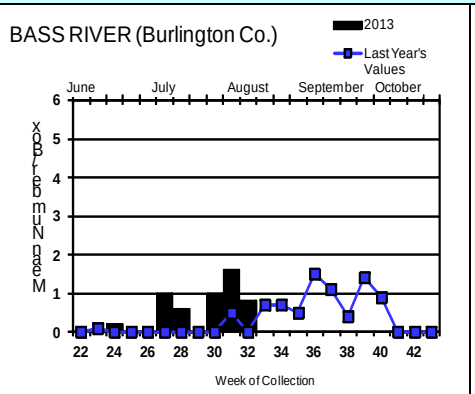
Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes atlanticus	1	44		
Aedes cantator	8	8		
Aedes sollicitans	1	10		
Aedes sticticus	2	3		
Aedes triseriatus	1	17		
Anopheles bradleyi	1	1		
Anopheles punctipennis	2	50		
Coquillettidia perturbans	4	103		
Culex erraticus	15	466		
Culex pipiens	128	1278		
Culex restuans	2	2		
Culex salinarius	18	200	1	5.00
Culex spp.	43	209		
State Total	**157**	**1723**	**1**	**0.58**

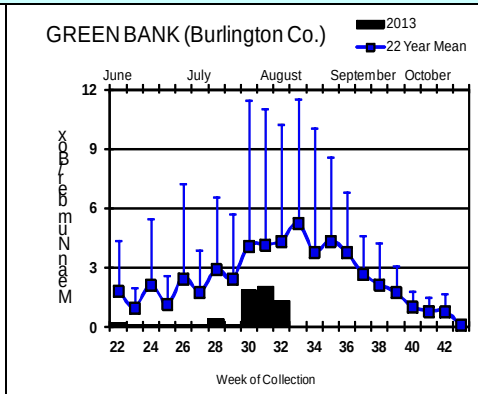
Horses and Humans: Currently there is no reported horse, other livestock or human cases.

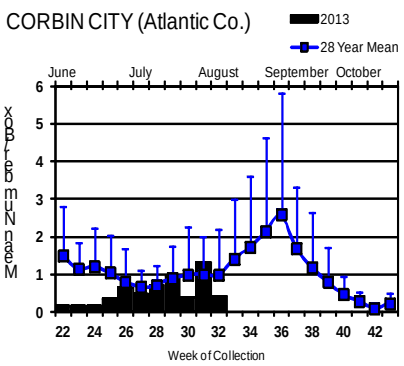
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

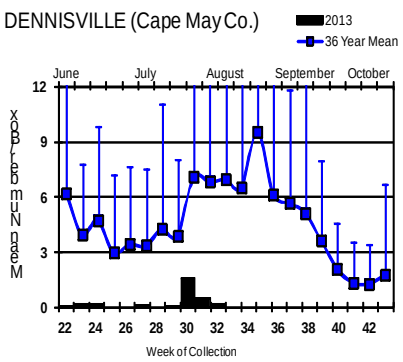
Culiseta melanura Population Graphs

Coastal

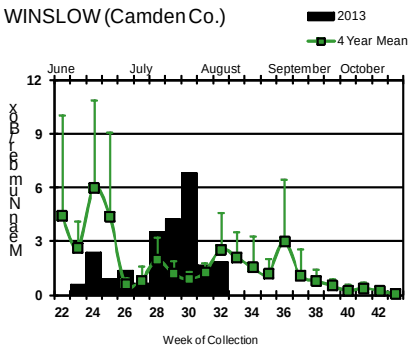


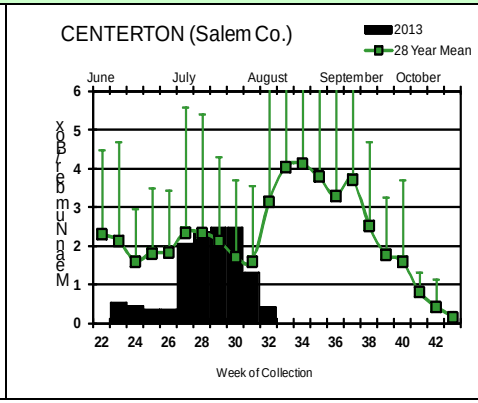


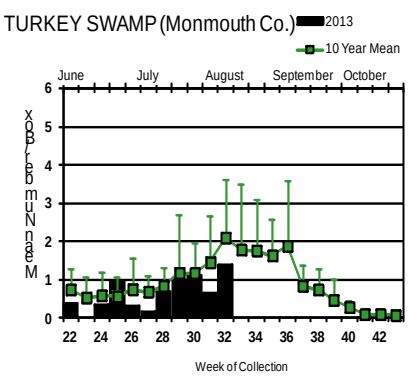


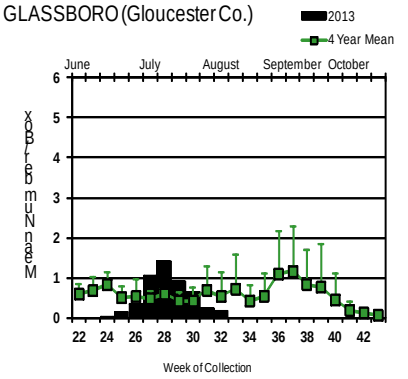


Inland









Cs. melanura numbers decreased at all traditional resting box sites, with the exception of Turkey Swamp. Light trap data showed similar decrease after significant populations in several areas that were well above historical values.

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(MS) 7(NC) 1(TX) 1(SC)
- mosquito pools: 2(CT) 1(GA) 3(MA) 1(ME) 5(NJ) 1(VT)
- sentinel: 3(AL) 86/3 wild(FL) 1(GA) 1(NC)
- 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	103/166	0	0	3/5
Arkansas				0	0
California	452/581	1007/1171	96/160	3/5	14/18
Colorado		95/266		1	1/2
Connecticut		8/21			
Delaware			1		
DC		1/5			
Florida			52/55	1	
Georgia	0	15/28		0	1
Hawaii					
Idaho		38/47		2	2
Illinois	12/18	311/511		0	0
Indiana	0	39/101		0	1
Iowa		1	1/3		2/3
Kansas		0			0
Kentucky					
Louisiana		47/63	24/31	1/3	1/8
Maine		0		0	0
Maryland		1			
Mass.		43/80		0	0
Michigan	3/8	1		0	1
Minnesota	1	5/9			3/16
Mississippi		30/33		0	8/12
Missouri		0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana		1		0	0
Nebraska		26/45			4
Nevada		4/14			6
New Hampshire		2/3			
New Jersey	5/8	57/119		0	0
New Mexico					1
New York		62/187		1	2
North Carolina					
North Dakota	3/4	6/13		0	1/8
Ohio		1/21		1	
Oklahoma					
Oregon	1	47	0	0	0
Pennsylvania	2/3	276/444		0	0
Rhode Island		1			
South Carolina					
South Dakota	1	139/172		1/2	12/21
Tennessee	0	161/239		0	1
Texas		75/108		1	4/6
Utah		24/25	0	0	0
Vermont		1/7			
Virginia					
Washington	0	3/6		0	1
West Virginia		12			
Wisconsin	20/31	1/2		0	1
Wyoming		6/25			2

* 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 10 August 2013

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	288	2431	1	0.41135
Aedes atlanticus	3	47		0
Aedes atropalpus	2	2		0
Aedes canadensis canadensis	33	725		0
Aedes cantator	20	98		0
Aedes grossbecki	1	1		0
Aedes japonicus	232	1573	1	0.63573
Aedes sollicitans	3	12		0
Aedes sticticus	3	5		0
Aedes taeniorhynchus	4	20		0
Aedes triseriatus	50	148		0
Aedes trivittatus	6	58		0
Aedes vexans	31	469		0
Anopheles bradleyi	6	16		0
Anopheles punctipennis	17	120		0
Anopheles quadrimaculatus	31	335		0
Coquillettidia perturbans	10	164		0
Culex erraticus	18	476		0
Culex pipiens	378	11469	25	2.17979
Culex restuans	294	3928	12	3.05499
Culex salinarius	21	217		0
Culex spp.	1854	81991	151	1.84167
Culex territans	5	6		0
Culiseta melanura	270	6670	2	0.29985
Orthopodomyia signifera	2	2		0
Psorophora ciliata	2	3		0
Psorophora columbiae	13	151		0
Psorophora ferox	19	298		0
Psorophora howardii	1	10		0
State Total	**3617**	**111445**	**192**	**1.723**

Remarks: To date, 3617 pools of 111445 mosquitoes from 28 species have been tested, with 192 positive pools detected. First positive was detected in a pool collected on 26 June in Middlesex County. Positive pools continue to be detected in the enzootic vectors, but potential bridge vectors are also being detected. Both *Aedes albopictus* and *Ae. japonicus* are found positive nearly every year in New Jersey.

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. Eight positive birds have been reported, mostly corvids. To date, 76 birds have been tested. Testing includes: American Crow (*Corvus brachyrhynchos* 0/3), Fish Crow (*C. ossifragus* 3/14), unidentified Crow (*Corvus* spp. 1/2), Blue Jay (*Cyanocitta cristata* 3/7), Hawk/Raptor (0/9) and other avian species (1/42). Counties submitting birds are Bergen, Burlington, Cape May, Cumberland, Essex, Gloucester, Hunterdon, Mercer, Monmouth, Morris, Ocean, Salem, Sussex, Union and Warren.

2013 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
192 / 3617 (0.036)	570 / 4395 (0.117)
2013 Positive Birds to date / Total Birds Submitted	This time last year
8 / 76 (0.071)	45 / 141 (0.302)

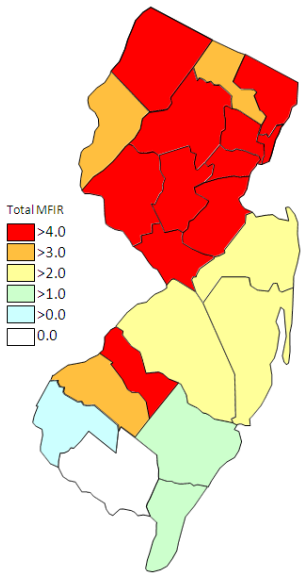
WNV Results by County through 10 August 2013

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**91**	**1824**		
	Aedes albopictus	7	83		
	Aedes canadensis canadensis	3	73		
	Aedes cantator	3	36		
	Aedes grossbecki	1	1		
	Aedes japonicus	4	13		
	Aedes sticticus	2	3		
	Aedes taeniorhynchus	3	19		
	Aedes triseriatus	2	8		
	Aedes vexans	7	162		
	Anopheles bradleyi	3	7		
	Anopheles punctipennis	1	11		
	Anopheles quadrimaculatus	2	6		
	Coquillettidia perturbans	3	25		
	Culex spp.	29	1068		
	Culiseta melanura	15	174		
	Psorophora ciliata	1	1		
	Psorophora columbiae	1	1		
	Psorophora ferox	3	123		
	Psorophora howardii	1	10		
Bergen		**105**	**6982**	**28**	**4.010**
	Aedes japonicus	3	32		
	Culex spp.	102	6950	28	4.029
Burlington		**137**	**5903**	**9**	**1.525**
	Aedes albopictus	2	49		
	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.	55	2326	8	3.439
	Culiseta melanura	69	3287	1	0.304
Camden		**163**	**5686**	**15**	**2.638**
	Aedes albopictus	21	125		
	Aedes japonicus	17	70		
	Culex spp.	98	4358	15	3.442
	Culiseta melanura	27	1133		
Cape May		**720**	**5910**	**6**	**1.015**

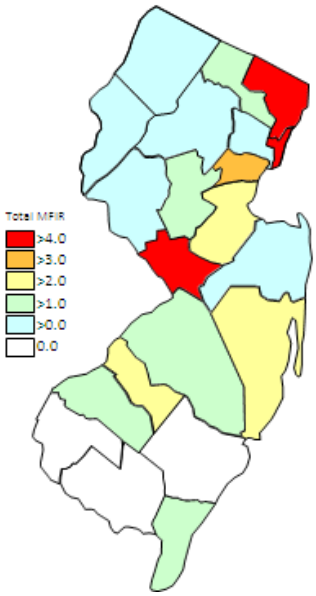
	Aedes albopictus	46	87		
	Aedes atropalpus	2	2		
	Aedes canadensis canadensis	1	1		
	Aedes cantator	9	9		
	Aedes japonicus	55	113		
	Aedes sollicitans	1	10		
	Aedes triseriatus	14	16		
	Aedes vexans	2	2		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	18	298		
	Culex erraticus	16	469		
	Culex pipiens	192	2011	5	2.486
	Culex restuans	248	2159		
	Culex salinarius	16	148		
	Culex spp.	43	151		
	Culex territans	5	6		
	Culiseta melanura	50	422	1	2.370
	Orthopodomyia signifera	2	2		
	Psorophora ferox	1	2		
Essex		**110**	**1897**	**1**	**0.527**
	Aedes albopictus	38	163		
	Aedes japonicus	31	356		
	Culex spp.	41	1378	1	0.726
Gloucester		**248**	**10574**	**20**	**1.891**
	Aedes albopictus	13	452		
	Aedes japonicus	12	173		
	Aedes triseriatus	1	30		
	Aedes vexans	2	87		
	Anopheles punctipennis	4	82		
	Coquillettidia perturbans	1	29		
	Culex pipiens	165	9030	20	2.215
	Culiseta melanura	47	603		
	Psorophora ferox	3	88		
Hudson		**98**	**4771**	**20**	**4.192**
	Culex spp.	98	4771	20	4.192
Hunterdon		**180**	**8502**	**3**	**0.353**
	Culex spp.	180	8502	3	0.353
Mercer		**120**	**3134**	**14**	**4.467**
	Aedes albopictus	30	273		
	Aedes japonicus	10	46	1	21.739
	Aedes triseriatus	2	4		
	Aedes vexans	5	124		
	Culex pipiens	17	411		
	Culex restuans	42	1765	12	6.799
	Culex salinarius	1	5		
	Culex spp.	13	506	1	1.976
Middlesex		**151**	**5756**	**14**	**2.432**
	Aedes albopictus	9	131		

	Aedes japonicus	4	20		
	Culex spp.	138	5605	14	2.498
Monmouth		**191**	**2315**	**2**	**0.864**
	Aedes albopictus	29	291		
	Aedes atlanticus	2	3		
	Aedes canadensis canadensis	15	245		
	Aedes cantator	6	20		
	Aedes japonicus	21	88		
	Aedes sollicitans	1	1		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	11	34		
	Aedes trivittatus	5	8		
	Aedes vexans	5	14		
	Anopheles punctipennis	6	17		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	1	5		
	Culex erraticus	1	6		
	Culex restuans	2	2		
	Culex spp.	55	1138	2	1.757
	Culiseta melanura	20	329		
	Psorophora columbiae	3	68		
	Psorophora ferox	6	44		
Morris		**215**	**9703**	**8**	**0.824**
	Culex spp.	215	9703	8	0.824
Ocean		**191**	**2874**	**7**	**2.436**
	Aedes albopictus	48	466	1	2.146
	Aedes canadensis canadensis	13	393		
	Aedes cantator	2	33		
	Aedes japonicus	23	86		
	Aedes triseriatus	2	4		
	Aedes vexans	7	14		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	2	3		
	Culex salinarius	3	13		
	Culex spp.	69	1815	6	3.306
	Culiseta melanura	20	44		
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		**114**	**1632**		
	Aedes albopictus	16	73		
	Aedes japonicus	12	61		
	Aedes sollicitans	1	1		
	Aedes sticticus	1	2		

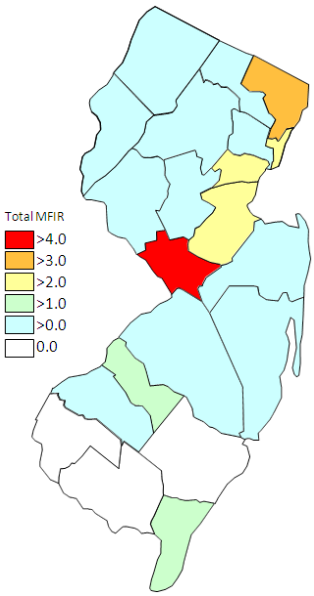
	Aedes triseriatus	9	18		
	Anopheles bradleyi	2	8		
	Anopheles punctipennis	2	5		
	Anopheles quadrimaculatus	10	30		
	Coquillettidia perturbans	2	31		
	Culex erraticus	1	1		
	Culex pipiens	2	2		
	Culex restuans	1	1		
	Culex spp.	36	1147		
	Culiseta melanura	24	648		
	Psorophora ciliata	1	2		
	Psorophora columbiae	9	82		
	Psorophora ferox	4	39		
Somerset		**173**	**4717**	**6**	**1.272**
	Aedes albopictus	11	77		
	Aedes japonicus	15	147		
	Aedes triseriatus	2	6		
	Aedes vexans	2	16		
	Culex spp.	143	4471	6	1.342
Sussex		**155**	**7296**	**4**	**0.548**
	Aedes japonicus	3	90		
	Culex spp.	151	7176	4	0.557
	Culiseta melanura	1	30		
Union		**125**	**7084**	**24**	**3.388**
	Aedes albopictus	8	120		
	Aedes japonicus	4	79		
	Culex spp.	113	6885	24	3.486
Warren		**182**	**9831**	**6**	**0.610**
	Aedes canadensis canadensis	1	13		
	Culex spp.	181	9818	6	0.611
Grand Total		**3617**	**111445**	**192**	**1.723**



Cumulative WNV activity in 2012.



WNV activity to 10 August 2013.



WNV activity last week, 2013.

Saint Louis Encephalitis (SLE) to 10 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		**21**	**744**		
	Aedes albopictus	2	49		
	Aedes japonicus	1	8		
	Culex pipiens	18	717		
Cape May		**124**	**1260**		
	Culex pipiens	124	1260		
Grand Total		**145**	**2034**		

La Crosse Encephalitis (LAC) through 10 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		**7**	**16**		
	Aedes triseriatus	7	16		
Grand Total		**18**	**45**		