

VECTOR SURVEILLANCE IN NEW JERSEY
EEE, WNV and SLE
CDC WEEK 33: August 16 to August 22, 2009

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	6.1	2.24	267	26	2	7.49
Corbin City (Atlantic County)	Coastal	1.6	0.48	70	14	0	0
Dennisville (Cape May County)	Coastal	7.2	2.86	1337	43	11	8.23
Winslow † (Camden County)	Inland	No history	4.22	484	11	5	10.33
Centerton (Salem County)	Inland	4.4	0.68	241	26	0	0
Turkey Swamp (Monmouth County)	Inland	1.6	5.30	550	84	1	1.82
Glassboro (Gloucester County)	Inland	No history	1.98	469	27	2	4.26

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

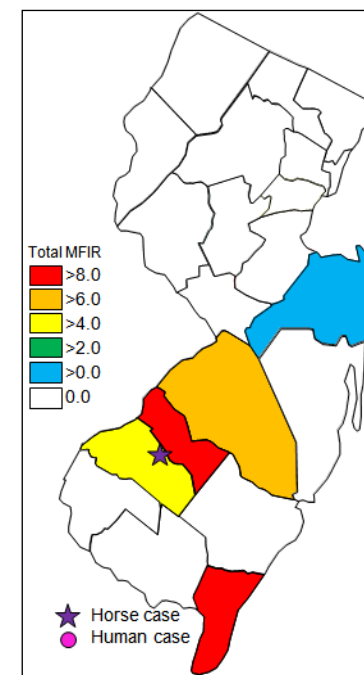
Remarks: The number of detected positive EEE pools of *Cs. melanura* from the traditional resting box sites has increased to 21. Seven additional positive EEE pools of mosquitoes including *Cs. melanura* have been detected in resting boxes and other traps maintained by county agencies in Atlantic, Burlington, Camden, Cape May, Gloucester and Monmouth counties. To date, 231 pools from 3418 *Cs. melanura* mosquitoes have been sent for EEE testing from the seven resting box collections (note adjustment from last week). A total of 28 positive pools from all species have been detected. See map at right for distribution of counties with positive EEE pools.

One horse was with no travel history was reported with both eastern equine encephalitis and West Nile virus infections. Symptoms appeared on 18 Aug and the horse was euthanized. The State Veterinarian noted the uncertain vaccination history of the horse. The fate of this horse 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

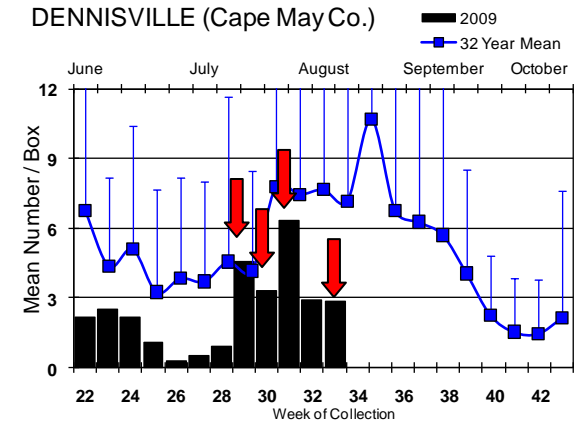
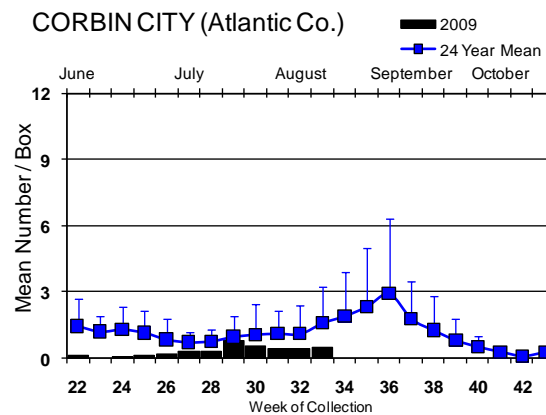
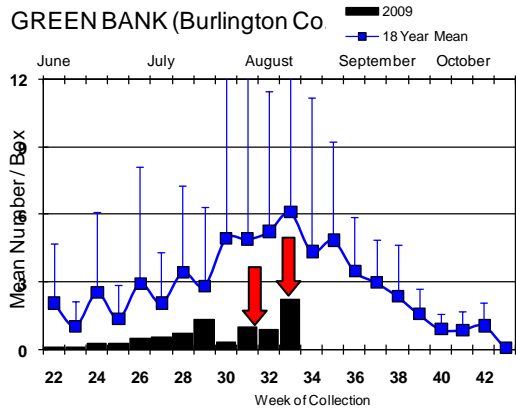
For more information on arboviral horse cases in New Jersey, see

<http://www.state.nj.us/agriculture/news/press/2009/approved/press090824.html>

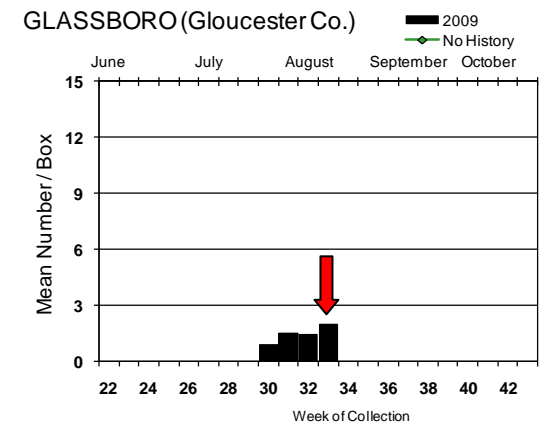
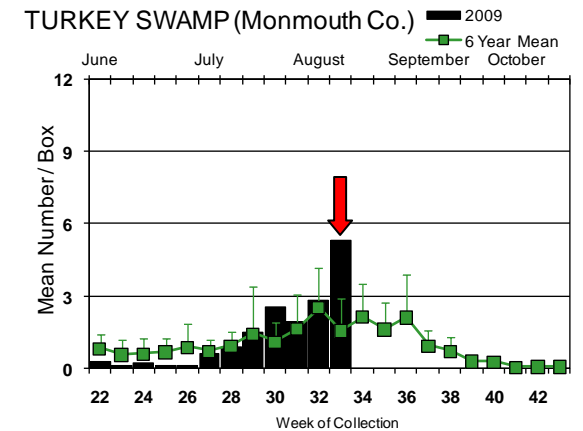
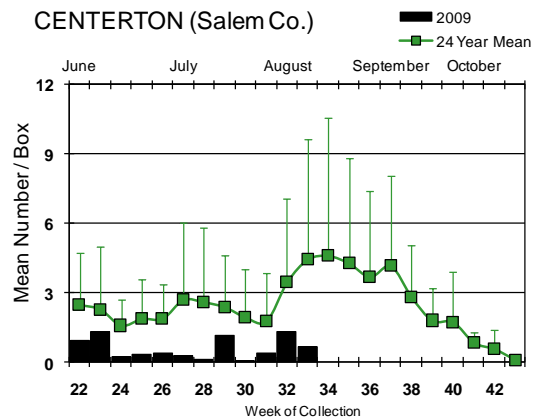
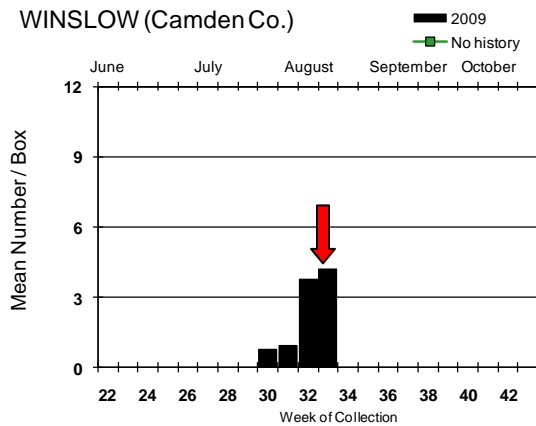


Culiseta melanura Population Graphs

Coastal



Inland



The Turkey Swamp population of *Culiseta melanura* soared to significantly higher numbers than historical data. At the same time, one positive EEE pool of *Cs. melanura* was detected. At the same time, positive pools of EEE in *Cs. melanura* were detected at numerous sites (both traditional resting box sites as well as traps set out by county agencies when the first positive pools were detected). This suggests that significant activity is occurring in the southern portions of New Jersey, with dissemination toward central New Jersey. This increase in activity appears concurrent with EEE activity elsewhere in the eastern half of the US.

↓ = positive pool detected.

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

- equine: 14(AL) 63(FL) 34(GA) 1(KY) 15(LA) 1(ME) 1(MO) 30(MS) 12(NC) 1alpaca(NH) 2(SC) 3(TX) 5(VA)
- mosquito: 1(FL) 1(LA) 7(MA) 28(NJ) 5(NY) 116(VA)
- sentinel: 2(AL) 143/72wild(FL) 24(NC) 30(VA)
- human: 1(LA)

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		
Alaska					
Arizona	1	64/68	4	0	12
Arkansas					1
California	329	504/649	56/98	3/4	10
Colorado		38/51			9/14
Connecticut	0	7	0	0	0
Delaware					
DC					
Florida	2 (flavi)	0	3/4	0	0
Georgia	0	4		2	0
Hawaii					
Idaho		7 co.		4	3/8
Illinois	8	107	0	0	0
Indiana	0	29/36		0	1
Iowa		3/5	1/3	1	1
Kansas					
Kentucky				2	
Louisiana		13/37		1/2	1/8
Maine					
Maryland	0	5		0	0
Mass.		5		0	0
Michigan		0	0	0	0
Minnesota		3			1
Mississippi		6		3	19/21
Missouri		195/238		1	1
Montana		4		1/6	3
Nebraska	2	15		2	8

	Mosquito		Sentinels	Horses	Humans
	Birds	Pools			
Nevada		4+			5
New Hampshire		0		0	0
New Jersey	1/3	63/84	0	0	0
New Mexico		+		0	1/2
New York	7	18/34	0	0	1
North Carolina					
North Dakota	0	0		0	0
Ohio	0	44		0	0
Oklahoma	0	0	0	0	0
Oregon	6	154	0	2	0
Pennsylvania	2	40/57	0	0	1
Rhode Island					
South Carolina	2	0			
South Dakota	0	2/17	0	1	3/9
Tennessee	0	151/207	0	0	1
Texas	1/6	150/187	0	1/2	11/12
Utah		183		1	0
Vermont	0	0	0	0	0
Virginia		0	1		0
Washington	7/8	214	0	20	0
West Virginia	1	7/72	0	1	0
Wisconsin	2	0	0	0	0
Wyoming		17			2

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 20 August 2009

Species	Pools	Mosquitoes	Positives	MFIR
<i>Aedes abserratus</i>	1	1		
<i>Aedes albopictus</i>	292	1918		
<i>Aedes atlanticus</i>	5	8		
<i>Aedes atropalpus</i>	1	15		
<i>Aedes canadensis canadensis</i>	88	2168		
<i>Aedes cantator</i>	49	447		
<i>Aedes cinereus</i>	2	7		
<i>Aedes grossbecki</i>	3	35		
<i>Aedes japonicus</i>	502	3660		
<i>Aedes sollicitans</i>	24	185		
<i>Aedes sticticus</i>	12	115		
<i>Aedes taeniorhynchus</i>	12	121		
<i>Aedes thibaulti</i>	6	9		
<i>Aedes triseriatus</i>	152	527		
<i>Aedes trivittatus</i>	27	415		
<i>Aedes vexans</i>	109	1631		
<i>Anopheles barberi</i>	4	15		
<i>Anopheles bradleyi</i>	28	530	1	1.887
<i>Anopheles crucians</i>	3	26		
<i>Anopheles punctipennis</i>	99	340		
<i>Anopheles quadrimaculatus</i>	85	1335		
<i>Anopheles walkeri</i>	1	19		
<i>Coquillettidia perturbans</i>	47	534		
<i>Culex erraticus</i>	36	1554		
<i>Culex pipiens</i>	670	16052	3	0.187
<i>Culex restuans</i>	482	5927	1	0.169
<i>Culex salinarius</i>	101	2961		
<i>Culex spp.</i>	2484	106383	80	0.752
<i>Culex territans</i>	28	80		
<i>Culiseta inornata</i>	1	2		
<i>Culiseta melanura</i>	344	3628	1	0.276
<i>Culiseta morsitans</i>	1	3		
<i>Orthopodomyia signifera</i>	1	1		
<i>Psorophora ciliata</i>	2	4		
<i>Psorophora columbiae</i>	3	7		
<i>Psorophora ferox</i>	19	205		
<i>Uranotaenia sapphirina</i>	1	14		
State Total	5725	150,882	86	0.570

Remarks: The number of pools positive for West Nile virus has increased from 63 to 84. Infected pools continue to be primarily from ornithophilic species: *Culex* and *Culiseta*. However, two horse cases have occurred (see below). Molaei and Andreadis (2006 Identification of avian- and mammalian-derived bloodmeals in *Aedes vexans* and *Culiseta melanura* (Diptera: Culicidae) and its implication for West Nile virus transmission in Connecticut, U.S.A. J. Med Ent: 43(5):1088-1093) found that while *Cs. melanura* was primarily ornithophilic, some bloodmeals were derived from mammals, usually deer and may potentially act as a bridge vector.

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:

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. See first page with links regarding the horse cases and vaccination schedules. Two positive Blue Jays (*Cyanocitta cristata*) in Ocean County and one American Crow (*Corvus brachyrhynchos*) in Monmouth County 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
84 / 4967 (1.7%)	388 / 4951 (7.8%)
2009 Positive Birds to date / Total Birds Submitted	This time last year* * 2008 started later (at least one month) last year than in 2009
3 / 63 (4.7%)	21 / 120 (17.5%)

WNV Results by County through 25 August 2009

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		148	3609	1	0.277
	<i>Aedes albopictus</i>	9	115		
	<i>Aedes canadensis canadensis</i>	4	38		
	<i>Aedes cantator</i>	6	140		
	<i>Aedes grossbecki</i>	1	8		
	<i>Aedes japonicus</i>	5	63		
	<i>Aedes sollicitans</i>	3	9		
	<i>Aedes sticticus</i>	2	18		
	<i>Aedes taeniorhynchus</i>	4	27		
	<i>Aedes thibaulti</i>	3	3		
	<i>Aedes triseriatus</i>	2	3		
	<i>Aedes trivittatus</i>	1	4		
	<i>Aedes vexans</i>	13	349		
	<i>Anopheles bradleyi</i>	4	34	1	29.412
	<i>Anopheles punctipennis</i>	4	7		
	<i>Anopheles quadrimaculatus</i>	3	5		
	<i>Culex erraticus</i>	1	3		
	<i>Culex restuans</i>	2	5		
	<i>Culex salinarius</i>	2	37		
	<i>Culex spp.</i>	61	2652		
	<i>Culex territans</i>	1	1		
	<i>Culiseta melanura</i>	16	86		
	<i>Psorophora columbiae</i>	1	2		
Bergen		128	9137	22	2.408
	<i>Aedes albopictus</i>	1	6		
	<i>Aedes japonicus</i>	4	16		
	<i>Culex spp.</i>	123	9115	22	2.414
Burlington		325	8492	10	1.178
	<i>Aedes abserratus</i>	1	1		
	<i>Aedes albopictus</i>	27	154		
	<i>Aedes atlanticus</i>	1	1		
	<i>Aedes atropalpus</i>	1	15		
	<i>Aedes canadensis canadensis</i>	20	958		
	<i>Aedes cantator</i>	6	67		

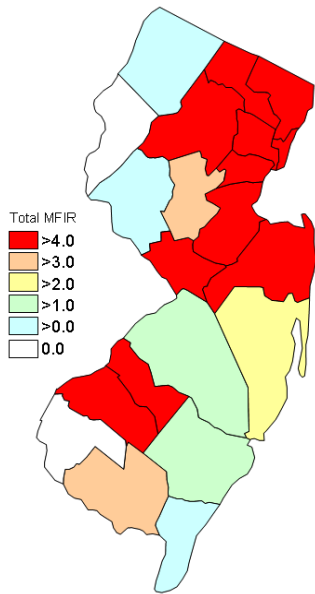
<i>Aedes cinereus</i>	1	6		
<i>Aedes grossbecki</i>	1	26		
<i>Aedes japonicus</i>	25	131		
<i>Aedes sollicitans</i>	3	38		
<i>Aedes sticticus</i>	2	85		
<i>Aedes taeniorhynchus</i>	3	54		
<i>Aedes triseriatus</i>	11	52		
<i>Aedes trivittatus</i>	2	9		
<i>Aedes vexans</i>	22	734		
<i>Anopheles barberi</i>	1	1		
<i>Anopheles bradleyi</i>	6	282		
<i>Anopheles crucians</i>	1	5		
<i>Anopheles punctipennis</i>	9	29		
<i>Anopheles quadrimaculatus</i>	3	11		
<i>Coquillettidia perturbans</i>	16	244		
<i>Culex erraticus</i>	1	4		
<i>Culex pipiens</i>	1	75		
<i>Culex restuans</i>	2	4		
<i>Culex salinarius</i>	6	168		
<i>Culex</i> spp.	92	4126	10	2.424
<i>Culex territans</i>	3	13		
<i>Culiseta inornata</i>	1	2		
<i>Culiseta melanura</i>	53	1174		
<i>Psorophora ciliate</i>	1	1		
<i>Psorophora columbiae</i>	1	4		
<i>Psorophora ferox</i>	1	4		
<i>Uranotaenia sapphirina</i>	1	14		
Camden	200	6003	12	1.999
<i>Aedes albopictus</i>	14	44		
<i>Aedes japonicus</i>	24	59		
<i>Aedes thibaulti</i>	1	1		
<i>Aedes triseriatus</i>	4	4		
<i>Aedes trivittatus</i>	2	2		
<i>Aedes vexans</i>	1	1		
<i>Anopheles punctipennis</i>	3	8		
<i>Anopheles quadrimaculatus</i>	3	4		
<i>Culex pipiens</i>	3	107		
<i>Culex restuans</i>	2	2		
<i>Culex</i> spp.	137	5758	12	2.084
<i>Culex territans</i>	1	1		
<i>Culiseta melanura</i>	4	11		
<i>Orthopodomyia signifera</i>	1	1		
Cape May	1435	24997	4	0.160
<i>Aedes albopictus</i>	52	178		
<i>Aedes canadensis canadensis</i>	4	37		
<i>Aedes cantator</i>	6	20		
<i>Aedes japonicus</i>	147	595		
<i>Aedes sollicitans</i>	9	109		
<i>Aedes taeniorhynchus</i>	3	20		
<i>Aedes triseriatus</i>	42	141		
<i>Aedes vexans</i>	1	1		

<i>Anopheles bradleyi</i>	9	120		
<i>Anopheles punctipennis</i>	5	19		
<i>Anopheles quadrimaculatus</i>	30	1059		
<i>Coquillettidia perturbans</i>	2	27		
<i>Culex erraticus</i>	24	1252		
<i>Culex pipiens</i>	313	5873	2	0.341
<i>Culex restuans</i>	300	3912	1	0.256
<i>Culex salinarius</i>	59	2489		
<i>Culex spp.</i>	329	7992		
<i>Culex territans</i>	7	29		
<i>Culiseta melanura</i>	93	1124	1	0.890
Cumberland	64	1538		
<i>Aedes albopictus</i>	3	16		
<i>Aedes cantator</i>	1	15		
<i>Aedes japonicas</i>	8	56		
<i>Anopheles punctipennis</i>	1	1		
<i>Anopheles quadrimaculatus</i>	1	3		
<i>Culex erraticus</i>	1	9		
<i>Culex pipiens</i>	6	150		
<i>Culex restuans</i>	2	6		
<i>Culex spp.</i>	36	1227		
<i>Culex territans</i>	1	1		
<i>Culiseta melanura</i>	4	54		
Essex	198	3363	1	0.297
<i>Aedes albopictus</i>	12	41		
<i>Aedes japonicus</i>	18	110		
<i>Aedes sticticus</i>	1	1		
<i>Aedes triseriatus</i>	12	23		
<i>Aedes trivittatus</i>	3	26		
<i>Aedes vexans</i>	11	31		
<i>Anopheles punctipennis</i>	5	10		
<i>Anopheles quadrimaculatus</i>	4	11		
<i>Coquillettidia perturbans</i>	3	5		
<i>Culex spp.</i>	124	3063	1	0.326
<i>Psorophora ciliata</i>	1	3		
<i>Psorophora ferox</i>	4	39		
Gloucester	445	10853	1	0.092
<i>Aedes albopictus</i>	30	405		
<i>Aedes atlanticus</i>	1	1		
<i>Aedes canadensis canadensis</i>	2	2		
<i>Aedes japonicus</i>	44	433		
<i>Aedes thibaulti</i>	1	4		
<i>Aedes triseriatus</i>	2	2		
<i>Aedes trivittatus</i>	1	75		
<i>Aedes vexans</i>	8	60		
<i>Anopheles barberi</i>	2	13		
<i>Anopheles crucians</i>	2	21		
<i>Anopheles punctipennis</i>	18	116		
<i>Anopheles quadrimaculatus</i>	22	75		
<i>Anopheles walkeri</i>	1	19		

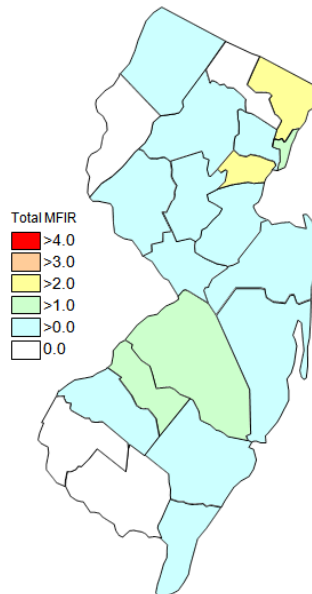
	<i>Coquillettidia perturbans</i>	2	2		
	<i>Culex pipiens</i>	242	9185	1	0.109
	<i>Culex restuans</i>	18	106		
	<i>Culex salinarius</i>	1	1		
	<i>Culex territans</i>	4	9		
	<i>Culiseta melanura</i>	44	324		
Hudson		148	8031	12	1.494
	<i>Culex</i> spp.	148	8031	12	1.494
Hunterdon		182	9026	2	0.222
	<i>Aedes albopictus</i>	1	45		
	<i>Culex</i> spp.	181	8981	2	0.223
Mercer		361	6105	1	0.164
	<i>Aedes albopictus</i>	29	73		
	<i>Aedes japonicus</i>	47	109		
	<i>Aedes triseriatus</i>	7	9		
	<i>Culex erraticus</i>	1	1		
	<i>Culex pipiens</i>	83	596		
	<i>Culex restuans</i>	117	1576		
	<i>Culex salinarius</i>	5	5		
	<i>Culex</i> spp.	72	3736	1	0.268
Middlesex		261	12645	6	0.474
	<i>Aedes albopictus</i>	7	45		
	<i>Aedes japonicus</i>	21	314		
	<i>Aedes triseriatus</i>	1	6		
	<i>Culex</i> spp.	232	12280	6	0.489
Monmouth		421	4127	1	0.242
	<i>Aedes albopictus</i>	34	183		
	<i>Aedes canadensis canadensis</i>	19	168		
	<i>Aedes cantator</i>	11	52		
	<i>Aedes japonicus</i>	28	209		
	<i>Aedes sollicitans</i>	2	3		
	<i>Aedes thibaulti</i>	1	1		
	<i>Aedes triseriatus</i>	18	75		
	<i>Aedes trivittatus</i>	6	6		
	<i>Aedes vexans</i>	13	74		
	<i>Anopheles barberi</i>	1	1		
	<i>Anopheles punctipennis</i>	18	54		
	<i>Anopheles quadrimaculatus</i>	6	13		
	<i>Coquillettidia perturbans</i>	5	13		
	<i>Culex erraticus</i>	2	15		
	<i>Culex pipiens</i>	14	21		
	<i>Culex restuans</i>	24	42		
	<i>Culex</i> spp.	123	2604	1	0.384
	<i>Culex territans</i>	9	24		
	<i>Culiseta melanura</i>	84	550		
	<i>Psorophora ferox</i>	3	19		
Morris		134	5718	2	0.350

	<i>Aedes japonicus</i>	19	334		
	<i>Aedes triseriatus</i>	3	26		
	<i>Culex spp.</i>	112	5358	2	0.373
Ocean		420	8671	1	0.115
	<i>Aedes albopictus</i>	47	536		
	<i>Aedes atlanticus</i>	3	6		
	<i>Aedes canadensis canadensis</i>	36	937		
	<i>Aedes cantator</i>	19	153		
	<i>Aedes cinereus</i>	1	1		
	<i>Aedes grossbecki</i>	1	1		
	<i>Aedes japonicus</i>	46	322		
	<i>Aedes sollicitans</i>	6	25		
	<i>Aedes sticticus</i>	6	10		
	<i>Aedes taeniorhynchus</i>	2	20		
	<i>Aedes triseriatus</i>	25	88		
	<i>Aedes trivittatus</i>	5	15		
	<i>Aedes vexans</i>	32	178		
	<i>Anopheles bradleyi</i>	9	94		
	<i>Anopheles punctipennis</i>	14	18		
	<i>Anopheles quadrimaculatus</i>	1	1		
	<i>Coquillettidia perturbans</i>	8	16		
	<i>Culex restuans</i>	5	5		
	<i>Culex salinarius</i>	14	67		
	<i>Culex spp.</i>	117	6063	1	0.165
	<i>Culiseta melanura</i>	15	48		
	<i>Psorophora columbiae</i>	1	1		
	<i>Psorophora ferox</i>	7	66		
Passaic		77	1628		
	<i>Aedes albopictus</i>	4	34		
	<i>Aedes canadensis canadensis</i>	1	20		
	<i>Aedes japonicus</i>	16	271		
	<i>Aedes triseriatus</i>	4	20		
	<i>Anopheles punctipennis</i>	1	2		
	<i>Culex spp.</i>	51	1281		
Salem		110	2777		
	<i>Aedes albopictus</i>	6	26		
	<i>Aedes japonicus</i>	5	26		
	<i>Aedes triseriatus</i>	1	1		
	<i>Aedes vexans</i>	2	150		
	<i>Anopheles punctipennis</i>	10	47		
	<i>Anopheles quadrimaculatus</i>	9	146		
	<i>Coquillettidia perturbans</i>	4	128		
	<i>Culex erraticus</i>	6	270		
	<i>Culex restuans</i>	4	79		
	<i>Culex salinarius</i>	2	150		
	<i>Culex spp.</i>	30	1505		
	<i>Culex territans</i>	2	2		
	<i>Culiseta melanura</i>	29	247		
Somerset		190	4704	1	0.213

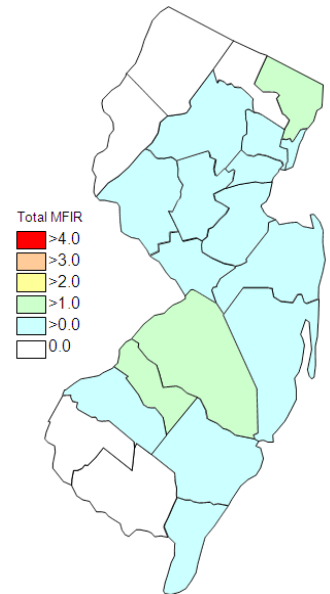
	<i>Aedes albopictus</i>	8	25		
	<i>Aedes canadensis canadensis</i>	2	8		
	<i>Aedes japonicus</i>	27	446		
	<i>Aedes sticticus</i>	1	1		
	<i>Aedes triseriatus</i>	20	77		
	<i>Aedes trivittatus</i>	7	278		
	<i>Aedes vexans</i>	1	5		
	<i>Anopheles punctipennis</i>	9	23		
	<i>Anopheles quadrimaculatus</i>	3	7		
	<i>Coquillettidia perturbans</i>	3	4		
	<i>Culex</i> spp.	108	3827	1	0.261
	<i>Psorophora ferox</i>	1	3		
Sussex		176	4529	1	0.221
	<i>Aedes japonicus</i>	3	3		
	<i>Coquillettidia perturbans</i>	3	94		
	<i>Culex pipiens</i>	8	45		
	<i>Culex restuans</i>	6	190		
	<i>Culex salinarius</i>	12	44		
	<i>Culex</i> spp.	141	4140	1	0.242
	<i>Culiseta melanura</i>	2	10		
	<i>Culiseta morsitans</i>	1	3		
Union		119	3930	8	2.036
	<i>Aedes albopictus</i>	9	37		
	<i>Aedes japonicus</i>	14	118		
	<i>Aedes sollicitans</i>	1	1		
	<i>Aedes vexans</i>	5	48		
	<i>Anopheles punctipennis</i>	2	6		
	<i>Coquillettidia perturbans</i>	1	1		
	<i>Culex</i> spp.	84	3645	8	2.195
	<i>Psorophora ferox</i>	3	74		
Warren		183	10999		
	<i>Culex</i> spp.	183	10999		
Grand Total		5725	150,882	86	0.570



Cumulative activity in 2008



Activity this year to 25 August 2009



Activity last week, 2009.

Saint Louis Encephalitis (SLE) through 25 August 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		270	7144		
	<i>Aedes abserratus</i>	1	1		
	<i>Aedes albopictus</i>	27	154		
	<i>Aedes atlanticus</i>	1	1		
	<i>Aedes atropalpus</i>	1	15		
	<i>Aedes canadensis canadensis</i>	8	217		
	<i>Aedes cantator</i>	5	66		
	<i>Aedes cinereus</i>	1	6		
	<i>Aedes japonicus</i>	24	130		
	<i>Aedes sollicitans</i>	3	38		
	<i>Aedes sticticus</i>	1	41		
	<i>Aedes taeniorhynchus</i>	3	54		
	<i>Aedes triseriatus</i>	10	51		
	<i>Aedes trivittatus</i>	2	9		
	<i>Aedes vexans</i>	17	490		
	<i>Anopheles barberi</i>	1	1		
	<i>Anopheles bradleyi</i>	6	282		
	<i>Anopheles crucians</i>	1	5		
	<i>Anopheles punctipennis</i>	7	23		
	<i>Anopheles quadrimaculatus</i>	2	10		
	<i>Coquillettidia perturbans</i>	16	244		
	<i>Culex erraticus</i>	1	4		
	<i>Culex pipiens</i>	1	75		
	<i>Culex restuans</i>	1	3		
	<i>Culex salinarius</i>	6	168		
	<i>Culex spp.</i>	90	4117		
	<i>Culex territans</i>	2	7		
	<i>Culiseta inornata</i>	1	2		
	<i>Culiseta melanura</i>	27	907		
	<i>Psorophora ciliate</i>	1	1		
	<i>Psorophora columbiae</i>	1	4		
	<i>Psorophora ferox</i>	1	4		
	<i>Uranotaenia sapphirina</i>	1	14		
Camden		119	3816		
	<i>Aedes albopictus</i>	12	36		
	<i>Aedes japonicus</i>	12	36		
	<i>Aedes triseriatus</i>	4	4		
	<i>Aedes vexans</i>	1	1		
	<i>Culex pipiens</i>	2	95		
	<i>Culex spp.</i>	87	3643		
	<i>Orthopodomyia signifera</i>	1	1		
Cape May		668	13935		
	<i>Aedes cantator</i>	1	2		

<i>Aedes japonicus</i>	2	22		
<i>Aedes triseriatus</i>	2	11		
<i>Anopheles quadrimaculatus</i>	1	1		
<i>Coquillettidia perturbans</i>	1	19		
<i>Culex erraticus</i>	2	78		
<i>Culex pipiens</i>	221	4548		
<i>Culex restuans</i>	138	1594		
<i>Culex salinarius</i>	4	25		
<i>Culex spp.</i>	292	7623		
<i>Culiseta melanura</i>	4	12		
Essex	176	3256		
<i>Aedes albopictus</i>	12	41		
<i>Aedes japonicus</i>	17	107		
<i>Aedes sticticus</i>	1	1		
<i>Aedes triseriatus</i>	9	14		
<i>Aedes vexans</i>	9	25		
<i>Anopheles punctipennis</i>	1	1		
<i>Coquillettidia perturbans</i>	1	1		
<i>Culex spp.</i>	124	3063		
<i>Psorophora ferox</i>	2	3		
Hunterdon	42	2100		
<i>Culex spp.</i>	42	2100		
Mercer	343	6003		
<i>Aedes albopictus</i>	29	73		
<i>Aedes japonicus</i>	43	105		
<i>Aedes triseriatus</i>	7	9		
<i>Culex pipiens</i>	80	585		
<i>Culex restuans</i>	113	1533		
<i>Culex salinarius</i>	3	3		
<i>Culex spp.</i>	68	3695		
Ocean	2	3		
<i>Aedes albopictus</i>	1	1		
<i>Culex spp.</i>	1	2		
Somerset	22	557		
<i>Aedes albopictus</i>	1	4		
<i>Culex spp.</i>	21	553		
Grand Total	1642	36814		

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

La Crosse Encephalitis (LAC) through 25 August 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 Hygiene 24(5):876-880).

County	Species	Pools	Mosquitoes	Positives	MFIR
Cape May		200	984		
	<i>Aedes albopictus</i>	43	152		
	<i>Aedes japonicus</i>	108	480		
	<i>Aedes triseriatus</i>	39	129		
	<i>Anopheles bradleyi</i>	1	34		
	<i>Culex pipiens</i>	1	41		
	<i>Culex restuans</i>	1	8		
	<i>Culex salinarius</i>	2	77		
	<i>Culex spp.</i>	5	63		
Passaic		2	17		
	<i>Aedes triseriatus</i>	2	17		
Grand Total		202	1001		

Risk Assessment

Our goal for this risk modeling is to implement a multivariate model for the assessment of risk of human WNV cases. This 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 using greater than 30 variables, eliminating those that did not have an explanatory value toward predicting risk of human cases. Five variables ultimately emerged, including *Culex* MFIR, Spring Rainfall, temperature variations from average, non-*Culex* MFIR values and the percent of dead birds. We were able to account for greater than 75 percent of the variability.

This model lagged variables so as to include the time from being bitten by an infected mosquito to showing symptoms (i.e., incubation time up to 14 days). A good model should make biological sense and this model uses features that one would expect to be important in the transmission of an arbovirus: weather conditions promoting mosquito populations (rain and heat), the infectivity of the enzootic vectors, and indication of other (potential bridge) mosquitoes becoming infected and the consequences to host populations (birds).

GIS Application: Data for all five variables used in the model are retrieved and prepared for GIS use. Because the data points representing the variables are not collected at the same place that pools of mosquitoes are collected, a method must be used to estimate the values of the 5 variables at pool collection points. This is done through 1) mapping the 5 variables into a GIS layer, 2) interpolating the data between known data points for each variable (Figure 1, Spring Rain), and then 3) extracting those points of each variable that correspond to the pool sites (Figure 2) to be included into the model to calculate the risk of human cases, y . We are currently in the process of developing the last of the interpolated maps (the variation in heating).

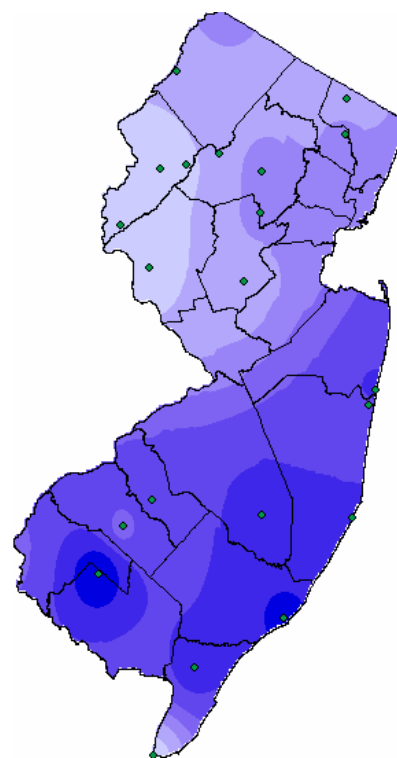


Figure 1. Spring rain amounts interpolated into a GIS layer.

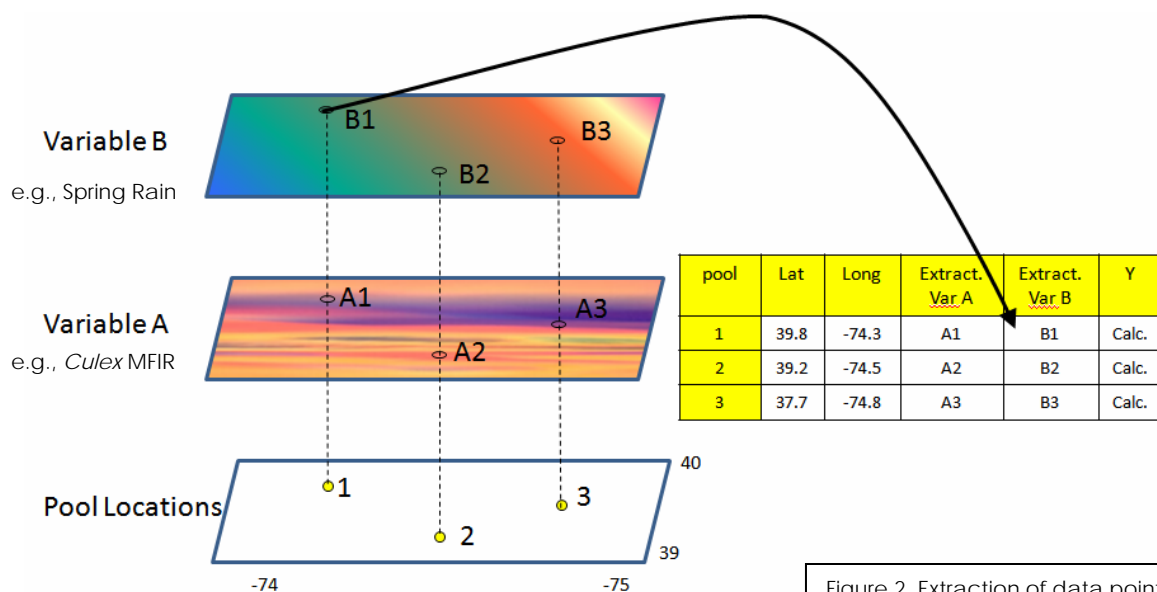


Figure 2. Extraction of data points for 2 variables of the model. Extracted points are used in the model to determine potential for human cases y and then mapped as was done with the simple model.

Since we are developing the final variable in the multivariate model for interpolation, we present the last of the simple linear regression model (Figure 3). Positive pools have been detected in most counties in New Jersey, yet the total number of positive pools as compared to last year is down considerably. Activity is high in Bergen and Camden counties, reflecting their high number of positive *Culex* pools. It should be noted that most of the calculated risk was at the low range, far below a risk potential for a single human case.

NOTE: These maps are presented as an additional early warning tool available for counties to use as part of their decision-making processes for controlling public-health mosquitoes. It should be understood that *minimal risk does not mean no risk* and that everyone should use [personal protection](#) to avoid mosquito bites.

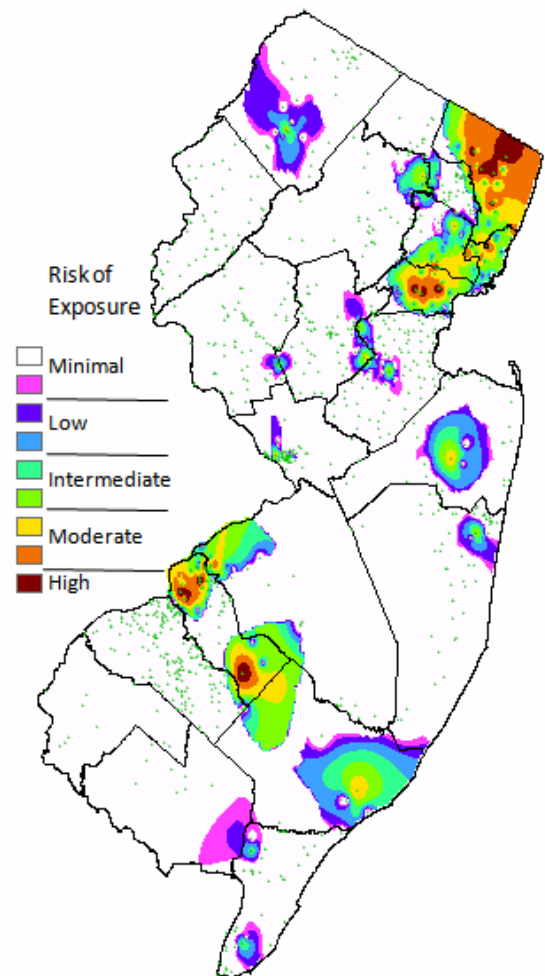


Figure 3. GIS map of risk of human cases based on a linear relationship between cases and MFIR values calculated from all mosquitoes collected. Points represent collected pools.