VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 29: July 15 to July 21, 2012

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This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of the Department of Health and Senior Services, Department of Agriculture and of the 21 county mosquito control agencies of New Jersey.

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**	2.51	0	7	3		
Corbin City (Atlantic Co.)/25	**Coastal**	0.91	0.32	113‡	7		
Dennisville (Cape May Co.)/50	**Coastal**	3.96	0.06	72	7	1	13.89
Winslow (Camden Co.)/50	**Inland**	0.99	1.56	1511	32	5	3.31
Centerton (Salem Co.)/50	**Inland**	2.21	0.18	287	10	1	3.48
Turkey Swamp (Monmouth Co.)/48	**Inland**	1.27	0.33	(455) 439	(13) 12		
Glassboro (Gloucester Co.)/50	**Inland**	0.52	0.24	137	7		

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

Remarks: Eastern equine encephalitis virus has been detected in 2 additional *Culiseta melanura* pools collected from the Winslow resting boxes on 16 July, resulting in an increase in the MFIR value for that site. No other positives were detected at the other traditional resting box sites.

To date 2567 *Cs. melanura* from 79 pools have been tested, with one pool in the system to be tested.

One hundred ninety-eight additional pools containing 4346 *Cs. melanura* have tested negative from other county trapping sites using other traps in addition to resting boxes. No detection of EEE has occurred at these sites.

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	347 (48)	0	
Cumberland	CO2, Gravid, RB	204 (16)	0	
Gloucester	RB	871 (53)	0	
Monmouth	Gravid	9 (2)	0	
Ocean	CO2, RB	77 (15)	0	
Salem	CO2	2 (2)	0	
TOTAL		**4346 (198)**	**0**	

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.

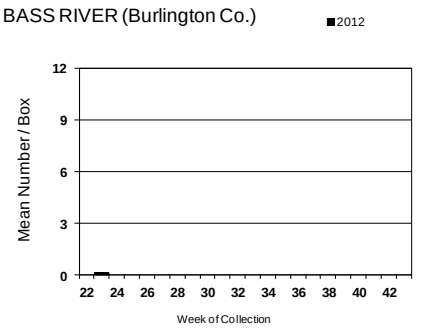
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

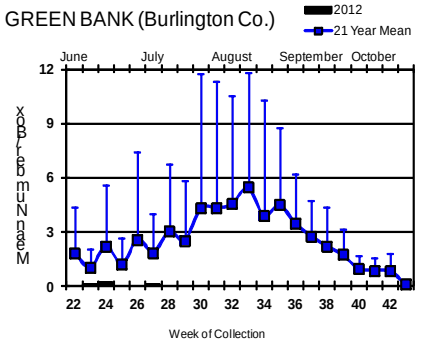
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	6	34		
Aedes canadensis canadensis	7	238		
Aedes cantator	31	464		
Aedes japonicus	18	72		
Aedes mitchellae	4	60		
Aedes sollicitans	3	11		
Aedes sticticus	1	8		
Aedes triseriatus	4	4		
Aedes trivittatus	1	2		
Aedes vexans	4	65		
Anopheles bradleyi	14	38		
Anopheles crucians	3	37		
Anopheles punctipennis	14	60		
Anopheles quadrimaculatus	14	50		
Coquillettidia perturbans	58	1550		
Culex erraticus	51	1756		
Culex pipiens	190	2153		
Culex restuans	3	55		
Culex salinarius	58	331		
Culex sp.	108	4343		
Psorophora columbiae	1	5		
State Total	**593**	**11336**		

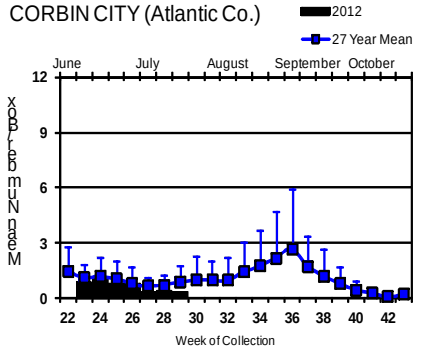
The table to the left indicates non-*Cs. melanura* mosquitoes tested for EEE. An additional 20 species of mosquitoes have been tested with no detection of EEE.

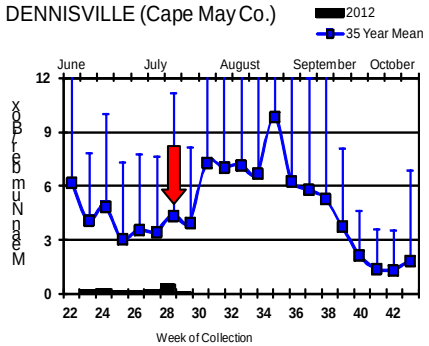
Culiseta melanura Population Graphs

Coastal

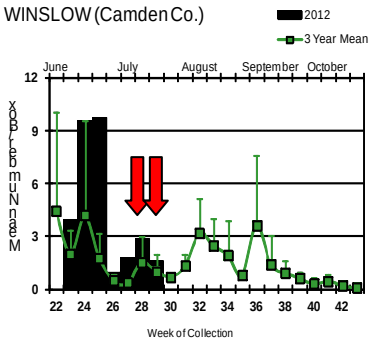


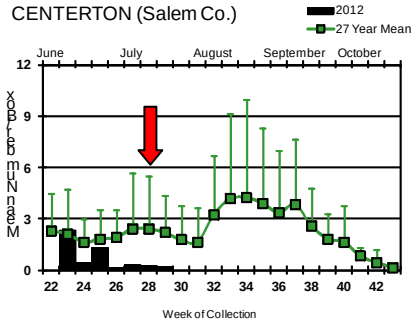


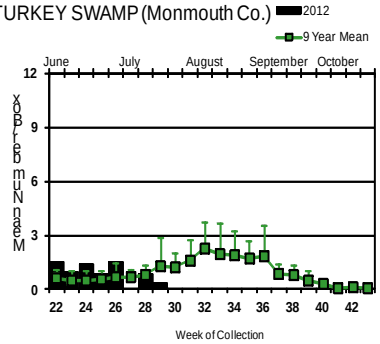


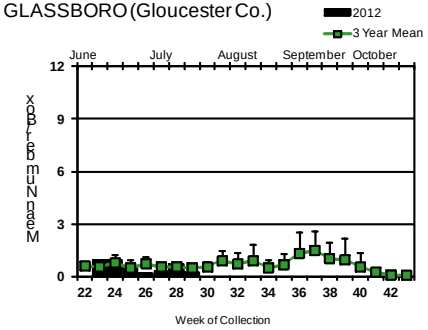


Inland









All of the traditional resting box sites other than Winslow report *Culiseta melanura* populations below historical values. The populations at Winslow are closer to historical values, within error bars for this week that produced two additional positive pools.

= Positive pool(s) detected.

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

- equine: 12(FL) 4(GA) 10(LA) 10(MS) 2(NC) 1(NJ) 3(SC)
- mosquito pools: 19(MA) 7(NJ)
- sentinel: 27(FL) 2 wild(ME)
- 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	3/8	1/2	0	2
Arkansas					
California	353/432	448/593	5/19	0	1/6
Colorado		10			
Connecticut		2/9		0	0
Delaware					
DC					
Florida	0		51/57	0	0
Georgia	0	3	0	0	0
Hawaii					
Idaho					
Illinois	17/21	106/375		0	0
Indiana	0	21/25		0	0
Iowa		0	0	0	0
Kansas					
Kentucky				0	
Louisiana		337/499	8/21	8	10/14
Maine					
Maryland					
Mass.		5/15		0	0
Michigan	0	1		0	0
Minnesota					1
Mississippi		11/37		6?	4/5
Missouri		17		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana					
Nebraska	2	2/24			1
Nevada					
New Hampshire		0		0	0
New Jersey	3/14	120/201		0	0
New Mexico					0
New York		15/75			
North Carolina					
North Dakota	0	0		0	0
Ohio		62			
Oklahoma		1			1
Oregon	0	6	0	0	0
Pennsylvania	7/10	290/402		1	
Rhode Island		1		0	0
South Carolina	1	1		1	0
South Dakota		7/19			1
Tennessee	0	123/189		0	0
Texas	5	204/379		2	28/53
Utah		0	0	0	0
Vermont					
Virginia					
Washington	0	1		0	0
West Virginia		1			
Wisconsin	0	0		0	0
Wyoming		2/4		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 23 July 2012

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	290	2009		
Aedes canadensis canadensis	58	1548		
Aedes cantator	56	852		
Aedes grossbecki	2	2		
Aedes japonicus	230	1405	3	2.135
Aedes mitchellae	4	60		
Aedes sollicitans	5	13		
Aedes sticticus	7	124		
Aedes taeniorhynchus	9	179		
Aedes triseriatus	117	281		
Aedes trivittatus	3	6		
Aedes vexans	51	463		
Anopheles bradleyi	27	103		
Anopheles crucians	3	37		
Anopheles punctipennis	46	144		
Anopheles quadrimaculatus	50	160		
Coquillettidia perturbans	65	1605		
Culex erraticus	55	1802		
Culex pipiens	546	16383	28	1.709
Culex restuans	141	1081	1	0.925
Culex salinarius	81	474		
Culex sp.	1618	65377	163	2.493
Culex territans	14	30		
Culiseta melanura	294	6960	6	0.862
Culiseta minnesotae	1	2		
Orthopodomyia signifera	4	4		
Psorophora columbiae	3	30		
Psorophora ferox	5	27		
State Total	**3785**	**101161**	**201**	**1.987**

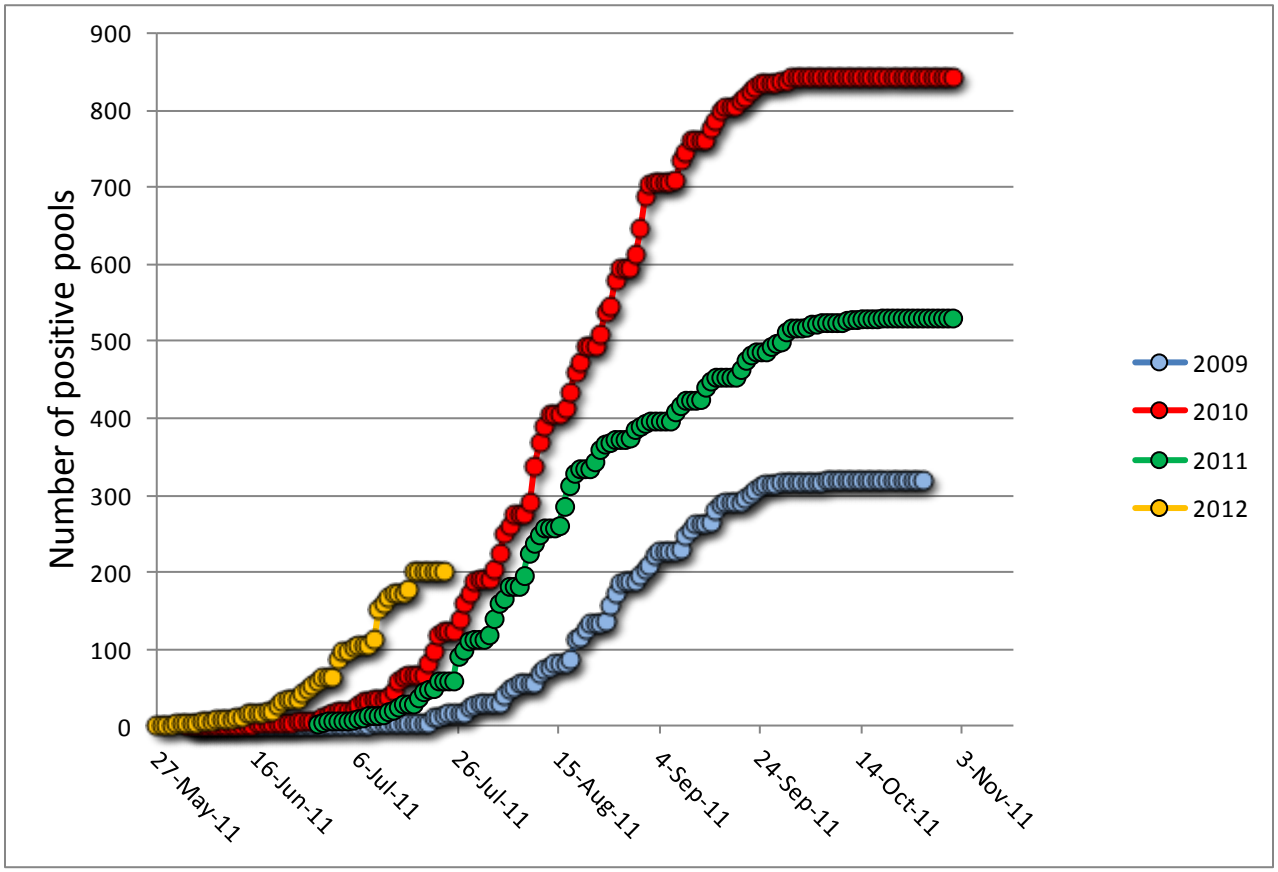
Remarks: To date, there have been 101,161 mosquitoes tested in 3,785 pools from 27 species. Currently, 201 positive pools have been detected in *Aedes japonicus*, *Culex pipiens,* Mixed *Cx.* species, *Culiseta melanura* and *Culex restuans.* Mixed Culex pools again increased significantly from 94 to 163), with MFIR values increasing from 1.679 to 2.493. As with last week, most of the increased activity occurred in the northern half of New Jersey, particularly Middlesex and Union counties. Positive pools have now 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: There is no reported horse or human cases to date. 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 fourteen birds out of 78 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* 2/6), Fish Crow (*Corvus ossifragus* 5/22), unidentified Crow (*Corvus* spp. 4/9), Blue Jay (*Cyanocitta cristata* 2/7), Hawk (0/3) and other avian species (1/29). 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
201 / 3785 (0.053)	59 / 2397 (0.025)
2012 Positive Birds to date / Total Birds Submitted	This time last year
14 / 78 (0.179)	0 / 31 (0.0)

This season may have begun early, with detection of virus activity in a horse in eastern Pennsylvania and a crow in Morris County. Because of these activities, testing began earlier, with first positives detected in mid May. With various start times used over the years, correlations with intensity of activity is low. But plotting cumulative positive pools suggests that activity could be high this year (graph below). 2010 was a very active year for New Jersey, with 846 positive pools (highest number) and 30 human cases. The previous year of 2009 was very low activity, with 322 positive pools and 1 human case. It remains to be seen if the increasing trends of this year continue, or if activity declines.



WNV Results by County through 23 July 2012

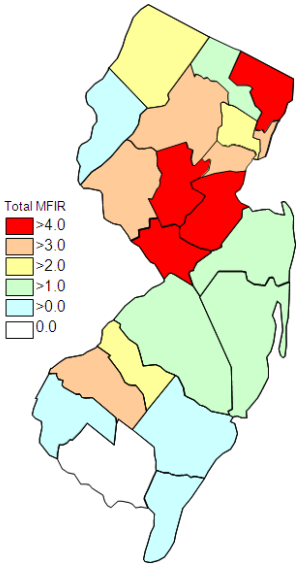
County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**38**	**1048**	**1**	**0.954**
	Aedes albopictus	4	75		
	Aedes canadensis canadensis	1	2		
	Aedes cantator	1	10		
	Aedes japonicus	1	1		
	Aedes taeniorhynchus	2	89		
	Aedes vexans	1	9		
	Anopheles bradleyi	1	3		
	Coquillettidia perturbans	2	3		
	Culex erraticus	1	30		
	Culex spp.	17	713	1	1.403

	Culiseta melanura	7	113		
Bergen		**60**	**4500**	**25**	**5.556**
	Culex spp.	60	4500	25	5.556
Burlington		**291**	**9961**	**11**	**1.104**
	Aedes albopictus	7	69		
	Aedes canadensis canadensis	6	214		
	Aedes cantator	2	30		
	Aedes japonicus	19	78	1	12.821
	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	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.	123	5064	8	1.580
	Culiseta melanura	66	2844	2	0.703
	Psorophora columbiae	1	5		
Camden		**128**	**4920**	**7**	**1.423**
	Aedes albopictus	5	12		
	Aedes japonicus	9	19	1	52.632
	Aedes triseriatus	1	5		
	Aedes trivittatus	1	2		
	Anopheles punctipennis	1	2		
	Culex spp.	79	3369	5	1.484
	Culiseta melanura	32	1511	1	0.662
Cape May		**905**	**8815**	**4**	**1.454**
	Aedes albopictus	110	254		
	Aedes canadensis canadensis	5	63		
	Aedes cantator	30	430		
	Aedes japonicus	38	70		
	Aedes sollicitans	3	11		
	Aedes taeniorhynchus	6	89		
	Aedes triseriatus	61	110		
	Aedes vexans	6	36		
	Anopheles bradleyi	13	34		
	Anopheles punctipennis	12	15		
	Anopheles quadrimaculatus	28	93		
	Coquillettidia perturbans	4	23		
	Culex erraticus	44	1667		
	Culex pipiens	277	4858	4	0.823
	Culex restuans	104	276		
	Culex salinarius	54	193		
	Culex spp.	32	134		
	Culex territans	13	29		

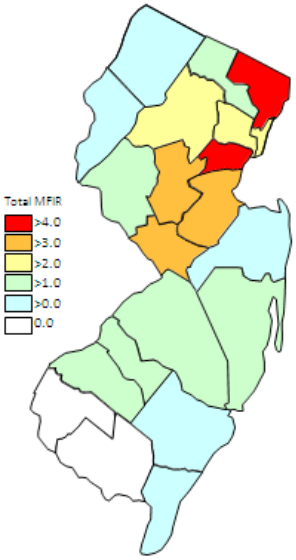
	Culiseta melanura	61	426		
	Orthopodomyia signifera	4	4		
Cumberland		**81**	**790**		
	Aedes albopictus	6	11		
	Aedes canadensis canadensis	4	25		
	Aedes cantator	3	11		
	Aedes japonicus	7	23		
	Aedes triseriatus	5	10		
	Aedes vexans	2	6		
	Anopheles bradleyi	1	2		
	Anopheles punctipennis	4	10		
	Coquillettidia perturbans	5	81		
	Culex erraticus	1	5		
	Culex pipiens	11	250		
	Culex restuans	7	84		
	Culex salinarius	5	54		
	Culex spp.	3	13		
	Culex territans	1	1		
	Culiseta melanura	16	204		
Essex		**229**	**4494**	**9**	**2.003**
	Aedes albopictus	30	93		
	Aedes canadensis canadensis	2	2		
	Aedes grossbecki	2	2		
	Aedes japonicus	32	303	1	3.300
	Aedes sticticus	5	113		
	Aedes triseriatus	9	22		
	Aedes vexans	16	220		
	Culex spp.	132	3735	8	2.142
	Psorophora ferox	1	4		
Gloucester		**297**	**10614**	**19**	**1.790**
	Aedes albopictus	15	418		
	Aedes japonicus	5	75		
	Aedes triseriatus	1	7		
	Aedes vexans	1	2		
	Anopheles punctipennis	12	68		
	Anopheles quadrimaculatus	12	41		
	Culex pipiens	189	8976	16	1.783
	Culiseta melanura	62	1027	3	2.921
Hudson		**103**	**7041**	**15**	**2.130**
	Culex spp.	103	7041	15	2.130
Hunterdon		**123**	**6150**	**9**	**1.463**
	Culex spp.	123	6150	9	1.463
Mercer		**122**	**2628**	**9**	**3.425**
	Aedes albopictus	22	65		
	Aedes japonicus	22	97		
	Aedes triseriatus	4	7		
	Aedes vexans	1	3		
	Culex pipiens	55	1992	8	4.016
	Culex restuans	18	464	1	2.155

Middlesex		**119**	**4341**	**17**	**3.916**
	Aedes albopictus	9	113		
	Aedes japonicus	13	108		
	Aedes triseriatus	2	10		
	Culex spp.	95	4110	17	4.136
Monmouth		**165**	**3122**	**3**	**0.961**
	Aedes albopictus	21	95		
	Aedes canadensis canadensis	8	121		
	Aedes cantator	8	43		
	Aedes japonicus	25	97		
	Aedes triseriatus	8	11		
	Aedes vexans	2	4		
	Anopheles punctipennis	3	3		
	Coquillettidia perturbans	3	4		
	Culex salinarius	3	14		
	Culex spp.	67	2272	3	1.320
	Culiseta melanura	17	458		
Morris		**185**	**7661**	**16**	**2.089**
	Aedes japonicus	6	92		
	Aedes triseriatus	2	7		
	Culex spp.	177	7562	16	2.116
Ocean		**216**	**4.48**	**5**	**1.235**
	Aedes albopictus	39	709		
	Aedes canadensis canadensis	29	1112		
	Aedes cantator	11	327		
	Aedes japonicus	19	90		
	Aedes sollicitans	2	2		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	7	17		
	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.	48	1191	5	4.198
	Culiseta melanura	15	77		
	Psorophora ferox	2	2		
Passaic		**75**	**1902**	**2**	**1.052**
	Aedes albopictus	7	20		
	Aedes japonicus	16	239		
	Aedes triseriatus	6	14		
	Anopheles punctipennis	2	4		
	Coquillettidia perturbans	1	2		
	Culex spp.	43	1623	2	1.232
Salem		**124**	**1324**		
	Aedes albopictus	8	9		
	Aedes canadensis canadensis	2	6		

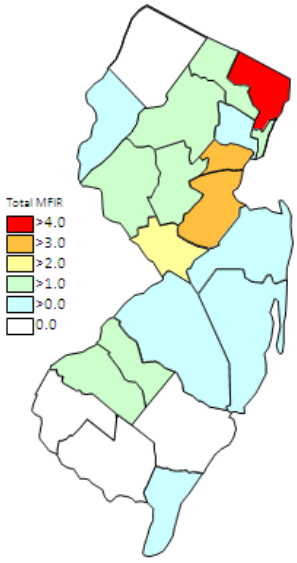
	Aedes cantator	1	1		
	Aedes japonicus	4	8		
	Aedes sticticus	1	3		
	Aedes triseriatus	2	2		
	Aedes vexans	10	82		
	Anopheles bradleyi	4	21		
	Anopheles punctipennis	5	7		
	Anopheles quadrimaculatus	6	14		
	Coquillettidia perturbans	11	110		
	Culex erraticus	5	27		
	Culex pipiens	4	26		
	Culex restuans	2	15		
	Culex spp.	42	656		
	Culiseta melanura	12	289		
	Culiseta minnesotae	1	2		
	Psorophora columbiae	2	25		
	Psorophora ferox	2	21		
Somerset		**103**	**2541**	**9**	**3.542**
	Aedes albopictus	3	15		
	Aedes canadensis canadensis	1	3		
	Aedes japonicus	11	82		
	Aedes triseriatus	3	39		
	Aedes vexans	1	8		
	Culex spp.	84	2394	9	3.759
Sussex		**147**	**4670**	**1**	**0.214**
	Coquillettidia perturbans	1	43		
	Culex pipiens	4	59		
	Culex restuans	6	186		
	Culex spp.	130	4371	1	0.229
	Culiseta melanura	6	11		
Union		**141**	**7139**	**38**	**5.323**
	Aedes albopictus	4	51		
	Aedes japonicus	1	14		
	Aedes triseriatus	1	15		
	Culex spp.	135	7059	38	5.383
Warren		**133**	**3452**	**1**	**0.290**
	Aedes japonicus	2	9		
	Aedes triseriatus	2	2		
	Aedes vexans	1	1		
	Anopheles punctipennis	2	19		
	Anopheles quadrimaculatus	1	1		
	Culex spp.	125	3420	1	0.292
Grand Total		**3785**	**101161**	**201**	**1.987**



Cumulative WNV activity in 2011.



WNV activity to 23 July 2012.



WNV activity last week, 2012.

Saint Louis Encephalitis (SLE) through 23 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 23 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		**48**	**90**		
	Aedes triseriatus	48	90		
Cumberland		**5**	**10**		
	Aedes triseriatus	5	10		
Salem		**1**	**1**		
	Aedes triseriatus	1	1		
Union		**1**	**15**		
	Aedes triseriatus	1	15		
Grand Total		**55**	**116**		