RUTGERS
New Jersey Agricultural Experiment Station

VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

CDC WEEK 27: July 4 to July 10, 2010

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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	2.00	0.20	43	5	0	0
Corbin City (Atlantic County)	Coastal	0.70	0.44	236	7	0	0
Dennisville (Cape May County)	Coastal	3.63	0.02	268	8	0	0
Winslow (Camden County)	Inland	No history this week	0.30	1115	24	0	0
Centerton (Salem County)	Inland	.60	0.28	827	19	0	0
Turkey Swamp (Monmouth County)	Inland	0.70	0.96	122	18	0	0
Glassboro (Gloucester County)	Inland	0.0†	0.47	202	6	0	0

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

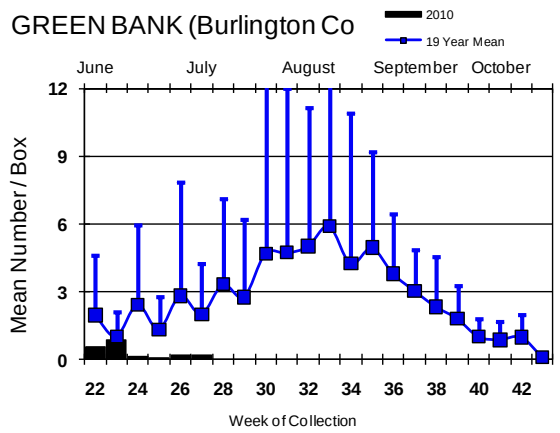
Remarks: There are no positive EEE pools to report at this time. *Please note the increase in the number of pools and mosquitoes reported for some sites. This is due to the addition of pools not reported earlier from last month.* To date, 2764 *Culiseta melanura* mosquitoes forming 87 pools from the seven traditional resting box sites have been tested. An additional 2185 *Cs. melanura* have been tested from 1 site in Atlantic County, 3 sites in Burlington County, 15 sites in Cape May, 6 sites in Gloucester, 13 sites in Ocean and 8 sites in Sussex counties, all negative. The table below indicates non-melanura species tested for EEE:

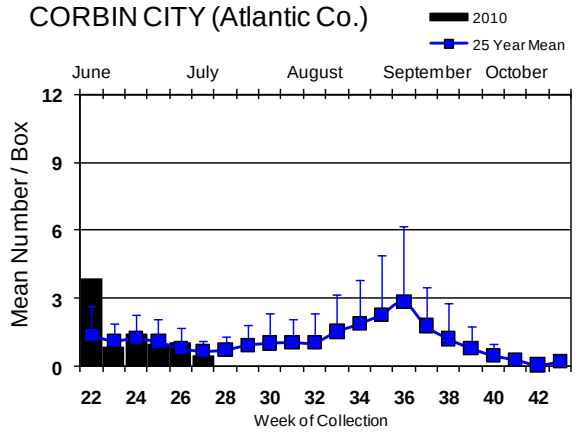
Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Anopheles bradleyi	1	1		
Coquillettidia perturbans	13	366		
Culex erraticus	3	72		
Culex pipiens	50	644		
Culex restuans	2	5		
Culex salinarius	4	31		
Culex spp.	37	818		
Culiseta minnesotae	1	1		
State Total	**111**	**1938**	**0**	**0.00**

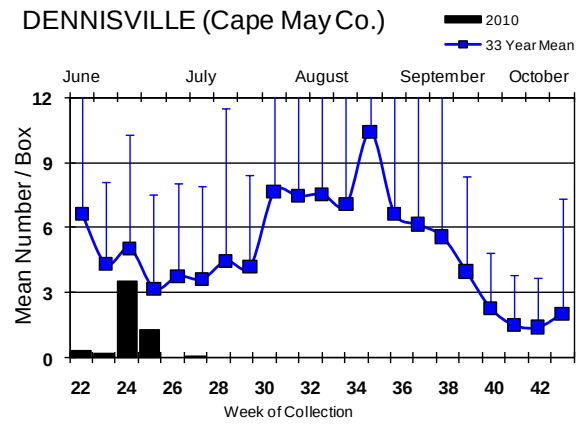
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

Culiseta melanura Population Graphs

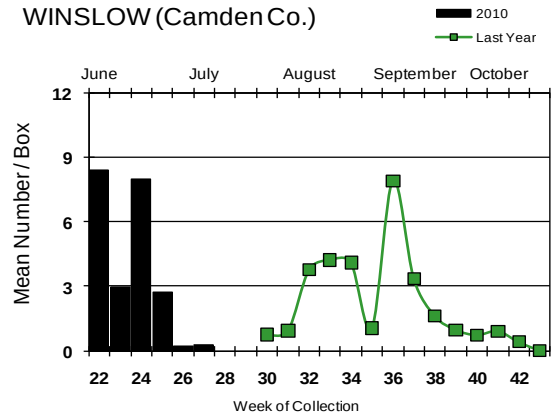
Coastal

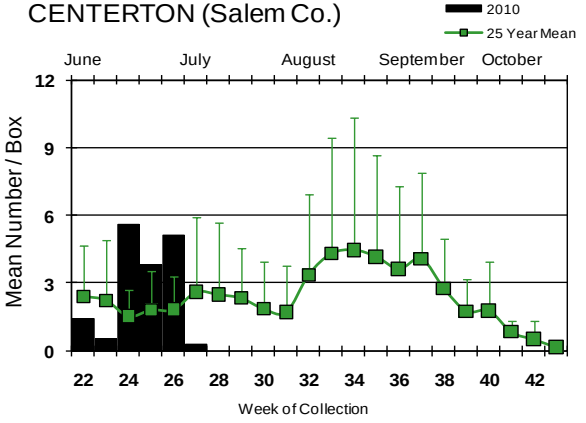


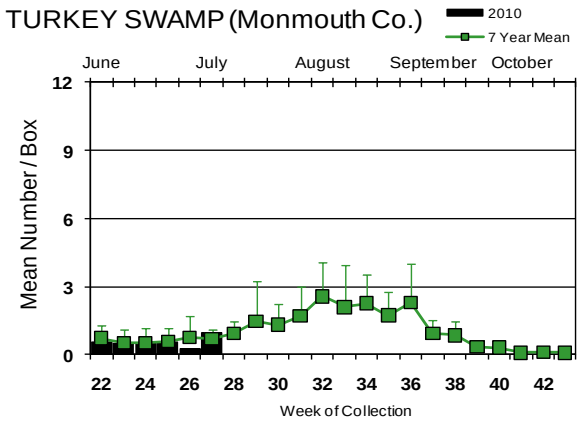




Inland



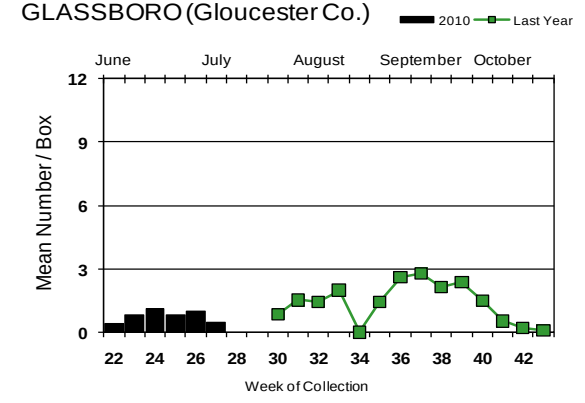




Cs. melanura populations in resting boxes at the seven monitoring sites decreased at Corbin City, Centerton and Glassboro from the previous week. Slight increases or unchanged, yet still below historical values occurred at Green Bank and Dennisville. Turkey Swamp experienced higher melanura abundances than the historical mean, yet is not likely significantly higher as it is well within the error bars of the historical numbers.

Last year, the first positives came out of the Dennisville site during week 29. At that point, the site began experiencing an increase in *Cs. melanura* abundance.

= Zero positive pool(s) detected.



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

- equine: 32(FL) 2(GA)
- mosquito: 3(FL)
- sentinel: 49/15(FL chickens/wild)
- human: 1(TX-out of country acquired case)

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.

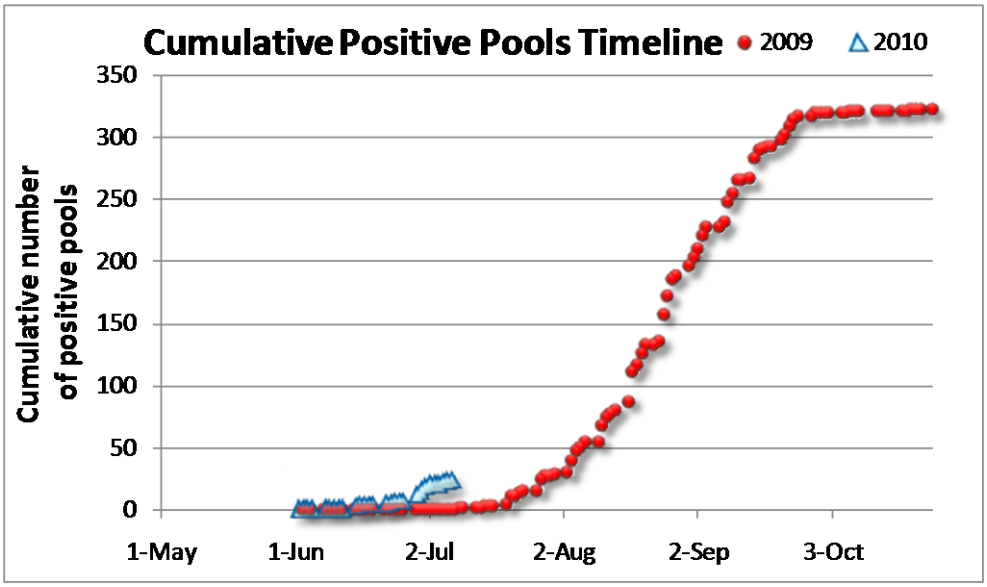
	Birds	Mosquito Pools	Sentinels	Horses	Humans
Alabama					
Alaska					
Arizona		65			
Arkansas					
California	40/52	48/107	6		
Colorado		2			3
Connecticut		1/3			
Delaware					
DC					
Florida	1Flavi		45/47		
Georgia					2
Hawaii					
Idaho					
Illinois	10/12	6/8			
Indiana					
Iowa		0	0	0	0
Kansas					
Kentucky				0	
Louisiana					
Maine					
Maryland					
Mass.		2			
Michigan					
Minnesota					
Mississippi					1
Missouri		17			
Montana					
Nebraska					
Nevada					
New Hampshire					
New Jersey	1	5/14	0	0	0
New Mexico					
New York		1/5			
North Carolina					
North Dakota					1
Ohio		2			
Oklahoma					
Oregon	0	0	0	0	0
Pennsylvania	1	12/20			
Rhode Island					
South Carolina					
South Dakota					1
Tennessee		1/4			
Texas		11			0
Utah		1			
Vermont					
Virginia					
Washington		3/5			
West Virginia		8			
Wisconsin					
Wyoming		2/4			

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 12 July 2010

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	47	153		
Aedes canadensis canadensis	19	356		
Aedes cantator	7	21		
Aedes japonicus	85	432		
Aedes sticticus	1	1		
Aedes triseriatus	37	102		
Aedes trivittatus	2	24		
Aedes vexans	8	81		
Anopheles bradleyi	2	4		
Anopheles punctipennis	8	122		
Anopheles quadrimaculatus	8	100		
Anopheles walkeri	1	1		
Coquillettidia perturbans	40	1027		
Culex erraticus	4	81		
Culex pipiens	184	4678	7	1.496
Culex restuans	81	575		
Culex salinarius	9	39		
Culex spp.	649	24719	16	0.647
Culiseta melanura	164	3443	1	0.290
Culiseta minnesotae	1	1		
Orthopodomyia signifera	1	1		
State Total	**1358**	**35961**	**24**	**0.667**

Remarks: The number of positive WNV mosquito pools to date is 24. Additional pools were found in Atlantic, Bergen, Burlington, Camden, Gloucester, Hudson and Middlesex counties. The graph below displays the cumulative positive pools found over time between 2009 (red) and 2010 (blue), indicating an increased activity over last year. It is possible that the extended dry conditions New Jersey has experienced of late have created conditions where interaction among the hosts and vectors is amplified. The addition of *Culiseta melanura* as a positive WNV pool is not surprising, given their ornithophilic nature and their role in other arboviral cycles.



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

First WNV positive bird out of 33 birds tested to date was found last week. This was an American Crow (*Corvus brachyrhynchos*) from Ocean County, collected on July 6th. This positive bird was found considerably ahead of the first positive bird from 2009 (a Blue Jay, testing positive the beginning of August, also from Ocean County). This year's tested birds include 8 *Corvus* (3 American, 5 Fish and 4 unidentified Crows), 7 Blue Jays (*Cyanocitta cristata*), 1 Hawk (unknown species) and 14 unknown species.

2010 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
24/ 1068 (0.022%)	3/ 2543 (0.001%)
2010 Positive Birds to date / Total Birds Submitted	**This time last year**
1/ 33 (0.03%)	0/ 29 (0%)

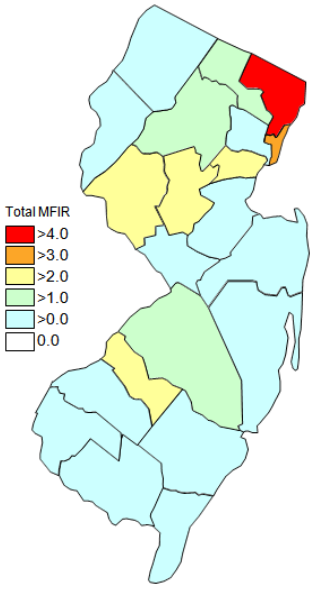
WNV Results by County through 12 July 2010

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**67**	**1936**	**3**	**1.550**
	Aedes albopictus	2	4		
	Aedes canadensis canadensis	3	56		
	Aedes cantator	3	14		
	Aedes japonicus	2	4		
	Aedes trivittatus	2	24		
	Aedes vexans	3	68		
	Anopheles bradleyi	2	4		
	Anopheles punctipennis	1	37		
	Anopheles quadrimaculatus	1	2		
	Coquillettidia perturbans	4	20		
	Culex spp.	32	1426	3	2.104
	Culiseta melanura	11	276		
	Orthopodomyia signifera	1	1		
Bergen		**45**	**3287**	**2**	**0.608**
	Aedes albopictus	1	2		
	Culex spp.	44	3285	2	0.609
Burlington		**25**	**1507**	**3**	**1.991**
	Culex spp.	8	600	3	5.000
	Culiseta melanura	17	907		
Camden		**31**	**760**	**3**	**3.947**
	Aedes albopictus	4	10		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	3	3		
	Aedes triseriatus	1	1		
	Anopheles punctipennis	1	1		
	Culex spp.	21	744	3	4.032
Cape May		**359**	**5060**		
	Aedes albopictus	2	5		
	Aedes japonicus	15	35		

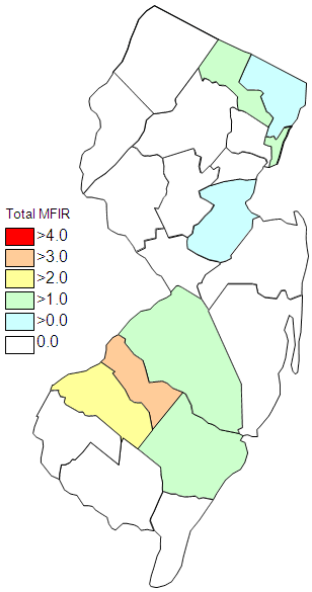
	Aedes triseriatus	8	29		
	Anopheles quadrimaculatus	1	10		
	Coquillettidia perturbans	6	116		
	Culex erraticus	4	81		
	Culex pipiens	107	1779		
	Culex restuans	68	458		
	Culex salinarius	5	33		
	Culex spp.	68	763		
	Culiseta melanura	75	1751		
Gloucester		**72**	**3056**	**8**	**2.618**
	Aedes albopictus	1	2		
	Aedes japonicus	1	8		
	Culex pipiens	61	2812	7	2.489
	Culiseta melanura	9	234	1	4.274
Hudson		**56**	**1961**	**2**	**1.020**
	Culex spp.	56	1961	2	1.020
Hunterdon		**60**	**2970**		
	Culex spp.	60	2970		
Mercer		**9**	**50**		
	Aedes albopictus	1	1		
	Aedes japonicus	2	4		
	Aedes triseriatus	1	1		
	Culex pipiens	3	33		
	Culex restuans	2	11		
Middlesex		**80**	**3948**	**2**	**0.507**
	Aedes albopictus	1	7		
	Aedes japonicus	3	21		
	Aedes triseriatus	1	6		
	Culex spp.	75	3914	2	0.511
Monmouth		**109**	**705**		
	Aedes albopictus	11	19		
	Aedes canadensis canadensis	9	88		
	Aedes cantator	3	6		
	Aedes japonicus	17	56		
	Aedes triseriatus	5	5		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	5	8		
	Culex pipiens	1	1		
	Culex restuans	1	1		
	Culex salinarius	2	2		
	Culex spp.	31	388		
	Culiseta melanura	22	129		
Morris		**40**	**1294**		
	Aedes japonicus	3	34		
	Aedes vexans	1	5		
	Anopheles punctipennis	2	6		

	Anopheles quadrimaculatus	3	82		
	Coquillettidia perturbans	5	203		
	Culex spp.	26	964		
Ocean		**90**	**1621**		
	Aedes albopictus	12	84		
	Aedes canadensis canadensis	6	211		
	Aedes japonicus	13	64		
	Aedes sticticus	1	1		
	Aedes triseriatus	5	19		
	Aedes vexans	2	6		
	Coquillettidia perturbans	5	81		
	Culex spp.	31	1037		
	Culiseta melanura	15	118		
Passaic		**41**	**827**	**1**	**1.209**
	Aedes albopictus	2	4		
	Aedes japonicus	8	95		
	Aedes triseriatus	5	13		
	Coquillettidia perturbans	2	27		
	Culex spp.	24	688	1	1.453
Salem		**34**	**112**		
	Aedes albopictus	4	6		
	Aedes cantator	1	1		
	Aedes japonicus	6	9		
	Aedes triseriatus	1	1		
	Aedes vexans	2	2		
	Anopheles quadrimaculatus	2	5		
	Anopheles walkeri	1	1		
	Culex pipiens	2	2		
	Culex restuans	2	2		
	Culex spp.	13	83		
Somerset		**45**	**486**		
	Aedes albopictus	4	6		
	Aedes japonicus	6	37		
	Aedes triseriatus	6	11		
	Anopheles punctipennis	2	2		
	Culex spp.	27	430		
Sussex		**97**	**2531**		
	Coquillettidia perturbans	4	201		
	Culex pipiens	10	51		
	Culex restuans	8	103		
	Culex salinarius	2	4		
	Culex spp.	57	2143		
	Culiseta melanura	15	28		
	Culiseta minnesotae	1	1		
Union		**54**	**2013**		
	Aedes albopictus	2	3		
	Aedes japonicus	6	62		

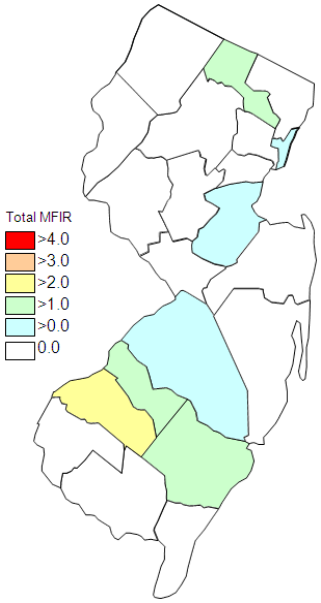
	Coquillettidia perturbans	1	9		
	Culex spp.	45	1939		
Warren		**44**	**1837**		
	Aedes triseriatus	4	16		
	Anopheles punctipennis	1	75		
	Coquillettidia perturbans	8	362		
	Culex spp.	31	1384		
Grand Total		**1358**	**35961**	**24**	**0.667**



Cumulative WNV activity in 2009.



WNV activity to 12 July, 2010.



WNV activity last week, 2010.

Saint Louis Encephalitis (SLE) through 12 July 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		**20**	**1464**		
	Culex spp.	8	600		
	Culiseta melanura	12	864		
Camden		**31**	**760**		
	Aedes albopictus	4	10		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	3	3		
	Aedes triseriatus	1	1		
	Anopheles punctipennis	1	1		
	Culex spp.	21	744		
Hudson		**26**	**928**		

	Culex spp.	26	928		
Salem		**1**	**7**		
	Culex spp.	1	7		
Grand Total		**78**	**3159**		

La Crosse Encephalitis (LAC) through 12 July 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		**9**	**99**		