RUTGERS
New Jersey Agricultural Experiment Station

VECTOR SURVEILLANCE IN NEW JERSEY
EEE, WNV and SLE
CDC WEEK 37: September 13 to September 19, 2009

Prepared by Lisa M. Reed, Scott Crans, Dina Fonseca and Randy Gaugler at the Center for Vector Biology, Rutgers University.
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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	3.0	3.68	796	36	3	3.77
Corbin City (Atlantic County)	Coastal	1.8	2.32	228	20	1	4.39
Dennisville (Cape May County)	Coastal	5.7	0.84	1663	52	19	11.42
Winslow † (Camden County)	Inland	No history	3.34	1305	30	14	10.73
Centerton (Salem County)	Inland	4.2	2.04	428	31	1	2.34
Turkey Swamp (Monmouth County)	Inland	0.9	1.00	1278	111	10	7.82
Glassboro (Gloucester County)	Inland	No history	2.78	736	33	3	4.08

*Including trial run last week in May. † Date of site change-over occurred during Week 30.

Remarks: Eastern equine encephalitis virus has disseminated throughout southern New Jersey. The total number of positive EEE pools of mosquitoes is at 98. Most positive pools remain in the enzootic vector, *Culiseta melanura* (81 out of the 98 positive pools). Positive pools of *Cs. melanura* from the traditional resting box sites have increased to 51 from 45 since last week. Forty-six positive pools come from traps set by county agencies. To date, 313 pools from 6434 *Cs. melanura* mosquitoes have been sent for EEE testing from the seven resting box collections, and a total of 610 pools from 11348 *Cs. melanura* from all trap sites.

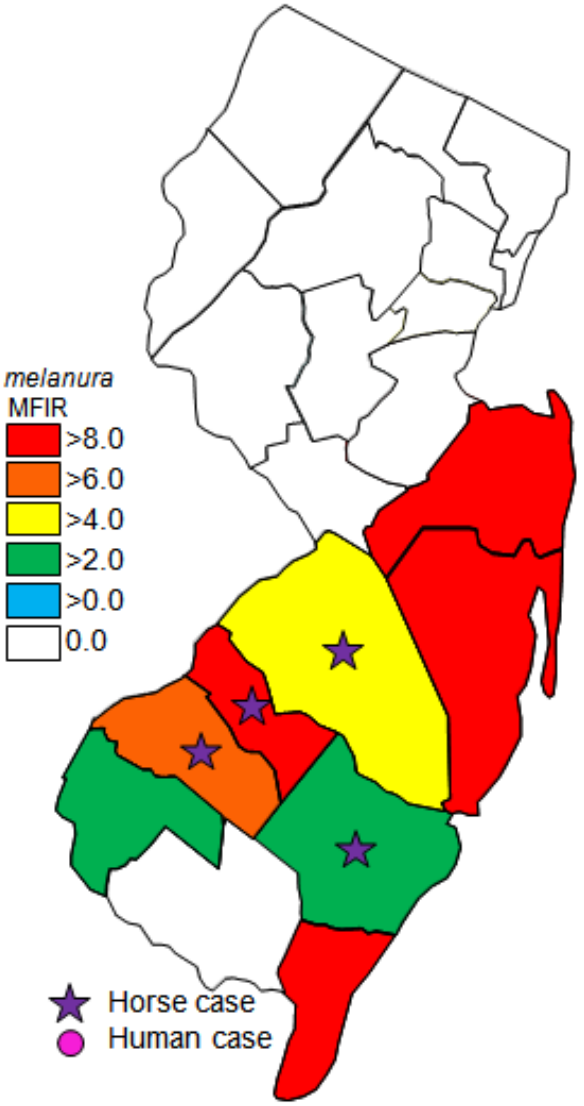
Positive species other than *Cs. melanura*	County(s)	Total Pools	Total Mosquitoes	Total Positive Pools	MFIR
Aedes canadensis	Monmouth	32	510	2	3.92
Aedes vexans	Gloucester	29	716	1	1.40
Anopheles punctipennis	Monmouth	52	278	1	3.60
Mixed *Culex* species	Atlantic	173	7190	2	0.28
Culex erraticus	Cape May	105	4382	9	2.05

Positive species other than *Cs. melanura*	County(s)	Total Pools	Total Mosquitoes	Total Positive Pools	MFIR
Culex pipiens	Cape May	38	308	1	3.25
Culex salinarius	Burlington	102	3094	1	0.32

Additional Pools: The proportion of EEE positive pools in the enzootic vector, *Cs. melanura* has dropped slightly from 88.5 % to 82.6 %, reflecting the dispersion of virus into other mosquito species, some of which may be potential bridge vectors. Vaidyanathan et al. (1997, Vector competence of mosquitoes from Massachusetts for a sympatric isolate of eastern equine encephalomyelitis virus, J. Med Entomol 34:346-52) ranked the vector potential of several species, including *Ae. canadensis, Ae. vexans* and *Anopheles punctipennis*. *Ae. vexans* and *An. punctipennis* were not competent vectors, but *Ae. canadensis* (along with *An. quadrimaculatus* and *Ae. salinarius*) was considered to be a viable vector. EEE continued to be detected in pools of *Culex erraticus* from Cape May County. Other species tested but found negative for EEE include *Aedes abserratus, Ae. albopictus, Ae. atlanticus, Ae. atropalpus, Ae. cantator, Ae. cinereus, Ae. japonicas, Ae. sollicitans, Ae. sticticus, Ae. taeniorhynchus, Ae. thibaulti, Ae. triseriatus, Ae. trivittatus, Anopheles barberi, An. bradleyi, An. crucians, An. quadrimaculatus, An. walker, Coquillettidia perturbans, Cx. restuans, Cx. territans, Culiseta inornata, Psorophora ciliate, Ps columbiae, Ps. ferox, Ps. howardii and Uranotaenia sapphirina.*

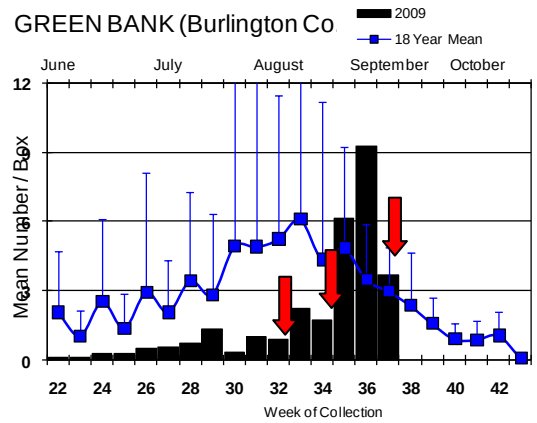
MFIR values: The MFIR values calculated for *Cs. melanura* changed from last week, with increases occurring where positive pools were found and decreases in areas with no new detections. Surveillance with due diligence should continue in light of the increase of positive non-*melanura* pools detected and the number of horse cases. Graph to the right is the MFIR values of *Cs. melanura* for counties with positive pools, including non-resting box pools. Stars indicate which counties have positive horses, not location.

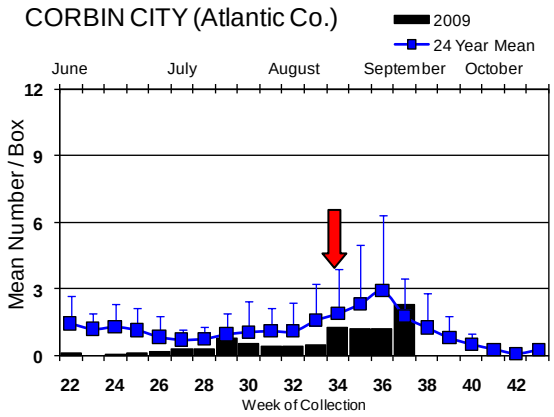
Horses and Humans: The number of EEE positive horses have risen to four (Atlantic, Burlington, Camden and Gloucester). One horse was co-infected with West Nile virus (Gloucester). The fate of these four horses reinforces the necessity of maintaining a vaccination schedule for arboviruses: For vaccination schedules recommended by the American Association of Equine Practices, see:http://www.aaep.org/vaccination_guidelines.htm. No human cases have been detected.

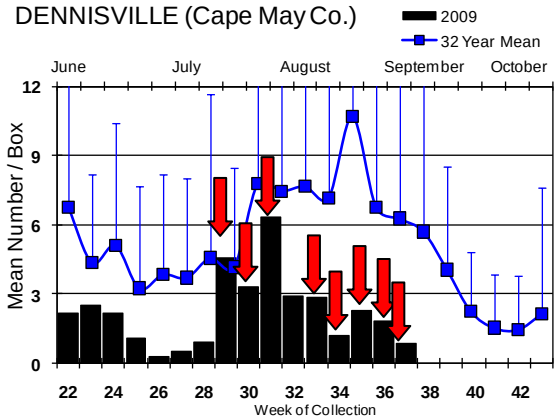


Culiseta melanura Population Graphs

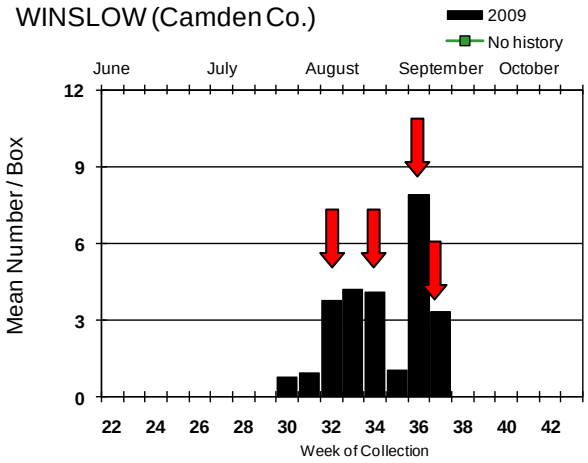
Coastal

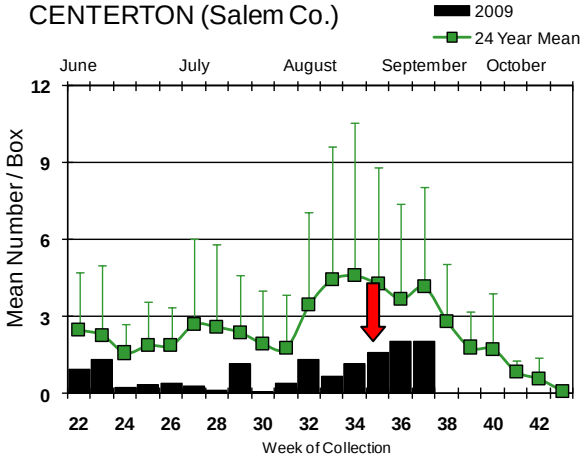


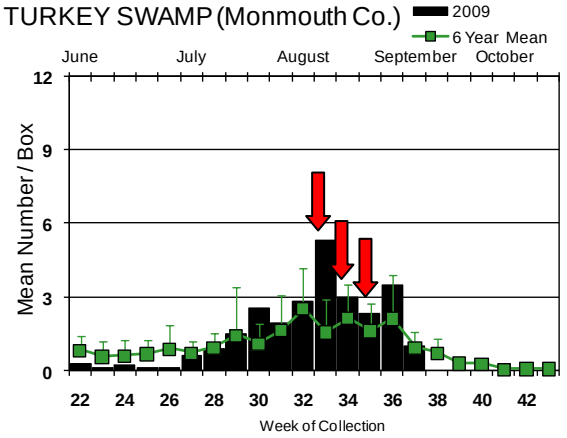




Inland

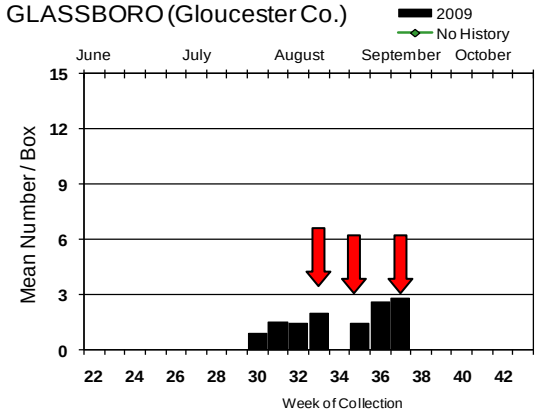






Three traditional resting box location showed an increase in *Culiseta melanura* population to above the historical levels, but all were within error range and are not considered to be significantly higher. Populations decreased at four of the sites (Green Bank, Dennisville, Winslow and Turkey Swamp). With positive pools being present in both the enzootic vector and other species, continued vigilance is required.

= positive pool(s) detected.



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

- equine: 18(AL) 67(FL) 44(GA) 19(LA) 1(MA) 5(ME) 1(MO) 41(MS) 15(NC) 4[1alpaca,1llama](NH) 2(NJ) 2(NY) 2(SC) 4(TX) 9(VA)
- mosquito: 46(CT) 1(FL) 2(LA) 37(MA) 46(NH) 98(NJ) 45(NY) 2(RH) 136(VA)
- sentinel: 2(AL) 155/80wild(FL) 24(NC) 58[1emu,1fairybluebird(*Irena* sp)](VA)
- human: 1(LA) 1(NH)

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

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Alabama			1/2	1	
Alaska					
Arizona	1	72	5	0	15
Arkansas					1
California	420/443	908/967	223/255	8/9	36/52
Colorado		70		15	51/71
Connecticut	0	21/23	0	0	0
Delaware					
DC					
Florida	2 (flavi)		15	1	0
Georgia	0	17		2	2
Hawaii					
Idaho	1	9 co.		8/9	20/26
Illinois	20	304/354	0	3/4	4
Indiana	2	96/107		0	2/3
Iowa		8	6	2	2
Kansas		3/4			4
Kentucky				3/4	1
Louisiana		37/944	5	2	14
Maine					
Maryland	0	7/8		0	0
Mass.		23/25		0	0
Michigan		3	0	0	0
Minnesota	1	4			1
Mississippi		7		3	39/40
Missouri		329 flavi		2	1
Montana		5		8	5
Nebraska	10/17	22/60		2	16/21

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Nevada		4+			12
New Hampshire		0		0	0
New Jersey	24/25	240/254	0	2	1
New Mexico		+		1/4	3
New York	29	75/83	0	0	1
North Carolina					
North Dakota	0	0		2 dogs	1
Ohio	0	203/226		0	1
Oklahoma	0	0	0	5	4
Oregon	15	258/266	0	3/5	6/7
Pennsylvania	8	220/247	0	2	2
Rhode Island		1			
South Carolina	2	0			2/3
South Dakota	0	18	0	3	12/14
Tennessee	1	393/428	0	0	2
Texas	7	303/341	0	4	44/59
Utah		262/267	1	5/6	0
Vermont	2/3		0	0	0
Virginia		26/39	4/8	2	0
Washington	16/19	326	0	51/64	10/20
West Virginia	1	7/72	0	1	0
Wisconsin	3/5		0	1	0
Wyoming		22		2	7

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 24 September 2009

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	1	1		
Aedes albopictus	555	3934	3	0.763
Aedes atlanticus	15	40		
Aedes atropalpus	2	16		
Aedes canadensis canadensis	115	2533		
Aedes cantator	54	461		
Aedes cinereus	2	7		
Aedes grossbecki	3	35		
Aedes japonicus	686	4479	1	0.223
Aedes sollicitans	32	337		
Aedes sticticus	12	115		
Aedes taeniorhynchus	17	141		
Aedes thibaulti	6	9		
Aedes triseriatus	250	999	1	1.001
Aedes trivittatus	36	590		
Aedes vexans	152	2184	1	0.458
Anopheles barberi	6	17		
Anopheles bradleyi	39	719	1	1.391
Anopheles crucians	3	26		
Anopheles punctipennis	146	525		
Anopheles quadrimaculatus	122	1472		
Anopheles walkeri	1	19		
Coquillettidia perturbans	60	605		
Culex erraticus	119	4548		
Culex pipiens	921	20481	9	0.439
Culex restuans	555	6455	1	0.155
Culex salinarius	156	3585		
Culex spp.	3378	138279	235	1.699
Culex territans	31	111		
Culiseta inornata	1	2		
Culiseta melanura	547	8187	2	0.244
Culiseta morsitans	1	3		
Orthopodomyia signifera	3	3		
Psorophora ciliata	5	40		
Psorophora columbiae	8	162		
Psorophora ferox	39	431		
Psorophora howardii	1	6		
Uranotaenia sapphirina	1	14		
State Total	8081	201571	**254**	**1.260**

Remarks: The number of pools positive for West Nile virus has increased from 240 to 254. Infected pools continue to be primarily from ornithophilic species (247 pools). Increased activity is occurring in potential bridge vectors, with positive pools detected in *Aedes albopictus, Ae. japonicus, Ae. triseriatus* and *Ae. vexans* (the first two are competent vectors of WNV). Despite an increase in activity, this season continues to be less active as compared to last year.

Humans, Horses and Wild Birds: One human has been reported positive for WNV by PHEL in Hunterdon County with symptom onset on 18 August. 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

Two confirmed horse cases for WNV infection have occurred (one in Gloucester and one in Salem counties). The Gloucester horse was also positive for EEE. Both horses appear to have had an uncertain vaccination history. Sixteen positive Blue Jays (*Cyanocitta cristata*) mostly in Ocean County, three American Crows (*Corvus brachyrhynchos*), four unknown crow species (*Corvus*) and two unknown hawks have been detected with WNV infection to date.

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
254 / 8081 (3.2%)	592 / 7312 (8.1%)
2009 Positive Birds to date / Total Birds Submitted	**This time last year* * 2008 started later (at least one month) last year than in 2009**
25 / 112 (22.3%)	43 / 150 (28.7%)

WNV Results by County through 24 September 2009

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**235**	**5867**	**2**	**0.341**
	Aedes albopictus	17	252		
	Aedes atlanticus	1	4		
	Aedes canadensis canadensis	6	78		
	Aedes cantator	8	148		
	Aedes grossbecki	1	8		
	Aedes japonicus	11	76		
	Aedes sollicitans	5	17		
	Aedes sticticus	2	18		
	Aedes taeniorhynchus	7	43		
	Aedes thibaulti	3	3		
	Aedes triseriatus	5	12		
	Aedes trivittatus	2	19		
	Aedes vexans	19	503		
	Anopheles bradleyi	7	58	1	17.241
	Anopheles punctipennis	5	10		
	Anopheles quadrimaculatus	5	9		
	Culex erraticus	2	12		
	Culex restuans	2	5		
	Culex salinarius	2	37		
	Culex spp.	96	4237	1	0.236
	Culex territans	1	1		
	Culiseta melanura	24	303		
	Psorophora columbiae	2	3		
	Psorophora ferox	2	11		
Bergen		**188**	**12975**	**64**	**4.933**
	Aedes albopictus	3	16		
	Aedes japonicus	8	34		
	Aedes triseriatus	1	1		
	Anopheles punctipennis	1	4		
	Culex spp.	175	12920	64	4.954
Burlington		**489**	**13310**	**24**	**1.803**
	Aedes abserratus	1	1		
	Aedes albopictus	44	315		
	Aedes atlanticus	3	18		

	Aedes atropalpus	2	16		
	Aedes canadensis canadensis	24	1091		
	Aedes cantator	6	67		
	Aedes cinereus	1	6		
	Aedes grossbecki	1	26		
	Aedes japonicus	33	169		
	Aedes sollicitans	5	71		
	Aedes sticticus	2	85		
	Aedes taeniorhynchus	4	57		
	Aedes triseriatus	14	78		
	Aedes trivittatus	2	9		
	Aedes vexans	27	935		
	Anopheles barberi	1	1		
	Anopheles bradleyi	9	433		
	Anopheles crucians	1	5		
	Anopheles punctipennis	10	33		
	Anopheles quadrimaculatus	4	12		
	Coquillettidia perturbans	20	282		
	Culex erraticus	10	35		
	Culex pipiens	1	75		
	Culex restuans	2	4		
	Culex salinarius	19	542		
	Culex spp.	137	5969	24	4.021
	Culex territans	3	13		
	Culiseta inornata	1	2		
	Culiseta melanura	91	2732		
	Psorophora ciliate	2	34		
	Psorophora columbiae	1	4		
	Psorophora ferox	6	170		
	Psorophora howardii	1	6		
	Uranotaenia sapphirina	1	14		
Camden		**252**	**6735**	**20**	**2.970**
	Aedes albopictus	28	148	2	13.514
	Aedes japonicus	37	96	1	10.417
	Aedes thibaulti	1	1		
	Aedes triseriatus	5	5		
	Aedes trivittatus	2	2		
	Aedes vexans	1	1		
	Anopheles punctipennis	3	8		
	Anopheles quadrimaculatus	3	4		
	Culex pipiens	3	107		
	Culex restuans	3	3		
	Culex spp.	158	6345	17	2.679
	Culex territans	1	1		
	Culiseta melanura	4	11		
	Orthopodomyia signifera	3	3		
Cape May		**1975**	**32926**	**12**	**0.364**
	Aedes albopictus	112	430		
	Aedes canadensis canadensis	6	84		
	Aedes cantator	7	22		
	Aedes japonicus	179	680		

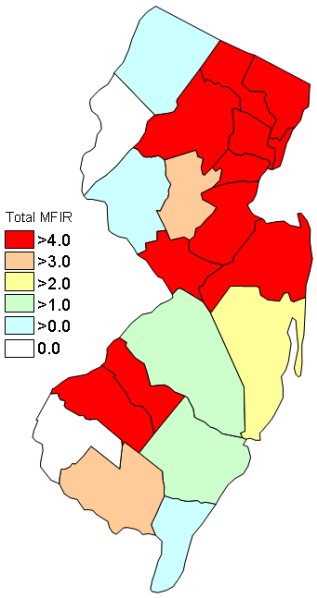
	Aedes sollicitans	10	111		
	Aedes taeniorhynchus	4	21		
	Aedes triseriatus	45	150		
	Aedes vexans	1	1		
	Anopheles bradleyi	11	131		
	Anopheles punctipennis	5	19		
	Anopheles quadrimaculatus	32	1068		
	Coquillettidia perturbans	3	30		
	Culex erraticus	70	3802		
	Culex pipiens	463	8202	6	0.732
	Culex restuans	349	4131	1	0.242
	Culex salinarius	88	2683		
	Culex spp.	417	8765	3	0.342
	Culex territans	7	29		
	Culiseta melanura	165	2562	2	0.781
	Psorophora ferox	1	5		
Cumberland		**100**	**2107**		
	Aedes albopictus	9	127		
	Aedes atlanticus	1	5		
	Aedes cantator	1	15		
	Aedes japonicas	13	82		
	Aedes triseriatus	2	11		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	2	5		
	Culex erraticus	6	89		
	Culex pipiens	15	414		
	Culex restuans	2	6		
	Culex spp.	38	1246		
	Culex territans	1	1		
	Culiseta melanura	9	105		
Essex		**253**	**3696**	**2**	**0.541**
	Aedes albopictus	21	128		
	Aedes japonicus	25	150		
	Aedes sticticus	1	1		
	Aedes triseriatus	16	29		
	Aedes trivittatus	4	28		
	Aedes vexans	15	60		
	Anopheles punctipennis	9	16		
	Anopheles quadrimaculatus	6	13		
	Coquillettidia perturbans	4	6		
	Culex spp.	146	3218	2	0.622
	Psorophora ciliata	1	3		
	Psorophora ferox	5	44		
Gloucester		**605**	**13085**	**3**	**0.229**
	Aedes albopictus	55	630		
	Aedes atlanticus	1	1		
	Aedes canadensis canadensis	2	2		
	Aedes japonicus	56	484		
	Aedes thibaulti	1	4		
	Aedes triseriatus	8	37		

	Aedes trivittatus	1	75		
	Aedes vexans	15	94		
	Anopheles barberi	2	13		
	Anopheles crucians	2	21		
	Anopheles punctipennis	30	182		
	Anopheles quadrimaculatus	34	156		
	Anopheles walkeri	1	19		
	Coquillettidia perturbans	5	22		
	Culex pipiens	306	10631	3	0.282
	Culex restuans	20	142		
	Culex salinarius	1	1		
	Culex territans	4	9		
	Culiseta melanura	60	561		
	Psorophora ciliata	1	1		
Hudson		**204**	**10668**	**36**	**3.375**
	Culex spp.	204	10668	36	3.375
Hunterdon		**279**	**13733**	**25**	**1.820**
	Aedes albopictus	1	45		
	Culex erraticus	4	109		
	Culex spp.	274	13579	25	1.841
Mercer		**471**	**8063**	**3**	**0.372**
	Aedes albopictus	52	153		
	Aedes japonicus	69	176		
	Aedes triseriatus	8	12		
	Culex erraticus	1	1		
	Culex pipiens	97	783		
	Culex restuans	128	1820		
	Culex salinarius	6	26		
	Culex spp.	110	5092	3	0.589
Middlesex		**301**	**13575**	**12**	**0.884**
	Aedes albopictus	11	87		
	Aedes japonicus	25	333		
	Aedes triseriatus	1	6		
	Culex spp.	264	13149	12	0.913
Monmouth		**626**	**5988**	**2**	**0.334**
	Aedes albopictus	69	349		
	Aedes atlanticus	4	4		
	Aedes canadensis canadensis	35	301		
	Aedes cantator	11	52		
	Aedes japonicus	46	257		
	Aedes sollicitans	2	3		
	Aedes thibaulti	1	1		
	Aedes triseriatus	26	135		
	Aedes trivittatus	8	20		
	Aedes vexans	17	110		
	Anopheles barberi	3	3		
	Anopheles punctipennis	31	103		
	Anopheles quadrimaculatus	13	24		

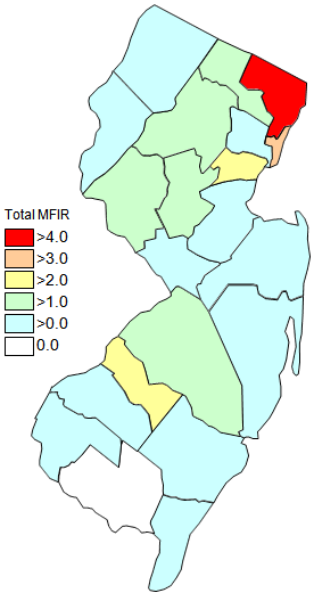
	Coquillettidia perturbans	6	15		
	Culex erraticus	11	127		
	Culex pipiens	20	56		
	Culex restuans	28	62		
	Culex salinarius	1	5		
	Culex spp.	156	2967	2	0.674
	Culex territans	12	55		
	Culiseta melanura	118	1302		
	Psorophora columbiae	1	3		
	Psorophora ferox	7	34		
Morris		**194**	**8308**	**9**	**1.083**
	Aedes japonicus	26	393		
	Aedes triseriatus	4	37		
	Culex spp.	164	7878	9	1.142
Ocean		**592**	**10305**	**6**	**0.582**
	Aedes albopictus	76	1048	1	0.954
	Aedes atlanticus	5	8		
	Aedes canadensis canadensis	39	949		
	Aedes cantator	21	157		
	Aedes cinereus	1	1		
	Aedes grossbecki	1	1		
	Aedes japonicus	66	405		
	Aedes sollicitans	8	133		
	Aedes sticticus	6	10		
	Aedes taeniorhynchus	2	20		
	Aedes triseriatus	32	96		
	Aedes trivittatus	5	15		
	Aedes vexans	45	215	1	4.651
	Anopheles bradleyi	12	97		
	Anopheles punctipennis	25	51		
	Anopheles quadrimaculatus	9	21		
	Coquillettidia perturbans	11	23		
	Culex pipiens	1	2		
	Culex restuans	11	13		
	Culex salinarius	22	87		
	Culex spp.	149	6736	4	0.594
	Culiseta melanura	31	140		
	Psorophora columbiae	2	2		
	Psorophora ferox	12	75		
Passaic		**113**	**2140**	**4**	**1.869**
	Aedes albopictus	8	72		
	Aedes canadensis canadensis	1	20		
	Aedes japonicus	25	409		
	Aedes triseriatus	12	59	1	16.949
	Anopheles punctipennis	2	5		
	Culex spp.	65	1575	3	1.905
Salem		**184**	**5309**	**2**	**0.377**
	Aedes albopictus	13	45		
	Aedes japonicus	8	37		

	Aedes triseriatus	3	3		
	Aedes vexans	2	150		
	Anopheles punctipennis	11	57		
	Anopheles quadrimaculatus	10	152		
	Coquillettidia perturbans	4	128		
	Culex erraticus	15	373		
	Culex restuans	4	79		
	Culex salinarius	3	153		
	Culex spp.	70	3532	2	0.566
	Culex territans	2	2		
	Culiseta melanura	36	446		
	Psorohpora ciliate	1	2		
	Psorophora columbiae	2	150		
Somerset		**290**	**6326**	**11**	**1.739**
	Aedes albopictus	16	48		
	Aedes canadensis canadensis	2	8		
	Aedes japonicus	35	511		
	Aedes sticticus	1	1		
	Aedes triseriatus	35	135		
	Aedes trivittatus	12	422		
	Aedes vexans	3	25		
	Anopheles punctipennis	11	30		
	Anopheles quadrimaculatus	4	8		
	Coquillettidia perturbans	3	4		
	Culex spp.	165	5116	11	2.150
	Psorophora ferox	3	18		
Sussex		**312**	**8704**	**4**	**0.460**
	Aedes japonicus	3	3		
	Aedes triseriatus	30	187		
	Coquillettidia perturbans	3	94		
	Culex pipiens	15	211		
	Culex restuans	6	190		
	Culex salinarius	14	51		
	Culex spp.	231	7940	4	0.504
	Culiseta melanura	9	25		
	Culiseta morsitans	1	3		
Union		**160**	**4410**	**12**	**2.721**
	Aedes albopictus	21	86		
	Aedes japonicus	20	139		
	Aedes sollicitans	2	2		
	Aedes triseriatus	3	6		
	Aedes vexans	7	90		
	Anopheles punctipennis	2	3		
	Coquillettidia perturbans	1	1		
	Culex spp.	101	4006	12	2.996
	Psorophora ferox	3	74		
Warren		**258**	**13341**	**1**	**0.075**
	Culex spp.	258	13341	**1**	**0.075**

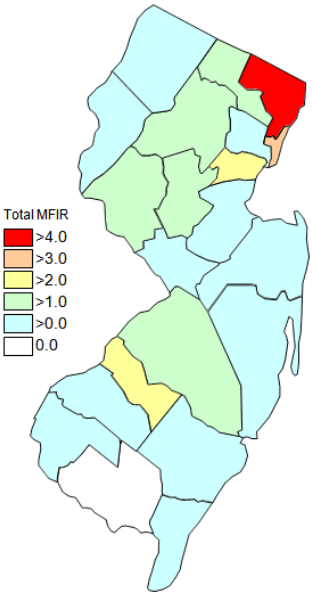
Grand Total		8081	201571	254	1.260



Cumulative activity in 2008



Activity this year to 24 Sept 2009



Activity last week, 2009.

Saint Louis Encephalitis (SLE) through 24 September 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		**421**	**11430**		
	Aedes abserratus	1	1		
	Aedes albopictus	44	315		
	Aedes atlanticus	3	18		
	Aedes atropalpus	2	16		
	Aedes canadensis canadensis	11	349		
	Aedes cantator	5	66		
	Aedes cinereus	1	6		
	Aedes japonicus	32	168		
	Aedes sollicitans	5	71		
	Aedes sticticus	1	41		
	Aedes taeniorhynchus	4	57		
	Aedes triseriatus	13	77		
	Aedes trivittatus	2	9		
	Aedes vexans	22	691		
	Anopheles barberi	1	1		
	Anopheles bradleyi	8	432		
	Anopheles crucians	1	5		
	Anopheles punctipennis	8	27		
	Anopheles quadrimaculatus	3	11		
	Coquillettidia perturbans	20	282		
	Culex erraticus	10	35		
	Culex pipiens	1	75		
	Culex restuans	1	3		
	Culex salinarius	18	541		

	Culex spp.	135	5960		
	Culex territans	2	7		
	Culiseta inornata	1	2		
	Culiseta melanura	55	1936		
	Psorophora ciliate	2	34		
	Psorophora columbiae	1	4		
	Psorophora ferox	6	170		
	Psorophora howardii	1	6		
	Uranotaenia sapphirina	1	14		
Camden		**171**	**4548**		
	Aedes albopictus	26	140		
	Aedes japonicus	25	73		
	Aedes triseriatus	5	5		
	Aedes vexans	1	1		
	Culex pipiens	2	95		
	Culex restuans	1	1		
	Culex spp.	108	4230		
	Orthopodomyia signifera	3	3		
Cape May		**965**	**17260**		
	Aedes albopictus	18	88		
	Aedes cantator	1	2		
	Aedes japonicus	6	34		
	Aedes triseriatus	3	14		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	2	22		
	Culex erraticus	2	78		
	Culex pipiens	349	6562		
	Culex restuans	176	1762		
	Culex salinarius	21	182		
	Culex spp.	373	8364		
	Culiseta melanura	13	151		
Essex		**207**	**3498**		
	Aedes albopictus	21	128		
	Aedes japonicus	17	107		
	Aedes sticticus	1	1		
	Aedes triseriatus	9	14		
	Aedes vexans	9	25		
	Anopheles punctipennis	1	1		
	Coquillettidia perturbans	1	1		
	Culex spp.	146	3218		
	Psorophora ferox	2	3		
Hunterdon		**66**	**3300**		
	Culex spp.	66	3300		
Mercer		**453**	**7961**		
	Aedes albopictus	52	153		
	Aedes japonicus	65	172		
	Aedes triseriatus	8	12		

	Culex pipiens	94	772		
	Culex restuans	124	1777		
	Culex salinarius	4	24		
	Culex spp.	106	5051		
Ocean		**2**	**3**		
	Aedes albopictus	1	1		
	Culex spp.	1	2		
Somerset		**22**	**557**		
	Aedes albopictus	1	4		
	Culex spp.	21	553		
Somerset		**30**	**187**		
	Aedes triseriatus	30	187		
Grand Total		**2337**	**48744**		

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

La Crosse Encephalitis (LAC) through 24 September 2009.

New Jersey will be selectively testing for La Crosse (LAC) virus this year. New Jersey has had three 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 24:876-880).

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		**288**	**1298**		
	Aedes albopictus	98	380		
	Aedes japonicus	137	555		
	Aedes sollicitans	1	2		
	Aedes triseriatus	42	138		
	Anopheles bradleyi	1	34		
	Culex pipiens	1	41		
	Culex restuans	1	8		
	Culex salinarius	2	77		
	Culex spp.	5	63		
Passaic		**2**	**17**		
	Aedes triseriatus	2	17		
Grand Total		**290**	**1315**		

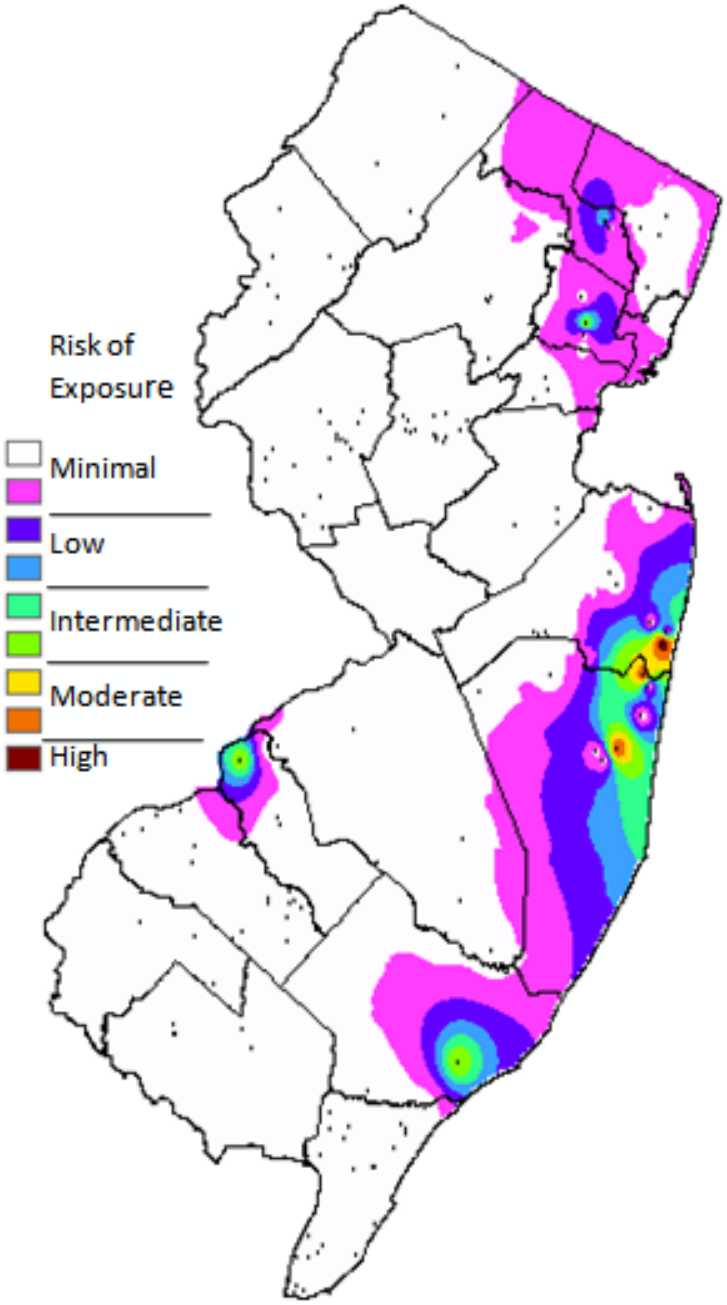
Risk Assessment

The Model: This multivariate model was developed using both climatic and biotic variables in predicting the number of weekly New Jersey human cases from 2002-2006 data. We began by testing 32 variables, eliminating those that did not have an explanatory value toward predicting risk of human cases. Five variables ultimately emerged: *Culex* MFIR, Spring Rainfall, temperature variations from average, non-*Culex* MFIR values and the percent of dead birds. This accounted for greater than 75 percent of the variability. The model features variables that occurred 14 days prior to include the time from being bitten by an infected mosquito to showing symptoms (i.e., incubation time up to 14 days).

GIS Application: Data for all five variables used in the model were retrieved and prepared for GIS use. Estimates of the five variables at pool collection points were obtained through interpolation of each variable and extraction. The extracted variables were then used in the multivariate equation to estimate human cases, and finally plotted through interpolation in ArcMap 9.2.

This Week: The scale representing risk of exposure was heavily weighted by the many values representing less than 1 person (i.e., a potential human case), and the risk for a single case is represented by the lime-green category right before Moderate risk of exposure. Thus, most risk in the state lies well below the potential occurrence of a single case. Two weeks ago, the highest risk represented a potential of 10 human cases. For the current map, the highest potential is less than three cases, reflecting the much lower MFIR rates. A shift towards the coastal region reflects not only activity there, but also submission of pools. Some highly populated areas did not submit pools for Week 33, increasing the uncertainty of risk in those areas.

Areas that did not have positive MFIR pools may be a color other than white (potentially zero risk) due to the influence of other variables, including the (estimated) presence of dead birds. These areas tend to have low risk.



NOTE: These maps are presented as an additional early warning tool available for counties to use as part of their decision-making process for controlling public-health mosquitoes. White areas do not mean zero risk and personal protection is recommended to avoid mosquito bites.