VECTOR SURVEILLANCE IN NEW JERSEY

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

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15 September to 21 September, 2019, CDC Week 38
Data download 2:01 pm 20 September

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

Arbovirus Summary

- **67 EEE positive pools, 9 horse cases, 1 alpaca case, 3 human case (Atlantic, Somerset, Union Counties)**
- **288 WNV positive pools, 0 horses, 4 human case (Atlantic(2), Bergen, 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**	0.83	0.00	10	5		
Green Bank (Burlington Co.)/25	**Coastal**	1.94	1.56	128 (167)	12 (13)		
Corbin City (Atlantic Co.)/25	**Coastal**	1.11	0.20	154 (159)	14 (15)	1	6.494
Dennisville (Cape May Co.)/50	**Coastal**	3.14	0.06	68	12		
Winslow (Camden Co.)/50	**Inland**	0.65	1.22	737	22	5	6.784
Centerton (Salem Co.)/50	**Inland**	2.23	0.26	170	13	2	11.765
Turkey Swamp (Monmouth Co.)/50	**Inland**	0.58	1.74	1115 (1192)‡	29 (31) ‡	7	6.278
Glassboro (Gloucester Co.)/50	**Inland**	0.35	0.00	168	13	2	11.905

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

Remarks: ***EEE activity in the state is ramping up and due diligence is needed***. Currently in 2019, there are 67 detections of EEE virus: 51 pools of *Culiseta melanura* (17 collected at traditional resting box sites, and 34 collected at county trap sites) and 16 pools in *Aedes albopictus, Ae. canadensis, Ae. triseriatus,* and *Culex* Mix. The first positive pool was collected on 3 July at Turkey Swamp, Monmouth County. There are ten animal cases and one human case (Somerset County).

Statewide, 11,597 *Cs. melanura* from 743 pools have been tested, with an overall *Cs. melanura* MFIR of 4.398. 158,408 specimens in 7,315 pools from 38 other species have also been tested, with 16 positive pools detected (*Aedes albopictus, Ae. canadensis, Ae. triseriatus,* and *Culex* Mix pools). Overall MFIR for all species statewide is 0.419.

Traditional Resting Box Sites: 2,555 *Cs. melanura* from 123 pools have been tested, with 17 positive pools detected – 1 at Corbin City, 2 at Centerton, 2 at Glassboro, 7 at Turkey Swamp, and 5 at Winslow. An additional 131 *Cs. melanura* in 4 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**	82	2437	7	2.872
Bergen	CO_2, RB	6	28		
Burlington	**ULVT**	62	2108	8	3.795
Cape May	GR, **RB**	158	424	1	2.358
Cumberland	AGO, RB	28	187		
Gloucester	CO_2, **RB**	57	1679	3	1.787
Middlesex	RB	15	74		
Monmouth	CO_2, **Other**	20	171	1	5.848
Morris	**CO_2, RB**	61	699	6	8.584
Ocean	**CO_2**, GR, RB	57	423	1	2.364
Salem	CO_2, GR, **RB**	22	72	1	13.889
Sussex	**CO_2**, GR **RB**	45	633	6	9.479
Union	NJLT	5	52		
Warren	CO_2, NJLT	2	55		
TOTAL		**620**	**9042**	**34**	**3.760**

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, 34 pools of *Cs. melanura* have been found positive, the latest from Morris and Sussex Counties. 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, 9 horses and one alpaca have been found with EEE.

Case	Animal	Age	Sex	County	Date of Onset	Euthanized ?	Vaccinated?	Comment
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	
7	Horse	3 or 4 month 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	
3	Horse	yearling	Colt	Monmouth	5 Aug	5-Aug	April vaccination (incomplete)	
2	Horse	20 year old	Gelding	Ocean	26-Jul	26-Jul	Unknown	
1	Horse	12 year old	Mare	Ocean	23-Jul	23-Jul	Possible incomplete	11-14 miles from two active EEE sites

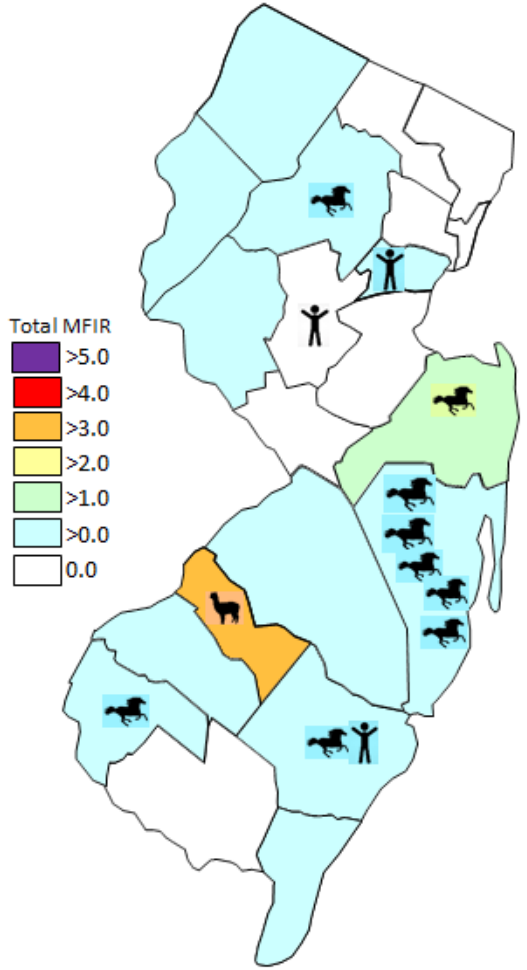
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

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	13	258		
Aedes albopictus	801	6336	2	0.316
Aedes atlanticus	15	134		
Aedes aurifer	3	14		
Aedes canadensis canadensis	137	2533	2	0.790
Aedes cantator	18	295		
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	643	4099		
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	29	709		
Aedes sticticus	5	100		
Aedes stimulans	2	10		
Aedes taeniorhynchus	19	305		
Aedes thibaulti	2	27		
Aedes triseriatus	164	896	2	2.232
Aedes trivittatus	27	497		
Aedes vexans	84	779		
Anopheles barberi	3	3		
Anopheles bradleyi	127	1072		
Anopheles crucians	23	296		
Anopheles punctipennis	105	668		
Anopheles quadrimaculatus	168	1248		
Anopheles walkeri	1	18		
Coquillettidia perturbans	268	4950		
Culex Mix	3010	120608	10	0.083
Culex erraticus	159	1580		
Culex pipiens	612	6354		
Culex restuans	429	1194		
Culex salinarius	301	2043		
Culex territans	41	112		
Culiseta inornata	2	5		
Orthopodomyia signifera	8	8		
Psorophora ciliata	1	1		
Psorophora columbiae	24	286		
Psorophora ferox	44	784		
Psorophora howardii	1	1		
Uranotaenia sapphirina	17	163		
State Total	**7315**	**158408**	**16**	**0.101**

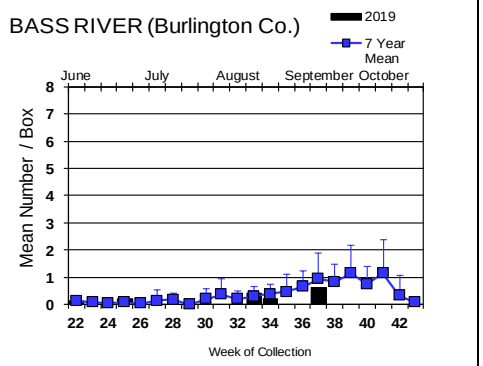
Additional Species: 38 additional species were tested for EEE. 16 positive pools have been detected in three species, the latest species being *Culex* Mix in Hunterdon and Union Counties. (Note: *Culex pipiens* is refractory for EEE virus).

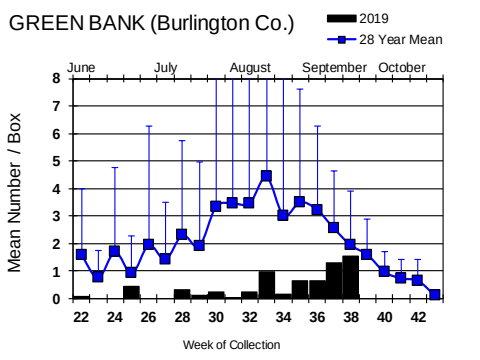
Overall MFIR rates, human and animal cases per county:

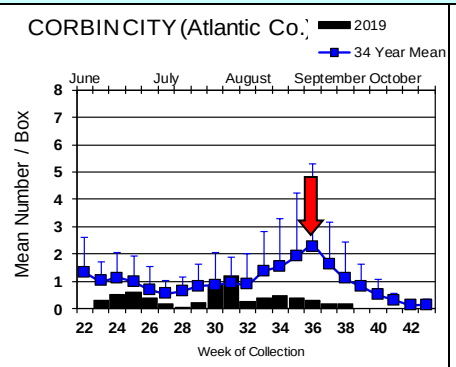


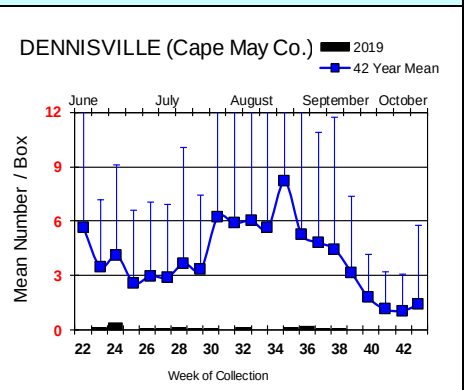
Culiseta melanura Populations

Coastal

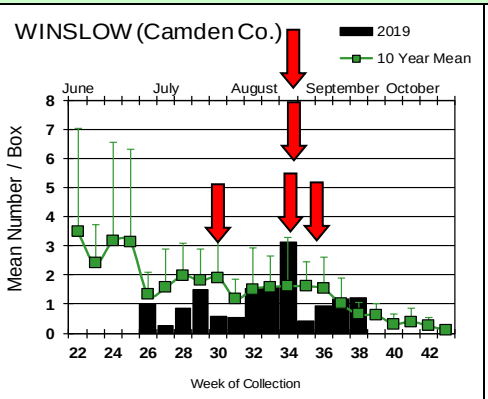


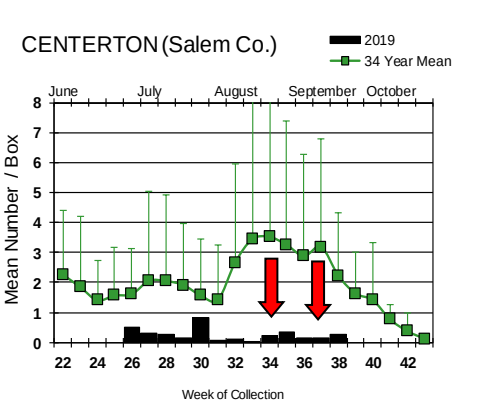


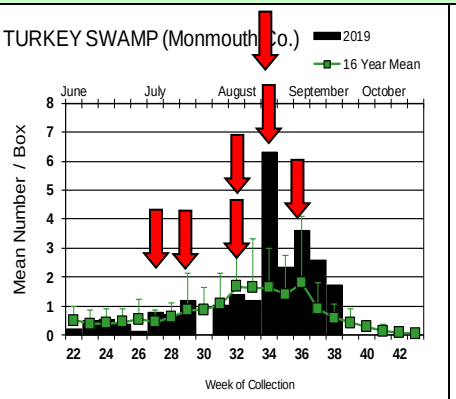


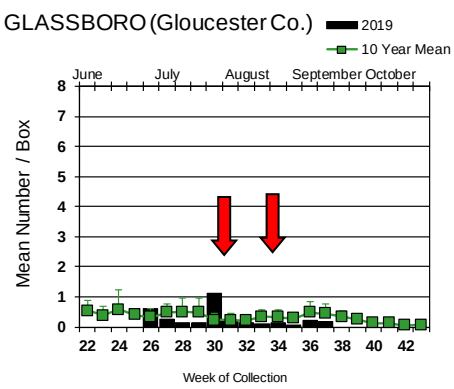


Inland









Culiseta melanura populations at Turkey Swamp are still above historical levels. Additional positive pools were detected at Corbin City, Centerton and Turkey Swamp. Positive pools detections continue at both traditional resting box sites and county-maintained sites and transmission is evident with animal detection continuing.

= 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) 26(FL) 1(GA) 3(IN) 23(LA) 8(MA) 1(MD) 1(ME) 15(MI) 1(MN) 7(MS) 1(NC) 1(NH) 9(+1 alpaca, NJ) 5(NY) 2(OH) 1(RI) 3(SC) 4(TX) 3(WI) 5(CAN-ON)
- **mosquito pools:** 100(CT) 1(IN) 3(LA) 421(MA) 3(MD) 11(NH) 67(NJ) 46(NY) 7(RI)
- **sentinel:** 100(+1 emu 1 BAEA, FL) 3(DE) 1(LA)
- **human:** 1(CT) 10(MA) 7(MI) 3(NJ) 3(RI)

West Nile Virus Positive Organisms in US, 2019

West Nile in US (2019 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				1	1
Alaska					
Arizona	2	347/355	1	1	140/156
Arkansas					2/3
California	120/139	2978/3070	89/105	9/11	89/98
Colorado		99		3	21/32
Connecticut		60/75		1	3
Delaware					
Florida	1		221/233	1/2	1
Georgia					1
Hawaii					
Idaho	0	41		3	7/9
Illinois	3/4	798/896		1	3/5
Indiana	0	105/117		0	0
Iowa				2	3
Kansas					2
Kentucky					1
Louisiana	1	149/157		1	10/12
Maine		0			0
Maryland(+DC)		3			3(2DC)
Mass.		72/83		0	1/2
Michigan	9	21/41			2
Minnesota				1	1
Mississippi		26		7	13
Missouri		0		0	1/2

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska	1	19/28		0	12/15
Nevada					13/25
New Hampshire		1		1	1
New Jersey		252/288		0	2/4
New Mexico					4/9
New York		361/396		0	0
North Carolina					1
North Dakota	0	6		0	6/7
Ohio		197/254		0	0
Oklahoma					3/4
Oregon	0	79/85	0	4	4/6
Pennsylvania	1	328/400		1	1
Rhode Island		2			
South Carolina	1	3			
South Dakota		9			9
Tennessee					1
Texas	1	103/106		1	15/16
Utah		226/246		1	11/16
Vermont		4			
Virginia					1
Washington	0	25/26		1	1/3
West Virginia					
Wisconsin	1	31		0	1
Wyoming	0	7		2/3	2/3

* 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 20 September 2019

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	13	258		
Aedes albopictus	1241	7486	4	0.534
Aedes atlanticus	15	134		
Aedes aurifer	3	14		
Aedes canadensis canadensis	137	2533		
Aedes cantator	18	295	1	3.390
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	661	4666	2	0.429
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	29	709		
Aedes sticticus	5	100		
Aedes stimulans	2	10		
Aedes taeniorhynchus	19	305		
Aedes thibaulti	2	27		
Aedes triseriatus	460	2058	1	0.486
Aedes trivittatus	27	497		
Aedes vexans	84	779		
Anopheles barberi	3	3		
Anopheles bradleyi	127	1072		
Anopheles crucians	23	296		
Anopheles punctipennis	106	669	2	2.990
Anopheles quadrimaculatus	168	1248		
Anopheles walkeri	1	18		
Coquillettidia perturbans	272	5163	2	0.387
Culex spp.	3010	120608	251	2.081
Culex erraticus	159	1580	1	0.633
Culex pipiens	613	6355	5	0.787
Culex restuans	432	1197		
Culex salinarius	301	2043		
Culex territans	41	112		
Culiseta melanura	2	5		
Culiseta melanura	742	11567	19	1.643
Orthopodomyia signifera	8	8		
Psorophora ciliata	1	1		
Psorophora columbiae	24	286		
Psorophora ferox	44	784		
Psorophora howardii	1	1		
Uranotaenia sapphirina	17	163		
Grand Total	**8820**	**173072**	**288**	**1.664**

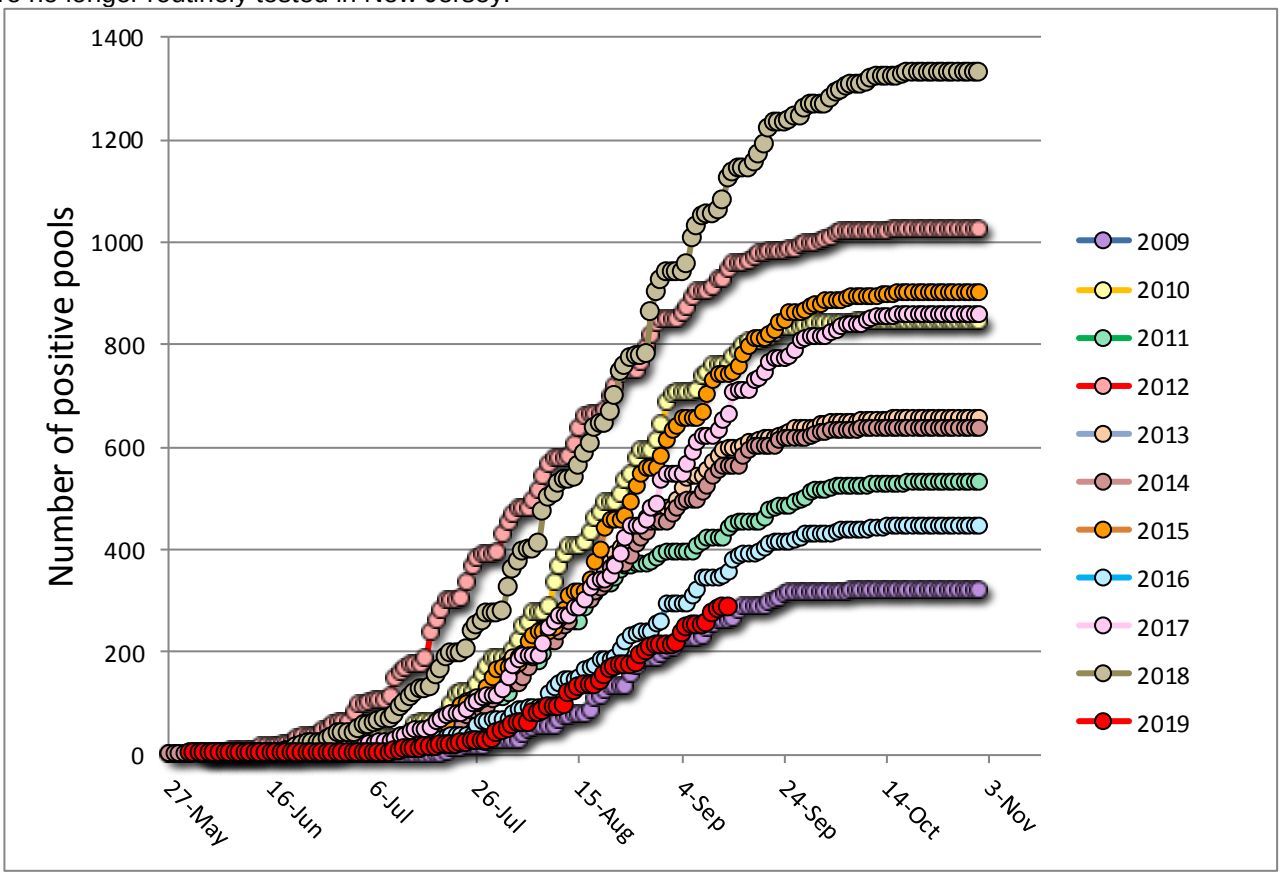
Remarks: To date 8,820 pools of 173,072 mosquitoes from 39 species have been tested. A total of 288 positive WNV pools have been detected throughout the state beginning with a pool of *Aedes triseriatus*, collected on 31 May, 2019 in Passaic County. This pool was also co-infected with LAC (see table below). 256 (89%) 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 1.543 to 1.664.

Humans, Horses and Wild Birds: There have been four human cases of West Nile virus. 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. This seemed rather unusual, given all the other indicators of high virus activity. For further information, see http://www.nj.gov/health/cd/statistics/arboviral-stats/.

Birds are no longer routinely tested in New Jersey.



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