VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 34: August 18 – August 24, 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	0.20	32 (33)	8 (9)		
Green Bank (Burlington Co.)/25	**Coastal**	3.78	0.32	220 (228)	12 (13)		
Corbin City (Atlantic Co.)/25	**Coastal**	1.72	1.00	178 (202)	12 (13)		
Dennisville (Cape May Co.)/50	**Coastal**	9.55	0.44	225	12	1	4.44
Winslow (Camden Co.)/20	**Inland**	1.55	1.40	1274	31		
Centerton (Salem Co.)/50	**Inland**	4.11	0.86	746	22		
Turkey Swamp (Monmouth Co.)/44	**Inland**	1.75	4.50	547 (645)	18 (22)		
Glassboro (Gloucester Co.)/50	**Inland**	0.43	0.20	285	13		

*Current week (in parentheses) results pending.

Remarks: One additional pool of *Cs. melanura* was positive for EEE, collected in Cape May County at the Dennisville resting box site. To date, 7 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.

Traditional Resting Box Sites: To date 3507 *Cs. melanura* from 128 pools have been tested from the traditional resting box sites with an additional 7 pools of 231 mosquitoes to be tested. One pool has been detected positive for a site MFIR of 4.44 and an overall MFIR of 0.29 for the traditional resting box sites. The Dennisville site has a long history of abundant *Cs. melanura* and EEE activity. This year, populations are down (see graph page 3) and detection has come after other sites.

Additional *Cs. melanura*: Two hundred twenty-eight additional pools containing 5229 *Cs. melanura* have been tested from other sites using other traps in addition to resting boxes. A total of 5 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	3607 (62)		
Cape May	CO_2, Gravid, RB	669 (74)	5	7.47*
Gloucester	RB	797 (55)		
Monmouth	CO_2	14 (2)		
Ocean	CO_2, RB	110 (29)		
Salem	CO_2	32 (6)		
TOTAL		**5229 (228)**	**5**	0.96*

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.

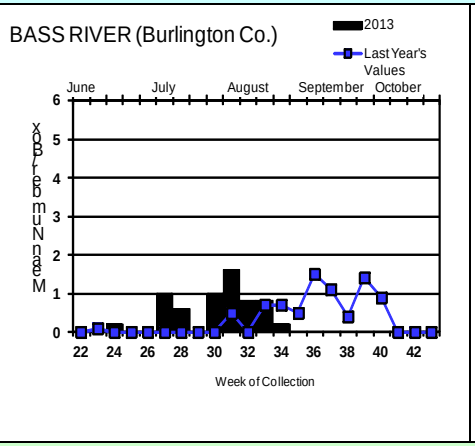
Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes atlanticus	1	44		
Aedes canadensis canadensis	2	65		
Aedes cantator	16	21		
Aedes sollicitans	4	19		
Aedes sticticus	2	3		
Aedes taeniorhynchus	1	2		
Aedes triseriatus	1	17		
Aedes vexans	1	32		
Anopheles bradleyi	8	25		
Anopheles punctipennis	2	50		
Coquillettidia perturbans	10	195		
Culex erraticus	36	1223		
Culex pipiens	257	3071		
Culex restuans	2	2		
Culex salinarius	57	622	1	1.61
Culex spp.	53	292		
Psorophora columbiae	2	5		
State Total	**455**	**6379**	**1**	**0.16**

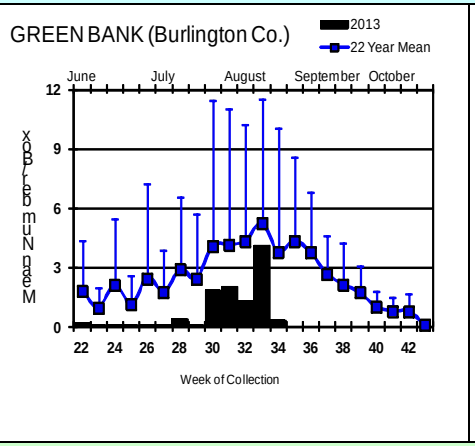
Horses and Humans: Currently there are no reported human cases. One presumptive horse case was reported in Cape May County. This 7 yo gelding had a date of onset 2 August and was euthanized the following day. Vaccination history is unknown.

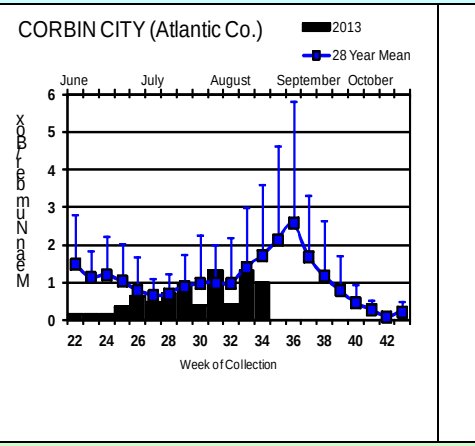
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

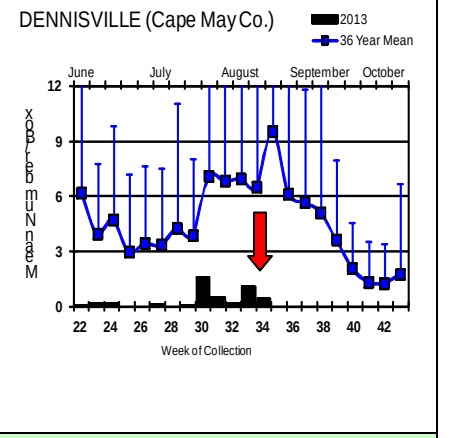
Culiseta melanura Population Graphs

Coastal

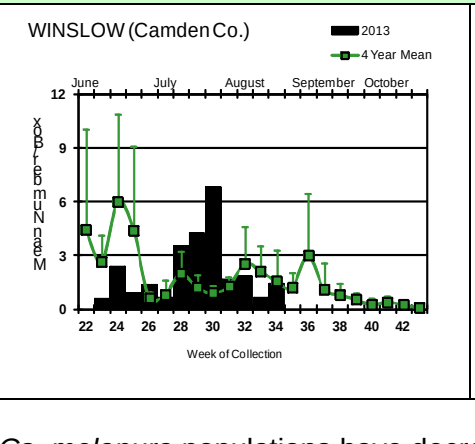


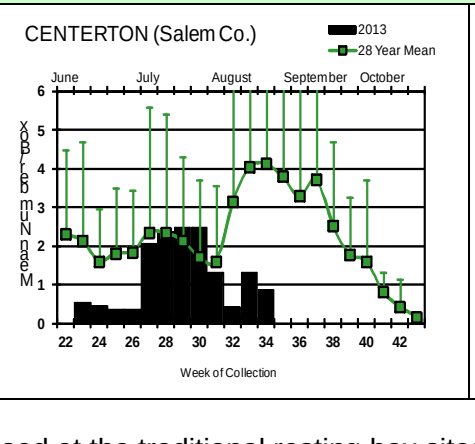


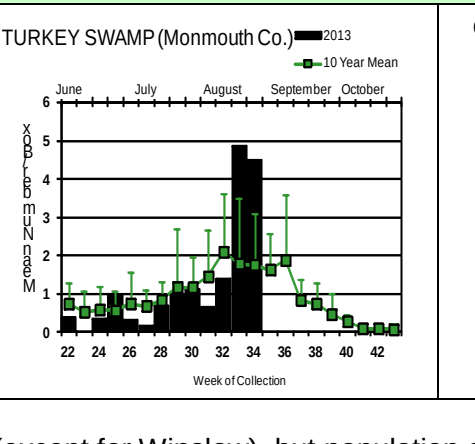


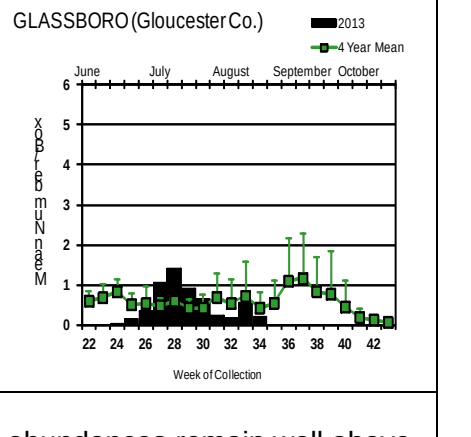


Inland









Cs. melanura populations have decreased at the traditional resting box sites (except for Winslow), but population abundances remain well above historical levels at the Turkey Swamp site. One positive pool was detected at the Dennisville site. As with the Green Bank site of previous years, detection still occurred at Dennisville despite small population numbers being recorded. However, this was after several positive pools detected at non-traditional sites occurred first.

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) 27(FL) 10(GA) 3(LA) 2(MA) 1(MD) 1(MI) 3(MS) 7(NC) 1(NJ) 1(TX) 1(SC)
- mosquito pools: 4(CT) 1(GA) 22(MA) 2(ME) 1(NC) 1(NH) 7(NJ) 17(NY) 67(VA) 8(VT)
- sentinel: 3(AL) 104/4 wild(FL) 1(GA) 1(NC) 12(VA)
- human: 2(FL) 1(GA) 1(MA)

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	148	0	1	8/9
Arkansas				1	1
California	705/831	1349/1562	175/229	8	37/59
Colorado	9	271/371		1	24/67
Connecticut		29/42			
Delaware	4		1/6		
DC		5/16			
Florida			61/65	1/2	
Georgia	0	28/64		0	1/2
Hawaii					
Idaho		51/66		2/3	5
Illinois	30/41	741/1009		0	1
Indiana	0	136/173		1	1
Iowa		4/6	3	2/3	3/5
Kansas		1			1/2
Kentucky				1	
Louisiana		79/124	38/42	1	9/13
Maine		0		0	0
Maryland		2/4			3
Mass.		122/160		0	1
Michigan	11/19	1/2		0	1/4
Minnesota	1	25/29		1	18/24
Mississippi		34		0	15/17
Missouri		4		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana	1	6/11		0	0
Nebraska		69/80			11/14
Nevada		22			7
New Hampshire		3/6			
New Jersey	13/14	257/311		0	1/2
New Mexico		1		1	3
New York		244/261		1/2	2
North Carolina					
North Dakota	4/5	13/14		0	16/28
Ohio		21/64		1	
Oklahoma					1
Oregon	1	47/51	0	1	1/5
Pennsylvania	6/7	584/729		0	2/3
Rhode Island		1			
South Carolina					
South Dakota	4/8	192/249		2	35/52
Tennessee	0	321/393		0	1/3
Texas	1	155/210		1/2	9/18
Utah		25/35	0	1	1
Vermont		9/12			
Virginia		5/11	2		
Washington	0	7/9		0	1
West Virginia		16			
Wisconsin	45/47	2/17		0	2
Wyoming		39/48		1/5	5/6

* 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 26 August 2013

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	447	3517	1	0.284
Aedes atlanticus	4	49		
Aedes atropalpus	2	2		
Aedes canadensis canadensis	41	805		
Aedes cantator	28	111		
Aedes grossbecki	1	1		
Aedes japonicus	282	1748	2	1.144
Aedes sollicitans	8	44		
Aedes sticticus	3	5		
Aedes taeniorhynchus	10	114		
Aedes triseriatus	74	187		
Aedes trivittatus	7	59		
Aedes vexans	51	601		
Anopheles bradleyi	14	48		
Anopheles crucians	1	37		
Anopheles punctipennis	25	192	1	5.208
Anopheles quadrimaculatus	57	1026		
Coquillettidia perturbans	22	285		
Culex erraticus	40	1236		
Culex pipiens	564	14771	33	2.234
Culex restuans	403	4659	13	2.790
Culex salinarius	60	639		
Culex spp.	2249	99275	254	2.559
Culex territans	9	10		
Culiseta melanura	361	8547	7	0.819
Orthopodomyia signifera	3	3		
Psorophora ciliata	2	3		
Psorophora columbiae	18	159		
Psorophora ferox	24	326		
Psorophora howardii	1	10		
State Total	**4811**	**138469**	**311**	**2.246**

Remarks: To date, 4811 pools of 138469 mosquitoes from 29 species have been tested, with 311 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: To date, two human cases have been reported by the NJ Department of Health. The first case was from Burlington County with onset date of 5 August, the second case was from Camden County with onset date of 9 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. Fourteen positive birds have been reported, mostly corvids. To date, 90 birds have been tested. Testing includes: American Crow (*Corvus brachyrhynchos* 0/4), Fish Crow (*C. ossifragus* 5/16), unidentified Crow (*Corvus* spp. 2/4), Blue Jay (*Cyanocitta cristata* 5/11), Hawk/Raptor (0/8) and other avian species (2/47). 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
311 / 4811 (0.064)	741 / 5094 (0.139)
2013 Positive Birds to date / Total Birds Submitted	**This time last year**
13 / 86 (0.151)	48 / 151 (0.318)

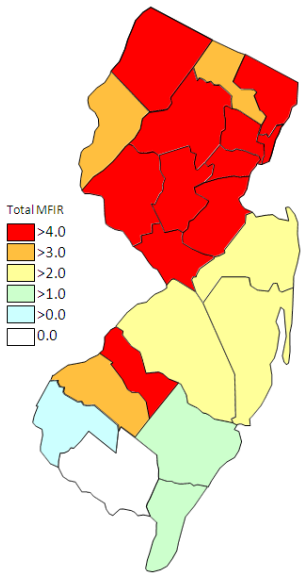
WNV Results by County through 26 August 2013

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**115**	**2270**	**1**	**0.441**
	Aedes albopictus	9	91		
	Aedes canadensis canadensis	4	81		
	Aedes cantator	3	36		
	Aedes grossbecki	1	1		
	Aedes japonicus	5	17		
	Aedes sollicitans	2	23		
	Aedes sticticus	2	3		
	Aedes taeniorhynchus	5	28		
	Aedes triseriatus	3	9		
	Aedes vexans	9	210		
	Anopheles bradleyi	4	15		
	Anopheles punctipennis	1	11		
	Anopheles quadrimaculatus	2	6		
	Coquillettidia perturbans	4	28		
	Culex erraticus	1	59		
	Culex spp.	34	1275	1	0.784
	Culiseta melanura	18	219		
	Psorophora ciliata	1	1		
	Psorophora columbiae	2	2		
	Psorophora ferox	4	145		
	Psorophora howardii	1	10		
Bergen		**134**	**8852**	**50**	**5.648**
	Aedes japonicus	3	32		
	Culex spp.	131	8820	50	5.669
Burlington		**164**	**6825**	**15**	**2.198**
	Aedes albopictus	4	85		
	Aedes atlanticus	1	44		
	Aedes canadensis canadensis	1	63		
	Aedes japonicus	6	50		
	Aedes taeniorhynchus	1	2		
	Aedes triseriatus	1	17		
	Anopheles crucians	1	37		
	Coquillettidia perturbans	2	99		
	Culex pipiens	2	15		
	Culex restuans	1	1		
	Culex salinarius	1	51		
	Culex spp.	61	2502	10	3.997
	Culiseta melanura	82	3859	5	1.296

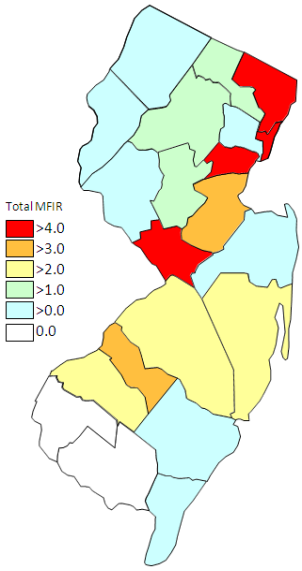
Camden		**195**	**6429**	**22**	**3.422**
	Aedes albopictus	24	133		
	Aedes japonicus	23	85	1	11.765
	Culex spp.	117	4937	21	4.254
	Culiseta melanura	31	1274		
Cape May		**1246**	**10975**	**9**	**0.820**
	Aedes albopictus	116	233		
	Aedes atlanticus	1	2		
	Aedes atropalpus	2	2		
	Aedes canadensis canadensis	6	7		
	Aedes cantator	17	22		
	Aedes japonicus	74	143		
	Aedes sollicitans	4	19		
	Aedes taeniorhynchus	3	83		
	Aedes triseriatus	30	42		
	Aedes vexans	12	23		
	Anopheles bradleyi	8	25		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	42	973		
	Coquillettidia perturbans	3	7		
	Culex erraticus	34	1090		
	Culex pipiens	338	4075	7	1.718
	Culex restuans	350	2704		
	Culex salinarius	55	570		
	Culex spp.	52	179	1	5.587
	Culex territans	9	10		
	Culiseta melanura	85	846	1	1.182
	Orthopodomyia signifera	3	3		
	Psorophora columbiae	3	6		
	Psorophora ferox	5	8		
Essex		**138**	**2199**	**2**	**0.910**
	Aedes albopictus	52	257		
	Aedes japonicus	39	392		
	Culex spp.	47	1550	2	1.290
Gloucester		**301**	**12112**	**25**	**2.064**
	Aedes albopictus	14	474		
	Aedes japonicus	12	173		
	Aedes triseriatus	1	30		
	Aedes vexans	4	139		
	Anopheles punctipennis	6	144	1	6.944
	Coquillettidia perturbans	2	46		
	Culex pipiens	200	10191	24	2.355
	Culiseta melanura	59	827		
	Psorophora ferox	3	88		
Hudson		**127**	**6371**	**31**	**4.866**
	Culex spp.	127	6371	31	4.866
Hunterdon		**220**	**10462**	**12**	**1.147**
	Culex spp.	220	10462	12	1.147
Mercer		**160**	**4159**	**20**	**4.809**

	Aedes albopictus	43	336		
	Aedes japonicus	11	48	1	20.833
	Aedes triseriatus	2	4		
	Aedes vexans	5	124		
	Culex erraticus	1	3		
	Culex pipiens	22	488	2	4.098
	Culex restuans	48	1950	13	6.667
	Culex salinarius	1	5		
	Culex spp.	27	1201	4	3.331
Middlesex		**188**	**6510**	**22**	**3.379**
	Aedes albopictus	10	152		
	Aedes japonicus	4	20		
	Culex spp.	174	6338	22	3.471
Monmouth		**236**	**3101**	**3**	**0.967**
	Aedes albopictus	47	639		
	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	6	9		
	Aedes vexans	7	21		
	Anopheles punctipennis	11	24		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	1	5		
	Culex erraticus	1	6		
	Culex restuans	2	2		
	Culex spp.	64	1283	2	1.559
	Culiseta melanura	28	604	1	1.656
	Psorophora columbiae	3	68		
	Psorophora ferox	6	44		
Morris		**255**	**11519**	**14**	**1.215**
	Culex spp.	255	11519	14	1.215
Ocean		**247**	**3335**	**9**	**2.699**
	Aedes albopictus	64	644	1	1.553
	Aedes canadensis canadensis	14	396		
	Aedes cantator	2	33		
	Aedes japonicus	28	96		
	Aedes triseriatus	4	7		
	Aedes vexans	11	18		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	6	65		
	Culex salinarius	3	13		
	Culex spp.	84	1950	8	4.103
	Culiseta melanura	29	110		
Passaic		**145**	**4880**	**6**	**1.230**
	Aedes albopictus	15	63		
	Aedes japonicus	14	157		

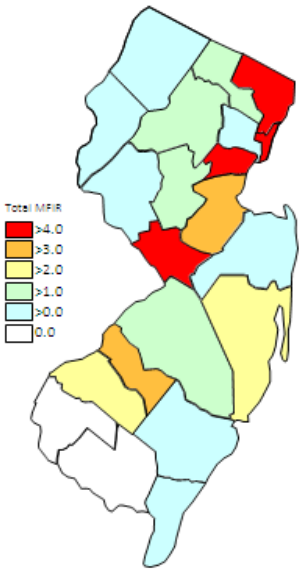
	Aedes triseriatus	6	11		
	Aedes trivittatus	1	50		
	Aedes vexans	1	50		
	Anopheles punctipennis	2	4		
	Anopheles quadrimaculatus	1	15		
	Coquillettidia perturbans	1	2		
	Culex spp.	102	4526	6	1.326
	Psorophora ferox	2	2		
Salem		**172**	**3664**		
	Aedes albopictus	18	77		
	Aedes japonicus	15	65		
	Aedes sollicitans	1	1		
	Aedes sticticus	1	2		
	Aedes triseriatus	11	20		
	Anopheles bradleyi	2	8		
	Anopheles punctipennis	2	5		
	Anopheles quadrimaculatus	11	31		
	Coquillettidia perturbans	3	33		
	Culex erraticus	3	78		
	Culex pipiens	2	2		
	Culex restuans	2	2		
	Culex spp.	58	2438		
	Culiseta melanura	28	778		
	Psorophora ciliata	1	2		
	Psorophora columbiae	10	83		
	Psorophora ferox	4	39		
Somerset		**197**	**5091**	**10**	**1.964**
	Aedes albopictus	16	107		
	Aedes japonicus	16	161		
	Aedes triseriatus	4	12		
	Aedes vexans	2	16		
	Culex spp.	159	4795	10	2.086
Sussex		**195**	**9493**	**8**	**0.843**
	Aedes japonicus	4	112		
	Culex spp.	190	9351	8	0.856
	Culiseta melanura	1	30		
Union		**172**	**9678**	**44**	**4.546**
	Aedes albopictus	15	226		
	Aedes japonicus	6	107		
	Culex spp.	151	9345	44	4.708
Warren		**197**	**10446**	**8**	**0.766**
	Aedes canadensis canadensis	1	13		
	Culex spp.	196	10433	8	0.767
Grand Total		**4811**	**138469**	**311**	**2.246**



Cumulative WNV activity in 2012.



WNV activity to 26 August 2013.



WNV activity last week, 2013.

Saint Louis Encephalitis (SLE) to 26 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		**256**	**3062**		
	Culex pipiens	253	3053		
	Culex spp.	3	9		
Grand Total		**280**	**3948**		

La Crosse Encephalitis (LAC) through 26 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		**26**	**38**		
	Aedes triseriatus	26	38		
Salem		**9**	**18**		
	Aedes triseriatus	9	18		
Grand Total		**36**	**73**		