RUTGERS
New Jersey Agricultural Experiment Station

VECTOR SURVEILLANCE IN NEW JERSEY

EEE and WNV

CDC WEEK 34: August 17 to August 23, 2008

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Culiseta melanura and Eastern Equine Encephalitis

SITE	Inland / Coastal	Historic Mean	Current Weekly Mean	Total Collected to Date*	Total Pools Submitted	EEE Isolations	MFIR
Green Bank (Burlington County)	Coastal	6.5	0.3	55	20		
Corbin City (Atlantic County)	Coastal	1.7	0.1	136	42		
Dennisville (Cape May County)	Coastal	7.4	< 0.1	379	34		
Waterford (Camden County)	Inland	1.3	0	0	0		
Centerton (Salem County)	Inland	4.6	< 0.1	191	29		
Turkey Swamp (Monmouth County)	Inland	1.8	0.3	168	38		
Glassboro (Gloucester County)	Inland	no history	0.1	14	9		

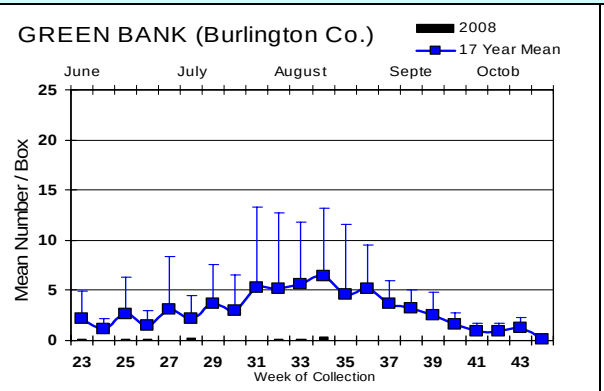
*Including trial run last week in May.

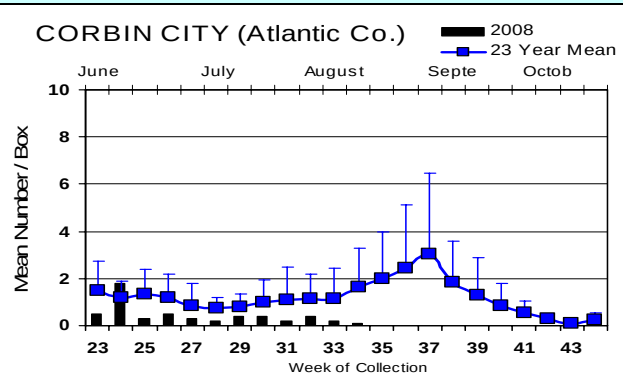
Remarks: *Culiseta melanura* continue to be very low compared to historical trends. No detection of EEE activity has been found at any of the inland or coastal monitoring sites. Cold fronts are predicted to cover New Jersey by the end of the week, perhaps conteracting any effects of precipitation anticipated by Tropical Storm Fay's arrival a few days earlier. Although no positive EEE pools have been detected, previous years have shown that positive pools can occur even when *Cs. melanura* populations are at what would seem very low levels. Sudden changes in climate and habitat can increase the population to levels high enough to accommodate virus amplification. This occurred at the Dennisville site in 1981. Fortunately, subsequent colder temperatures brought the mosquito season to an end.

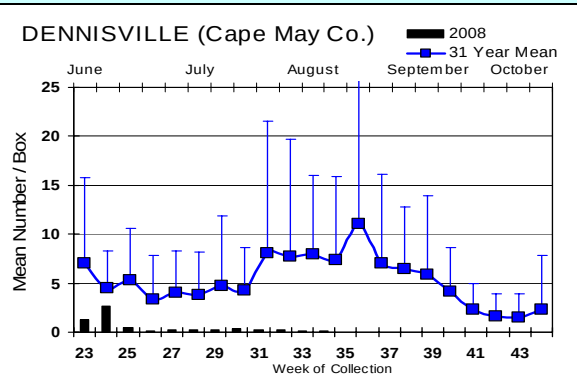
To date, 172 pools from 943 *Cs. melanura* mosquitoes have been sent for EEE testing from the resting box collections. No positives have been detected from these pools or from pools submitted by the counties. An additional 257 pools of 2140 individual mosquitoes from 30 species other than *Cs. melanura* have also been tested and all pools were found to be negative. These species include: *Aedes albopictus, Ae. canadensis canadensis, Ae. cantator, Ae. cinereus ,Ae. communis, Ae. grossbecki, Ae. japonicus, Ae. sollicitans, Ae. sticticus, Ae. taeniorhynchus, Ae. triseriatus, Ae. vexans, Anopheles bradleyi, An. crucians, An. punctipennis, An. quadrimaculatus, Coquillettidia perturbans, Culex erraticus, Cx. pipiens, Cx. restuans, Cx., salinarius, Mixed Culex, Cx. territans, Culiseta inornata, Orthopodomyia signifera, Psorophora ciliata, Ps. columbiae, Ps. cyanescens, Ps., ferox, Ps. howardii and Uranotaenia sapphirina.*

Culiseta melanura Population Graphs

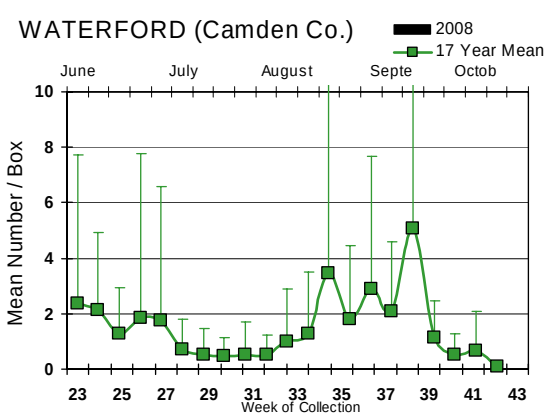
Coastal

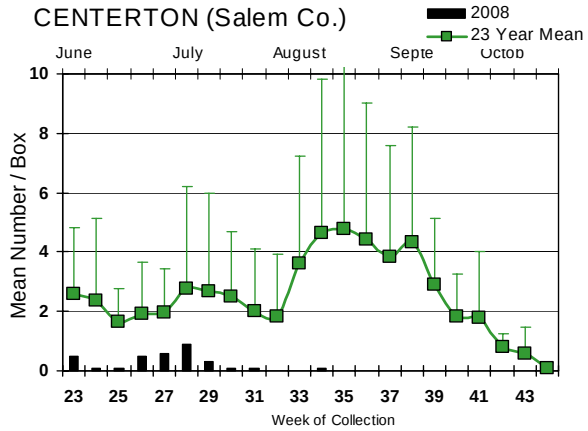


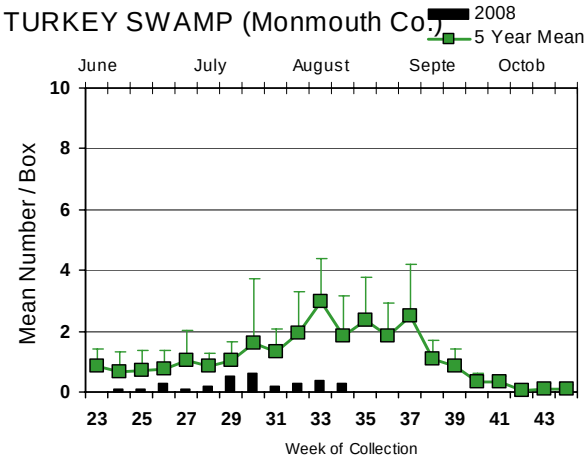




Inland



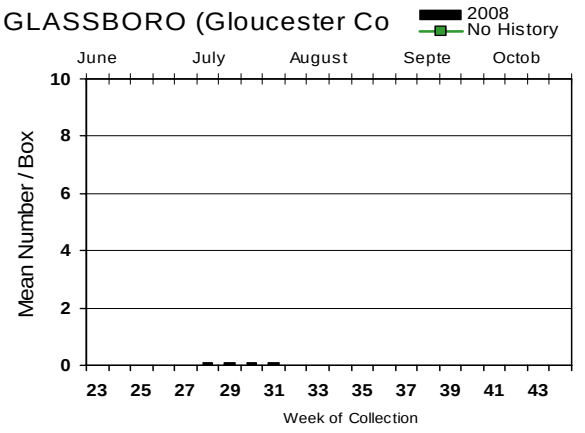




Figures: Inland and coastal resting box sites showing current weekly population levels (in bars) against historical trends (lines with standard deviation). The number of years for historical population levels varies by site.

An additional inland resting box site has been added. This site is located near Glassboro, in Gloucester County. The location is in a wildlife management area, with box location in a mixed forest swamp (Red Maple/White Pine).

Very low *Cs. melanura* populations are the hallmark of this season, to date.



EEE in US (2008 cumulative cases): (Red = new reported cases occurring)

- equine: 2(AL), 80(FL), 20(GA) 3(LA) 6(MS) 1(TN) 1(WI)
- mosquito: 3(FL), 2(GA), 2(LA), 2(MA), 1(VA)
- sentinel: 3(AL), 73(FL, 59 wild), 2(NC)
- human: 1(AL)

West Nile Virus

West Nile in US (2008 cumulative cases): Single black values indicate no change from previous week. Black values / red values equals previous week/New totals. ? denotes probable cases.

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Alabama				1	1
Alaska					
Arizona	1	65/88	17/19		5
Arkansas		11		1	4
California	1135/1295	906/1101	63/109	5	73/97
Colorado	3	17/27			18/31
Connecticut		80/104			1
Delaware					
Florida	3 live		2	1	
Georgia		8			
Hawaii					
Idaho	2	6 counties		1	12/16
Illinois	7/8	119/200		1	1/4
Indiana	1	21			
Iowa		2/3		1	1/3
Kansas					
Kentucky					
Louisiana		414/600		1	5/7
Maine					
Maryland		2/3			1?
Mass.	26/39	39/52			
Michigan	2/3	1			1
Minnesota	4	3/10			9/12
Mississippi		3		1	42/57
Missouri	29/30	153/167		1	3 ?
Montana		3		3	1
Nebraska	3	44			5/10

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Nevada		13/22			2
New Hampshire					
New Jersey	18/21	237/313			
New Mexico		1		1	1
New York	25	135/209			2/4
North Carolina				1	
North Dakota				1	14/18
Ohio		15			1
Oklahoma		1/12			5
Oregon	1	4/6			3
Pennsylvania	4/9	193/237			1
Rhode Island					
South Carolina	3				
South Dakota	1	30		1	11
Tennessee		246/342			6/8
Texas		57/82			13/16
Utah	2	52/89	1	2	5
Vermont		1			
Virginia		97/254			
Washington		13/18		5/9	
West Virginia	2	10		2	1
Wisconsin	11/14			1/2	1
Wyoming		10			2

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) tests mosquito pools using RT-PCR Taqman techniques.

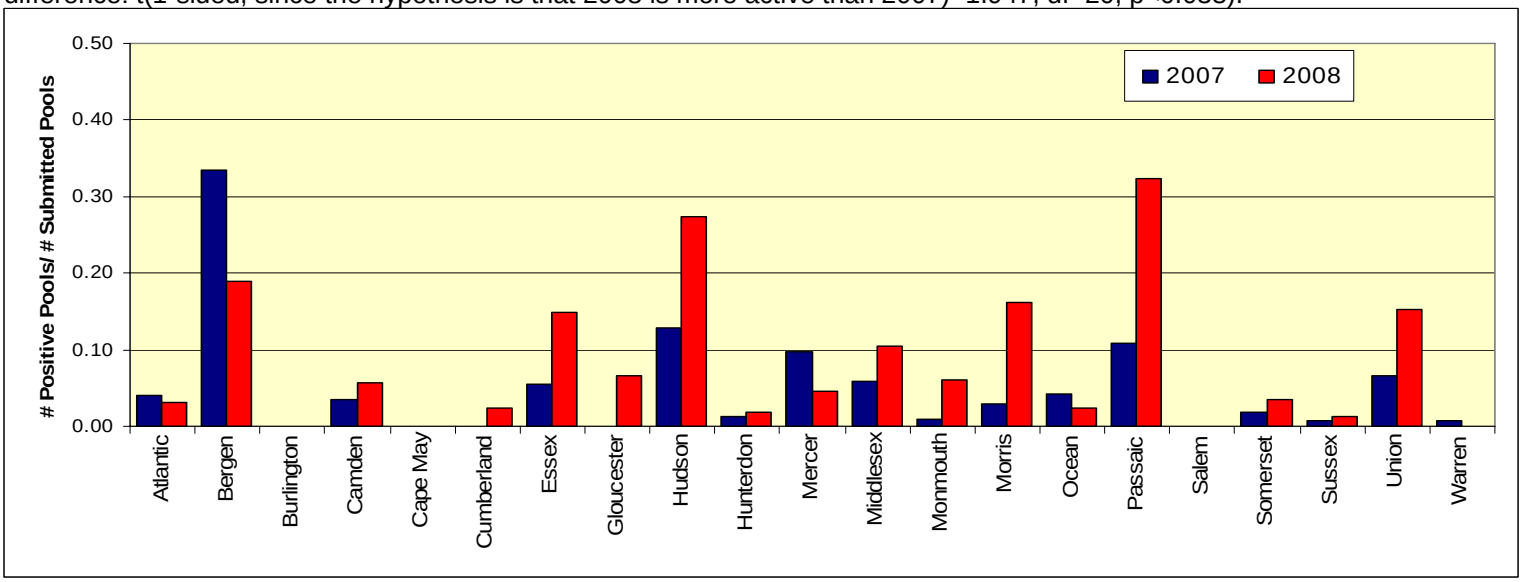
Mosquito Species Submitted for West Nile Virus Testing through 25 August 2008

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	1	9		
Aedes albopictus	525	4746	2	0.42
Aedes atlanticus	1	4		
Aedes atropalpus	1	1		
Aedes canadensis canadensis	56	1243		
Aedes cantator	25	359		
Aedes cinereus	1	3		
Aedes communis	1	1		
Aedes grossbecki	3	4		
Aedes japonicus	252	1279	1	0.78
Aedes sollicitans	20	242		
Aedes sticticus	6	86		
Aedes stimulans	1	1		

Aedes taeniorhynchus	15	272		
Aedes thibaulti	5	13		
Aedes triseriatus	122	362		
Aedes trivittatus	6	26		
Aedes vexans	151	2603		
Anopheles barberi	3	3		
Anopheles bradleyi	42	776		
Anopheles crucians	3	4		
Anopheles punctipennis	102	602		
Anopheles quadrimaculatus	81	1148		
Coquillettidia perturbans	81	882		
Culex erraticus	46	281		
Culex pipiens	421	10599	46	4.34
Culex restuans	201	3342	1	0.30
Culex salinarius	138	4395	1	0.23
Culex spp.	1752	70827	279	3.94
Culex territans	38	101		
Culiseta inornata	2	4		
Culiseta melanura	221	1264		
Orthopodomyia signifera	9	18		
Psorophora ciliata	5	46		
Psorophora columbiae	16	51		
Psorophora cyanescens	1	1		
Psorophora ferox	21	126		
Psorophora howardii	4	11		
Uranotaenia sapphirina	13	72		
Grand Total	**4392**	**105807**	**330**	**3.12**

Remarks: Submitted pools (4,655) comprised of 105,807 individual mosquitoes produced 330 positive pools from 17 different counties. An additional *Ae. albopictus* pool was positive.

Is 2008 hotter than last year? The total number of positive pools to date might be misleading if the amount of effort getting those pools is not the same from one year to the next. To reduce this bias, I divided the number of positive pools by the total submitted for testing by each county. The graph below shows that most counties, to this date as compared with last year, are finding more positive pools per effort. Indeed, a paired t-test testing if county values are higher this year than last shows a significant difference: t(1-sided, since the hypothesis is that 2008 is more active than 2007)=1.947, df=20, p<0.033).



Humans, Horses and Wild Birds: To date, there have been 120 dead birds submitted for West Nile virus testing with 21 positives Last year, there were only 13 positive birds through 135 submissions.

2008 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
330 / 4,392	188 / 3,708

WNV Results by County through 26 August 2008

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**210**	**4550**	**7**	**1.54**
	Aedes albopictus	22	590		
	Aedes canadensis canadensis	3	12		
	Aedes cantator	2	16		
	Aedes japonicus	4	5		
	Aedes sollicitans	4	82		
	Aedes taeniorhynchus	10	249		
	Aedes thibaulti	4	8		
	Aedes triseriatus	4	13		
	Aedes vexans	10	220		
	Anopheles bradleyi	6	26		
	Anopheles punctipennis	3	3		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	4	41		
	Culex erraticus	4	63		
	Culex pipiens	1	17		
	Culex restuans	9	343		
	Culex salinarius	3	3		
	Culex sp.	60	2682	7	2.61
	Culex territans	8	21		
	Culiseta melanura	45	141		
	Orthopodomyia signifera	1	1		
	Psorophora ferox	2	13		
Bergen		**387**	**16051**	**73**	**4.55**
	Aedes albopictus	22	99		
	Aedes canadensis candensis	1	6		
	Aedes japonicus	24	144		
	Aedes sollicitans	1	1		
	Aedes triseriatus	11	39		
	Aedes vexans	14	85		
	Anopheles barberi	1	1		
	Anopheles bradleyi	2	4		
	Anopheles punctipennis	4	31		
	Coquillettidia perturbans	19	158		
	Culex pipiens	68	2373	9	3.79
	Culex restuans	28	314		
	Culex salinarius	60	3139		
	Culex spp.	130	9655	64	6.63
	Culex territans	1	1		
	Orthopodomyia signifera	1	1		
Burlington		**266**	**2261**		
	Aedes albopictus	22	183		
	Aedes canadensis canadensis	21	598		
	Aedes cantator	4	148		

	Aedes cinereus	1	3		
	Aedes grossbecki	1	1		
	Aedes japonicus	11	28		
	Aedes sollicitans	1	18		
	Aedes sticticus	2	5		
	Aedes taeniorhynchus	1	2		
	Aedes triseriatus	11	38		
	Aedes vexans	33	335		
	Anopheles bradleyi	2	6		
	Anopheles crucians	3	4		
	Anopheles punctipennis	14	31		
	Anopheles quadrimaculatus	7	10		
	Coquillettidia perturbans	19	232		
	Culex erraticus	3	3		
	Culex pipiens	3	20		
	Culex restuans	5	29		
	Culex salinarius	1	1		
	Culex sp.	39	347		
	Culex territans	3	6		
	Culiseta inornata	1	3		
	Culiseta melanura	37	170		
	Orthopodomyia signifera	3	11		
	Psorophora ciliata	2	2		
	Psorophora columbiae	6	11		
	Psorophora cyanescens	1	1		
	Psorophora ferox	4	5		
	Psorophora howardii	1	3		
	Uranotaenia sapphirina	4	7		
Camden		**134**	**2568**	**8**	**3.12**
	Aedes albopictus	24	199		
	Aedes canadensis canadensis	1	19		
	Aedes cantator	1	22		
	Aedes japonicus	11	27		
	Aedes triseriatus	2	2		
	Aedes trivittatus	1	1		
	Aedes vexans	4	46		
	Anopheles punctipennis	7	31		
	Anopheles quadrimaculatus	5	6		
	Coquillettidia perturbans	4	16		
	Culex erraticus	1	1		
	Culex pipiens	11	495		
	Culex restuans	17	481		
	Culex salinarius	3	14		
	Culex sp.	38	1203	8	6.65
	Culiseta melanura	1	1		
	Orthopodomyia signifera	2	3		
	Psorophora columbiae	1	1		
Cape_May		**229**	**4165**		
	Aedes albopictus	1	2		
	Aedes canadensis canadensis	4	71		
	Aedes cantator	8	82		
	Aedes japonicus	6	15		
	Aedes sollicitans	3	81		
	Aedes taeniorhynchus	2	8		

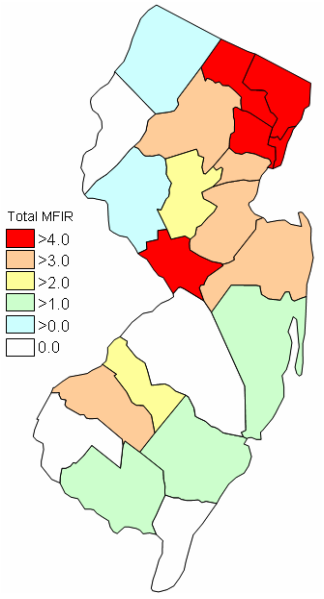
	Aedes triseriatus	1	1		
	Aedes vexans	2	13		
	Anopheles bradleyi	17	457		
	Anopheles punctipennis	7	102		
	Anopheles quadrimaculatus	15	507		
	Coquillettidia perturbans	3	27		
	Culex erraticus	3	15		
	Culex pipiens	42	819		
	Culex restuans	49	835		
	Culex salinarius	11	425		
	Culex sp.	18	317		
	Culex territans	1	2		
	Culiseta melanura	36	386		
Cumberland		**145**	**1730**	**4**	**2.31**
	Aedes albopictus	26	113		
	Aedes japonicus	15	37		
	Aedes triseriatus	8	12		
	Aedes vexans	3	38		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	3	9		
	Coquillettidia perturbans	1	1		
	Culex erraticus	5	16		
	Culex pipiens	6	60		
	Culex restuans	2	32	1	31.25
	Culex spp.	69	1358	3	2.21
	Culex territans	2	5		
	Culiseta melanura	2	46		
	Psorophora howardii	1	1		
	Uranotaenia sapphirina	1	1		
Essex		**188**	**3100**	**28**	**9.03**
	Aedes albopictus	44	296		
	Aedes japonicus	17	73	1	13.70
	Aedes triseriatus	10	14		
	Aedes trivittatus	1	1		
	Aedes vexans	4	5		
	Anopheles punctipennis	2	2		
	Anopheles quadrimaculatus	3	10		
	Coquillettidia perturbans	2	2		
	Culex spp.	105	2695	27	10.02
	Culex territans	1	3		
Gloucester		**351**	**7193**	**26**	**3.61**
	Aedes abserratus	1	9		
	Aedes albopictus	29	279		
	Aedes canadensis canadensis	7	245		
	Aedes communis	1	1		
	Aedes japonicus	19	114		
	Aedes sollicitans	1	2		
	Aedes thibaulti	1	5		

	Aedes triseriatus	6	16		
	Aedes vexans	8	259		
	Anopheles bradleyi	4	86		
	Anopheles punctipennis	16	62		
	Anopheles quadrimaculatus	15	36		
	Coquillettidia perturbans	4	34		
	Culex erraticus	1	37		
	Culex pipiens	184	5266	26	4.94
	Culex restuans	16	583		
	Culex salinarius	6	34		
	Culex territans	5	25		
	Culiseta melanura	22	69		
	Psorophora ferox	3	9		
	Uranotaenia sapphirina	2	22		
Hudson		**113**	**5584**	**35**	**6.27**
	Culex spp.	113	5584	35	6.27
Hunterdon		**150**	**7244**	**3**	**0.41**
	Aedes albopictus	2	11		
	Aedes vexans	1	50		
	Anopheles punctipennis	1	50		
	Anopheles quadrimaculatus	1	11		
	Culex erraticus	1	10		
	Culex spp.	143	7111	3	0.42
	Culiseta inornata	1	1		0.00
Mercer		**243**	**2072**	**11**	**5.31**
	Aedes albopictus	114	959	1	1.04
	Aedes atropalpus	1	1		
	Aedes japonicus	38	76		
	Aedes stimulans	1	1		
	Aedes triseriatus	13	27		
	Aedes vexans	2	12		
	Culex erraticus	11	35		
	Culex pipiens	36	646	10	15.48
	Culex restuans	8	41		
	Culex salinarius	10	157		
	Culex spp.	6	112		
	Orthopodomyia signifera	1	1		
	Psorophora columbiae	1	1		
Middlesex		**250**	**5736**	**26**	**4.53**
	Aedes albopictus	20	165		
	Aedes japonicus	11	52		
	Aedes triseriatus	3	11		
	Aedes trivittatus	1	1		
	Aedes vexans	21	512		
	Culex erraticus	1	1		
	Culex pipiens	20	203		
	Culex restuans	8	117		
	Culex salinarius	12	322	1	3.11
	Culex spp.	142	4282	25	5.84
	Culex territans	3	10		
	Psorophora ciliata	3	44		

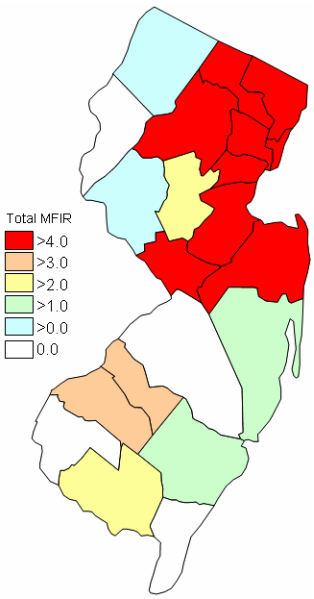
	Psorophora columbiae	1	4		
	Psorophora ferox	1	1		
	Psorophora howardii	1	3		
	Uranotaenia sapphirina	2	8		
Monmouth		**350**	**4174**	**21**	**5.03**
	Aedes albopictus	56	258		
	Aedes canadensis canadensis	3	18		
	Aedes cantator	4	5		
	Aedes japonicus	14	26		
	Aedes sollicitans	8	36		
	Aedes taeniorhynchus	2	13		
	Aedes triseriatus	6	11		
	Aedes trivittatus	1	2		
	Aedes vexans	13	105		
	Anopheles barberi	1	1		
	Anopheles punctipennis	9	12		
	Anopheles quadrimaculatus	2	3		
	Coquillettidia perturbans	4	5		
	Culex erraticus	3	27		
	Culex pipiens	38	425		
	Culex restuans	30	188		
	Culex salinarius	9	25		
	Culex spp.	102	2827	21	7.43
	Culex territans	7	19		
	Culiseta melanura	38	168		
Morris		**140**	**5607**	**26**	**4.64**
	Aedes japonicus	3	18		
	Aedes triseriatus	1	3		
	Coquillettidia perturbans	1	50		
	Culex spp.	135	5536	26	4.70
Ocean		**240**	**4558**	**6**	**1.32**
	Aedes albopictus	59	1014	1	0.99
	Aedes canadensis canadensis	6	80		
	Aedes cantator	1	9		
	Aedes japonicus	18	42		
	Aedes sollicitans	1	21		
	Aedes triseriatus	7	19		
	Aedes vexans	11	44		
	Anopheles bradleyi	2	2		
	Anopheles punctipennis	4	7		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	4	15		
	Culex pipiens	7	247	1	4.05
	Culex restuans	15	245		
	Culex salinarius	13	92		
	Culex sp.	76	2623	4	1.52
	Culex territans	1	1		
	Culiseta melanura	9	81		
	Psorophora ferox	5	15		
Passaic		**74**	**3012**	**24**	**7.97**
	Aedes albopictus	2	16		

	Aedes japonicus	4	50		
	Aedes triseriatus	1	2		
	Anopheles punctipennis	1	5		
	Culex spp.	66	2939	24	8.17
Salem		**262**	**3203**		
	Aedes albopictus	21	78		
	Aedes atlanticus	1	4		
	Aedes canadensis canadensis	7	181		
	Aedes cantator	5	77		
	Aedes grossbecki	2	3		
	Aedes japonicus	11	27		
	Aedes sollicitans	1	1		
	Aedes sticticus	3	80		
	Aedes triseriatus	13	29		
	Aedes vexans	17	839		
	Anopheles bradleyi	8	194		
	Anopheles punctipennis	24	248		
	Anopheles quadrimaculatus	29	561		
	Coquillettidia perturbans	8	92		
	Culex erraticus	13	73		
	Culex pipiens	2	5		
	Culex restuans	7	17		
	Culex salinarius	9	179		
	Culex spp.	32	187		
	Culex territans	5	7		
	Culiseta melanura	31	202		
	Psorophora columbiae	4	27		
	Psorophora ferox	6	83		
	Psorophora howardii	1	4		
	Uranotaenia sapphirina	2	5		
Somerset		**154**	**2965**	**6**	**2.02**
	Aedes albopictus	13	52		
	Aedes canadensis canadensis	1	2		
	Aedes japonicus	26	241		
	Aedes triseriatus	23	117		
	Anopheles barberi	1	1		
	Anopheles punctipennis	4	4		
	Anopheles quadrimaculatus	1	1		
	Culex pipiens	2	22		
	Culex restuans	2	19		
	Culex spp.	80	2505	6	2.40
	Orthopodomyia signifera	1	1		
Sussex		**203**	**9094**	**3**	**0.33**
	Aedes canadensis canadensis	2	11		
	Aedes japonicus	11	244		
	Aedes sticticus	1	1		
	Aedes triseriatus	1	7		
	Aedes trivittatus	2	21		
	Aedes vexans	2	24		

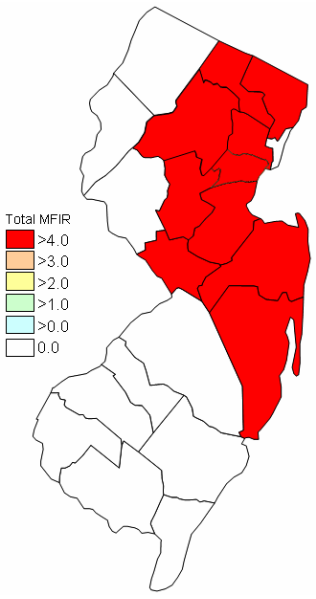
	Anopheles punctipennis	2	3		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	8	209		
	Culex pipiens	1	1		
	Culex restuans	4	96		
	Culex salinarius	1	4		
	Culex spp.	165	8443	3	0.36
	Uranotaenia sapphirina	2	29		
Union		**147**	**3528**	**23**	**6.52**
	Aedes albopictus	48	432		
	Aedes japonicus	7	11		
	Aedes triseriatus	1	1		
	Aedes vexans	6	16		
	Anopheles punctipennis	1	2		
	Culex restuans	1	2		
	Culex spp.	80	3059	23	7.52
	Psorophora columbiae	3	5		
Warren		**155**	**7411**		
	Aedes japonicus	2	49		
	Culex spp.	153	7362		
Grand Total		**4391**	**105806**	**330**	**3.12**



Cumulative activity to last week



Cumulative activity to this week



Recent Activity 8/05 to 8/15)

RAMP (Rapid Analyte Measurement Platform). More than half of the counties in New Jersey are incorporating the use of RAMP results in their vector surveillance programs. Counties participate with the PHEL Lab in monitoring the efficacy and sensitivity of the RAMP results by sending in samples to be confirmed. Note that not all samples done by the counties are sent in to PHEL and therefore the number of pools submitted can differ from the number of pools reported by the counties.

RAMP Results for 26 August 2008

County	Species	Pools	Mosquitoes	Positives	PHEL (pools submitted/+/-)
Monmouth		**75**	**671**		
	Aedes albopictus	4	11		
	Aedes canadensis	8	38		
	Aedes cantator	3	13		
	Aedes japonicus	11	42		
	Aedes triseriatus	1	1		
	Anopheles punctipennis	3	6		
	Coquillettidia perturbans	1	1		
	Culex spp.	2	2		
	Culiseta melanura	1	1		
Warren		**51**	**1968**		
	Aedes japonicus	3	33		
	Aedes triseriatus	1	1		
	Aedes vexans	1	2		
	Culex restuans	1	4		
	Culex spp.	45	1928	**2**	**9/0/2**