VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE, LAC, DENV, CHIK, ZIKV, and JCV

Prepared by Lisa M. Reed and Dina Fonseca
Center for Vector Biology, Rutgers University

18 July to 24 July, 2021, CDC Week 29
Data download 11:55 am 23 July

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. Data is held in JerseySurv, a subset of the CalSurv system.

NOTE: County/species tables for arboviruses are now in a supplemental file here

Arbovirus Summary

- **Currently, there are 42 positive WNV pools, 40 in *Culex* Mix (Bergen, Burlington, Camden, Hudson, Mercer, Middlesex, Monmouth, Ocean, Somerset, and Warren counties), one in *Cx. pipiens*(Cape May) and one in *Aedes trivittatus* (Essex County).**
- **There is one positive EEE pool detected in *Cs. melanura* from Gloucester County, collected 30 June.**
- **There is one positive JCV pool detected in *Aedes vexans*, from Sussex County, collected 8 July.**
- **There is one human case of Jamestown Canyon virus, in Sussex County. Date of onset was May 8.**

- **In 2020, there were 13 positive EEE pools in *Culiseta melanura*.**
- **There were 241 positive WNV pools, in *Culex* Mix (231), in *Culex pipiens* (4), *Culex restuans* (1), *Culiseta melanura (2)*, *Aedes albopictus* (2), and *Aedes canadensis canadensis (1)*.**
- **There were 6 positive JVC pools in *Aedes cantator* (2), *Aedes taeniorhynchus* (1), *Anopheles quadrimaculatus* (1) and *Coquillettidia perturbans* (2).**
- **There was one EEE horse case reported. There are no WNV horse cases.**
- **There were 3 human WNV cases; in Essex County (1) and Monmouth County (2).**
- **There was one WNV positive Red-tailed Hawk (*Buteo jamaicensis*) in Cumberland County (regular surveillance of birds is no longer done in NJ).**
- **Note: Data downloads times are noted and do not necessarily reflect all pools submitted and analyzed to that point in time. This report may vary from other reports from the same dataset as they are all snapshots in time.**

Culiseta melanura and Eastern Equine Encephalitis

SITE/Boxes	Inland or Coastal	Historic Population Mean	Current Weekly Mean	Total Tested* (Collected)	Total Pools Tested* (Submitted)	EEE Isolation Pools	MFIR
Bass River (Burlington Co.)/5	**Coastal**	0.13	0.00	0	0		
Green Bank (Burlington Co.)/25	**Coastal**	2.17	0.00	10	2		
Corbin City (Atlantic Co.)/25	**Coastal**	0.62	0.92	116	7		
Dennisville (Cape May Co.)/50	**Coastal**	3.95	0.00	65	7		
Winslow (Camden Co.)/50	**Inland**	1.87	0.62	64	4		
Centerton (Salem Co.)/50	**Inland**	2.00	0.18	78	9		
Turkey Swamp (Monmouth Co.)/50	**Inland**	0.61	0.00	8	3		
Glassboro (Gloucester Co.)/50	**Inland**	0.43	0.08	106	6		

*Current week (in parentheses) results pending. ‡ corrected from previous week NC=No Collection ND=No Data (site offline) NR=Not Recorded

Remarks: Currently, one positive EEE pool in *Cs. melanura* has been detected. This pool was from a county-run site in Gloucester, sampled 30 June. Sampling near Bass River has begun again with the understanding that the canopy has opened up after a fire and the site might not see much activity. Current weekly mean is for Week 28.

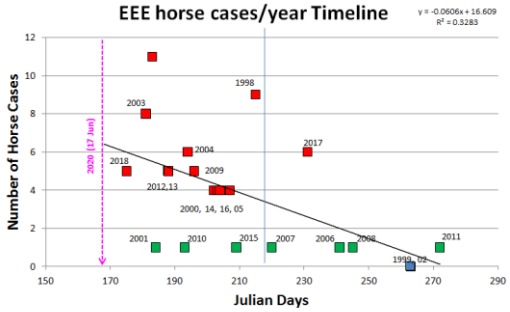
Statewide: 4970 *Cs. melanura* from 282 pools have been tested, with one positives detected and an overall *Cs. melanura* MFIR of 0.221. 65,348 specimens in 2420 pools from 34 other species have also been tested with no positive pools detected. Overall MFIR for all species statewide is 0.015.

Traditional Resting Box Sites: 447 *Cs. melanura* from 38 pools have been tested, with no positive pools detected at the traditional resting box sites. 0 mosquitoes in 0 pools are pending. Overall *Cs. melanura* MFIR at the traditional resting box site is 0.000.

	Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD UNDERLINED.**				
County	**Trap types***	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Atlantic	CO2, RB	36	927		
Bergen	NJLT, RB	5	48		
Burlington	ULVT	26	957		
Cape May	GRA, RB	24	359		
Cumberland	CO2, GRA, RB	22	217		
Gloucester	RB	59	1756	1	0.569
Middlesex	NJLT	5	16		
Monmouth	Other	2	3		
Morris	CO2, RB	7	33		
Ocean	CO2	7	12		
Salem	CO2, GRA, RB	18	83		
Sussex	CO2, GRA, RB	32	96		
Warren	Co2	1	16		
TOTAL		**244**	**4523**	**1**	**0.221**

Additional County-set *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. First positive pools of *Cs. melanura* have been detected at a non- traditional resting box site in Gloucester County, collected 30Jun.

Graph below indicate start times to detection of EEE in *Culiseta melanura* from 1998 to 2020. Last year was the earliest collected during that time period, suggesting the possibility of multiple horse cases.



Horses and Humans: Last year, only 1 horse was reported with EEE, detected in September. ***Horse owners are urged to make sure their horses are up to date on their vaccinations. Horse cases are known to occur through October and sometimes into November (see link below).*** Other sensitive species are non-native birds, such as Ostriches/Emus and Gallinaceous birds such as pheasants of Eurasian origins.

Case	Animal	Age	Sex	County	Date of Onset	Euthanized ?	Vaccinated?	Comment

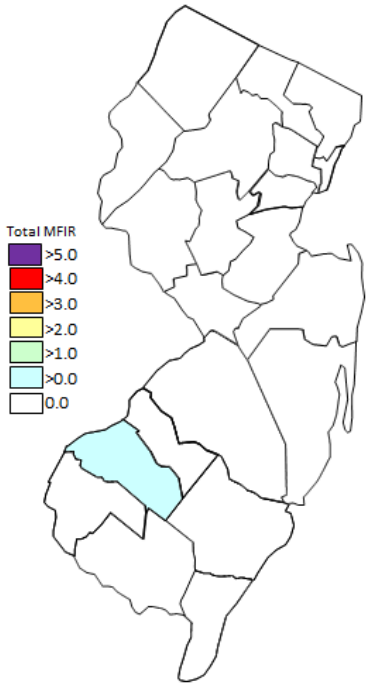
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

There are no human cases of EEE currently reported. For more information, see DOH Vectorborne Surveillance reports: https://www.nj.gov/health/cd/statistics/arboviral-stats/

Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	14	118		
Aedes albopictus	60	279		
Aedes atlanticus	3	70		
Aedes aurifer	5	102		
Aedes canadensis canadensis	63	887		
Aedes cantator	38	546		
Aedes cinereus	2	79		
Aedes grossbecki	9	33		
Aedes japonicus	107	453		
Aedes mitchellae	1	1		
Aedes sollicitans	13	302		
Aedes sticticus	15	261		
Aedes stimulans	5	28		
Aedes taeniorhynchus	11	613		
Aedes thibaulti	2	105		
Aedes triseriatus	6	13		
Aedes trivittatus	8	98		
Aedes vexans	42	981		
Anopheles spp.	1	18		
Anopheles bradleyi	13	374		
Anopheles crucians	6	50		
Anopheles punctipennis	97	1258		
Anopheles quadrimaculatus	36	263		
Anopheles walkeri	12	873		
Coquillettidia perturbans	119	4485		
Culex erraticus	25	183		
Culex Mix	1175	42563		
Culex pipiens	123	3421		
Culex restuans	64	1304		
Culex salinarius	30	228		
Culex territans	1	1		
Culiseta inornata	16	240		
Orthopodomyia signifera	3	4		
Psorophora ciliata	2	2		
Psorophora columbiae	6	114		
Psorophora ferox	5	28		
State Total	**2138**	**60378**		

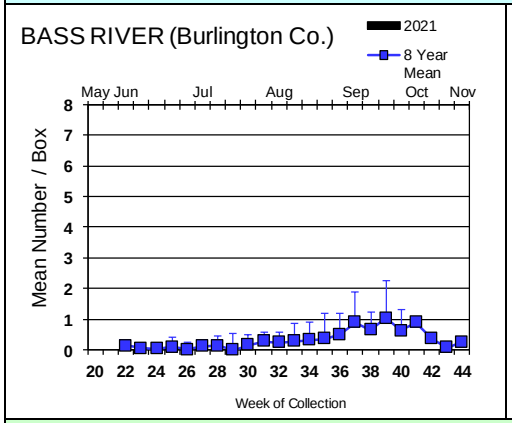
Additional Species: 34 additional species were tested for EEE. No positive pools have been detected to date.

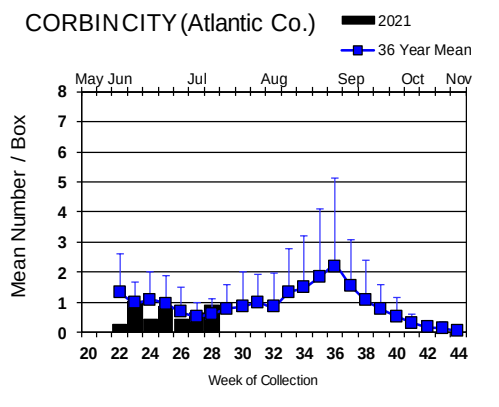
Overall MFIR rates, human and animal cases per county:

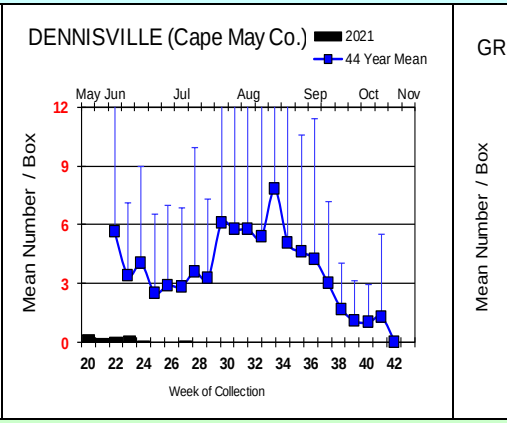


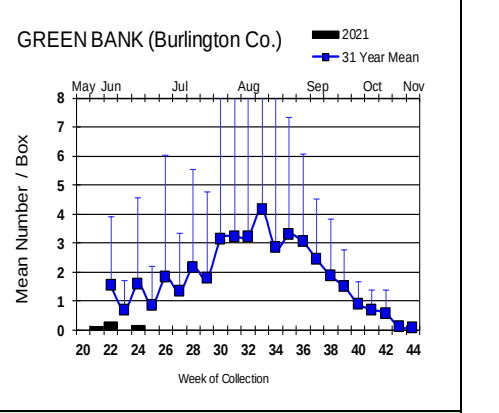
Culiseta melanura Populations

Coastal

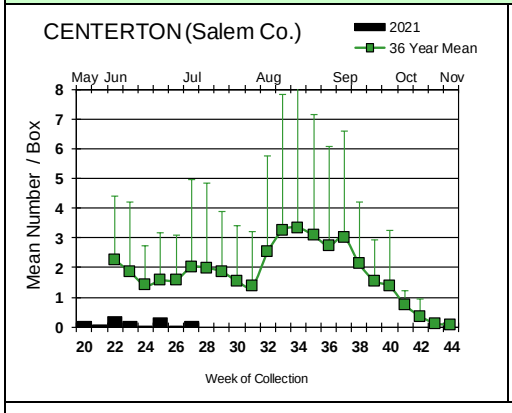


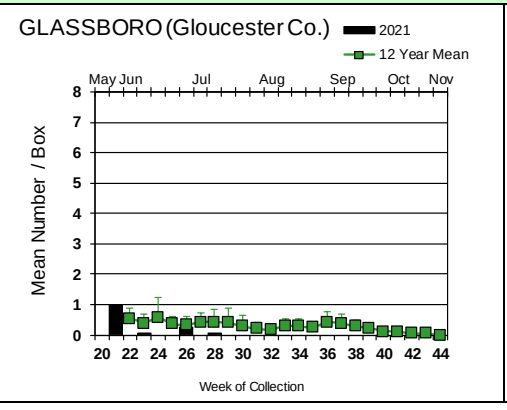


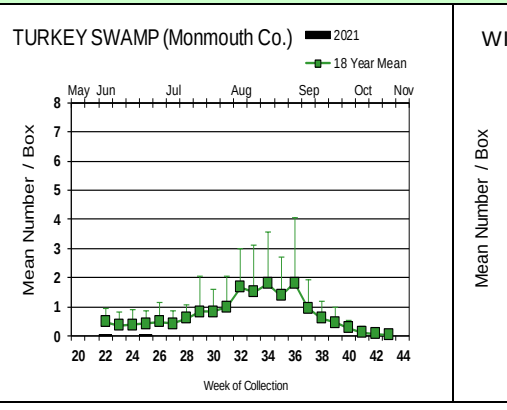


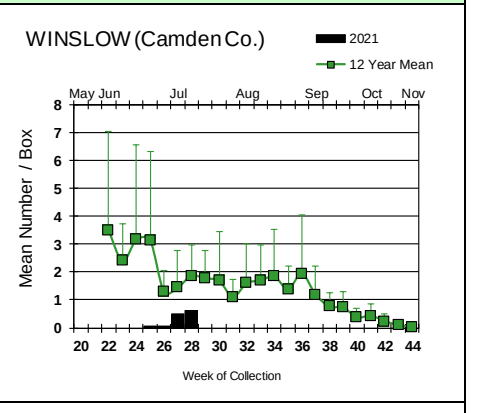


Inland









This year's surveillance season began two weeks earlier to accommodate increasing indications of earlier population emergences. Currently, populations remain at or well below the historical averages at these traditional resting box sites. No viral activity has been reported at these sites, although a positive *Cs. melanura* pool has been detected in Gloucester County at a county maintained resting box site. Adult Surveillance reports at http://vectorbio.rutgers.edu/reports/mosquito/) suggests that populations are around historical averages at southern areas, but it is unknown why few *melanura* are going to resting boxes at these sites. Possible explanations including changing conditions at the sites, including an opening canopy.

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

EEE in US (2021 cumulative cases): (Black or Red = previous + new reported cases occurring)

- **equine: 1(AZ) 12(FL) 1(Ontario)**
- **mosquito pools: 1(NJ)**
- **sentinel: 116(FL)**
- **human:**

West Nile Virus Positive Organisms in US, 2021

West Nile in US (2021 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					2
Alaska					
Arizona					7/13
Arkansas					1
California	66/68	177/283	0	1	2
Colorado		1/4			0
Connecticut		2			
Delaware					
Florida			2		
Georgia					
Hawaii					
Idaho		5			
Illinois	0	40/98	0	0	0
Indiana	0	1		0	0
Iowa					2
Kansas					
Kentucky					
Louisiana					
Maine					
Maryland(+DC)					
Mass.		12/14			
Michigan		1			
Minnesota					
Mississippi		3		2?	
Missouri					

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska	0	2		0	0
Nevada					
New Hampshire					
New Jersey		13/42		0	0
New Mexico					
New York					
North Carolina					
North Dakota					1
Ohio		8/9			
Oklahoma					
Oregon	0	0	0	0	0
Pennsylvania	0	32/76	0	0	0
Rhode Island					
South Carolina				1	
South Dakota					
Tennessee					
Texas	3	125/191	0	0	0
Utah					
Vermont					
Virginia					
Washington		5/8			
West Virginia					
Wisconsin					
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.

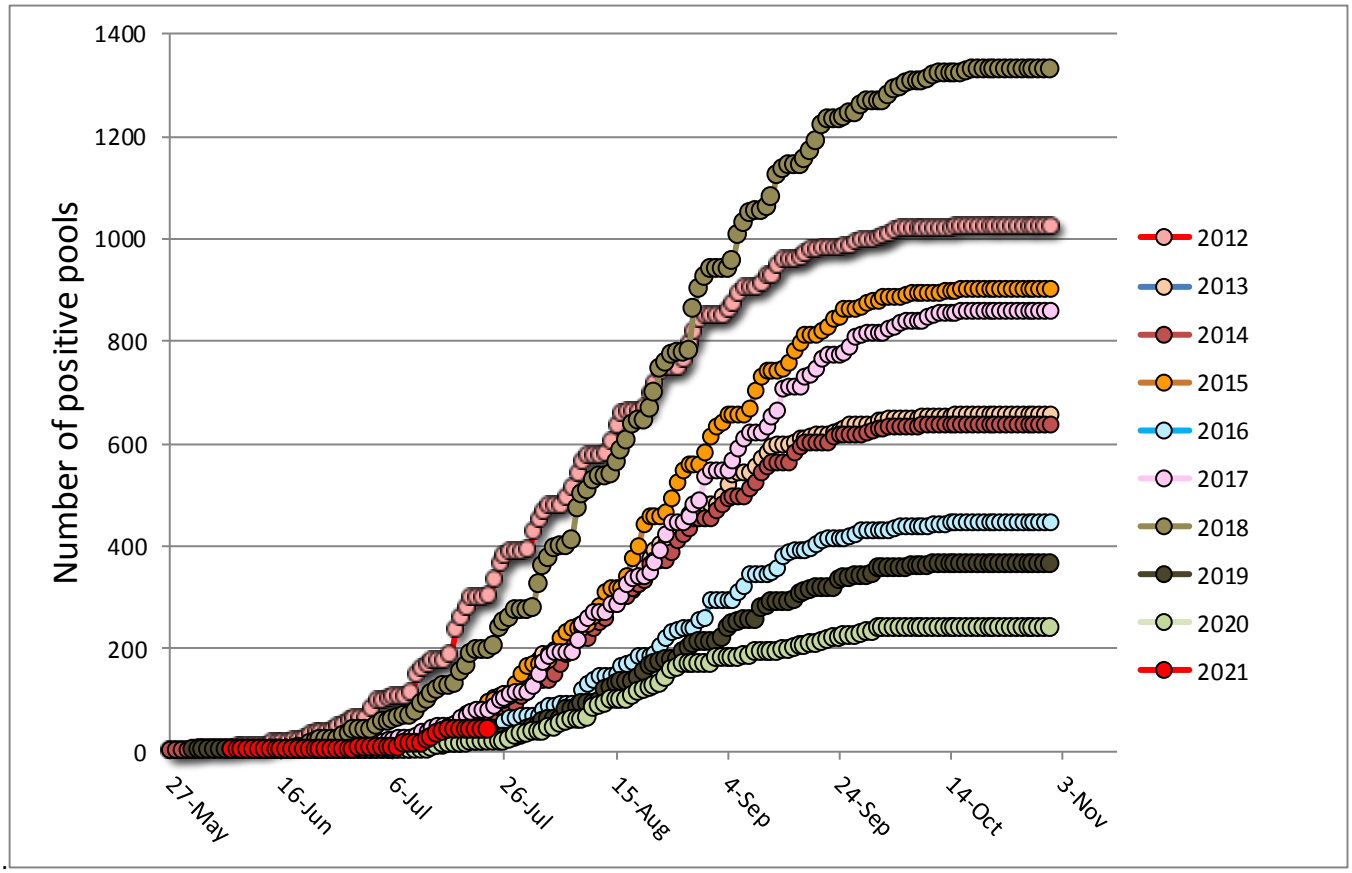
Mosquito Species Submitted and Tested for West Nile Virus through 23 July 2021

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	15	120		
Aedes albopictus	113	739		
Aedes atlanticus	4	79		
Aedes aurifer	5	102		
Aedes canadensis canadensis	73	1007		
Aedes cantator	44	703		
Aedes cinereus	2	79		
Aedes grossbecki	9	33		
Aedes japonicus	152	1038		
Aedes mitchellae	1	1		
Aedes sollicitans	16	432		
Aedes sticticus	15	261		
Aedes stimulans	5	28		
Aedes taeniorhynchus	19	841		
Aedes thibaulti	2	105		
Aedes triseriatus	34	103		
Aedes trivittatus	14	114	1	8.772
Aedes vexans	55	1238		
Anopheles spp.	3	87		
Anopheles bradleyi	15	499		
Anopheles crucians	10	86		
Anopheles punctipennis	126	1784		
Anopheles quadrimaculatus	46	394		
Anopheles walkeri	13	898		
Coquillettidia perturbans	119	4485		
Culex erraticus	25	183		
Culex spp.	1665	65001	40	0.615
Culex pipiens	188	5325	1	0.188
Culex restuans	71	1361		
Culex salinarius	41	569		
Culex territans	1	1		
Culiseta inornata	17	242		
Culiseta melanura	282	4970		
Orthopodomyia signifera	3	4		
Psorophora ciliata	3	11		
Psorophora columbiae	11	225		
Psorophora ferox	16	204		
Psorophora howardii	1	50		
Grand Total	**3234**	**93402**	**42**	**0.450**

Remarks: To date 3234 pools of 93,402 mosquitoes from 35 species have been tested. 41 pools of Culex Mix or *Cx. pipiens* and 1 pool of *Ae. trivittatus* have been identified as positive for WNV in Bergen, Burlington, Camden, Essex, Hudson, Mercer, Middlesex, Monmouth, Ocean, Somerset, and Warren counties. First positive detected in a pool of *Culex* Mix collected on 7 June in Somerset County and the *Ae. trivittatus* pool was collected on 2 July in Essex County. Cumulative MFIR for all mosquitoes in New Jersey is 0.159.

Humans, Horses and Wild Birds: No horses have been reported infected with WNV in 2021. No human activity has been reported to date. See DOH reports on arbovirus activity for further information:
https://www.nj.gov/health/cd/statistics/arboviral-stats/index.shtml

Birds are no longer routinely tested in New Jersey.



Above is a graph showing cumulative number of positive pools for the previous 9 years, inclusive of the most active (2018) year. 2021 is represented in RED, with first positive showing on 7 June. **NOTE: Previous graphs were drawn with an error, with data beginning a month later than reality. The correct graph shifts the red line to the left, beginning in June rather than July.**

Go here for the table supplement of arbovirus by county by mosquito species.