VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 35: August 25 – August 31, 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**	0.50	0.60	33 (36)	9 (10)		
Green Bank (Burlington Co.)/25	**Coastal**	4.34	0.16	220 (232)	12 (14)		
Corbin City (Atlantic Co.)/25	**Coastal**	2.12	1.84	202 (248)	13 (14)		
Dennisville (Cape May Co.)/50	**Coastal**	6.12	0.00	225	12	1	4.44
Winslow (Camden Co.)/20	**Inland**	1.19	2.68	1408	34		
Centerton (Salem Co.)/50	**Inland**	3.78	0.72	782	23		
Turkey Swamp (Monmouth Co.)/44	**Inland**	1.62	4.68	745 (951)	22 (27)		
Glassboro (Gloucester Co.)/50	**Inland**	0.55	0.28	299	14		

*Current week (in parentheses) results pending.

Remarks: No additional positive EEE pools have been detected in *Cs. melanura* from the traditional resting box sites, other sites or from other species. 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 3914 *Cs. melanura* from 139 pools have been tested from the traditional resting box sites with an additional 8 pools of 259 mosquitoes to be tested. One pool has been detected positive for a site MFIR of 4.44 and an overall MFIR of 0.26 for the traditional resting box sites. EEE detection has occurred mostly away from these traditional surveillance sites.

Additional *Cs. melanura*: Two hundred forty-nine additional pools containing 5411 *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. ∓Adjusted from previous week.

Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD.**				
County	**Trap types***	**Number collected (pools)**	**Number of positives pools**	**MFIR**
Atlantic	CO_2	1	1	
Burlington	CO_2, RB	3858 (66)		
Cape May	CO_2, Gravid, RB	793 (94)	5	6.31*
Gloucester	RB	555∓ (46)		
Monmouth	CO_2	14 (2)		
Ocean	CO_2, RB	158 (34)		
Salem	CO_2	32 (6)		
TOTAL		**5411 (249)**	**5**	0.92*

Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes atlanticus	1	44		
Aedes canadensis canadensis	2	65		
Aedes cantator	19	24		
Aedes sollicitans	4	19		
Aedes sticticus	2	3		
Aedes taeniorhynchus	1	2		
Aedes triseriatus	1	17		
Aedes vexans	1	32		
Anopheles bradleyi	13	72		
Anopheles punctipennis	2	50		
Anopheles quadrimaculatus	1	5		
Coquillettidia perturbans	15	210		
Culex erraticus	51	1573		
Culex pipiens	347	4486		
Culex restuans	2	2		
Culex salinarius	74	693	1	1.44
Culex spp.	61	314		
Psorophora columbiae	2	5		
State Total	**599**	**7616**	**1**	**0.13**

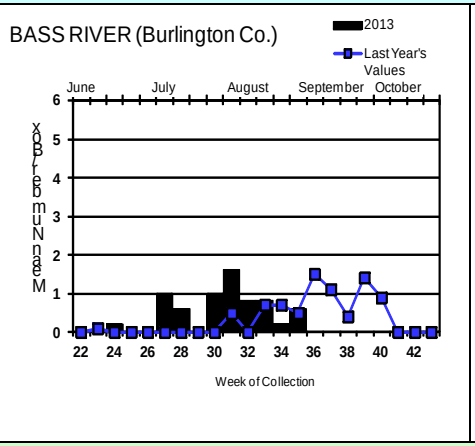
Additional Species: The table to the left indicates non-*Cs. melanura* mosquitoes tested for EEE. First positive in a non-*Cs. melanura* species was a pool of *Cx. salinarius* collected 3 August in Cape May County.

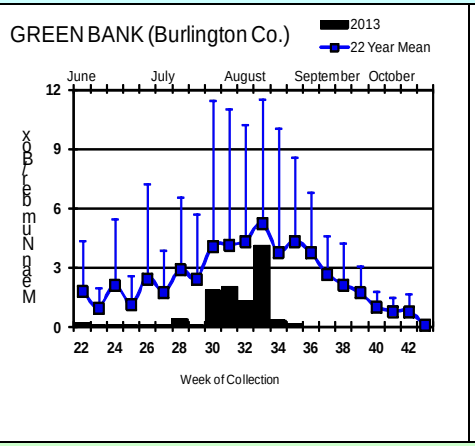
Horses and Humans: Currently there are no reported human cases. One presumptive horse case was reported in Cape May County. This 7 yo gelding had a date of onset 2 August and was euthanized the following day. Vaccination history is unknown.

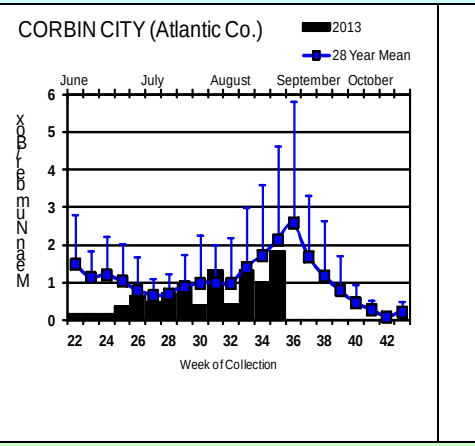
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

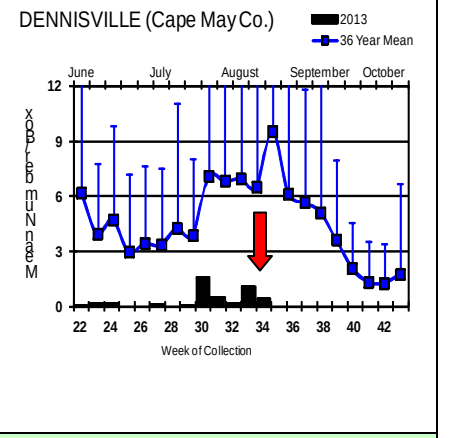
Culiseta melanura Population Graphs

Coastal

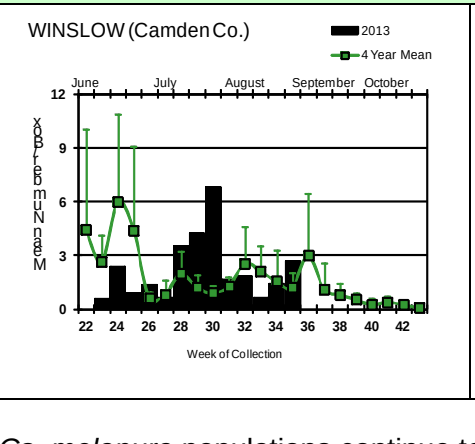


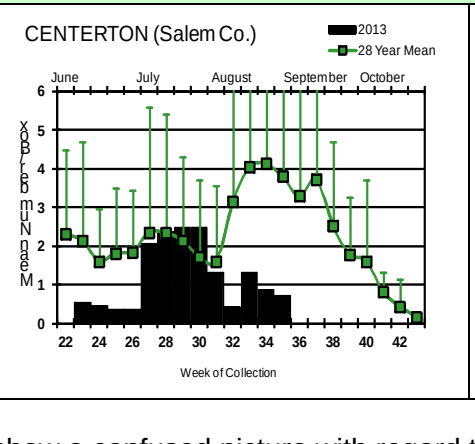


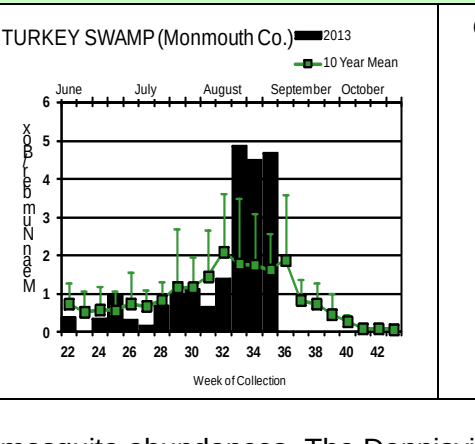


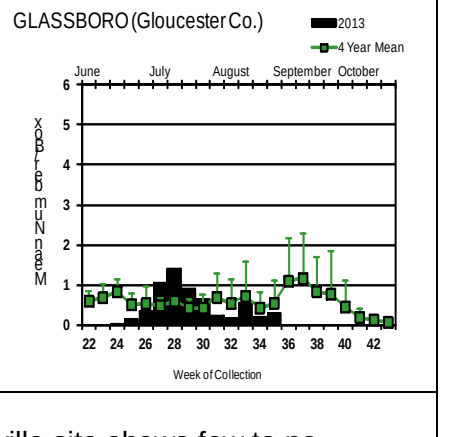


Inland









Cs. melanura populations continue to show a confused picture with regard to mosquito abundances. The Dennisville site shows few to no mosquitoes yet produced one of the seven positive pools. Eastern populations again are showing more activity - Turkey Swamp has had significant populations of late. With increased populations and activity in the south, due diligence is still needed with this virus, which can circulate late into the season.

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) 15(GA) 1(KY) 5(LA) 2(MA) 1(MD) 1(MI) 4(MS) 7(NC) 1(NJ) 1(TX) 29(SC) 1(VT)
- mosquito pools: 23(CT) 1(GA) 32(MA) 2(ME) 1(NC) 5(NH) 7(NJ) 25(NY) 67(VA) 13(VT)
- sentinel: 3(AL) 1(DE) 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					1/3
Alaska					
Arizona	0	148	0	1	9
Arkansas				1	1/2
California	831/903	1562/1854	229/262	8	59/87
Colorado	9	371/372		1	67/87
Connecticut		42/57			
Delaware	4		1/6		
DC		16/21			
Florida			65	2	1
Georgia	0	64		0	2
Hawaii					
Idaho		66		3	5/8
Illinois	41/46	1009/1274		1	1/2
Indiana	0	173/247		1	1
Iowa		6/12	3	3/5	5/8
Kansas		1			2/4
Kentucky				1/2	
Louisiana		124/145	42/53	1	13/21
Maine		0		0	0
Maryland		2/4			3
Mass.		160/216		0	1/2
Michigan	19/30	2/6		0	4/5
Minnesota	1	29/34		1	24/36
Mississippi		34/35		0	17/23
Missouri		4		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana	1	6/11		9	1
Nebraska	1	80/86		1	14/22
Nevada		22/30			7
New Hampshire		6/7			
New Jersey	14/19	311/391		0	2/6
New Mexico		1		1	3/5
New York		261/357		2	2
North Carolina					
North Dakota	5/6	14/20		0	28/34
Ohio		64/93		1	3
Oklahoma					1/2
Oregon	1	51	0	1	5
Pennsylvania	7/13	729/1002		0	3
Rhode Island		1/3			
South Carolina	1			1	
South Dakota	8	249/368		2	52/71
Tennessee	0	393/458		0	3
Texas	1	210/239		2/5	18/21
Utah		35/57	0	1/4	1/3
Vermont		12/16		1	
Virginia		11/98	2		
Washington	0	9/11		0	1
West Virginia		16/20			
Wisconsin	47/50	17/19		0	2/4
Wyoming		48/51		5/7	6/10

* 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 31 August 2013

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	544	4230	1	0.236
Aedes atlanticus	4	49		
Aedes atropalpus	3	3		
Aedes canadensis canadensis	43	818		
Aedes cantator	31	114		
Aedes grossbecki	1	1		
Aedes japonicus	305	1837	2	1.089
Aedes sollicitans	9	45		
Aedes sticticus	3	5		
Aedes taeniorhynchus	13	121		
Aedes triseriatus	89	216		
Aedes trivittatus	7	59		
Aedes vexans	61	621		
Anopheles bradleyi	19	95		
Anopheles crucians	1	37		
Anopheles punctipennis	25	192	1	5.208
Anopheles quadrimaculatus	79	1518		
Coquillettidia perturbans	28	301		
Culex erraticus	57	1592		
Culex pipiens	680	17410	45	2.585
Culex restuans	491	5321	14	2.631
Culex salinarius	78	711		
Culex spp.	2465	107941	317	2.937
Culex territans	11	12		
Culiseta melanura	406	9469	11	1.062
Orthopodomyia signifera	4	4		
Psorophora ciliata	3	4		
Psorophora columbiae	21	165		
Psorophora ferox	27	329		
Psorophora howardii	1	10		
State Total	**5517**	**153230**	**391**	**2.552**

Remarks: To date, 5517 pools of 153230 mosquitoes from 29 species have been tested, with 391 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, six human cases have been reported by the NJ Department of Health. The first case was from Burlington County with onset date of 5 August. Cases are from Bergen (1), Burlington (1), Camden (2), Gloucester (1) and Morris (1) counties. 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. Nineteen positive birds have been reported, mostly corvids. First American Crow positive has been detected. To date, 98 birds have been tested. Testing includes: American Crow (*Corvus brachyrhynchos* 1/5), Fish Crow (*C. ossifragus* 5/16), unidentified Crow (*Corvus* spp. 2/4), Blue Jay (*Cyanocitta cristata* 8/14), Hawk/Raptor (0/8) and other avian species (3/51). Counties (positives) submitting birds are Atlantic, 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 (PHEL)	This time last year (PHEL)
377 / 4384 (0.086)	839 / 5456 (0.154)
2013 Positive Birds to date / Total Birds Submitted	This time last year
19 / 98 (0.194)	81 / 211 (0.384)

WNV Results by County through 31 August 2013

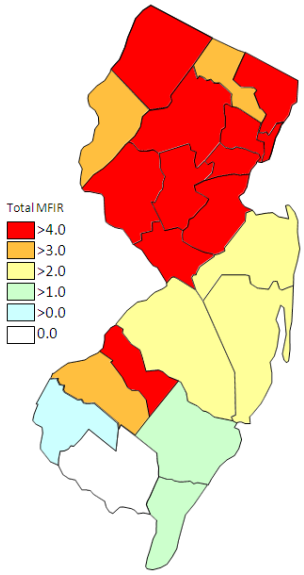
County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**119**	**2337**	**1**	**0.428**
	Aedes albopictus	9	91		
	Aedes canadensis canadensis	4	81		
	Aedes cantator	3	36		
	Aedes grossbecki	1	1		
	Aedes japonicus	5	17		
	Aedes sollicitans	2	23		
	Aedes sticticus	2	3		
	Aedes taeniorhynchus	5	28		
	Aedes triseriatus	3	9		
	Aedes vexans	9	210		
	Anopheles bradleyi	4	15		
	Anopheles punctipennis	1	11		
	Anopheles quadrimaculatus	2	6		
	Coquillettidia perturbans	5	35		
	Culex erraticus	2	94		
	Culex spp.	34	1275	1	0.784
	Culiseta melanura	20	244		
	Psorophora ciliata	1	1		
	Psorophora columbiae	2	2		
	Psorophora ferox	4	145		
	Psorophora howardii	1	10		
Bergen		**149**	**9611**	**62**	**6.451**
	Aedes japonicus	3	32		
	Culex spp.	146	9579	62	6.472
Burlington		**189**	**7285**	**16**	**2.196**
	Aedes albopictus	9	147		
	Aedes atlanticus	1	44		
	Aedes canadensis canadensis	1	63		
	Aedes japonicus	8	61		
	Aedes taeniorhynchus	1	2		
	Aedes triseriatus	1	17		
	Aedes vexans	2	10		
	Anopheles crucians	1	37		
	Coquillettidia perturbans	3	100		
	Culex erraticus	1	2		
	Culex pipiens	2	15		
	Culex restuans	1	1		
	Culex salinarius	3	97		
	Culex spp.	66	2573	10	3.887

	Culiseta melanura	87	4111	6	1.459
	Psorophora ciliata	1	1		
	Psorophora columbiae	1	4		
Camden		**213**	**6911**	**25**	**3.617**
	Aedes albopictus	28	163		
	Aedes japonicus	25	87	1	11.494
	Culex spp.	126	5253	23	4.378
	Culiseta melanura	34	1408	1	0.710
Cape May		**1607**	**14483**	**14**	**0.967**
	Aedes albopictus	163	341		
	Aedes atlanticus	1	2		
	Aedes atropalpus	3	3		
	Aedes canadensis canadensis	6	7		
	Aedes cantator	20	25		
	Aedes japonicus	85	162		
	Aedes sollicitans	4	19		
	Aedes taeniorhynchus	6	90		
	Aedes triseriatus	42	68		
	Aedes vexans	19	32		
	Anopheles bradleyi	13	72		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	63	1460		
	Coquillettidia perturbans	4	8		
	Culex erraticus	48	1405		
	Culex pipiens	429	5647	11	1.948
	Culex restuans	437	3291		
	Culex salinarius	71	596		
	Culex spp.	60	231	1	4.329
	Culex territans	11	12		
	Culiseta melanura	106	1018	2	1.965
	Orthopodomyia signifera	4	4		
	Psorophora columbiae	5	8		
	Psorophora ferox	8	11		
Essex		**153**	**2488**	**3**	**1.206**
	Aedes albopictus	60	371		
	Aedes japonicus	39	392		
	Culex spp.	54	1725	3	1.739
Gloucester		**327**	**13153**	**33**	**2.509**
	Aedes albopictus	14	474		
	Aedes japonicus	12	173		
	Aedes triseriatus	1	30		
	Aedes vexans	4	139		
	Anopheles punctipennis	6	144	1	6.944
	Anopheles quadrimaculatus	1	5		
	Coquillettidia perturbans	2	46		
	Culex pipiens	220	11170	32	2.865
	Culiseta melanura	64	884		
	Psorophora ferox	3	88		
Hudson		**142**	**7350**	**43**	**5.850**
	Culex spp.	142	7350	43	5.850

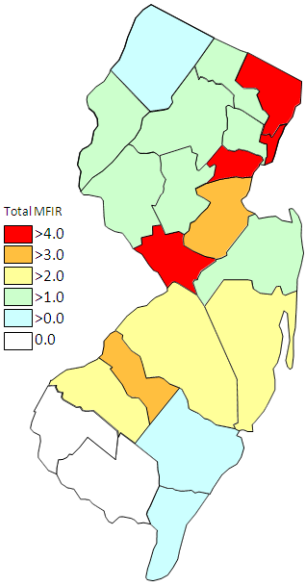
Hunterdon		**240**	**11442**	**19**	**1.661**
	Culex spp.	240	11442	19	1.661
Mercer		**180**	**4803**	**24**	**4.997**
	Aedes albopictus	50	396		
	Aedes japonicus	11	48	1	20.833
	Aedes triseriatus	2	4		
	Aedes vexans	5	124		
	Culex erraticus	1	3		
	Culex pipiens	27	576	2	3.472
	Culex restuans	49	2025	14	6.914
	Culex salinarius	1	5		
	Culex spp.	34	1622	7	4.316
Middlesex		**205**	**6814**	**23**	**3.375**
	Aedes albopictus	10	152		
	Aedes japonicus	4	20		
	Culex spp.	191	6642	23	3.463
Monmouth		**251**	**3378**	**4**	**1.184**
	Aedes albopictus	50	652		
	Aedes atlanticus	2	3		
	Aedes canadensis canadensis	15	245		
	Aedes cantator	6	20		
	Aedes japonicus	24	94		
	Aedes sollicitans	1	1		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	14	37		
	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.	68	1343	2	1.489
	Culiseta melanura	32	802	2	2.494
	Psorophora columbiae	3	68		
	Psorophora ferox	6	44		
Morris		**275**	**12321**	**22**	**1.786**
	Culex spp.	275	12321	22	1.786
Ocean		**271**	**3642**	**10**	**2.746**
	Aedes albopictus	72	822	1	1.217
	Aedes canadensis canadensis	16	409		
	Aedes cantator	2	33		
	Aedes japonicus	28	96		
	Aedes triseriatus	4	7		
	Aedes vexans	12	19		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	7	69		
	Culex erraticus	1	4		
	Culex salinarius	3	13		

	Culex spp.	90	2009	9	4.480
	Culiseta melanura	34	158		
Passaic		**156**	**5137**	**7**	**1.363**
	Aedes albopictus	17	68		
	Aedes japonicus	16	165		
	Aedes triseriatus	7	12		
	Aedes trivittatus	1	50		
	Aedes vexans	1	50		
	Anopheles punctipennis	2	4		
	Anopheles quadrimaculatus	1	15		
	Coquillettidia perturbans	1	2		
	Culex spp.	108	4769	7	1.468
	Psorophora ferox	2	2		
Salem		**192**	**4196**		
	Aedes albopictus	23	107		
	Aedes japonicus	16	67		
	Aedes sollicitans	2	2		
	Aedes sticticus	1	2		
	Aedes triseriatus	11	20		
	Anopheles bradleyi	2	8		
	Anopheles punctipennis	2	5		
	Anopheles quadrimaculatus	11	31		
	Coquillettidia perturbans	5	36		
	Culex erraticus	3	78		
	Culex pipiens	2	2		
	Culex restuans	2	2		
	Culex spp.	68	2898		
	Culiseta melanura	29	814		
	Psorophora ciliata	1	2		
	Psorophora columbiae	10	83		
	Psorophora ferox	4	39		
Somerset		**207**	**5221**	**10**	**1.915**
	Aedes albopictus	17	110		
	Aedes japonicus	16	161		
	Aedes triseriatus	4	12		
	Aedes vexans	2	16		
	Culex spp.	168	4922	10	2.032
Sussex		**215**	**10204**	**10**	**0.980**
	Aedes japonicus	6	147		
	Culex spp.	208	10027	10	0.997
	Culiseta melanura	1	30		
Union		**197**	**10848**	**53**	**4.886**
	Aedes albopictus	22	336		
	Aedes japonicus	7	115		
	Culex spp.	168	10397	53	5.098
Warren		**221**	**11606**	**12**	**1.034**
	Aedes canadensis canadensis	1	13		
	Culex spp.	220	11593	12	1.035

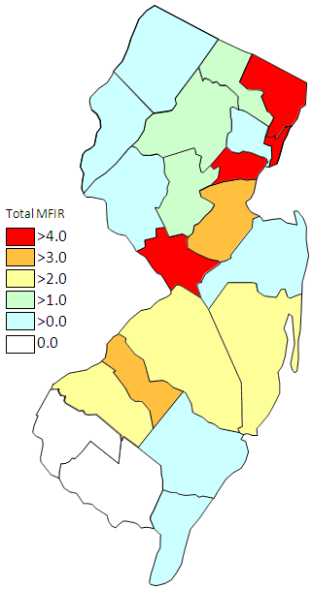
Grand Total		5517	153230	391	2.552



Cumulative WNV activity in 2012.



WNV activity to 31 August 2013.



WNV activity last week, 2013.

Saint Louis Encephalitis (SLE) to 31 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		**27**	**924**		
	Aedes albopictus	3	62		
	Aedes japonicus	1	8		
	Culex pipiens	23	854		
Cape May		**354**	**4499**		
	Culex pipiens	343	4468		
	Culex spp.	11	31		
Grand Total		**381**	**5423**		

La Crosse Encephalitis (LAC) through 31 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		**38**	**64**		
	Aedes triseriatus	38	64		
Salem		**9**	**18**		
	Aedes triseriatus	9	18		
Grand Total		**48**	**99**		