VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 30: July 22 to July 28, 2012

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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.)/10	**Coastal**	na	0	1	1		
Green Bank (Burlington Co.)/25	**Coastal**	4.29	0	7	3		
Corbin City (Atlantic Co.)/25	**Coastal**	1.00	0.24	(119) 113	(8) 7		
Dennisville (Cape May Co.)/50	**Coastal**	7.31	0.20	82	8	1	12.20
Winslow (Camden Co.)/50	**Inland**	0.69	1.52	1587	34	5	3.15
Centerton (Salem Co.)/50	**Inland**	1.78	0.08	291	11	1	3.44
Turkey Swamp (Monmouth Co.)/48	**Inland**	1.21	0.67	(487) 455	(14) 13		
Glassboro (Gloucester Co.)/50	**Inland**	0.55	0.06	140	8		

*Including trial run last week in May. ‡ Adjusted.

Remarks: No new EEE pools of *Culiseta melanura* collected from the traditional resting box sites were detected this past week (but see table below for EEE activity in other *Cs. melanura* sites). Because of no additional pools detected in the generally low numbers caught at the sites, infection rates have decreased from the previous week.

To date 2667 *Cs. melanura* from 85 pools have been tested, with two additional pools in the system to be tested. A total of 9 positive pools have been detected, seven of which are in the traditional resting box sites. All positive pools have been in *Culiseta melanura*.

Two hundred nineteen additional pools containing 4401 *Cs. melanura* have been tested from other county trapping sites using other traps in addition to resting boxes. Two pools, both from resting boxes maintained by Gloucester County have tested positive for EEE. Samples were collected on 13 July.

Additional *Cs. melanura* trapped by counties
*traps with positives indicated in **BOLD.**

County	Trap types*	Number collected (pools)	Number of positives pools	MFIR
Burlington	CO2, Other	2836 (62)	0	
Cape May	Gravid, RB	387 (66)	0	
Cumberland	CO2, Gravid, RB	204 (16)	0	
Gloucester	**RB**	890 (55)	2	2.25
Monmouth	Gravid	9 (2)	0	
Ocean	CO2, RB	82 (16)	0	
Salem	CO2	2 (2)	0	
TOTAL		**4401 (219)**	**2**	0.45

Horses and Humans: A presumptive positive horse with an unusually early onset date of 25 May has been reported for Burlington County. The horse was reportedly vaccinated in early May. No positive EEE mosquito pools have been collected in Burlington County.

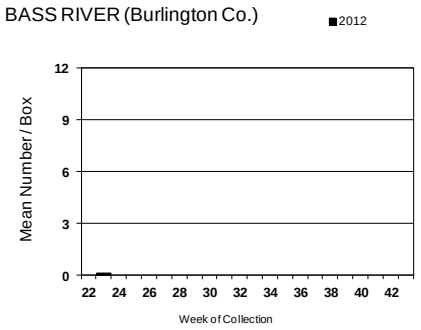
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

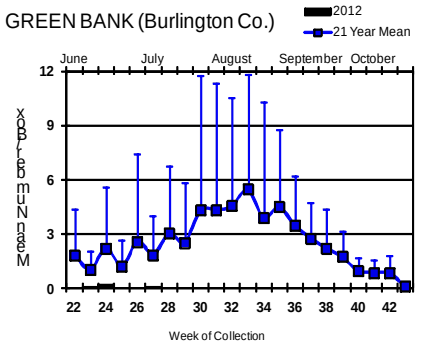
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	7	35		
Aedes canadensis canadensis	7	238		
Aedes cantator	31	464		
Aedes japonicus	18	72		
Aedes mitchellae	4	60		
Aedes sollicitans	3	11		
Aedes sticticus	1	8		
Aedes triseriatus	4	4		
Aedes trivittatus	1	2		
Aedes vexans	4	65		
Anopheles bradleyi	17	42		
Anopheles crucians	3	37		
Anopheles punctipennis	14	60		
Anopheles quadrimaculatus	15	51		
Coquillettidia perturbans	58	1550		
Culex erraticus	69	2425		
Culex pipiens	278	3116		
Culex restuans	3	55		
Culex salinarius	79	368		
Culex sp.	123	4405		
Psorophora columbiae	1	5		
State Total	**740**	**13073**		

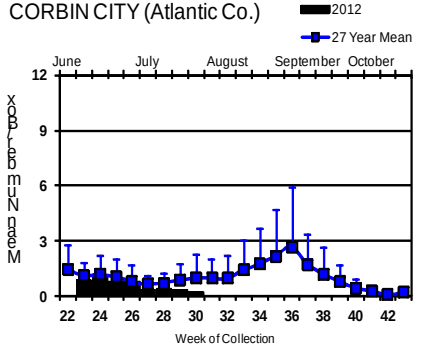
The table to the left indicates non-*Cs. melanura* mosquitoes tested for EEE. An additional 20 species of mosquitoes have been tested with no detection of EEE.

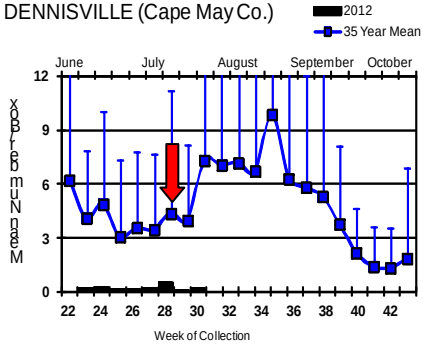
Culiseta melanura Population Graphs

Coastal

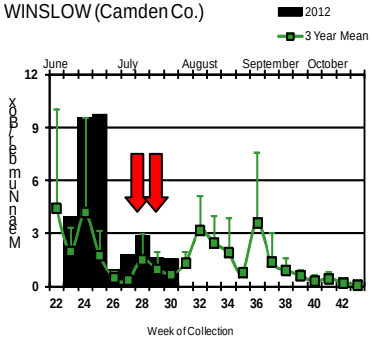


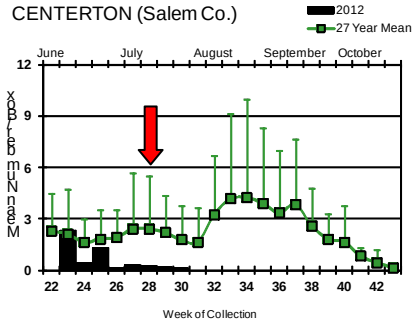


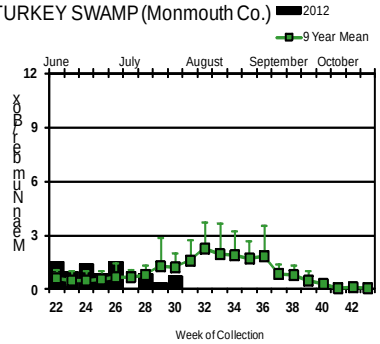


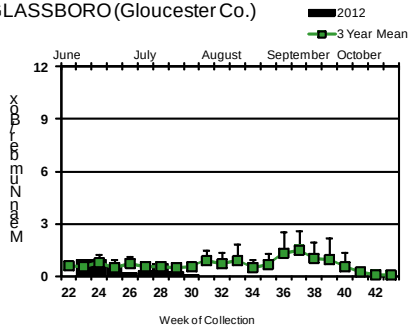


Inland









The Winslow site continues to report *Culiseta melanura* populations slightly elevated above historical values. All other sites are either close to but below historical averages (Corbin City, Turkey Swamp and Glassboro) or significantly below historical averages (Green Bank, Dennisville, and Centerton).

= Positive pool(s) detected.

EEE in US (2012 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 12(FL) 5(GA) 10(LA) 15(MS) 3(NC) 1(NJ) 1(NY) 6(SC)
- mosquito pools: 1(LA) 37(MA) 9(NJ)
- sentinel: 27(FL) 2 wild(ME) 2(NC)
- human: 1(FL)

West Nile Virus

West Nile in US (2012 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	1	8/15	2	1	2/4
Arkansas					1
California	432/493	593/761	19/30	1	6/7
Colorado		10/21		1	
Connecticut		9/35		0	0
Delaware	2				
DC					
Florida	0		57	0	0
Georgia	0	3/4	0	0	0
Hawaii					
Idaho		3		0	0
Illinois	21/24	375/817		0	0
Indiana	1	25/104		0	0
Iowa		0	0	0	0
Kansas					3
Kentucky				0	1
Louisiana		499/1268	21/53	8	10/14
Maine					
Maryland		1			
Mass.		15/32		0	0
Michigan	1	1		0	0
Minnesota	3	2			1
Mississippi		37		1	5/20
Missouri		17/18		0	1

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana					
Nebraska	2	24/25			1/2
Nevada					
New Hampshire		0		0	0
New Jersey	14/21	201/295		0	1
New Mexico					0
New York		75/192			
North Carolina					
North Dakota	0	0		0	0
Ohio		62/262			
Oklahoma		1/22			1/6
Oregon	0	6/30	0	0	0
Pennsylvania	10/26	402/1119		1	
Rhode Island		1		0	0
South Carolina	1	1		1	1
South Dakota		19		1	1/4
Tennessee	0	189/254		0	0
Texas	13/14	379/401		2/3	53/111
Utah		1	0	0	0
Vermont					
Virginia					
Washington	0	1		0	0
West Virginia		1/79			
Wisconsin	1	0		0	0
Wyoming		4/6		0	0

* Can include other species (e.g., dogs, cows) reported positive.

Protocol: New Jersey Department of Health and Senior Services (NJDHSS Public Health and Environmental Laboratories, PHEL) and the Cape May County Division of Mosquito Control tests mosquito pools using RT-PCR Taqman techniques.

Mosquito Species Submitted and Tested for West Nile Virus Testing through 30 July 2012

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	378	2732	1	0.366
Aedes atlanticus	1	3		
Aedes canadensis canadensis	58	1548		
Aedes cantator	60	866		
Aedes grossbecki	2	2		
Aedes japonicus	271	1590	4	2.516
Aedes mitchellae	4	60		
Aedes sollicitans	6	14		
Aedes sticticus	7	124		
Aedes taeniorhynchus	12	190		
Aedes triseriatus	135	321		
Aedes trivittatus	5	9		
Aedes vexans	56	540		
Anopheles bradleyi	33	332		
Anopheles crucians	3	37		
Anopheles punctipennis	52	185	1	5.405
Anopheles quadrimaculatus	60	185		
Coquillettidia perturbans	65	1605		
Culex erraticus	73	2473		
Culex pipiens	680	18641	34	1.824
Culex restuans	202	1302	1	0.768
Culex salinarius	107	547		
Culex sp.	1849	74555	248	3.326
Culex territans	18	35		
Culiseta melanura	321	7113	6	0.844
Culiseta minnesotae	1	2		
Orthopodomyia signifera	7	7		
Psorophora columbiae	3	30		
Psorophora ferox	7	51		
Psorophora howardii	1	1		
State Total	**4477**	**115,100**	**295**	**2.563**

Remarks: To date, there have been 115,100 mosquitoes tested in 4,477 pools from 29 species. Currently, 295 positive pools have been detected in *Aedes japonicus*, *Culex pipiens,* Mixed *Cx.* species, *Culex restuans, Culiseta melanura* and most recently, from *Aedes albopictus* (collected 17 July in Monmouth County) and *Anopheles punctipennis* (collected 16 July from Somerset County). The addition of positives in *Ae. albopictus* and *An. punctipennis* indicate infections in potential bridge vectors, with *Ae. albopictus* being the most concerning. Mixed Culex pools again increased significantly from 163 to 248), with MFIR values increasing from 2.493 to 3.326. Positive pools have been detected in Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren counties.

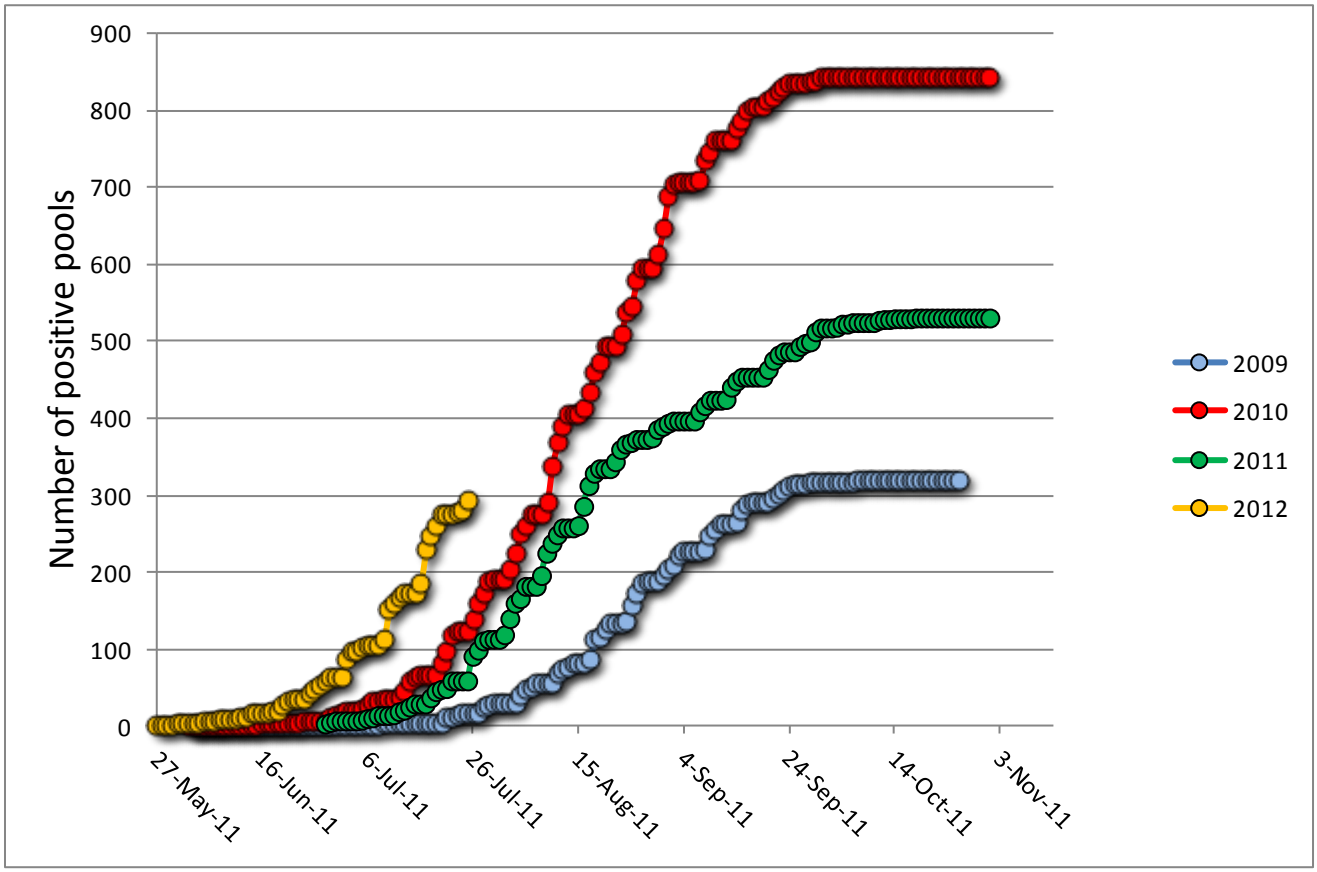
Humans, Horses and Wild Birds: One human case (19 year old female) has been reported in Monmouth County, with onset of symptoms on 12 July and possible acquisition in Ocean County. See http://www.state.nj.us/health/cd/westnile/techinfo.shtml for further information.

Bird testing began in mid-April. To date, WNV has been detected in twenty-one birds out of 91 tested. WNV was first detected in an American Crow (*Corvus brachyrhynchos*) from Morris County, collected 9 April. To date, testing includes:

American Crow (*Corvus brachyrhynchos* 5/10), Fish Crow (*Corvus ossifragus* 8/25), unidentified Crow (*Corvus* spp. 5/11), Blue Jay (*Cyanocitta cristata* 2/7), Hawk/Raptor (0/6) and other avian species (1/32). Counties submitting birds are Atlantic, Bergen, Burlington, Cape May, Essex, Gloucester, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Sussex and Warren. County participation in submitting dead birds varies across the state.

2012 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
288 / 4477 (0.064)	112 / 2809 (0.040)
2012 Positive Birds to date / Total Birds Submitted	**This time last year**
21 / 91 (0.231)	1 / 40 (0.025)

Activity continues to increase, as seen by plotting cumulative positive pools (graph below).



WNV Results by County through 30 July 2012

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**51**	**1287**	**2**	**1.554**
	Aedes albopictus	6	83		
	Aedes canadensis canadensis	1	2		
	Aedes cantator	1	10		
	Aedes japonicus	3	13		
	Aedes taeniorhynchus	2	89		
	Aedes triseriatus	1	11		
	Aedes trivittatus	1	2		
	Aedes vexans	2	75		
	Anopheles bradleyi	1	3		
	Anopheles punctipeenis	1	15		

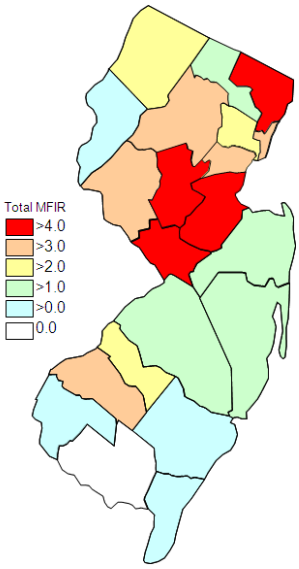
	Coquillettidia perturbans	2	3		
	Culex erraticus	1	30		
	Culex spp.	19	822	2	2.433
	Culiseta melanura	8	120		
	Psorophora ferox	1	8		
	Psorophora howardii	1	1		
Bergen		**80**	**5794**	**39**	**6.731**
	Aedes japonicus	1	4		
	Culex spp.	79	5790	39	6.736
Burlington		**305**	**10447**	**14**	**6.736**
	Aedes albopictus	9	122		
	Aedes canadensis canadensis	6	214		
	Aedes cantator	2	30		
	Aedes japonicus	20	105	1	9.524
	Aedes mitchellae	4	60		
	Aedes sticticus	1	8		
	Aedes triseriatus	3	3		
	Aedes trivittatus	1	2		
	Aedes vexans	5	72		
	Anopheles bradleyi	2	79		
	Anopheles crucians	3	37		
	Anopheles punctipennis	3	14		
	Anopheles quadrimaculatus	3	11		
	Coquillettidia perturbans	21	921		
	Culex erraticus	4	73		
	Culex pipiens	6	222		
	Culex restuans	3	55		
	Culex salinarius	10	182		
	Culex spp.	132	5388	11	2.042
	Culiseta melanura	66	2844	2	0.703
	Psorophora columbiae	1	5		
Camden		**150**	**5733**	**18**	**3.140**
	Aedes albopictus	6	14		
	Aedes japonicus	10	21	1	47.619
	Aedes triseriatus	2	6		
	Aedes trivittatus	1	2		
	Anopheles punctipennis	1	2		
	Culex spp.	96	4101	16	3.901
	Culiseta melanura	34	1587	1	0.630
Cape May		**1248**	**11284**	**7**	**0.620**
	Aedes albopictus	151	309		
	Aedes atlanticus	1	3		
	Aedes canadensis canadensis	5	63		
	Aedes cantator	34	444		
	Aedes japonicus	54	93		
	Aedes sollicitans	4	12		
	Aedes taeniorhynchus	9	100		
	Aedes triseriatus	70	123		
	Aedes vexans	8	38		
	Anopheles bradleyi	16	38		
	Anopheles punctipennis	13	17		
	Anopheles quadrimaculatus	38	118		

	Coquillettidia perturbans	4	23		
	Culex erraticus	62	2338		
	Culex pipiens	382	6119	7	1.144
	Culex restuans	165	497		
	Culex salinarius	78	236		
	Culex spp.	50	205		
	Culex territans	17	34		
	Culiseta melanura	80	467		
	Orthopodomyia signifera	7	7		
Cumberland		**88**	**1050**		
	Aedes albopictus	7	18		
	Aedes canadensis canadensis	4	25		
	Aedes cantator	3	11		
	Aedes japonicus	7	23		
	Aedes triseriatus	5	10		
	Aedes vexans	2	6		
	Anopheles bradleyi	3	152		
	Anopheles punctipennis	4	10		
	Coquillettidia perturbans	5	81		
	Culex erraticus	1	5		
	Culex pipiens	12	307		
	Culex restuans	7	84		
	Culex salinarius	7	84		
	Culex spp.	3	13		
	Culex territans	1	1		
	Culiseta melanura	16	204		
	Psorophora ferox	1	16		
Essex		**249**	**4788**	**13**	**2.715**
	Aedes albopictus	34	108		
	Aedes canadensis canadensis	2	2		
	Aedes grossbecki	2	2		
	Aedes japonicus	34	321	1	3.115
	Aedes sticticus	5	113		
	Aedes triseriatus	9	22		
	Aedes vexans	16	220		
	Culex spp.	146	3996	12	3.003
	Psorophora ferox	1	4		
Gloucester		**318**	**11363**	**22**	**1.936**
	Aedes albopictus	17	478		
	Aedes japonicus	5	75		
	Aedes triseriatus	1	7		
	Aedes vexans	1	2		
	Anopheles punctipennis	12	68		
	Anopheles quadrimaculatus	12	41		
	Culex pipiens	207	9662	19	1.966
	Culiseta melanura	63	1030	3	2.913
Hudson		**118**	**8110**	**24**	**2.959**
	Culex spp.	118	8110	24	2.959
Hunterdon		**138**	**6900**	**10**	**1.449**
	Culex spp.	138	6900	10	1.449

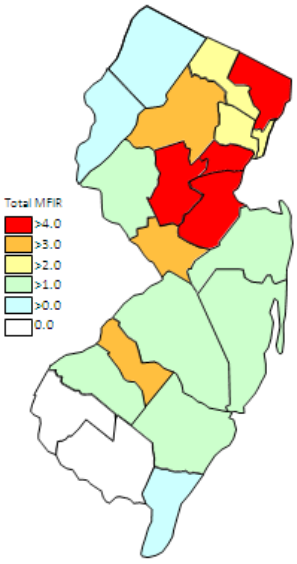
Mercer		**142**	**2962**	**9**	**3.038**
	Aedes albopictus	26	127		
	Aedes japonicus	27	111		
	Aedes triseriatus	5	11		
	Aedes vexans	1	3		
	Culex pipiens	65	2246	8	3.562
	Culex restuans	18	464	1	2.155
Middlesex		**136**	**4824**	**22**	**4.561**
	Aedes albopictus	11	144		
	Aedes japonicus	15	120		
	Aedes triseriatus	3	14		
	Culex spp.	107	4546	22	4.839
Monmouth		**185**	**3392**	**5**	**1.483**
	Aedes albopictus	26	133	1	7.519
	Aedes canadensis canadensis	8	121		
	Aedes cantator	8	43		
	Aedes japonicus	30	125	1	8.000
	Aedes triseriatus	10	13		
	Aedes vexans	2	4		
	Anopheles punctipennis	4	4		
	Coquillettidia perturbans	3	4		
	Culex salinarius	3	14		
	Culex spp.	73	2437	3	1.231
	Culiseta melanura	18	474		
Morris		**205**	**8538**	**28**	**3.279**
	Aedes japonicus	6	92		
	Aedes triseriatus	2	7		
	Culex spp.	197	8439	28	3.318
Ocean		**235**	**4468**	**7**	**3.318**
	Aedes albopictus	47	956		
	Aedes canadensis canadensis	29	1112		
	Aedes cantator	11	327		
	Aedes japonicus	21	105		
	Aedes sollicitans	2	2		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	8	20		
	Aedes trivittatus	1	2		
	Aedes vexans	6	27		
	Anopheles bradleyi	7	39		
	Anopheles punctipennis	2	2		
	Coquillettidia perturbans	17	418		
	Culex restuans	1	1		
	Culex salinarius	9	31		
	Culex spp.	55	1341	7	5.220
	Culiseta melanura	16	82		
	Psorophora ferox	2	2		
Passaic		**93**	**2135**	**6**	**2.810**
	Aedes albopictus	12	42		
	Aedes japonicus	20	269		

	Aedes triseriatus	8	16		
	Anopheles punctipennis	2	4		
	Coquillettidia perturbans	1	2		
	Culex spp.	50	1802	6	3.330
Salem		**135**	**1422**		
	Aedes albopictus	13	40		
	Aedes canadensis canadensis	2	6		
	Aedes cantator	1	1		
	Aedes japonicus	4	8		
	Aedes sticticus	1	3		
	Aedes triseriatus	2	2		
	Aedes vexans	10	82		
	Anopheles bradleyi	4	21		
	Anopheles punctipennis	5	7		
	Anopheles quadrimaculatus	6	14		
	Coquillettidia perturbans	11	110		
	Culex erraticus	5	27		
	Culex pipiens	4	26		
	Culex restuans	2	15		
	Culex spp.	47	719		
	Culiseta melanura	13	293		
	Culiseta minnesotae	1	2		
	Psorophora columbiae	2	25		
	Psorophora ferox	2	21		
Somerset		**120**	**2756**	**13**	**4.717**
	Aedes albopictus	4	21		
	Aedes canadensis canadensis	1	3		
	Aedes japonicus	11	82		
	Aedes triseriatus	3	39		
	Aedes vexans	1	8		
	Anopheles punctipennis	2	13	1	76.923
	Culex spp.	98	2590	12	4.633
Sussex		**167**	**5392**	**1**	**0.185**
	Coquillettidia perturbans	1	43		
	Culex pipiens	4	59		
	Culex restuans	6	186		
	Culex spp.	149	5092	1	0.196
	Culiseta melanura	7	12		
Union		**161**	**8287**	**51**	**6.154**
	Aedes albopictus	9	137		
	Aedes japonicus	1	14		
	Aedes triseriatus	1	15		
	Culex spp.	150	8121	51	6.280
Warren		**153**	**4188**	**4**	**0.955**
	Aedes japonicus	2	9		
	Aedes triseriatus	2	2		
	Aedes trivittatus	1	1		
	Aedes vexans	2	3		
	Anopheles punctipennis	3	29		
	Anopheles quadrimaculatus	1	1		

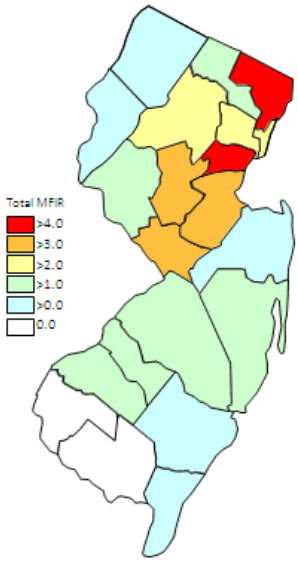
Culex spp.	142	4143	4	0.965
Grand Total	**4477**	**151100**	**295**	**2.563**



Cumulative WNV activity in 2011.



WNV activity to 30 July 2012.



WNV activity last week, 2012.

Saint Louis Encephalitis (SLE) through 30 July 2012.

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 tested positive for SLE to date in 2012.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**264**	**9064**		
	Aedes albopictus	5	32		
	Aedes canadensis canadensis	6	214		
	Aedes cantator	2	30		
	Aedes japonicus	18	72		
	Aedes mitchellae	4	60		
	Aedes sticticus	1	8		
	Aedes triseriatus	3	3		
	Aedes trivittatus	1	2		
	Aedes vexans	4	65		
	Anopheles bradleyi	1	4		
	Anopheles crucians	3	37		
	Anopheles punctipennis	2	13		
	Anopheles quadrimaculatus	3	11		
	Coquillettidia perturbans	20	892		
	Culex erraticus	3	71		
	Culex pipiens	6	222		
	Culex restuans	3	55		

	Culex salinarius	10	182		
	Culex spp.	113	4539		
	Culiseta melanura	55	2547		
	Psorophora columbiae	1	5		
Camden		**50**	**1713**		
	Aedes albopictus	4	11		
	Aedes japonicus	4	6		
	Aedes triseriatus	1	5		
	Anopheles punctipennis	1	2		
	Culex spp.	40	1689		
Essex		**200**	**3900**		
	Aedes albopictus	23	48		
	Aedes canadensis canadensis	2	2		
	Aedes grossbecki	2	2		
	Aedes japonicus	30	251		
	Aedes sticticus	5	113		
	Aedes triseriatus	9	22		
	Aedes vexans	16	220		
	Culex spp.	112	3238		
	Psorophora ferox	1	4		
Hudson		**74**	**4966**		
	Aedes canadensis canadensis	74	4966		
Grand Total		**588**	**19643**		

La Crosse Encephalitis (LAC) through 30 July 2012.

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 tested positive to date for 2012.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**51**	**93**		
	Aedes triseriatus	51	93		
Cumberland		**5**	**10**		
	Aedes triseriatus	5	10		
Salem		**1**	**1**		
	Aedes triseriatus	1	1		
Union		**1**	**15**		
	Aedes triseriatus	1	15		

Grand Total		**58**	**119**		