RUTGERS
New Jersey Agricultural Experiment Station

VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

CDC WEEK 31: August 1 to August 7, 2010

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Supported by funding from the NJ State Mosquito Control Commission.

Culiseta melanura and Eastern Equine Encephalitis

SITE	Inland / Coastal	Historic Mean	Current Weekly Mean	Total Tested to Date*	Total Pools Submitted	EEE Isolations	MFIR
Green Bank (Burlington County)	Coastal	4.72	0.68	87	10	0	0
Corbin City (Atlantic County)	Coastal	1.08	0.12	287	11	0	0
Dennisville (Cape May County)	Coastal	7.44	0.32	570	18	1	1.75
Winslow (Camden County)	Inland	0.94	2.08	1472	33	0	0
Centerton (Salem County)	Inland	1.72	0.60	1105	26*	0	0
Turkey Swamp (Monmouth County)	Inland	1.69	1.92†	305	33	0	0
Glassboro (Gloucester County)	Inland	1.52	0.78	320	10	0	0

*Including trial run last week in May. † results included in next week's report. *adjusted

Remarks: There are **4 positive EEE pools** to report at this time. All four positive pools continue to be from *Cs. melanura*, from both traditional resting box monitoring sites and county-run traps. To date, 4131 *Culiseta melanura* mosquitoes forming 141 pools from the seven traditional resting box sites have been tested, producing one positive pool. An additional 4455 *Cs. melanura* (table below) forming 189 pools have been sampled by the counties using a variety of traps and have detected the three remaining positive pools, with the latest positive being sampled on the 4th of August from a Gloucester resting box.

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

County	Trap types*	Number collected	Number of positives	MFIR
Atlantic	CO_2	17		
Burlington	**CO_2**	1756	1	0.569
Cape May	CO_2, Gravid, **RB**	1568	1	0.638
Cumberland	RB	159		
Gloucester	**RB**	771	1	1.30
Ocean	CO_2, Gravid, RB	155		
Salem	CO_2	1		
Sussex	CO_2, NJLT	28		
TOTAL		**4455**	**3**	**0.673**

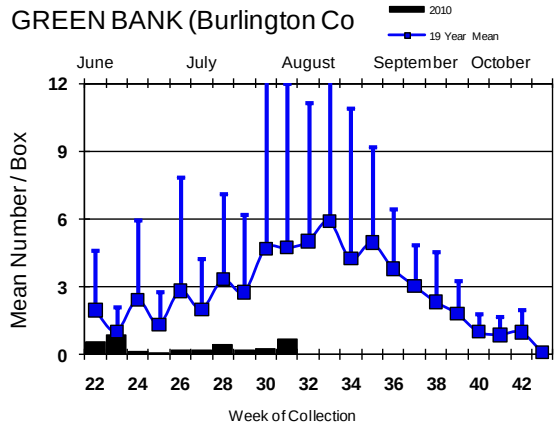
The table below indicates non-melanura species tested for EEE, all negative:

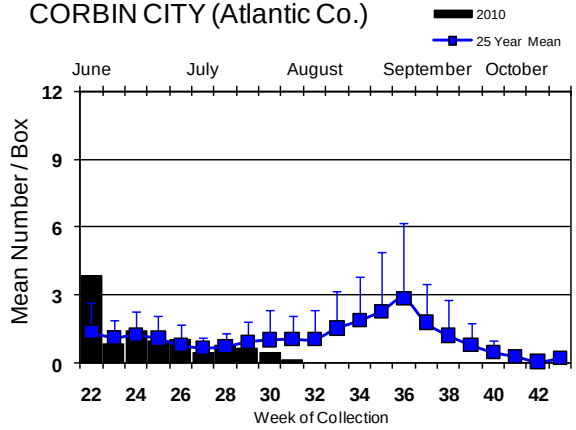
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	10	59		
Aedes canadensis canadensis	2	30		
Aedes japonicus	3	10		
Aedes sollicitans	3	99		
Aedes taeniorhynchus	1	7		
Aedes triseriatus	1	2		
Aedes trivittatus	1	2		
Aedes vexans	5	145		
Anopheles bradleyi	5	42		
Anopheles crucians	2	122		
Anopheles punctipennis	2	14		
Anopheles quadrimaculatus	4	7		
Coquillettidia perturbans	21	606		
Culex erraticus	18	493		
Culex pipiens	142	1457		
Culex restuans	5	14		
Culex salinarius	14	142		
Culex spp.	109	2601		
Culex territans	1	1		
Culiseta minnesotae	1	1		
Uranotaenia sapphirina	1	6		
State Total	**351**	**5860**	**0**	**0.00**

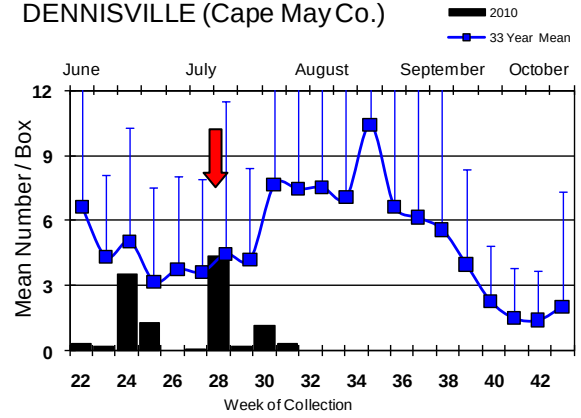
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

Culiseta melanura Population Graphs

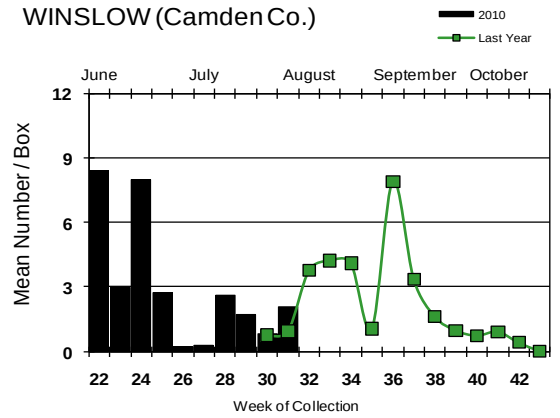
Coastal

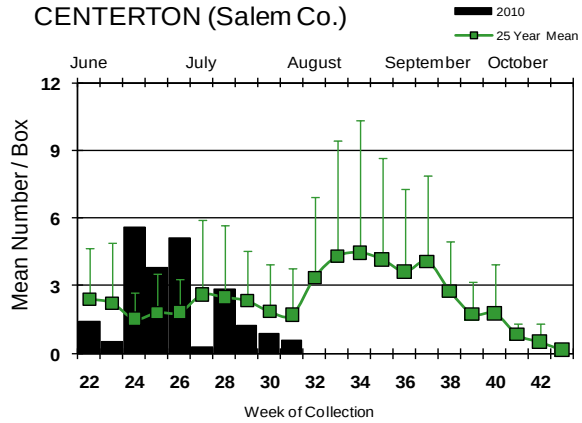


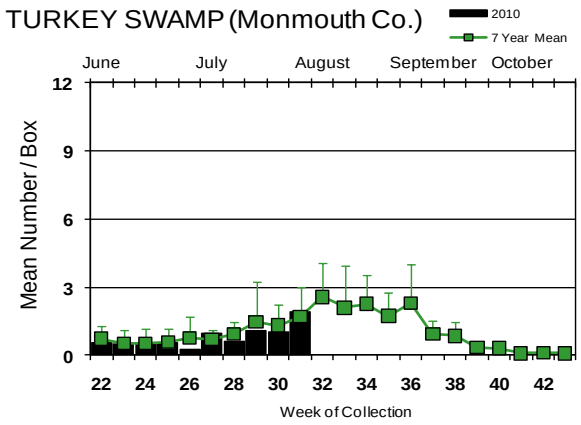




Inland

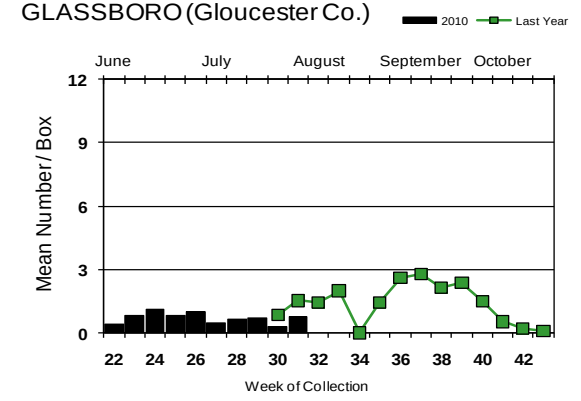






Cs. melanura populations trends were mixed this week. Populations rose at Green Bank, Winslow, Turkey Swamp and Glassboro while the remaining sites showed a decline in numbers. The Winslow site is the only site that showed numbers apparently higher than history, but history only includes the previous year.

= Zero positive pool(s) detected.



EEE in US (2010 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 6(AL) 69(FL) 2(GA) 1(LA) 2(MA) 3(MI)
- mosquito: 3(FL) 4(NJ) 2(NY) 40(MA) 3(VA)
- sentinel: 113/26(FL chickens/wild) 2(AL)
- human: 1(TX-out of country acquired case) 4(FL)

West Nile Virus

West Nile in US (2010 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.

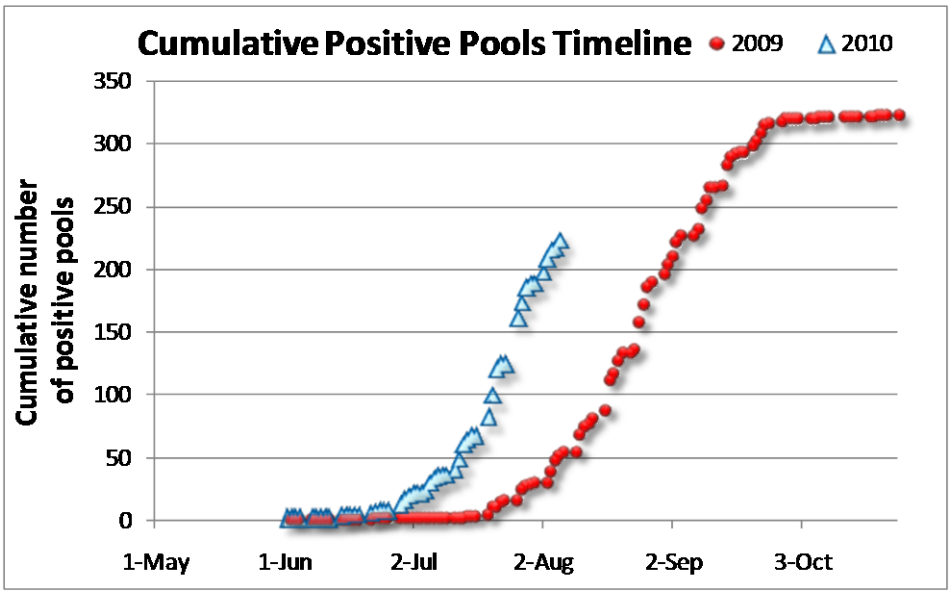
	Birds	Mosquito Pools	Sentinels	Horses	Humans
Alabama					2
Alaska					
Arizona		176/196	3/9		23/43
Arkansas					
California	143/179	434/562	24/45	1	6/12
Colorado		4/8			6/7
Connecticut		13/28			
Delaware					1
DC					
Florida	1Flavi		56/65	2/6	
Georgia	0	1		0	3
Hawaii					
Idaho					
Illinois	20/23	117/243			
Indiana	0	22/62		0	0
Iowa		0	1	0	0
Kansas					2
Kentucky				0	
Louisiana		65/106	0	2	1
Maine					
Maryland		1			
Mass.		8/12			
Michigan					
Minnesota					
Mississippi		2			1
Missouri		45/48			1
Montana					
Nebraska	0	4/9		0	2
Nevada		1			
New Hampshire		0		0	0
New Jersey	21/41	151/223	0	0	0
New Mexico					0
New York	0	114/199		0	0
North Carolina			1		
North Dakota					2
Ohio		3/6		0	0
Oklahoma		2			
Oregon	0	0	0	0	0
Pennsylvania	4	152/236			
Rhode Island					
South Carolina					
South Dakota					2/4
Tennessee	0	20/49		0	0
Texas	0	19/39		0	1/2
Utah		1			
Vermont	0	3		0	0
Virginia		28			
Washington	0	35/52		0	0
West Virginia	0	22		0	0
Wisconsin	0			0	0
Wyoming		4/8			

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 for West Nile Virus Testing through 9 Aug 2010

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	177	1051	1	0.951
Aedes canadensis canadensis	23	398		
Aedes cantator	7	21		
Aedes japonicus	182	1003		
Aedes sollicitans	4	108		
Aedes sticticus	1	1		
Aedes stimulans	3	8		
Aedes taeniorhynchus	3	38		
Aedes triseriatus	65	157		
Aedes trivittatus	5	37		
Aedes vexans	35	349		
Anopheles bradleyi	8	50		
Anopheles crucians	2	122		
Anopheles punctipennis	20	236		
Anopheles quadrimaculatus	27	229		
Anopheles walkeri	3	4		
Coquillettidia perturbans	60	1307		
Culex erraticus	21	506		
Culex pipiens	421	9938	52	5.232
Culex restuans	121	903	1	1.107
Culex salinarius	27	359		
Culex spp.	1382	51522	167	3.241
Culex territans	1	1		
Culiseta melanura	315	6994	2	0.286
Culiseta minnesotae	1	1		
Orthopodomyia signifera	1	1		
Psorophora ciliata	1	1		
Psorophora cyanescens	1	1		
Uranotaenia sapphirina	1	6		
State Total	**2918**	**75352**	**223**	**2.959**

Remarks: The number of positive WNV mosquito pools to date is 223. As with last week, a large increase occurred in the *Culex* Mix pools. Activity increased in the north and central portion of the state as well as Gloucester County. The cumulative positive pool timeline (graph below) continues to show earlier activity this year than in 2009. Note: In the county table below for Ocean County, an MFIR value for *Culex restuans* calculated to 500. This was from one positive pool of two pools with only one individual in each pool. For the state, this was a first positive this year for this species.



Humans, Horses and Wild Birds: No humans or horses have been found positive for WNV to date. For more details plus information about WNV, see the West Nile Virus Alert and FAQ Sheets from the NJ Department of Health and Senior Services, Communicable Disease Service, Infectious and Zoonotic Disease Program:
http://www.state.nj.us/health/cd/westnile/enceph.htm

Forty-one dead, wild birds have been positive for WNV, well ahead of last year's results in terms of number and timing. This year's positive birds include 35 corvids (11 positives/17 tested American Crows, 9/20 Fish Crows, 13/22 Blue Jays and 2/9 unidentified Crows), 3 negative Hawks (unknown species) and 6/36 unknown species.

2010 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
223/ 2918 (0.076%)	53/ 4225 (0.013%)
2010 Positive Birds to date / Total Birds Submitted	This time last year
41/ 107 (0.38%)	1/ 47 (0.02%)

WNV Results by County through 9 Aug 2010

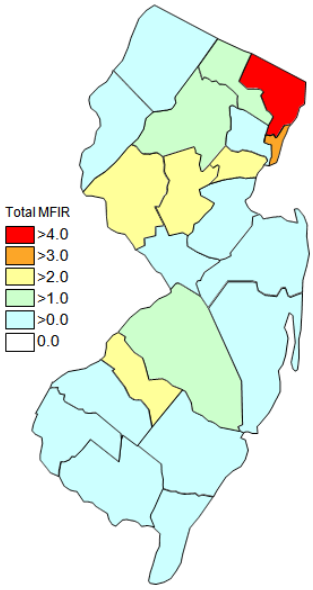
County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**122**	**3182**	**16**	**5.028**
	Aedes albopictus	12	105	1	9.524
	Aedes canadensis canadensis	3	56		
	Aedes cantator	3	14		
	Aedes japonicus	7	14		
	Aedes sollicitans	1	9		
	Aedes taeniorhynchus	1	24		
	Aedes triseriatus	2	3		
	Aedes trivittatus	3	26		
	Aedes vexans	7	112		
	Anopheles bradleyi	3	8		
	Anopheles punctipennis	2	46		
	Anopheles quadrimaculatus	2	3		
	Coquillettidia perturbans	6	22		
	Culex spp.	53	2411	14	5.807
	Culiseta melanura	16	328	1	3.049
	Orthopodomyia signifera	1	1		

Bergen		**105**	**7460**	**33**	**4.424**
	Aedes albopictus	3	15		
	Aedes japonicus	2	10		
	Culex spp.	100	7435	33	4.438
Burlington		**116**	**4618**	**12**	**2.599**
	Aedes albopictus	9	52		
	Aedes canadensis canadensis	2	30		
	Aedes japonicus	1	4		
	Aedes sollicitans	2	87		
	Aedes taeniorhynchus	1	7		
	Aedes vexans	4	143		
	Anopheles crucians	2	122		
	Anopheles punctipennis	1	13		
	Anopheles quadrimaculatus	1	3		
	Coquillettidia perturbans	5	215		
	Culex erraticus	1	7		
	Culex pipiens	3	23		
	Culex salinarius	3	24		
	Culex spp.	41	2039	12	5.885
	Culiseta melanura	39	1843		
	Uranotaenia sapphirina	1	6		
Camden		**75**	**1652**	**11**	**6.659**
	Aedes albopictus	14	52		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	7	7		
	Aedes triseriatus	2	2		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	1	1		
	Culex spp.	40	1231	11	8.936
	Culiseta melanura	9	357		
Cape May		**660**	**8693**	**1**	**0.115**
	Aedes albopictus	8	23		
	Aedes japonicus	20	46		
	Aedes sollicitans	1	12		
	Aedes taeniorhynchus	1	7		
	Aedes triseriatus	10	33		
	Anopheles bradleyi	2	38		
	Anopheles quadrimaculatus	3	66		
	Coquillettidia perturbans	8	140		
	Culex erraticus	18	495		
	Culex pipiens	242	3362	1	0.297
	Culex restuans	83	509		
	Culex salinarius	14	207		
	Culex spp.	119	1066		
	Culiseta melanura	131	2689		
Cumberland		**13**	**168**		
	Anopheles bradleyi	2	3		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	3	4		
	Culex territans	1	1		
	Culiseta melanura	6	159		

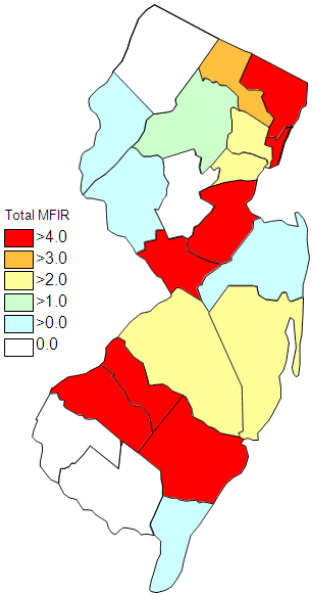
Essex		**74**	**968**	**2**	**2.066**
	Aedes albopictus	4	8		
	Aedes japonicus	15	211		
	Aedes stimulans	1	3		
	Aedes triseriatus	5	10		
	Aedes vexans	4	5		
	Culex spp.	45	731	2	2.736
Gloucester		**176**	**6188**	**44**	**7.111**
	Aedes albopictus	11	116		
	Aedes japonicus	2	15		
	Anopheles quadrimaclatus	1	5		
	Culex pipiens	129	5202	43	8.266
	Culiseta melanura	33	850	1	1.176
Hudson		**110**	**5110**	**32**	**6.262**
	Culex spp.	110	5110	32	6.262
Hunterdon		**120**	**5970**	**2**	**0.335**
	Culex spp.	120	5970	2	0.335
Mercer		**94**	**1785**	**8**	**4.482**
	Aedes albopictus	14	37		
	Aedes japonicus	16	26		
	Aedes triseriatus	4	5		
	Aedes vexans	1	21		
	Culex pipiens	31	1287	8	6.216
	Culex restuans	23	282		
	Culex salinarius	4	120		
	Culex spp.	1	7		
Middlesex		**160**	**8230**	**33**	**4.010**
	Aedes albopictus	1	7		
	Aedes japonicus	3	21		
	Aedes triseriatus	1	6		
	Culex spp.	155	8196	33	4.026
Monmouth		**179**	**1258**	**1**	**0.795**
	Aedes albopictus	22	54		
	Aedes canadensis canadensis	10	89		
	Aedes cantator	3	6		
	Aedes japonicus	25	72		
	Aedes triseriatus	9	10		
	Aedes vexans	2	5		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	3	3		
	Coquillettidia perturbans	5	8		
	Culex erraticus	2	4		
	Culex pipiens	1	1		
	Culex restuans	1	1		
	Culex salinarius	2	2		
	Culex spp.	56	695	1	1.439
	Culiseta melanura	36	306		
	Psorophora cyanescens	1	1		

Morris		**101**	**3444**	**5**	**1.452**
	Aedes japonicus	11	123		
	Aedes vexans	1	5		
	Anopheles punctipennis	2	6		
	Anopheles quadrimaculatus	3	82		
	Coquillettidia perturbans	6	207		
	Culex spp.	78	3021	5	1.655
Ocean		**170**	**2713**	**8**	**2.949**
	Aedes albopictus	36	383		
	Aedes canadensis canadensis	7	222		
	Aedes japonicus	25	85		
	Aedes sticticus	1	1		
	Aedes triseriatus	7	22		
	Aedes trivittatus	1	1		
	Aedes vexans	4	11		
	Coquillettidia perturbans	7	90		
	Culex restuans	2	2	1	500
	Culex salinarius	2	2		
	Culex spp.	56	1739	7	4.025
	Culiseta melanura	22	155		
Passaic		**83**	**1193**	**4**	**3.353**
	Aedes albopictus	13	61		
	Aedes japonicus	13	140		
	Aedes triseriatus	8	19		
	Anopheles punctipennis	2	3		
	Anopheles quadrimaculatus	1	2		
	Coquillettidia perturbans	4	44		
	Culex spp.	42	924	4	4.329
Salem		**96**	**610**		
	Aedes albopictus	12	18		
	Aedes cantator	1	1		
	Aedes japonicus	9	12		
	Aedes triseriatus	3	3		
	Aedes vexans	11	23		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	2	2		
	Anopheles quadrimaculatus	7	14		
	Anopheles walkeri	3	4		
	Coquillettidia perturbans	5	7		
	Culex pipiens	4	6		
	Culex restuans	4	6		
	Culex spp.	26	234		
	Culiseta melanura	8	279		
Somerset		**123**	**1300**		
	Aedes albopictus	12	27		
	Aedes japonicus	12	82		
	Aedes triseriatus	10	28		
	Anopheles punctipennis	6	13		

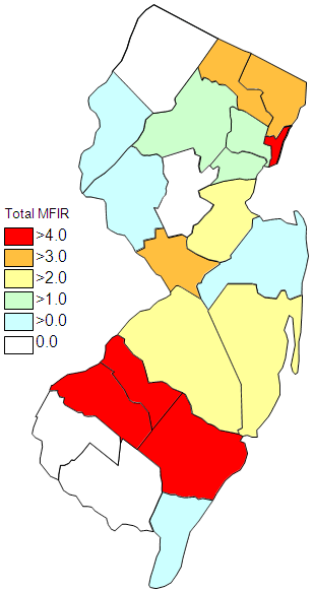
	Anopheles quadrimaculatus	1	2		
	Culex spp.	82	1148		
Sussex		**149**	**3636**		
	Aedes japonicus	3	45		
	Aedes stimulans	2	5		
	Coquillettidia perturbans	4	201		
	Culex pipiens	11	57		
	Culex restuans	8	103		
	Culex salinarius	2	4		
	Culex spp.	103	3192		
	Culiseta melanura	15	28		
	Culiseta minnesotae	1	1		
Union		**98**	**3677**	**10**	**2.720**
	Aedes albopictus	6	93		
	Aedes japonicus	10	88		
	Coquillettidia perturbans	1	9		
	Culex spp.	81	3487	10	2.868
Warren		**94**	**3497**	**1**	**0.286**
	Aedes japonicus	1	2		
	Aedes triseriatus	4	16		
	Aedes trivittatus	1	10		
	Aedes vexans	1	24		
	Anopheles punctipennis	2	150		
	Anopheles quadrimaculatus	1	44		
	Coquillettidia perturbans	9	364		
	Culex spp.	74	2886	1	0.347
	Psorophora ciliata	1	1		
Grand Total		**2918**	**75352**	**223**	**2.959**



Cumulative WNV activity in 2009.



WNV activity to 9 Aug, 2010.



WNV activity last week, 2010.

Saint Louis Encephalitis (SLE) through 9 Aug 2010.

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 tested positive to date for 2010.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**106**	**4531**		
	Aedes albopictus	9	52		
	Aedes canadensis canadensis	2	30		
	Aedes japonicus	1	4		
	Aedes sollicitans	2	87		
	Aedes taeniorhynchus	1	7		
	Aedes vexans	4	143		
	Anopheles crucians	2	122		
	Anopheles punctipennis	1	13		
	Anopheles quadrimaculatus	1	3		
	Coquillettidia perturbans	5	215		
	Culex erraticus	1	7		
	Culex pipiens	3	23		
	Culex salinarius	3	24		
	Culex spp.	41	2039		
	Culiseta melanura	29	1756		
	Uranotaenia sapphirina	1	6		
Camden		**53**	**1169**		
	Aedes albopictus	10	25		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	5	5		
	Aedes triseriatus	2	2		
	Anopheles punctipennis	1	1		
	Culex spp.	34	1135		
Essex		**56**	**932**		
	Aedes japonicus	11	201		
	Culex spp.	45	731		
Hudson		**68**	**3410**		
	Culex spp.	68	3410		
Salem		**1**	**7**		
	Culex spp.	1	7		
Grand Total		**284**	**10049**		

La Crosse Encephalitis (LAC) through 9 Aug 2010.

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 2010.

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**8**	**21**		
	Aedes triseriatus	8	21		
Warren		**10**	**106**		
	Aedes canadensis canadensis	4	86		
	Aedes triseriatus	6	20		
Grand Total		**18**	**127**		