

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

22 August to 28 August, 2021, CDC Week 34

Data download 15:20 pm 27 August



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 445 positive WNV pools, 428 in *Culex Mix* or *Cx. pipiens*, 2 pools of *Cs melanura*, 9 pools of *Ae albopictus*, 2 pools each of *Ae. japonicus* and *Ae. triseriatus*, and one pool each of *Ae. trivittatus* and *Ae. vexans*. Four positive birds (1 *Corvus brachyrhynchos*, 3 *Accipiter cooperii*). There has been one fatal human case of WNV from Camden County, date of onset was mid-July.
- There are 10 positive EEE pools, nine detected in *Cs. melanura*, and one in *Culex erraticus*. There has been one EEE horse case in Cumberland County.
- 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 download 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	0.32	0.20	1	1		
Green Bank (Burlington Co.)/25	Coastal	4.16	0.16	21	5		
Corbin City (Atlantic Co.)/25	Coastal	1.32	2.00	257	12		
Dennisville (Cape May Co.)/50	Coastal	5.36	0.10	98	11	2	20.408
Winslow (Camden Co.)/50	Inland	1.70	1.18	242	10	2	8.264
Centerton (Salem Co.)/50	Inland	3.25	1.02	167	14		
Turkey Swamp (Monmouth Co.)/50	Inland	1.51	1.04	75	8		
Glassboro (Gloucester Co.)/50	Inland	0.31	0.00	110	7		

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

Remarks: Currently, 10 positive EEE pools (9 in *Cs. melanura*, 1 in *Culex erraticus*) have been detected. First detected pool of *Cs. melanura* was from a county-run site in Gloucester, sampled 30 June. Second came from a traditional resting box site in Camden County sampled 20 July. Third and fourth positives were in Atlantic and Gloucester counties, collected 4 August. A positive *Culex erraticus* pool was collected 5 Aug in Atlantic County. Collection dates for the sixth, seventh, eighth, ninth and tenth pools (*Cs. melanura*) were collected on the 9th, 10th, 17th, 24th and 24th of Aug respectively. Current weekly mean is for Week 34.

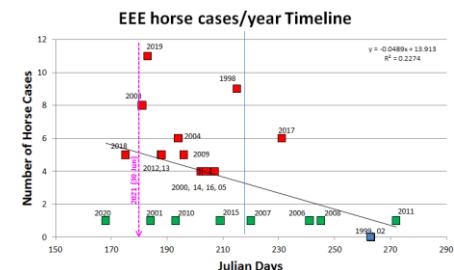
Statewide: 7283 *Cs. melanura* from 417 pools have been tested, with nine positive pools detected and an overall *Cs. melanura* MFIR of 1.236. 123,806 specimens in 4069 pools from 35 other species have also been tested with one positive pool detected in *Culex erraticus*. Overall MFIR for all species statewide is 0.076.

Traditional Resting Box Sites: 971 *Cs. melanura* from 68 pools have been tested, with four positive pools detected, two at Winslow in Camden County and 2 at Dennisville, Cape May County. Overall *Cs. melanura* MFIR at the traditional resting box site is 4.119.

Additional <i>Cs. melanura</i> trapped by counties *traps with positives indicated in BOLD UNDERLINE .					
County	Trap types*	Pools	Mosquitoes	Positives	MFIR
Atlantic	CO2, RB	53	1474	3	2.035
Bergen	NJLT, RB	8	143		
Burlington	ULVT	41	1520		
Camden	GRA	1	2		
Cape May	GRA, RB	31	416		
Cumberland	CO2, GRA, RB	35	279		
Gloucester	RB	71	2035	2	0.983
Middlesex	NJLT	5	16		
Monmouth	Other	2	3		
Morris	CO2, RB	23	65		
Ocean	CO2	11	24		
Salem	CO2, GRA, RB	25	124		
Sussex	CO2, GRA, RB	42	195		
Warren	Co2	1	16		
TOTAL		349	6312	5	0.792

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. Second positive in Atlantic County was collected 11 Aug. The latest positive pool was detected in Atlantic County.

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
					Onset	Euthanized?		
1	horse	7	f	Cumb.	Unk.	Aug 19	no	https://jerseyfresh.nj.gov/agriculture/news/press/2021/approved/press210824.html

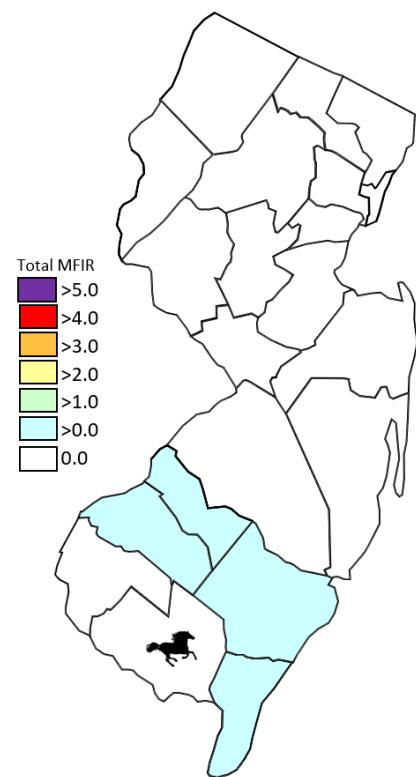
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

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 <i>Cs. melanura</i>	Pools	Mosquitoes	Positives	MFIR
<i>Aedes abserratus</i>	14	118		
<i>Aedes albopictus</i>	242	1899		
<i>Aedes atlanticus</i>	7	200		
<i>Aedes aurifer</i>	5	102		
<i>Aedes canadensis canadensis</i>	73	1131		
<i>Aedes cantator</i>	41	565		
<i>Aedes cinereus</i>	3	80		
<i>Aedes grossbecki</i>	9	33		
<i>Aedes japonicus</i>	194	1069		
<i>Aedes mitchellae</i>	1	1		
<i>Aedes sollicitans</i>	16	318		
<i>Aedes sticticus</i>	15	261		
<i>Aedes stimulans</i>	5	28		
<i>Aedes taeniorhynchus</i>	27	1230		
<i>Aedes thibaulti</i>	2	105		
<i>Aedes triseriatus</i>	36	78		
<i>Aedes trivittatus</i>	20	307		
<i>Aedes vexans</i>	92	2300		
<i>Anopheles</i> spp.	9	189		
<i>Anopheles bradleyi</i>	21	506		
<i>Anopheles crucians</i>	14	162		
<i>Anopheles punctipennis</i>	160	2458		
<i>Anopheles quadrimaculatus</i>	65	870		
<i>Anopheles walkeri</i>	12	873		
<i>Coquillettidia perturbans</i>	180	6269		
<i>Culex erraticus</i>	64	852	1	1.174
<i>Culex Mix</i>	2280	89556		
<i>Culex pipiens</i>	260	8493		
<i>Culex restuans</i>	81	1678		
<i>Culex salinarius</i>	46	614		
<i>Culex territans</i>	1	1		
<i>Culiseta inornata</i>	17	242		
<i>Culiseta morsitans</i>	4	8		
<i>Orthopodomyia signifera</i>	3	4		
<i>Psorophora ciliata</i>	6	104		
<i>Psorophora columbiae</i>	22	646		
<i>Psorophora ferox</i>	22	456		
State Total	4069	123806	1	0.008

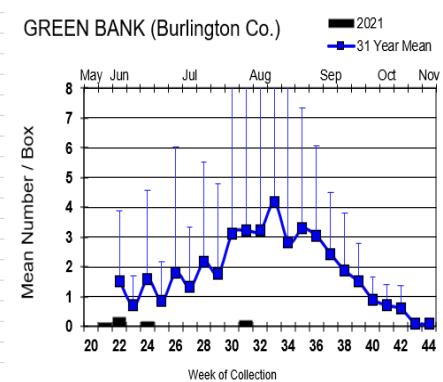
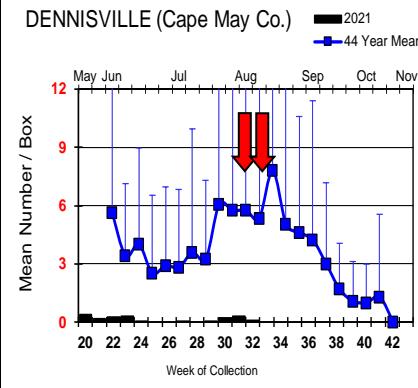
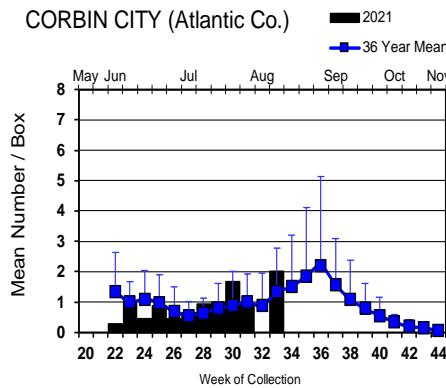
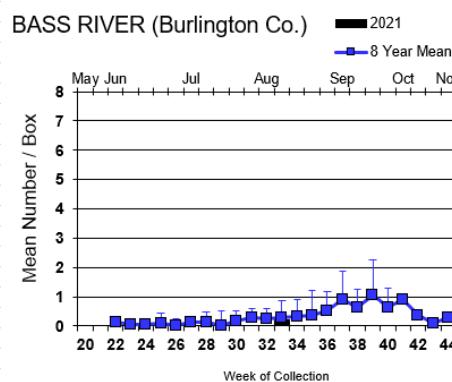
Additional Species: 35 additional species were tested for EEE. One positive pool of *Culex erraticus*, a known endemic vector that may also act as a bridge vector, was detected in Atlantic County on 5 Aug.

Overall MFIR rates, human and animal cases per county:

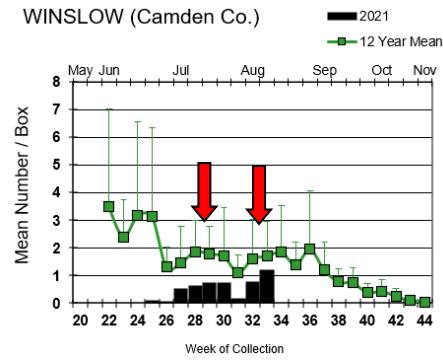
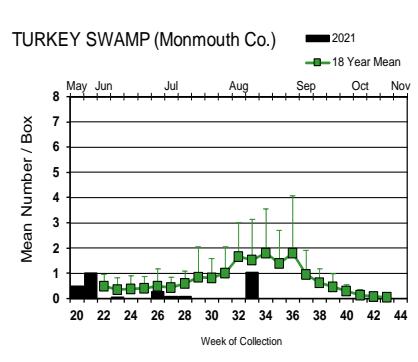
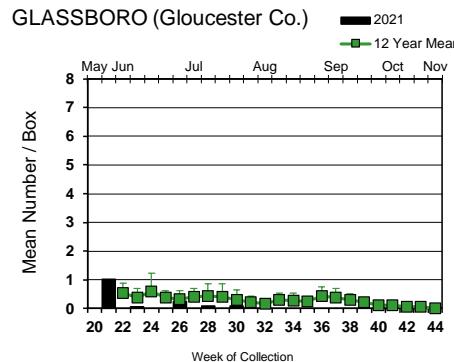
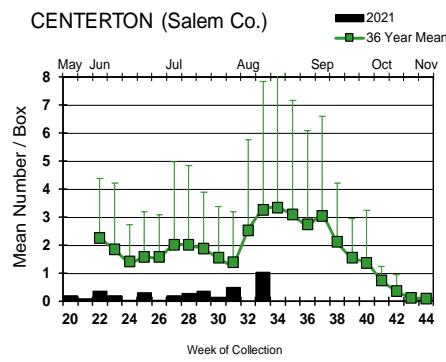


Culiseta melanura Populations

Coastal



Inland



This year's surveillance season began two weeks earlier to accommodate increasing indications of earlier population emergences. A second positive *Cs. melanura* pool was detected at Dennisville in addition to the first detected there as well as two previous pools detected at the Winslow site. The first seasonal positive pool on the state had been detected at Winslow. Adult mosquito surveillance reports at <http://vectorbio.rutgers.edu/reports/mosquito/> continue to suggest resting box collections are lower than light box collections.



= 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) 14(FL) 1(NJ) 1(WI) 1(Ontario)
- mosquito pools: 10(NJ)
- sentinel: 166(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					3/4
Alaska					
Arizona		62			13/22
Arkansas					1
California	129/155	1253/1482	31/43	3/4	19/26
Colorado		5/97		1	5/12
Connecticut		60/81			
Delaware					
Florida		1	18/19		
Georgia					1
Hawaii					
Idaho		23		1	2
Illinois	5/12	1254/1600	0	0	2
Indiana	0	28/75		0	0
Iowa					2
Kansas					1
Kentucky					
Louisiana					3
Maine					
Maryland(+DC)					1
Mass.		57/68			
Michigan				1	
Minnesota					
Mississippi		16		2	
Missouri					1

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska	0	6		0	1/4
Nevada					
New Hampshire					
New Jersey	4	385/445		0	1
New Mexico					
New York					3
North Carolina					
North Dakota	1	16		2	1/5
Ohio		160			1
Oklahoma					1
Oregon	0	0	0	0	0
Pennsylvania	0	76	0	0	1
Rhode Island					
South Carolina				1	2
South Dakota					4
Tennessee					2
Texas	8/10	703/832	1	0	5/9
Utah					1
Vermont					
Virginia					
Washington		44/46		5	1
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 27 August 2021

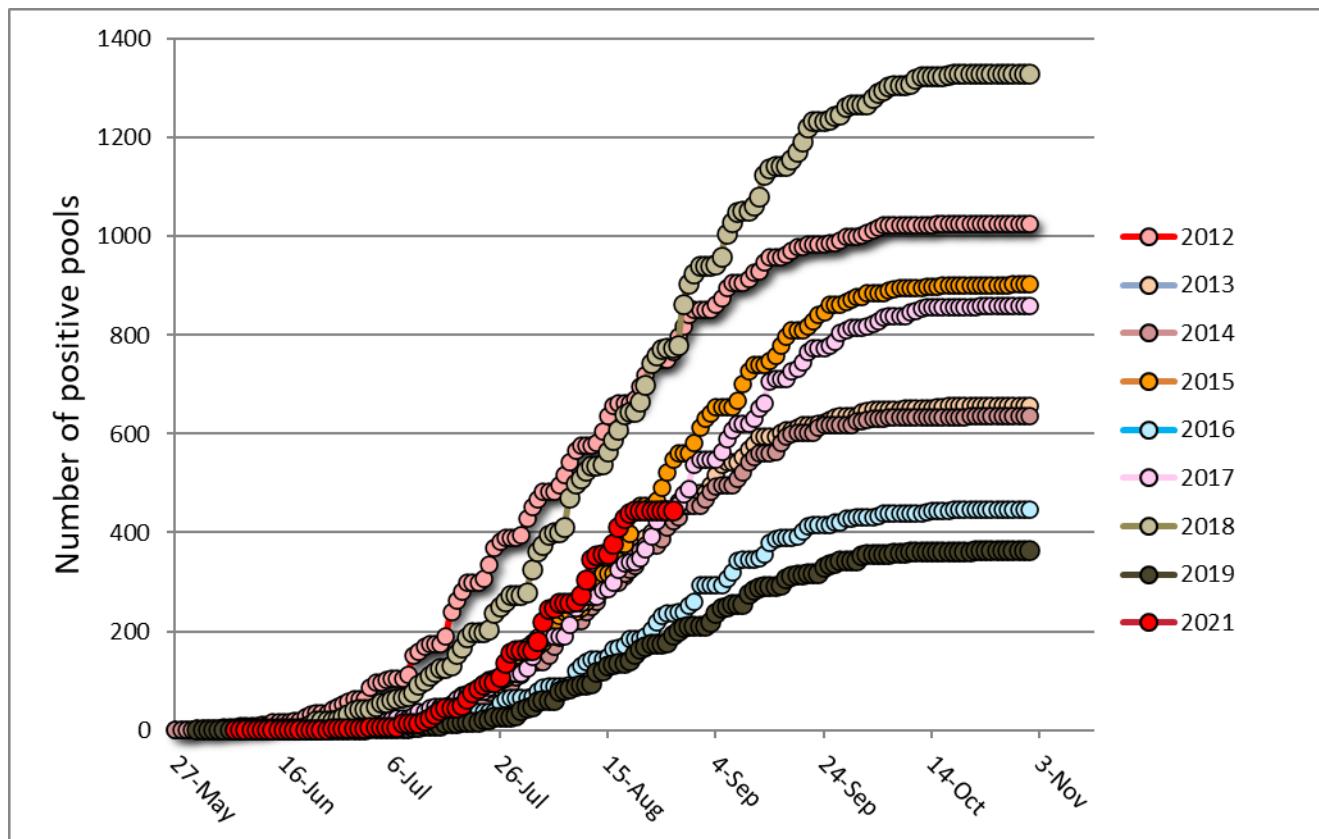
Species	Pools	Mosquitoes	Positives	MFIR
<i>Aedes abserratus</i>	15	120		
<i>Aedes albopictus</i>	295	2359	9	3.815
<i>Aedes atlanticus</i>	8	209		
<i>Aedes aurifer</i>	5	102		
<i>Aedes canadensis canadensis</i>	83	1251		
<i>Aedes cantator</i>	47	722		
<i>Aedes cinereus</i>	3	80		
<i>Aedes grossbecki</i>	9	33		
<i>Aedes japonicus</i>	239	1654	2	1.209
<i>Aedes mitchellae</i>	1	1		
<i>Aedes sollicitans</i>	19	448		
<i>Aedes sticticus</i>	15	261		
<i>Aedes stimulans</i>	5	28		
<i>Aedes taeniorhynchus</i>	35	1458		
<i>Aedes thibaulti</i>	2	105		
<i>Aedes triseriatus</i>	75	236	2	8.475
<i>Aedes trivittatus</i>	26	323	1	3.096
<i>Aedes vexans</i>	105	2557	1	0.391
<i>Anopheles</i> spp.	11	258		
<i>Anopheles bradleyi</i>	23	631		
<i>Anopheles crucians</i>	18	198		
<i>Anopheles punctipennis</i>	189	2984		
<i>Anopheles quadrimaculatus</i>	75	1001		
<i>Anopheles walkeri</i>	13	898		
<i>Coquillettidia perturbans</i>	180	6269		
<i>Culex erraticus</i>	64	852		
<i>Culex</i> spp.	2769	111977	423	3.778
<i>Culex pipiens</i>	325	10397	5	0.481
<i>Culex restuans</i>	88	1735		
<i>Culex salinarius</i>	57	955		
<i>Culex territans</i>	1	1		
<i>Culiseta inornata</i>	18	244		
<i>Culiseta melanura</i>	417	7283	2	0.275
<i>Culiseta morsitans</i>	4	8		
<i>Orthopodomyia signifera</i>	3	4		
<i>Psorophora ciliata</i>	7	113		
<i>Psorophora columbiae</i>	27	757		
<i>Psorophora ferox</i>	33	632		
<i>Psorophora howardii</i>	1	50		
Grand Total	5310	159194	445	2.795

Remarks: To date 5310 pools of 159,194 mosquitoes from 36 species have been tested. 445 pools (428 pools of Culex Mix or *Cx. pipiens*, 2 pools of *Cs melanura*, 9 pools of *Ae albopictus*, 2 pools of *Ae. triseriatus* and *Ae. japonicus* each, and one pool each of *Ae. trivittatus* and *Ae. vexans*) have been identified as positive for WNV in all but Cumberland and Salem

counties. First positive detected in a pool of *Culex Mix* collected on 7 June in Somerset County. Cumulative MFIR for all mosquitoes in New Jersey is 2.569.

Humans, Horses and Wild Birds: No horses have been reported infected with WNV in 2021. One human case from Camden County 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>

Although birds are no longer routinely tested in New Jersey, one American Crow (*Corvus brachyrhynchos*) from Burlington County has tested positive for WNV. Three Cooper's Hawks (*Accipiter cooperii*) tested positive from Union County.



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.

Go [here](#) for the table supplement of arbovirus by county by mosquito species.