RUTGERS
New Jersey Agricultural Experiment Station

VECTOR SURVEILLANCE IN NEW JERSEY
EEE, WNV and SLE
CDC WEEK 28: July 12 to July 18, 2009

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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	3.50	0.72	81	19	0	0
Corbin City (Atlantic County)	Coastal	0.80	0.28	31	12	0	0
Dennisville (Cape May County)	Coastal	4.60	0.90	445	29	0	0
Waterford (Camden County)	Inland	0.50	0.06	14	5	0	0
Centerton (Salem County)	Inland	2.60	0.09	207	33	0	0
Turkey Swamp (Monmouth County)	Inland	0.90	0.86	105	70	0	0
Glassboro (Gloucester County)	Inland	0.09	0.74	190	21	0	0

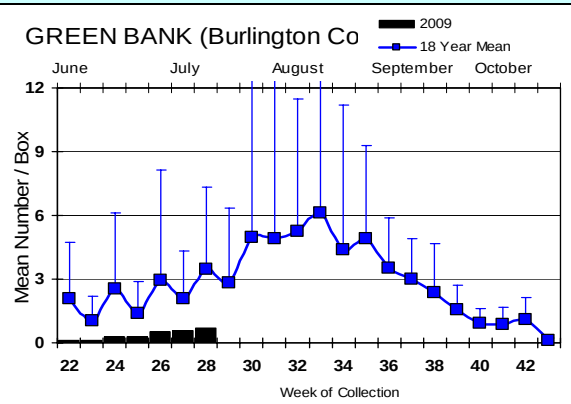
*Including trial run last week in May.

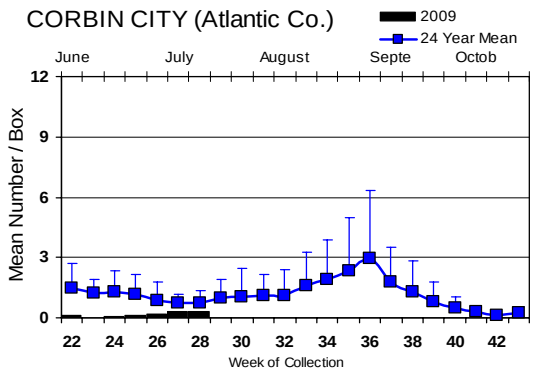
Remarks: *Culiseta melanura* populations are beginning to rise in some of the traditional resting box collection locations.

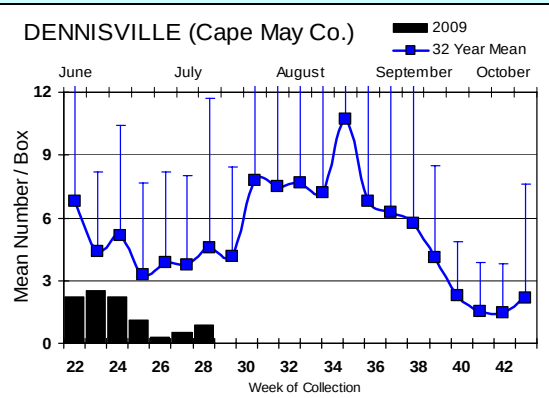
To date, 189 pools from 1073 *Cs. melanura* mosquitoes have been sent for EEE testing from the seven resting box collections. Previously, Ocean County has submitted *Cs. melanura* samples collected from gravid and CO_2 traps while Gloucester County has sampled additional sites with resting boxes. Other species tested for EEE from resting boxes include: *Aedes atlanticus, Ae. japonicus, Ae. triseriatus, Ae. vexans, Anopheles punctipennis, An. quadrimaculatus, Culex erraticus, Cx. pipiens, Cx. restuans, Cx. salinarius,* Mixed *Culex* pools, and *Cx. territans.* Additional species from other trap types include: *Aedes abserratus, Ae. albopictus, Ae. canadensis, Ae. cantator, Ae. cinereus, Ae. japonicus, Ae. sollicitans, Ae. sticticus, Ae. taeniorhynchus, Ae. triseriatus, Ae. trivittatus, Ae. vexans, Anopheles barberi, An. bradleyi, An. crucians, Coquillettidia perturbans, Culiseta inornata and Psorophora ferox.* All 218 pools of 3209 mosquitoes are reported negative for EEE virus.

Culiseta melanura Population Graphs

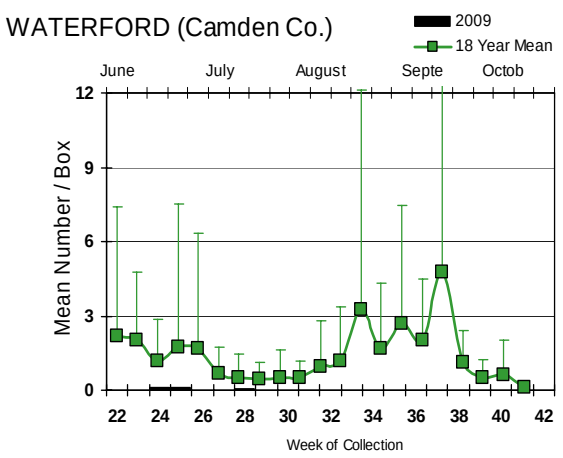
Coastal

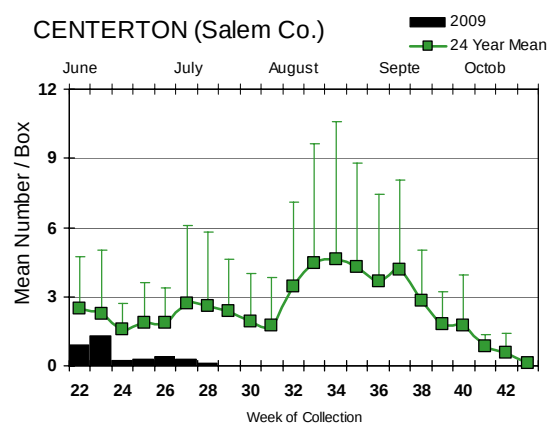


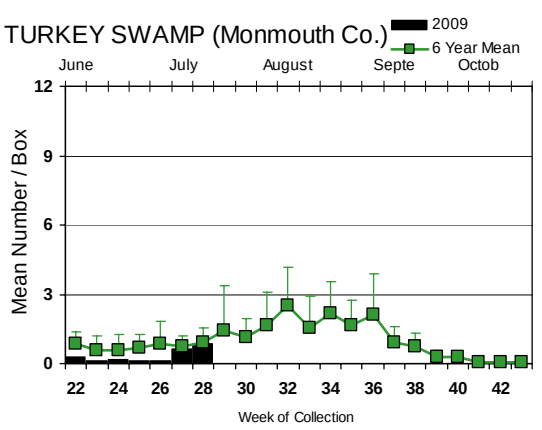




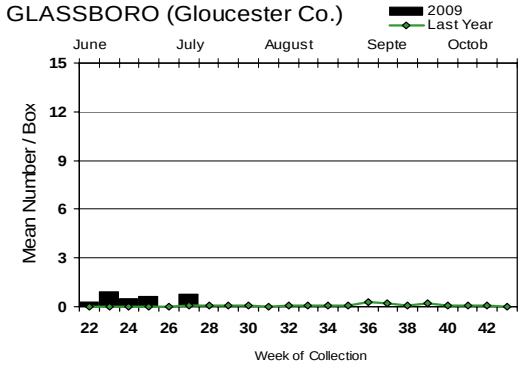
Inland







At five of the seven resting box locations, *Culiseta melanura* populations increased from the previous week. Corbin City remained the same as the previous week while Centerton experienced a decrease. Most populations appear to be entering the time when the second generation begins to emerge. It is during this time that the major amplification of EEE in birds is thought to happen.



EEE in US (2009 cumulative cases): (Red = new reported cases occurring)

- equine: 6(AL) 43(FL) 23(GA) 3(LA) 13(MS)
- mosquito: 1(LA) 1(MA) 45(VA)
- sentinel: 2(AL) 90/39wild(FL) 7(VA)
- human:

West Nile Virus

West Nile in US (2009 cumulative cases): Single black values indicate no change from previous week. Black values / red values equals previous week/New totals.

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Alabama			1		
Alaska					
Arizona	0	39/50	3	0	1/4
Arkansas					1
California	139/218	120/168	5/10	0	0
Colorado		1/3			2
Connecticut	0	0	0	0	0
Delaware					
DC					
Florida	2 (flavi)	0	1/2	0	0
Georgia				2	
Hawaii					
Idaho		2 counties			1
Illinois	2/3	21/39	0	0	0
Indiana					
Iowa	0	0	0	0	0
Kansas					
Kentucky					
Louisiana		13		1	
Maine					
Maryland	0	0		0	0
Mass.		0		0	0
Michigan		0	0	0	0
Minnesota					1
Mississippi		1/4		2	2/5
Missouri		+?		1	
Montana					
Nebraska	0	0		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Nevada		4+			1
New Hampshire					
New Jersey	0	2/3	0	0	0
New Mexico				0	0
New York	0	1	0	0	1
North Carolina					
North Dakota	0	0		0	0
Ohio	0	3/4		0	0
Oklahoma	0	0	0	0	0
Oregon	1	1	0	0	0
Pennsylvania	1	5/6	0	0	0
Rhode Island					
South Carolina					
South Dakota	0	2	0	0	2
Tennessee	0	23	0	0	1
Texas	1	8/79	0	1	1/2
Utah		31/60		1	0
Vermont	0	0	0	0	0
Virginia	0	1+	0	1	0
Washington	1	63	0	0	0
West Virginia	0	7	0	0	0
Wisconsin	0	0	0	0	0
Wyoming		3/9			

Note: Some data reported by states are provisional and are subject to change. Sources for this table can be found here.

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 18 July 2009

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	1	1		0
Aedes albopictus	120	728		0
Aedes atlanticus	4	6		0
Aedes canadensis canadensis	69	1938		0
Aedes cantator	29	202		0
Aedes cinereus	2	7		0
Aedes grossbecki	3	35		0
Aedes japonicus	283	1925		0
Aedes sollicitans	5	34		0
Aedes sticticus	10	113		0
Aedes taeniorhynchus	3	58		0
Aedes thibaulti	5	8		0
Aedes triseriatus	70	225		0
Aedes trivittatus	14	316		0
Aedes vexans	65	1078		0
Anopheles barberi	1	1		
Anopheles bradleyi	13	106		0
Anopheles crucians	1	5		
Anopheles punctipennis	50	132		0
Anopheles quadrimaculatus	49	966		0
Coquillettidia perturbans	29	388		0
Culex erraticus	14	386		0
Culex pipiens	380	9173		0
Culex restuans	356	4935		0
Culex salinarius	23	179		0
Culex spp.	1252	55184	3	0.054
Culex territans	21	53		0
Culiseta inornata	1	2		0
Culiseta melanura	203	1847		0
Culiseta morsitans	1	3		0
Psorophora columbiae	1	1		0
Psorophora ferox	7	35		0
State Total	**3085**	**80,070**	**3**	**0.037**

Remarks: The number of pools positive for West Nile virus rose to three with the addition of a positive pool of mixed *Culex* from Morris County. At this time last year, however, there were 80 positive pools.

Humans, Horses and Wild Birds: No humans have been reported positive for WNV by PHEL. For more details plus information about WNV, see the PHEL's West Nile Virus Alert and FAQ Sheets:
http://www.state.nj.us/health/cd/westnile/enceph.htm

No confirmed horse cases have occurred. No positive birds have been detected as of this week.

2009 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year* * 2008 started later (at least one month) last year than in 2009
3 / 3085	80 / 2525

2009 Positive Birds to date / Total Birds Submitted	This time last year* * 2008 started later (at least one month) last year than in 2009
0 / 42	3 / 70

WNV Results by County through 18 July 2009

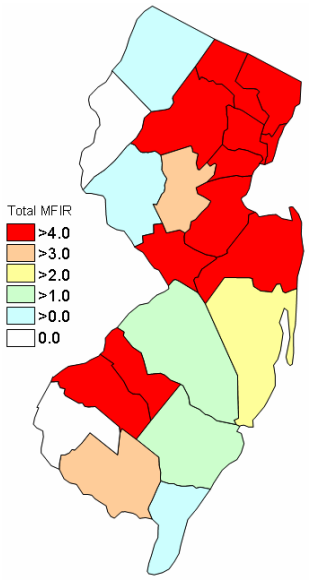
County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**90**	**2231**		
	Aedes albopictus	3	29		
	Aedes canadensis canadensis	4	38		
	Aedes cantator	3	70		
	Aedes grossbecki	1	8		
	Aedes japonicus	3	55		
	Aedes sticticus	2	18		
	Aedes taeniorhynchus	1	10		
	Aedes thibaulti	3	3		
	Aedes triseriatus	1	2		
	Aedes trivittatus	1	4		
	Aedes vexans	8	261		
	Anopheles bradleyi	1	9		
	Anopheles punctipennis	3	6		
	Anopheles quadrimaculatus	2	3		
	Culex erraticus	1	3		
	Culex restuans	2	5		
	Culex salinarius	1	1		
	Culex spp.	38	1676		
	Culex territans	1	1		
	Culiseta melanura	11	29		
Bergen		**53**	**3873**	**1**	**0.26**
	Aedes japonicus	1	3		
	Culex spp.	52	3870	**1**	**0.26**
Burlington		**194**	**4225**		
	Aedes abserratus	1	1		
	Aedes albopictus	17	84		
	Aedes atlanticus	1	1		
	Aedes canadensis canadensis	18	877		
	Aedes cantator	3	21		
	Aedes cinereus	1	6		
	Aedes grossbecki	1	26		
	Aedes japonicus	18	81		
	Aedes sollicitans	2	22		
	Aedes sticticus	2	85		
	Aedes taeniorhynchus	1	47		
	Aedes triseriatus	7	29		
	Aedes trivittatus	1	6		
	Aedes vexans	14	449		
	Anopheles barberi	1	1		
	Anopheles bradleyi	2	18		
	Anopheles crucians	1	5		
	Anopheles punctipennis	5	19		
	Anopheles quadrimaculatus	1	6		
	Coquillettidia perturbans	10	185		
	Culex pipiens	1	75		
	Culex restuans	1	3		

	Culex salinarius	2	24		
	Culex spp.	47	1665		
	Culex territans	1	6		
	Culiseta inornata	1	2		
	Culiseta melanura	33	477		
	Psorophora ferox	1	4		
Camden		**120**	**3643**		
	Aedes albopictus	2	8		
	Aedes japonicus	16	39		
	Aedes thibaulti	1	1		
	Aedes triseriatus	1	1		
	Aedes trivittatus	2	2		
	Aedes vexans	1	1		
	Anopheles punctipennis	3	8		
	Anopheles quadrimaculatus	3	4		
	Culex pipiens	3	107		
	Culex restuans	2	2		
	Culex spp.	81	3458		
	Culex territans	1	1		
	Culiseta melanura	4	11		
Cape May		**749**	**12178**		
	Aedes albopictus	13	28		
	Aedes canadensis canadensis	1	6		
	Aedes cantator	5	11		
	Aedes japonicus	80	302		
	Aedes triseriatus	21	77		
	Anopheles bradleyi	7	74		
	Anopheles punctipennis	5	19		
	Anopheles quadrimaculatus	25	907		
	Coquillettidia perturbans	1	19		
	Culex erraticus	9	377		
	Culex pipiens	133	1806		
	Culex restuans	227	3348		
	Culex salinarius	7	99		
	Culex spp.	152	4257		
	Culex territans	7	29		
	Culiseta melanura	56	819		
Cumberland		**34**	**625**		
	Aedes cantator	1	15		
	Aedes japonicus	4	12		
	Anopheles punctipennis	1	1		
	Culex pipiens	1	2		
	Culex restuans	2	6		
	Culex spp.	22	555		
	Culex territans	1	1		
	Culiseta melanura	2	33		
Essex		**69**	**1164**		
	Aedes albopictus	3	4		
	Aedes japonicus	8	23		
	Aedes sticticus	1	1		

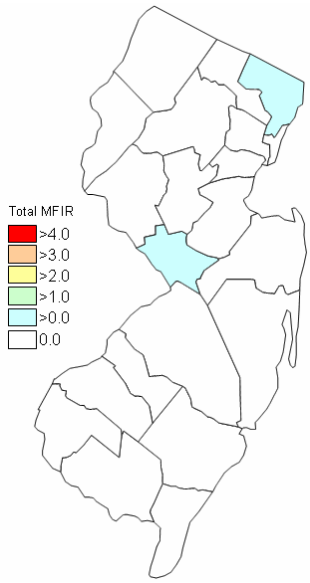
	Aedes triseriatus	6	11		
	Aedes vexans	8	23		
	Culex spp.	42	1100		
	Psorophora ferox	1	2		
Gloucester		**302**	**7824**		
	Aedes albopictus	17	297		
	Aedes atlanticus	1	1		
	Aedes canadensis canadensis	2	2		
	Aedes japonicus	34	320		
	Aedes thibaulti	1	4		
	Aedes triseriatus	1	1		
	Aedes trivittatus	1	75		
	Aedes vexans	6	57		
	Anopheles punctipennis	8	34		
	Anopheles quadrimaculatus	13	25		
	Coquillettidia perturbans	2	2		
	Culex pipiens	168	6740		
	Culex restuans	12	41		
	Culex territans	4	9		
	Culiseta melanura	32	216		
Hudson		**79**	**3773**		
	Culex spp.	79	3773		
Hunterdon		**81**	**3991**		
	Aedes albopictus	1	45		
	Culex spp.	80	2946		
Mercer		**270**	**5513**	**1**	**0.181**
	Aedes albopictus	23	63		
	Aedes japonicus	27	71		
	Aedes triseriatus	3	3		
	Culex erraticus	1	1		
	Culex pipiens	60	421		
	Culex restuans	85	1308		
	Culex salinarius	3	3		
	Culex spp.	68	3643	1	0.274
Middlesex		**170**	**9580**		
	Aedes japonicus	12	173		
	Culex spp.	158	9407		
Monmouth		**204**	**1376**		
	Aedes albopictus	15	89		
	Aedes canadensis canadensis	15	147		
	Aedes cantator	8	35		
	Aedes japonicus	12	44		
	Aedes triseriatus	7	45		
	Aedes trivittatus	3	3		
	Aedes vexans	6	50		
	Anopheles punctipennis	9	11		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	4	12		
	Culex erraticus	1	2		

	Culex pipiens	9	10		
	Culex restuans	15	28		
	Culex spp.	58	825		
	Culex territans	4	4		
	Culiseta melanura	36	69		
	Psorophora ferox	1	1		
Morris		**52**	**2275**	**1**	**0.440**
	Aedes japonicus	6	58		
	Culex spp.	46	2217	**1**	**0.451**
Ocean		**215**	**4271**		
	Aedes albopictus	18	90		
	Aedes atlanticus	2	4		
	Aedes canadensis canadensis	27	841		
	Aedes cantator	9	50		
	Aedes cinereus	1	1		
	Aedes grossbecki	1	1		
	Aedes japonicus	22	135		
	Aedes sollicitans	3	12		
	Aedes sticticus	5	9		
	Aedes taeniorhynchus	1	1		
	Aedes triseriatus	11	19		
	Aedes trivittatus	1	1		
	Aedes vexans	19	82		
	Anopheles bradleyi	3	5		
	Anopheles punctipennis	8	10		
	Coquillettidia perturbans	5	9		
	Culex restuans	2	2		
	Culex salinarius	7	49		
	Culex spp.	60	2908		
	Culiseta melanura	6	16		
	Psorophora columbiae	1	1		
	Psorophora ferox	3	25		
Passaic		**47**	**1070**		
	Aedes albopictus	1	7		
	Aedes canadensis canadensis	1	20		
	Aedes japonicus	12	188		
	Aedes triseriatus	2	3		
	Culex spp.	31	852		
Salem		**68**	**1100**		
	Aedes albopictus	5	25		
	Aedes japonicus	5	26		
	Aedes triseriatus	1	1		
	Aedes vexans	2	150		
	Anopheles punctipennis	6	21		
	Anopheles quadrimaculatus	4	20		
	Coquillettidia perturbans	2	64		
	Culex erraticus	2	3		
	Culex restuans	2	2		
	Culex spp.	15	618		
	Culex territans	2	2		
	Culiseta melanura	22	168		

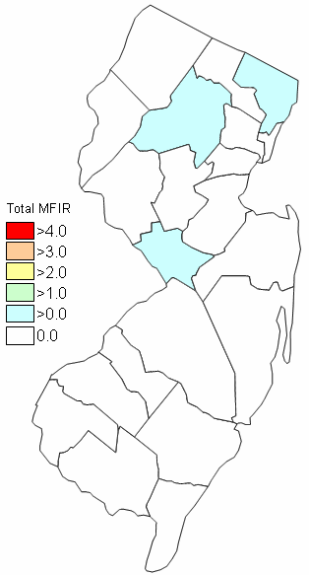
Somerset		**90**	**2703**		
	Aedes albopictus	3	4		
	Aedes canadensis canadensis	1	7		
	Aedes japonicus	14	281		
	Aedes triseriatus	9	33		
	Aedes trivittatus	5	225		
	Aedes vexans	1	5		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	2	3		
	Culex spp.	52	2139		
	Psorophora ferox	1	3		
Sussex		**60**	**1197**		
	Aedes japonicus	3	3		
	Coquillettidia perturbans	3	94		
	Culex pipiens	5	12		
	Culex restuans	6	190		
	Culex salinarius	3	3		
	Culex spp.	38	883		
	Culiseta melanura	1	9		
	Culiseta morsitans	1	3		
Union		**50**	**2119**		
	Aedes japonicus	5	66		
	Culex spp.	45	2053		
Warren		**88**	**5339**		
	Culex spp.	88	5339		
Grand Total		**3085**	**80,070**	**3**	**0.037**



Cumulative activity in 2008



Activity last week.



Recent Activity to 18 July 2009

Saint Louis Encephalitis (SLE) through 18 July 2009.

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.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**134**	**2669**		
	Aedes abserratus	1	1		
	Aedes albopictus	17	84		
	Aedes atlanticus	1	1		
	Aedes canadensis canadensis	6	136		
	Aedes cantator	2	20		
	Aedes cinereus	1	6		
	Aedes japonicus	17	80		
	Aedes sollicitans	2	22		
	Aedes taeniorhynchus	1	41		
	Aedes triseriatus	1	47		
	Aedes trivittatus	6	28		
	Aedes vexans	1	6		
	Anopheles barberi	9	205		
	Anopheles bradleyi	1	1		
	Anopheles crucians	2	18		
	Anopheles punctipennis	1	5		
	Anopheles quadrimaculatus	3	13		
	Coquillettidia perturbans	1	6		
	Culex pipiens	10	185		
	Culex restuans	1	75		
	Culex salinarius	1	3		
	Culex spp.	2	24		
	Culiseta inornata	45	1656		
	Culiseta melanura	1	2		
	Psorophora ferox	1	4		
Camden		**39**	**1456**		
	Aedes japonicus	4	16		
	Aedes triseriatus	1	1		
	Aedes vexans	1	1		
	Culex pipiens	2	95		
	Culex spp.	31	1343		
Cape May		**264**	**6306**		
	Aedes cantator	1	2		
	Aedes japonicus	1	12		
	Aedes triseriatus	2	11		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	1	19		
	Culex pipiens	60	1091		
	Culex restuans	74	1090		
	Culex salinarius	1	5		
	Culex spp.	123	4075		

Essex		**69**	**1164**		
	Aedes albopictus	3	4		
	Aedes japonicus	8	23		
	Aedes sticticus	1	1		
	Aedes triseriatus	6	11		
	Aedes vexans	8	23		
	Culex spp.	42	1100		
	Psorophora ferox	1	2		
Hunterdon		**5**	**250**		
	Culex spp.	5	250		
Mercer		**252**	**5411**		
	Aedes albopictus	23	63		
	Aedes japonicus	23	67		
	Aedes triseriatus	3	3		
	Culex pipiens	57	410		
	Culex restuans	81	1265		
	Culex salinarius	1	1		
	Culex spp.	64	3602		
Grand Total		**775**	**17620**		

Specimens submitted by the counties continue to be negative for SLE.

La Crosse Encephalitis (LAC) through 18 July 2009.

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 Hygeine 24(5):876-880).

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**82**	**318**		
	Aedes albopictus	12	26		
	Aedes japonicus	51	225		
	Aedes triseriatus	19	67		