VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

Prepared by Lisa M. Reed, Scott Crans and Mark Robson
Center for Vector Biology, Rutgers University

CDC WEEK 18-22: May 1 – May 31

Data Downloaded 12:03 pm 3 June 2013

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of the Department of Health, Department of Agriculture and of the 21 county mosquito control agencies of New Jersey.

Culiseta melanura and Eastern Equine Encephalitis

SITE/Boxes	Inland / Coastal	Historic Population Mean	Current Weekly Mean	Total (Collected) Tested*	Total Pools (Submitted) Tested	EEE Isolation Pools	MFIR
Bass River (Burlington Co.)/5	**Coastal**	0	0.40	2*	1		
Green Bank (Burlington Co.)/25	**Coastal**	1.81	0.20	5*	1		
Corbin City (Atlantic Co.)/25	**Coastal**	1.49	0.16	4*	1		
Dennisville (Cape May Co.)/50	**Coastal**	6.18	na				
Winslow (Camden Co.)/50	**Inland**	4.42	na				
Centerton (Salem Co.)/50	**Inland**	2.30	na				
Turkey Swamp (Monmouth Co.)/42	**Inland**	0.73	0.38	27*	4		
Glassboro (Gloucester Co.)/50	**Inland**	0	na				

*Current week results pending.

Remarks: Resting box collection of *Culiseta melanura*, the enzootic vector of eastern equine encephalitis, has begun. Last year, 33 pools of mosquitoes were found positive for EEE, the majority of those in *Cs. melanura*. Most positive pools came from the traditional resting box sites while the rest came from resting boxes put up by the counties in other areas as well as other types of traps. Two pools were from *Culex erraticus*. Because of last year's early West Nile activity, virus surveillance was begun on 1 May this year. However, cooler weather reduced emergences with submissions increasing recently.

To date 11 *Cs. melanura* from 2 pools have been tested from the traditional resting box sites for an MFIR of 0 (with 27/4 mosquitoes/pools pending). There has been no detection of EEE in any samples collected in the state.

Additional *Cs. melanura*: Two additional pools containing 14 *Cs. melanura* have been tested from other sites using other traps in addition to resting boxes. No positive *Cs. melanura* pools from these sites have been detected.

Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD.**				
County	**Trap types***	**Number collected (pools)**	**Number of positives pools**	**MFIR**
Monmouth	CO_2	14 (2)		
TOTAL		**14 (2)**	**0**	0.00

Additional Species: The table below indicates non-*Cs. melanura* mosquitoes tested for EEE. Last year, *Culex erraticus*, a known enzootic vector and potential bridge vector, was found positive. Currently, no other species have been found positive.

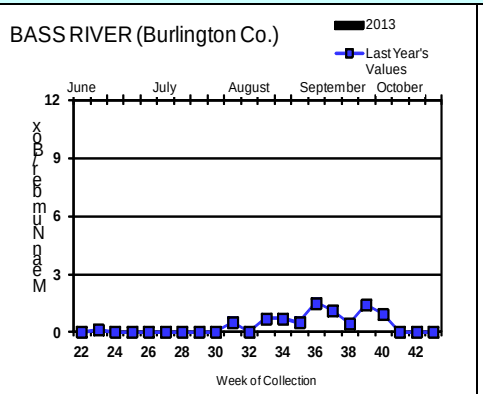
Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Culex restuans	17	78		
State Total	**1**	**2**	**0**	**0.00**

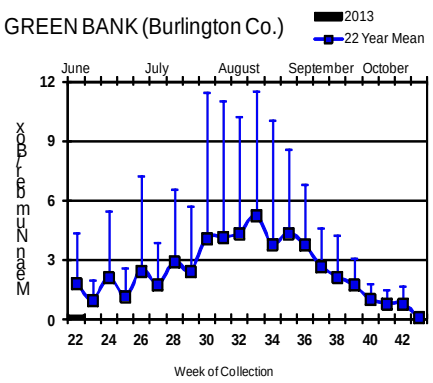
Horses and Humans: In 2012, several horse cases occurred throughout southern New Jersey. In addition, a flock of Ring-necked Pheasants (*Phasianus colchicus*), a non-native species, was also affected. Currently there is no reported horse, other livestock or human cases.

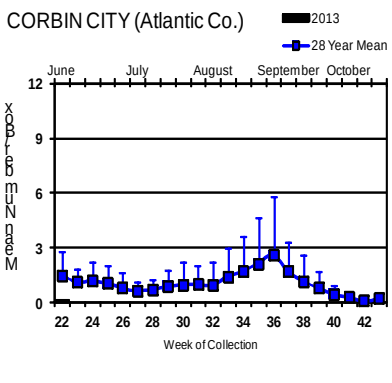
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

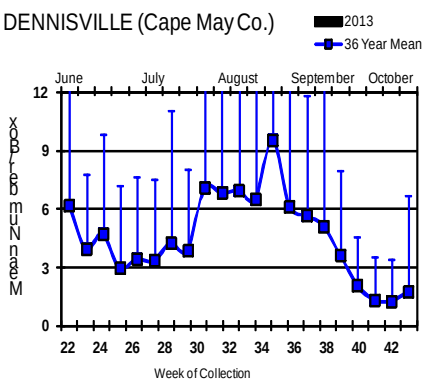
Culiseta melanura Population Graphs

Coastal

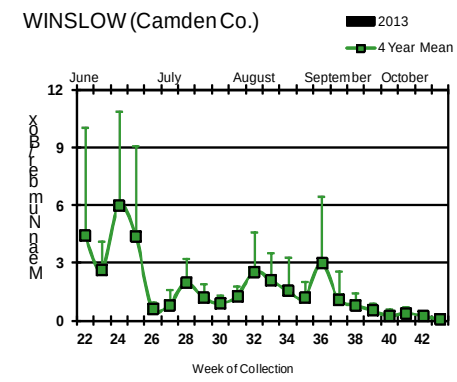


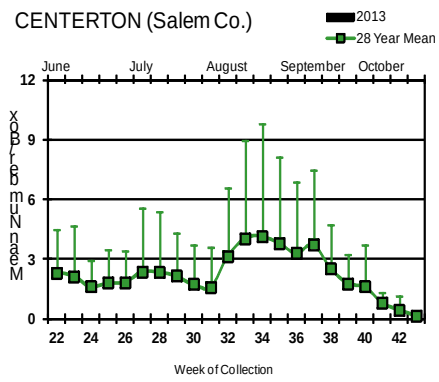


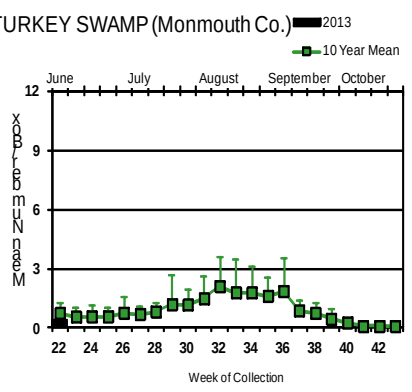


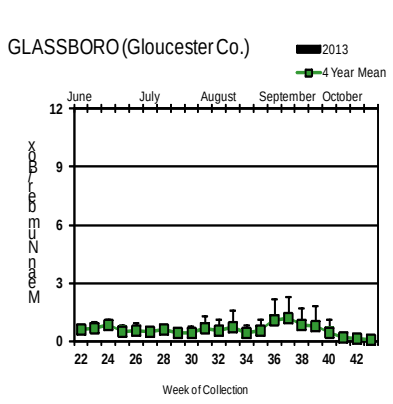


Inland









Current populations of resting box *Cs. melanura* are either below (Green Bank, Corbin City) or close to (Turkey Swamp) historical values.

= Positive pool(s) detected (red = melanura, purple = other).

EEE in US (2013 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 2(GA) 7 (FL)
- mosquito pools:
- sentinel: 22 (FL)
- human: 2 (FL)

West Nile Virus

West Nile in US (2013 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	0	1	0	0	0
Arkansas					0
California	4	15	0	0	1
Colorado					
Connecticut					
Delaware					
DC					
Florida			36		
Georgia					
Hawaii					
Idaho					
Illinois		1			
Indiana					
Iowa					
Kansas					
Kentucky					
Louisiana					
Maine					
Maryland					
Mass.		0		0	0
Michigan	1 wild			0	
Minnesota					
Mississippi		0		0	1
Missouri					

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana					
Nebraska					
Nevada					
New Hampshire					
New Jersey					
New Mexico					0
New York					
North Carolina					
North Dakota					0
Ohio					
Oklahoma					
Oregon					
Pennsylvania	0	2		0	0
Rhode Island					
South Carolina					
South Dakota					
Tennessee	0	15		0	0
Texas		9		1	1
Utah					
Vermont					
Virginia					
Washington	0	0		0	0
West Virginia					
Wisconsin	0	0		0	0
Wyoming					

* Can include other species (e.g., dogs, cows) reported positive.

Protocol: New Jersey Department of Health (NJDH Public Health Environmental and Agricultural Laboratories, PHEAL) and the Cape May County Department of Mosquito Control tests mosquito pools using RT-PCR Taqman techniques.

Mosquito Species Submitted and Tested for West Nile Virus Testing through 31 May 2013

Species	Pools	Mosquitoes	Positives	MFIR
Aedes canadensis canadensis	4	74		
Aedes cantator	1	2		
Aedes japonicus	3	4		
Aedes vexans	1	2		
Culex restuans	2	2		
Culex sp.	68	2256		
Culiseta melanura	4	25		
State Total	**83**	**2365**		

Remarks: In 2012, West Nile activity was significant throughout the US. New Jersey had over 1000 positive pools of mosquitoes. Subsequently, testing of mosquitoes began 1 May this year in New Jersey, and by this time last year, there were 5 positive pools. However, this year temperatures were cooler and mosquito abundance on the wing was reduced. With warmer temperatures now occurring, samples sent to PHEAL and the Cape May Labs will increase. Currently, there are no positive pools of West Nile virus detected in the species submitted.

Humans, Horses and Wild Birds: No human cases have been reported. See http://www.state.nj.us/health/cd/westnile/techinfo.shtml for further information.

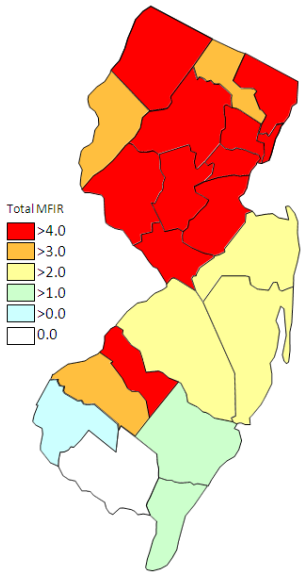
Last year the first horse was detected in mid July. No horse or other livestock have been reported positive in 2013 to date.

Bird testing began in mid-April. No positive birds have been reported. To date, testing includes: American Crow (*Corvus brachyrhynchos* 0/2), Blue Jay (*Cyanocitta cristata* 0/1), Hawk/Raptor (0/2) and other avian species (0/15). Counties submitting birds are Burlington, Gloucester, Hunterdon, Monmouth, Morris, Ocean, and Warren.

2013 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
0 / 83 (0.0)	5 / 593 (0.008)
2013 Positive Birds to date / Total Birds Submitted	This time last year
0 / 20 (0.0)	1 / 16 (0.062)

WNV Results by County through 31 May 2013

County	Species	Pools	Mosquitoes	Positives	MFIR
Hunterdon		**15**	**735**		
	Culex spp.	15	735		
Monmouth		**24**	**331**		
	Aedes canadensis canadensis	4	74		
	Aedes cantator	1	2		
	Aedes japonicus	3	4		
	Aedes vexans	1	2		
	Culex restuans	2	2		
	Culex salinarius	9	222		
	Culex spp.	4	25		
	Culiseta melanura	4	74		
Somerset		**15**	**398**		
	Culex spp.	15	398		
Sussex		**7**	**201**		
	Culex spp.	7	201		
Warren		**22**	**700**		
	Culex spp.	22	700		
Grand Total		**83**	**2365**		



Cumulative WNV activity in 2012.

No activity

WNV activity to 31 May 2013.

No activity

WNV activity last week, 2013.

Saint Louis Encephalitis (SLE) through 1 May 2013.

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.

SLE testing begins July 1 in 2013.

County	Species	Pools	Mosquitoes	Positives	MFIR
Grand Total					

La Crosse Encephalitis (LAC) through 31 May 2013.

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 have been submitted for LAC testing in 2013.

County	Species	Pools	Mosquitoes	Positives	MFIR
Grand Total					