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 6 October to 12 October, 2019, CDC Week 41 Data download 3:00 pm 6 October













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

Arbovirus Summary

- 73 EEE positive pools, 12 animal cases: 11 horse cases, 1 alpaca case; 3 human cases (Atlantic, Somerset, Union Counties)
- 350 WNV positive pools (+4 RAMP positives), 0 horses, 7 human cases (Atlantic(2), Bergen(2), Burlington, Gloucester, Hunterdon County)
- 1 LAC positive pool
- 5 JCV positive pools
- 0 SLE, DENG, CHIK, ZIKA positive pools
- 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 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	1.14	0.00	18	7		
Green Bank (Burlington Co.)/25	Coastal	0.74	0.68	183 (200)	15 (16)		
Corbin City (Atlantic Co.)/25	Coastal	0.32	0.24	184 (187)‡	17 (18)	1	5.525
Dennisville (Cape May Co.)/50	Coastal	1.06	0.00	69	13		
Winslow (Camden Co.)/50	Inland	0.40	0.42	887	26	6	6.764
Centerton (Salem Co.)/50	Inland	0.77	0.26	237	15	2	8.439
Turkey Swamp (Monmouth Co.)/49	Inland	0.13	nd	1270 (1302) [‡]	34 (35)‡	7	5.512
Glassboro (Gloucester Co.)/50	Inland	0.13	0.00	173	173	2	11.561

^{*}Current week (in parentheses) results pending. ‡ corrected from previous week NC=no collection

Remarks: No additional positive EEE pools detected. Currently in 2019, there are 73 detections of EEE virus: 54 pools of *Culiseta melanura* (18 collected at traditional resting box sites, and 36 collected at county trap sites) and 19 pools in *Aedes albopictus, Ae. canadensis, Ae. triseriatus, Culex pipiens* and *Culex* Mix. The first positive pool was collected on 3 July at Turkey Swamp, Monmouth County. There are 12 animal cases and three human case (Atlantic, Somerset, Union County).

Statewide, 13,158 *Cs. melanura* from 910 pools have been tested, with an overall *Cs. melanura* MFIR of 4.104. 179,982 specimens in 8,945 pools from 40 other species have also been tested, with 19 positive pools detected (*Aedes albopictus, Ae. canadensis, Ae. triseriatus,* and *Culex* Mix/*Cx. pipiens* pools). Overall MFIR for all species statewide is 0.380.

Traditional Resting Box Sites: 3,021 *Cs. melanura* from 145 pools have been tested, with 18 positive pools detected – 1 at Corbin City, 2 at Centerton, 2 at Glassboro, 7 at Turkey Swamp, and 6 at Winslow. An additional 55 *Cs. melanura* in 3 pools are at labs to be tested.

	Additional Cs. melanura trapped by counties *traps with positives indicated in BOLD UNDERLINED.						
County	Trap types*	Pools	Mosquitoes	Positives	MFIR		
Atlantic	BGS, CO ₂ , GR, RB	95	2528	7	2.769		
Bergen	CO ₂ , RB	8	71				
Burlington	ULVT	79	2569	8	3.114		
Cape May	GR, RB	184	457	1	2.188		
Cumberland	AGO, RB	38	232				
Gloucester	CO ₂ , RB	68	1879	3	1.597		
Middlesex	RB	21	97				
Monmouth	CO ₂ , Other	24	183	1	5.464		
Morris	CO ₂ , RB	79	742	6	8.086		
Ocean	CO ₂ , GR, RB	68	446	1	2.242		
Salem	CO ₂ , GR, RB	24	76	1	13.158		
Sussex	CO ₂ , GR RB	69	738	8	10.840		
Union	NJLT	6	64				
Warren	CO ₂ , NJLT	2	55				
TOTAL		765	10137	36	3.551		

Additional County-set Cs. melanura: Counties maintain trap sites for Cs. melanura in other areas, using a variety of traps. Last year, half of the EEE detection came from such trappings. In 2019, 36 pools of Cs. melanura have been found positive. Earliest positive pools were found in Salem County, collected 9 July, and Ocean County collected 10 July.

Horses and Humans: Over the past ten years, first onset dates for horses have been in August or October except for 2012, where an onset date was 22 July. Last year five horses were reported with EEE. All had either an incomplete or no vaccination history. 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. In 2019, 11 horses and one alpaca have been found with EEE.

					Date of	Euthanized		
Case	Animal	Age	Sex	County	Onset	?	Vaccinated?	Comment
12	Horse	3 year old	Gelding	Camden	30 Sep	30 Sep	EWT Feb/Mar	
11	Horse	1 year old	Filly	Burlington	24-Sep	29-Sep	Unknown	
10	Horse	Unknown	Gelding	Ocean	?	26-Aug	Not vaccinated	
9	Horse	4 year old	Gelding	Ocean	?	26-Aug	Not vaccinated	
8	Horse	1 year old	Filly	Atlantic	?	24-Aug	Not vaccinated	
		3 or 4 month						
7	Horse	old	Gelding	Salem	?	25-Aug	Not vaccinated	
6	Horse	18 year old	Gelding	Morris	25-Aug	26-Aug	Not vaccinated	
5	Horse	2 year old	Gelding	Ocean	15-Aug	16-Aug	Unknown	
4	Alpaca	7 year old	Unknown	Camden	2-Aug	3-Aug	Unknown	
							April vaccination	
3	Horse	yearling	Colt	Monmouth	5 Aug	5-Aug	(incomplete)	
2	Horse	20 year old	Gelding	Ocean	26-Jul	26-Jul	Unknown	
								11-14 miles from two active EEE
1	Horse	12 year old	Mare	Ocean	23-Jul	23-Jul	Possible incomplete	sites

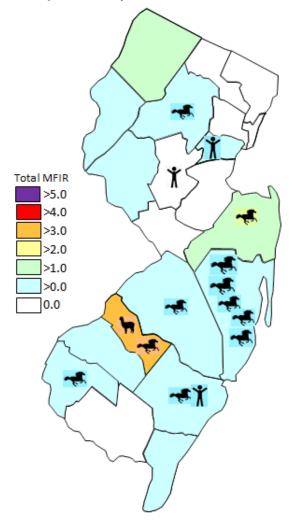
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_quidelines.htm

There are 3 human cases of EEE, coming from Atlantic, Union, and Somerset Counties. For more information, see DOH Vectorborne Surveillance reports: https://www.nj.gov/health/cd/statistics/arboviral-stats/

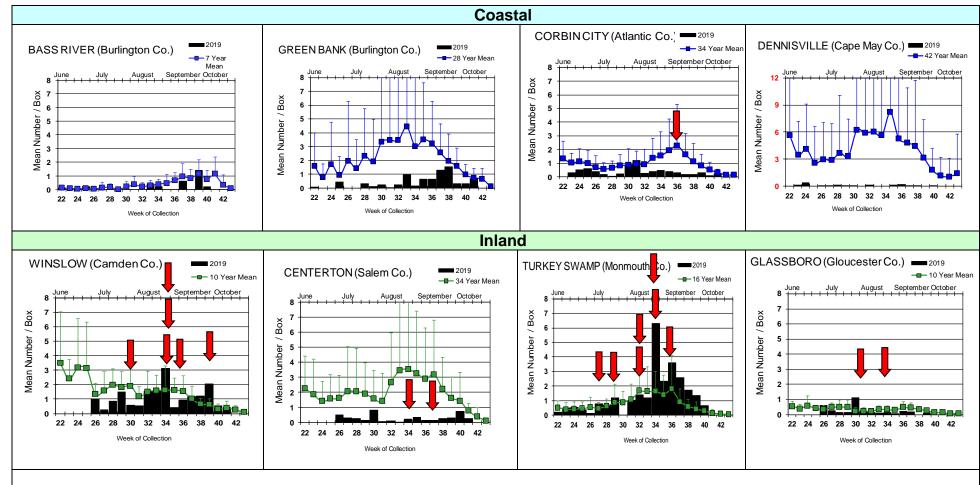
Species other than Cs. melanura	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	14	259		
Aedes albopictus	1052	8188	2	0.244
Aedes atlanticus	15	134		
Aedes atropalpus	1	3		
Aedes aurifer	3	14		
Aedes canadensis canadensis	139	2536	2	0.789
Aedes cantator	19	297		
Aedes cinereus	1	1		
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	736	4453		
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	34	793		
Aedes sticticus	5	100		
Aedes stimulans	2	10		
Aedes taeniorhynchus	23	351		
Aedes thibaulti	2	27	0	4 004
Aedes triseriatus	210	1020	2	1.961
Aedes trivittatus	29	545		
Aedes vexans	115	1030		
Anopheles barberi	3	3		
Anopheles bradleyi	151 31	1238		
Anopheles crucians	144	369 867		
Anopheles punctipennis Anopheles quadrimaculatus	210	1542		
Anopheles walkeri	7	397		
Coquillettidia perturbans	291	5170		
Culex Mix	3537	134162	12	0.089
Culex erraticus	288	2557		0.000
Culex pipiens	812	8688	1	0.115
Culex restuans	574	1643	•	0.113
Culex residans Culex salinarius	334	2123		
Culex territans	43	116		
Culiseta inornata	2	5		
Orthopodomyia signifera	10	10		
Psorophora ciliata	1	1		
Psorophora columbiae	27	290		
Psorophora ferox	46	788		
Psorophora howardii	1	1		
Uranotaenia sapphirina	24	229		
State To	tal 8945	179982	19	0.106

Additional Species: 40 additional species were tested for EEE. 19 positive pools have been detected in three species, the latest species being *Culex* Mix or *pipiens* in Hunterdon, Gloucester and Burlington Counties. (Note: *Culex pipiens* is refractory for EEE virus).

Overall MFIR rates, human and animal cases per county:



Culiseta melanura Populations



Culiseta melanura populations at the traditional resting box sites continue to decline as we go into fall.



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

EEE in US (2019 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 3(CT) 27(FL) 1(GA) 13(IN) 27(LA) 9(MA) 1(MD) 1(ME) 39(+deer (MI) 1(MN) 7(MS) 1(NC) 1(NH) 9(+1 alpaca, NJ) 6(+1 goat NY) 2(OH) 1(+3 deer RI) 3(SC) 5(TX) 3(WI) 5(CAN-ON)
- mosquito pools: 116(CT) 1(IN) 4(LA) 425(MA) 3(MD) 1(ME) 12(NH) 73(NJ) 66(NY) 8(RI)
- sentinel: 108(+1 emu 1 BAEA, FL) 3(DE) 1(LA) 1(ratite NY)
- human: 1(CT) 12(MA) 10(MI) 1(NC) 3(NJ) 3(RI)

West Nile Virus Positive Organisms in US, 2019

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Alabama				1	4
Alaska					
Arizona	2/5	356	1	1	167/172
Arkansas					3
California	186/193	3206/3225	119/130	14/15	128/145
Colorado		109		3	73/91
Connecticut		82		1	3
Delaware					
Florida	1		323/374	4	1
Georgia					1
Hawaii					
Idaho	0	41		3	10/11
Illinois	4	1128/1133		1	14
Indiana	0	165		0	1
Iowa				2	3
Kansas					2/5
Kentucky				1	1
Louisiana	3	169		1	16
Maine		0			0
Maryland(+DC)		3			3(2DC)
Mass.		84		0	2
Michigan	11/16	54		1	4/8
Minnesota				1	1
Mississippi		26		7	13
Missouri		0		0	2

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska	1	28/29		0	18/22
Nevada					13/25
New Hampshire		1		1	
New Jersey		333/350		0	5/ <mark>7</mark>
New Mexico					9/28
New York		506/ <mark>553</mark>		0	10/11
North Carolina					1
North Dakota	1	6		0	7/8
Ohio		254		0	1
Oklahoma					3/4
Oregon	0	85	0	7	9
Pennsylvania	1	400+		1	1
Rhode Island		4			
South Carolina	1	3			
South Dakota		9			11
Tennessee					1
Texas	1	106		1	19/22
Utah		271		3/9	19/20
Vermont		4/5			
Virginia					1
Washington	0	27		1	6
West Virginia					
Wisconsin	2	45		0	1
Wyoming	0	8		3	4

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

Mosquito Species Submitted and Tested for West Nile Virus through 11 October 2019

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	14	259		
Aedes albopictus	1492	9338	4	0.428
Aedes atlanticus	15	134		
Aedes atropalpus	1	3		
Aedes aurifer	3	14		
Aedes canadensis canadensis	139	2536		
Aedes cantator	19	297	1	3.367
Aedes cinereus	1	1		
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	754	5020	3	0.598
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	34	793		
Aedes sticticus	5	100		
Aedes stimulans	2	10		
Aedes taeniorhynchus	23	351		
Aedes thibaulti	2	27		
Aedes triseriatus	517	2212	1	0.452
Aedes trivittatus	29	545		
Aedes vexans	115	1030		
Anopheles barberi	3	3		
Anopheles bradleyi	151	1238		
Anopheles crucians	31	369		
Anopheles punctipennis	145	868	2	
Anopheles quadrimaculatus	210	1542		
Anopheles walkeri	7	397		
Coquillettidia perturbans	295	5383	3	0.557
Culex spp.	3537	134162	307	2.288
Culex erraticus	288	2557	1	0.391
Culex pipiens	813	8689	7	0.806
Culex restuans	577	1646		
Culex salinarius	334	2123		
Culex territans	43	116		
Culiseta inornata	2	5		
Culiseta melanura	910	13158	21	1.596
Orthopodomyia signifera	10	10		
Psorophora ciliata	1	1		
Psorophora columbiae	27	290		
Psorophora ferox	46	788		
Psorophora howardii	1	1		
Uranotaenia sapphirina	24	229		
Grand Total	10629	196267	350	1.783

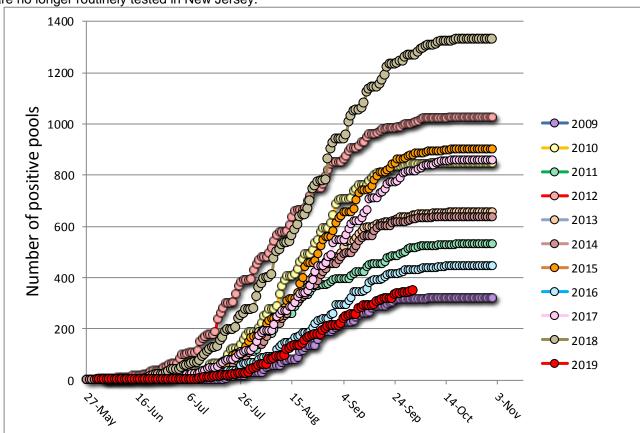
Remarks: To date 10,629 pools of 196,267 mosquitoes from 41 species have been tested. A total of 350 positive WNV pools have been detected throughout the state beginning with a pool of *Aedes triseriatus*, collected on 31 May, 2019 in Passaic County. This pool was also co-infected with LAC (see table below). Majority of the positives are in *Culex* bird-feeding species pools. Also positive are *Aedes albopictus*, *Ae. cantator*, *Ae. japonicus*, *Anopheles punctipennis*, *Coquillettidia perturbans*, *Culex erraticus*, and *Culiseta melanura*. Last year was a year of significant activity, with over 1300 positive pools detected. Currently, the statewide MFIR rate for all mosquitoes increased from 1.743 to 1.783.

In addition to RTPCR positives, 4 positives determined by RAMP were also detected (in *Aedes cantator* and *Culex*). See end of WNV by county by species table in the addendum.

Humans, Horses and Wild Birds: There have been seven human cases of West Nile virus, the latest two occurring in Bergen and Burlington counties. The fifth case was detected in Gloucester County, date of onset is unknown. The fourth case is in Atlantic County, with date of onset 4 Sep. The third case is in Bergen County, with date of onset as 30 Aug, and possible out of state exposure. The second case is from Atlantic County, with date of onset 2 September. The first is from Hunterdon County reported, with an onset date of 21 June. The first case represents the earliest typical case reported in New Jersey. (A few years ago, there was one case reported in May from a long-term hospitalized patient making date of infection difficult to determine.) For more information, see NJ arboviral reports from the Department of Health: https://www.nj.gov/health/cd/statistics/arboviral-stats/. Last year we have over 60 cases reported, the highest to date.

Currently, there are no reported horse cases for WNV. Last year only one WNV horse case has been reported, occurring in Burlington County. For further information, see http://www.nj.gov/health/cd/statistics/arboviral-stats/.





Above is a graph showing cumulative number of positive pools for the previous 10 years, inclusive of the most active (2018) and least active (2009) years. The red series represents this year, starting with the first positive pool.

Go <u>here</u> for the table supplement of arbovirus by county by mosquito species.