RUTGERS
New Jersey Agricultural Experiment Station

VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

CDC WEEK 30: July 25 to July 31, 2010

Data Downloaded 2:54 pm 3 Aug 2010

Prepared by Lisa M. Reed, Scott Crans and Mark Robson at the Center for Vector Biology, Rutgers University.
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	4.70	0.24	70	9	0	0
Corbin City (Atlantic County)	Coastal	1.05	0.48	284	10	0	0
Dennisville (Cape May County)	Coastal	7.66	1.18	554	17	1	1.81
Winslow (Camden County)	Inland	0.76	0.80	1368	30	0	0
Centerton (Salem County)	Inland	1.86	0.88	1075	26	0	0
Turkey Swamp (Monmouth County)	Inland	1.32	1.06	255	29	0	0
Glassboro (Gloucester County)	Inland	0.86†	0.26	281	9	0	0

*Including trial run last week in May. † mean from location < 1 mile away.

Remarks: There are **3 positive EEE pools** to report at this time. All three positive pools continue to be from *Cs. melanura*, from both traditional resting box monitoring sites and county-run traps. To date, 3887 *Culiseta melanura* mosquitoes forming 130 pools from the seven traditional resting box sites have been tested, producing one positive pool. An additional 4049 *Cs. melanura* (table below) forming 166 pools have been sampled by the counties using a variety of traps and have detected the two remaining positive pools.

Although EEE activity has increased in the states throughout the eastern half of the US, this week has shown no change from previous week in New Jersey.

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

County	Trap types*	Number collected	Number of positives	MFIR
Atlantic	CO_2, Gravid	17		
Burlington	**CO_2**, Gravid	1633	1	0.612
Cape May	CO_2, Gravid, **RB**	1514	1	0.661
Cumberland	RB	130		
Gloucester	RB	579		
Ocean	CO_2, Gravid, RB	147		
Salem	CO_2	1		
Sussex	CO_2, NJLT	28		
TOTAL		**4049**	**2**	**0.494**

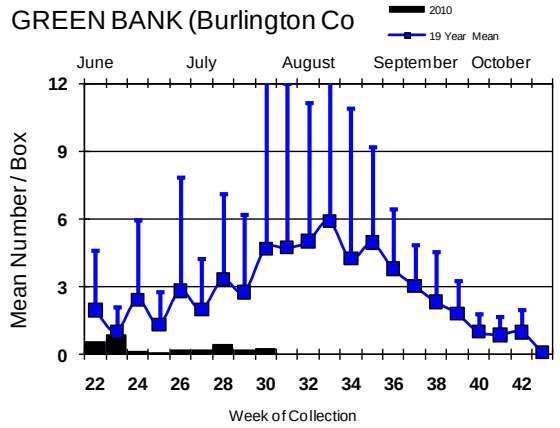
The table below indicates non-melanura species tested for EEE, all negative:

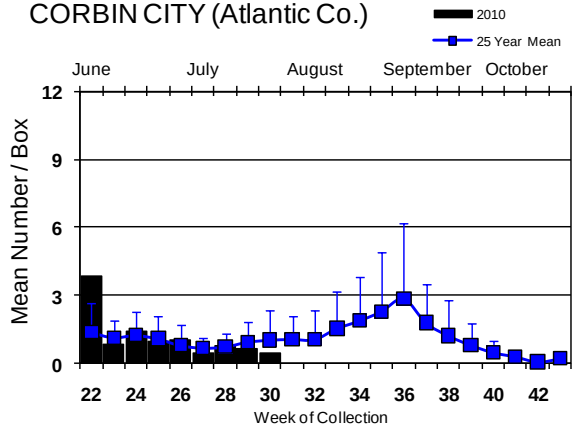
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	7	38		
Aedes canadensis canadensis	2	30		
Aedes japonicus	3	10		
Aedes sollicitans	2	87		
Aedes taeniorhynchus	1	7		
Aedes triseriatus	1	2		
Aedes trivittatus	1	2		
Aedes vexans	2	41		
Anopheles bradleyi	4	41		
Anopheles crucians	2	122		
Anopheles punctipennis	2	14		
Anopheles quadrimaculatus	2	3		
Coquillettidia perturbans	20	601		
Culex erraticus	11	248		
Culex pipiens	115	1223		
Culex restuans	2	6		
Culex salinarius	10	129		
Culex spp.	82	2166		
Culiseta minnesotae	1	1		
Uranotaenia sapphirina	1	6		
State Total	**271**	**4777**	**0**	**0.00**

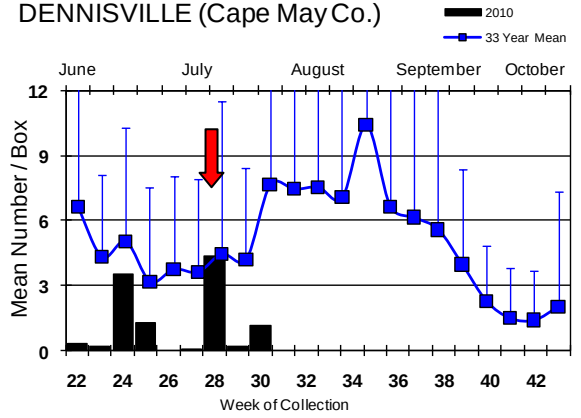
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

Culiseta melanura Population Graphs

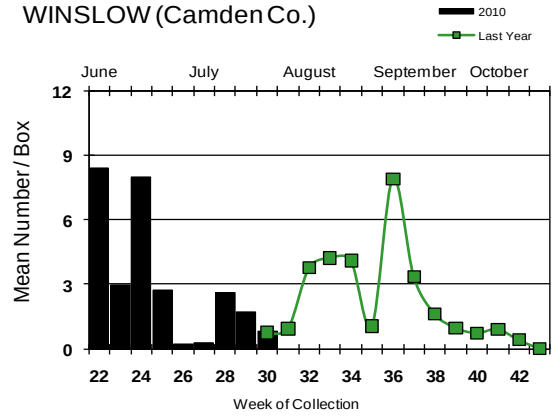
Coastal

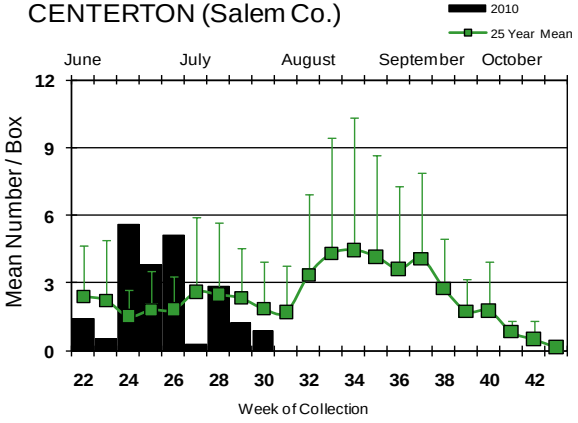


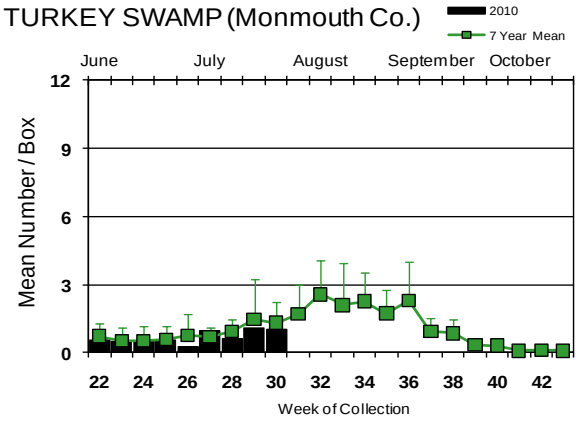




Inland

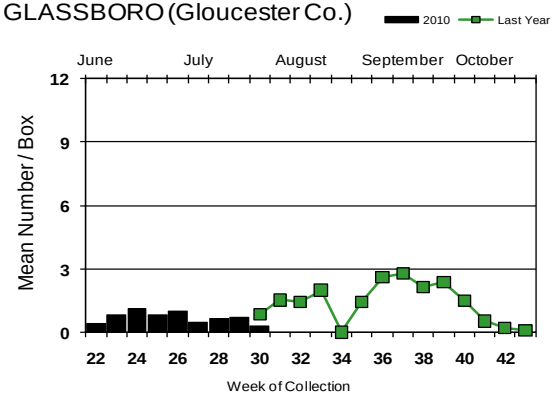






Cs. melanura populations in resting boxes increased at Green Bank and Dennisville. Populations are either greatly lower than historical values (Green Bank) or at or below historical values (all other sites).

= Zero positive pool(s) detected.



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

- equine: 6(AL) 52(FL) 2(GA) 1(LA) 1(MA)
- mosquito: 3(FL) 2(NJ) 2(NY) 30(MA) 3(VA)
- sentinel: 71/23(FL chickens/wild) 2(AL)
- human: 1(TX-out of country acquired case) 3(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					1/2
Alaska					
Arizona		109/176	3		11/23
Arkansas					
California	96/143	322/434	24	0	4/6
Colorado		3/4			4/6
Connecticut		9/13			
Delaware					
DC					
Florida	1Flavi		55/56	2	
Georgia	0	1		0	3
Hawaii					
Idaho					
Illinois	17/20	28/117			
Indiana	0	13/22		0	0
Iowa		0	1	0	0
Kansas					1?
Kentucky				0	
Louisiana		65	0	2	1
Maine					
Maryland		1			
Mass.		5/8			
Michigan					
Minnesota					
Mississippi		2			1
Missouri		35/45			2
Montana					
Nebraska	0	3/4		0	2

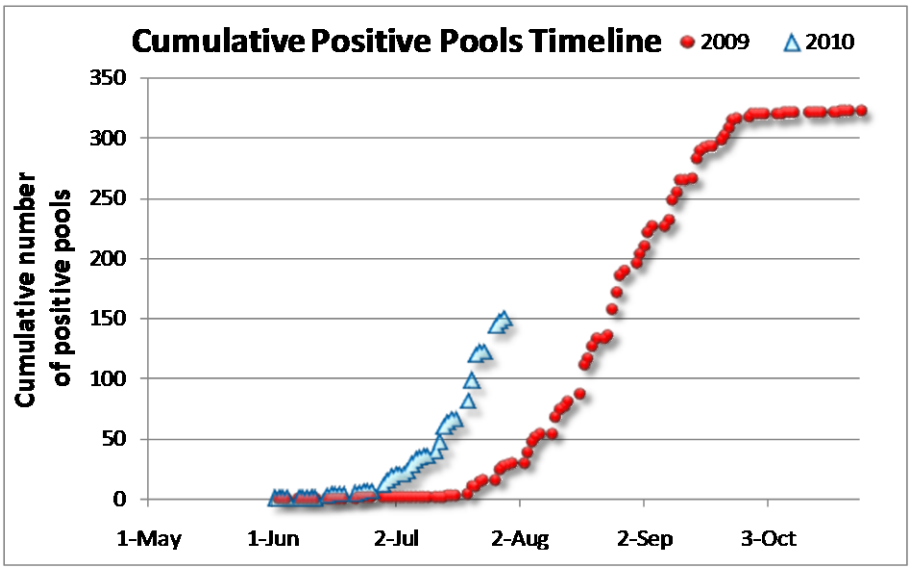
	Birds	Mosquito Pools	Sentinels	Horses	Humans
Nevada		1			
New Hampshire		0		0	0
New Jersey	2/21	94/151	0	0	0
New Mexico					0
New York	0	59/114		0	0
North Carolina			1		
North Dakota					1/2
Ohio		2/3		0	0
Oklahoma		2			
Oregon	0	0	0	0	0
Pennsylvania	3/4	99/152			
Rhode Island					
South Carolina					
South Dakota					1/2
Tennessee	0	17/20		0	0
Texas	0	15/19		0	1
Utah		1			
Vermont	0	0		0	0
Virginia		11/28			
Washington	0	17/35		0	0
West Virginia	0	22		0	0
Wisconsin	0			0	0
Wyoming		4			

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 3 Aug 2010

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	137	772	1	1.295
Aedes canadensis canadensis	22	397		
Aedes cantator	7	21		
Aedes japonicus	161	840		
Aedes sollicitans	3	96		
Aedes sticticus	1	1		
Aedes stimulans	1	4		
Aedes taeniorhynchus	3	38		
Aedes triseriatus	60	147		
Aedes trivittatus	4	36		
Aedes vexans	25	230		
Anopheles bradleyi	7	49		
Anopheles crucians	2	122		
Anopheles punctipennis	18	223		
Anopheles quadrimaculatus	21	217		
Anopheles walkeri	3	4		
Coquillettidia perturbans	58	1301		
Culex erraticus	13	258		
Culex pipiens	361	8572	34	3.966
Culex restuans	111	877		
Culex salinarius	22	345		
Culex spp.	1187	45291	115	2.539
Culiseta melanura	280	6389	1	0.157
Culiseta minnesotae	1	1		
Orthopodomyia signifera	1	1		
Psorophora ciliata	1	1		
Uranotaenia sapphirina	1	6		
State Total	**2511**	**66239**	**151**	**2.280**

Remarks: The number of positive WNV mosquito pools to date is 151. A large increase occurred in the *Culex* Mix pools as well as activity in the northern half of the state. The cumulative positive pool timeline (graph below) continues to show earlier activity this year than in 2009.



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

There are now 32 positive birds. At this point last year, the first positive bird, a Blue Jay, was reported. This year's positive birds include 26 corvids (10 positives/16 tested American Crows, 7/18 Fish Crows, 7/16 Blue Jays and 2/9 unidentified Crows), 2 negative Hawks (unknown species) and 6/32 unknown species.

2010 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
151/ 2511 (0.060%)	9/ 3868 (0.002%)
2010 Positive Birds to date / Total Birds Submitted	This time last year
32/ 91 (0.35%)	1/ 47 (0.02%)

WNV Results by County through 3 Aug 2010

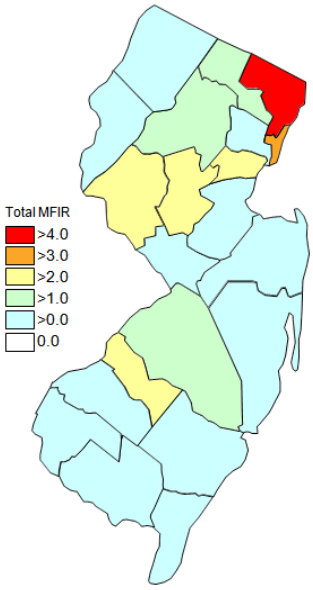
County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**109**	**3014**	**14**	**4.645**
	Aedes albopictus	10	94	1	10.638
	Aedes canadensis canadensis	3	56		
	Aedes cantator	3	14		
	Aedes japonicus	5	12		
	Aedes sollicitans	1	9		
	Aedes taeniorhynchus	1	24		
	Aedes triseriatus	2	3		
	Aedes trivittatus	3	26		
	Aedes vexans	6	109		
	Anopheles bradleyi	3	8		
	Anopheles punctipennis	1	37		
	Anopheles quadrimaculatus	1	2		
	Coquillettidia perturbans	5	21		
	Culex spp.	50	2274	13	5.717
	Culiseta melanura	14	324		
	Orthopodomyia signifera	1	1		
Bergen		**90**	**6417**	**22**	**3.438**

	Aedes albopictus	2	7		
	Aedes japonicus	2	10		
	Culex spp.	86	6400	22	3.438
Burlington		**89**	**3947**	**9**	**2.280**
	Aedes albopictus	6	31		
	Aedes canadensis canadensis	2	30		
	Aedes japonicus	1	4		
	Aedes sollicitans	1	75		
	Aedes taeniorhynchus	1	7		
	Aedes vexans	1	39		
	Anopheles crucians	2	122		
	Anopheles punctipennis	1	13		
	Coquillettidia perturbans	4	210		
	Culex pipiens	3	23		
	Culex salinarius	1	17		
	Culex spp.	31	1667	9	5.399
	Culiseta melanura	34	1703		
	Uranotaenia sapphirina	1	6		
Camden		**65**	**1427**	**8**	**5.606**
	Aedes albopictus	11	46		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	7	7		
	Aedes triseriatus	2	2		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	1	1		
	Culex spp.	36	1116	8	7.168
	Culiseta melanura	6	253		
Cape May		**577**	**7865**	**1**	**0.127**
	Aedes albopictus	6	18		
	Aedes japonicus	19	44		
	Aedes sollicitans	1	12		
	Aedes taeniorhynchus	1	7		
	Aedes triseriatus	9	31		
	Anopheles bradleyi	2	38		
	Anopheles quadrimaculatus	3	66		
	Coquillettidia perturbans	8	140		
	Culex erraticus	12	257		
	Culex pipiens	207	2985	1	0.335
	Culex restuans	75	485		
	Culex salinarius	12	201		
	Culex spp.	100	962		
	Culiseta melanura	122	2619		
Cumberland		**9**	**137**		
	Anopheles bradleyi	2	3		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	2	3		
	Culiseta melanura	4	130		
Essex		**43**	**658**	**1**	**1.520**
	Aedes albopictus	1	1		
	Aedes japonicus	9	109		

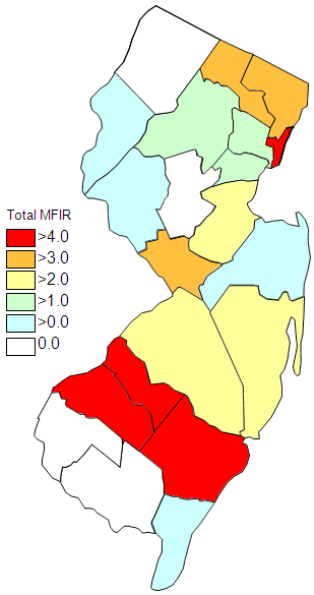
	Aedes triseriatus	3	4		
	Aedes vexans	2	3		
	Culex spp.	28	541	1	1.848
Gloucester		**146**	**5109**	**28**	**5.481**
	Aedes albopictus	11	116		
	Aedes japonicus	2	15		
	Culex pipiens	107	4298	27	6.282
	Culiseta melanura	26	680	1	1.471
Hudson		**97**	**4429**	**20**	**4.516**
	Culex spp.	97	4429	20	4.516
Hunterdon		**105**	**5220**	**1**	**0.192**
	Culex spp.	105	5220	1	0.192
Mercer		**92**	**1702**	**6**	**3.525**
	Aedes albopictus	14	37		
	Aedes japonicus	16	26		
	Aedes triseriatus	4	5		
	Aedes vexans	1	21		
	Culex pipiens	29	1204	6	4.983
	Culex restuans	23	282		
	Culex salinarius	4	120		
	Culex spp.	1	7		
Middlesex		**139**	**7077**	**19**	**2.685**
	Aedes albopictus	1	7		
	Aedes japonicus	3	21		
	Aedes triseriatus	1	6		
	Culex spp.	134	7043	19	2.698
Monmouth		**153**	**1147**	**1**	**0.872**
	Aedes albopictus	15	26		
	Aedes canadensis canadensis	9	88		
	Aedes cantator	3	6		
	Aedes japonicus	22	67		
	Aedes triseriatus	9	10		
	Aedes vexans	1	3		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	2	2		
	Coquillettidia perturbans	5	8		
	Culex erraticus	1	1		
	Culex pipiens	1	1		
	Culex restuans	1	1		
	Culex salinarius	2	2		
	Culex spp.	49	675	1	1.481
	Culiseta melanura	32	256		
Morris		**86**	**2833**	**4**	**1.412**
	Aedes japonicus	9	87		
	Aedes vexans	1	5		
	Anopheles punctipennis	2	6		
	Anopheles quadrimaculatus	3	82		

	Coquillettidia perturbans	6	207		
	Culex spp.	65	2446	4	1.635
Ocean		**146**	**2377**	**6**	**2.524**
	Aedes albopictus	30	244		
	Aedes canadensis canadensis	7	222		
	Aedes japonicus	22	82		
	Aedes sticticus	1	1		
	Aedes triseriatus	6	21		
	Aedes vexans	2	6		
	Coquillettidia perturbans	7	90		
	Culex salinarius	1	1		
	Culex spp.	50	1563	6	3.839
	Culiseta melanura	20	147		
Passaic		**73**	**1146**	**4**	**3.490**
	Aedes albopictus	9	37		
	Aedes japonicus	11	134		
	Aedes triseriatus	8	19		
	Anopheles punctipennis	2	3		
	Anopheles quadrimaculatus	1	2		
	Coquillettidia perturbans	4	44		
	Culex spp.	38	907	4	4.410
Salem		**83**	**524**		
	Aedes albopictus	9	15		
	Aedes cantator	1	1		
	Aedes japonicus	9	12		
	Aedes triseriatus	2	2		
	Aedes vexans	10	20		
	Anopheles punctipennis	2	2		
	Anopheles quadrimaculatus	6	13		
	Anopheles walkeri	3	4		
	Coquillettidia perturbans	5	7		
	Culex pipiens	3	4		
	Culex restuans	4	6		
	Culex spp.	22	189		
	Culiseta melanura	7	249		
Somerset		**104**	**1176**		
	Aedes albopictus	8	15		
	Aedes japonicus	12	82		
	Aedes triseriatus	10	28		
	Anopheles punctipennis	5	9		
	Anopheles quadrimaculatus	1	2		
	Culex spp.	68	1040		
Sussex		**134**	**3257**		
	Aedes japonicus	1	38		
	Aedes stimulans	1	4		
	Coquillettidia perturbans	4	201		
	Culex pipiens	11	57		
	Culex restuans	8	103		
	Culex salinarius	2	4		

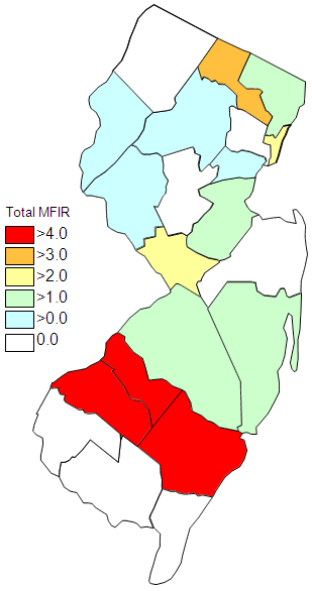
	Culex spp.	91	2821		
	Culiseta melanura	15	28		
	Culiseta minnesotae	1	1		
Union		**90**	**3459**	**6**	**1.735**
	Aedes albopictus	4	78		
	Aedes japonicus	10	88		
	Coquillettidia perturbans	1	9		
	Culex spp.	75	3284	6	1.827
Warren		**81**	**3318**	**1**	**0.301**
	Aedes japonicus	1	2		
	Aedes triseriatus	4	16		
	Aedes trivittatus	1	10		
	Aedes vexans	1	24		
	Anopheles punctipennis	2	150		
	Anopheles quadrimaculatus	1	44		
	Coquillettidia perturbans	9	364		
	Culex spp.	61	2707	1	0.369
	Psorophora ciliata	1	1		
Grand Total		**2511**	**66239**	**151**	**2.280**



Cumulative WNV activity in 2009.



WNV activity to 3 Aug, 2010.



WNV activity last week, 2010.

Saint Louis Encephalitis (SLE) through 3 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		**80**	**3877**		
	Aedes albopictus	6	31		
	Aedes canadensis canadensis	2	30		
	Aedes japonicus	1	4		
	Aedes sollicitans	1	75		
	Aedes taeniorhynchus	1	7		
	Aedes vexans	1	39		
	Anopheles crucians	2	122		
	Anopheles punctipennis	1	13		
	Coquillettidia perturbans	4	210		
	Culex pipiens	3	23		
	Culex salinarius	1	17		
	Culex spp.	31	1667		
	Culiseta melanura	25	1633		
	Uranotaenia sapphirina	1	6		
Camden		**46**	**1048**		
	Aedes albopictus	7	19		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	5	5		
	Aedes triseriatus	2	2		
	Anopheles punctipennis	1	1		
	Culex spp.	30	1020		
Essex		**33**	**640**		
	Aedes japonicus	5	99		
	Culex spp.	28	541		
Hudson		**55**	**2729**		
	Culex spp.	55	2729		
Salem		**1**	**7**		
	Culex spp.	1	7		
Grand Total		**215**	**8301**		

La Crosse Encephalitis (LAC) through 3 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		**7**	**19**		
	Aedes triseriatus	7	19		
Warren		**10**	**106**		
	Aedes canadensis canadensis	4	86		
	Aedes triseriatus	6	20		
Grand Total		**17**	**125**		