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 September to 28 September, 2019, CDC Week 39
Data download 1:01 pm 28 September

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

Arbovirus Summary

- **71 EEE positive pools, 9 horse cases, 1 alpaca case, 3 human case (Atlantic, Somerset, Union Counties)**
- **318 WNV positive pools, 0 horses, 5 human case (Atlantic(2), Bergen, 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	1.40	10 (17)	5 (6)		
Green Bank (Burlington Co.)/25	**Coastal**	1.59	0.32	167 (175)	13 (14)		
Corbin City (Atlantic Co.)/25	**Coastal**	0.81	0.32	159 (167)	16 (17)	1	6.289
Dennisville (Cape May Co.)/50	**Coastal**	1.78	0.00	68	12		
Winslow (Camden Co.)/50	**Inland**	0.62	2.04	839	25	6	7.151
Centerton (Salem Co.)/50	**Inland**	1.63	0.32	186	14	2	10.753
Turkey Swamp (Monmouth Co.)/49	**Inland**	0.43	1.35	1172 (1238)‡	33 (35) ‡	7	5.973
Glassboro (Gloucester Co.)/50	**Inland**	0.25	0.10	173	14	2	11.561

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

Remarks: ***EEE activity continues in the state and due diligence is needed***. Currently in 2019, there are 71 detections of EEE virus: 52 pools of *Culiseta melanura* (18 collected at traditional resting box sites, and 34 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 ten animal cases and one human case (Somerset County).

Statewide, 12,344 *Cs. melanura* from 810 pools have been tested, with an overall *Cs. melanura* MFIR of 4.213. 166,904 specimens in 7,807 pools from 38 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 0.396.

Traditional Resting Box Sites: 2,782 *Cs. melanura* from 131 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 89 *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**	86	2476	7	2.827
Bergen	CO_2, RB	7	46		
Burlington	**ULVT**	67	2289	8	3.495
Cape May	GR, **RB**	167	439	1	2.278
Cumberland	AGO, RB	34	212		
Gloucester	CO_2, **RB**	63	1813	3	1.655
Middlesex	RB	19	89		
Monmouth	CO_2, **Other**	21	173	1	5.780
Morris	**CO_2**, **RB**	68	718	6	8.357
Ocean	**CO_2**, GR, RB	60	430	1	2.326
Salem	CO_2, GR, **RB**	23	74	1	13.514
Sussex	**CO_2**, GR **RB**	56	684	6	8.772
Union	NJLT	6	64		
Warren	CO_2, NJLT	2	55		
TOTAL		**679**	**9562**	**34**	**3.556**

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. 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

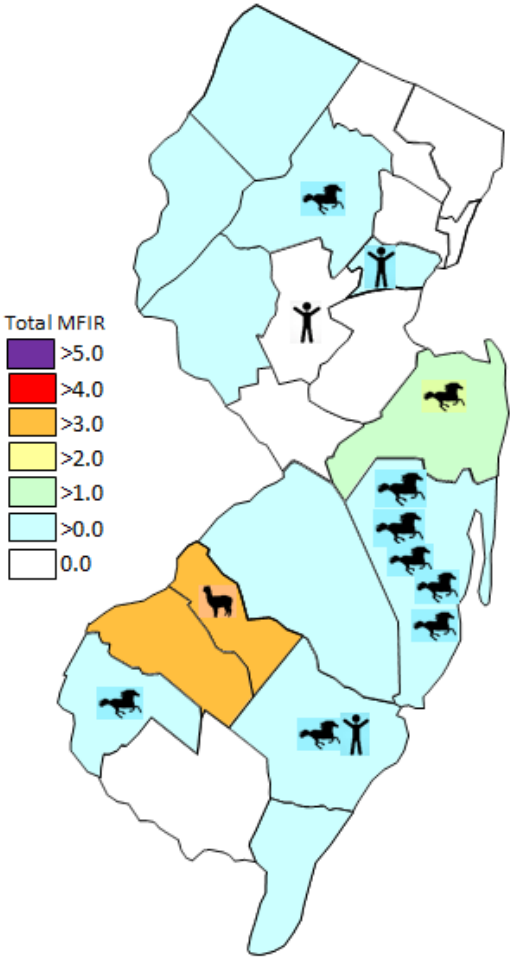
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

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	900	7092	2	0.282
Aedes atlanticus	15	134		
Aedes aurifer	3	14		
Aedes canadensis canadensis	139	2536	2	0.789
Aedes cantator	19	297		
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	678	4210		
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	33	789		
Aedes sticticus	5	100		
Aedes stimulans	2	10		
Aedes taeniorhynchus	22	345		
Aedes thibaulti	2	27		
Aedes triseriatus	180	938	2	2.132
Aedes trivittatus	26	495		
Aedes vexans	93	837		
Anopheles barberi	3	3		
Anopheles bradleyi	130	1161		
Anopheles crucians	26	317		
Anopheles punctipennis	110	734		
Anopheles quadrimaculatus	177	1388		
Anopheles walkeri	7	397		
Coquillettidia perturbans	274	4977		
Culex Mix	3203	126633	12	0.095
Culex erraticus	186	1869		
Culex pipiens	650	6569	1	0.152
Culex restuans	471	1308		
Culex salinarius	309	2075		
Culex territans	40	111		
Culiseta inornata	2	5		
Orthopodomyia signifera	8	8		
Psorophora ciliata	1	1		
Psorophora columbiae	25	287		
Psorophora ferox	45	785		
Psorophora howardii	1	1		
Uranotaenia sapphirina	19	171		
State Total	**7826**	**166904**	**19**	**0.114**

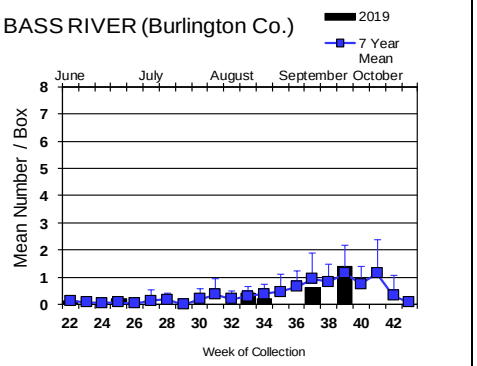
Additional Species: 38 additional species were tested for EEE. 19 positive pools have been detected in three species, the latest species being *Culex* Mix or *pipiens* in Hunterdon, Gloucester and Burlington Counties. (Note: *Culex pipiens* is refractory for EEE virus).

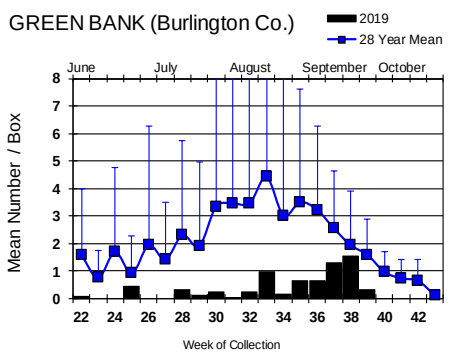
Overall MFIR rates, human and animal cases per county:

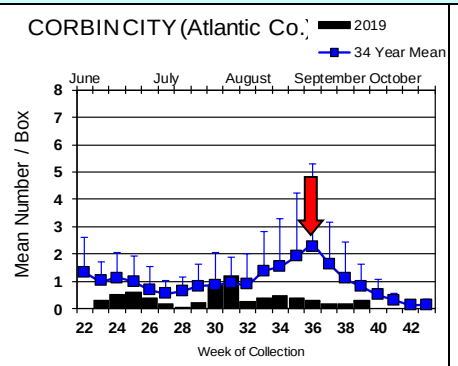


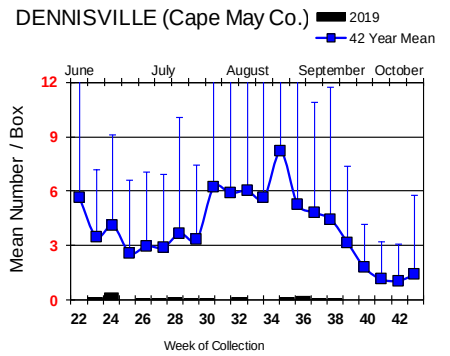
Culiseta melanura Populations

Coastal

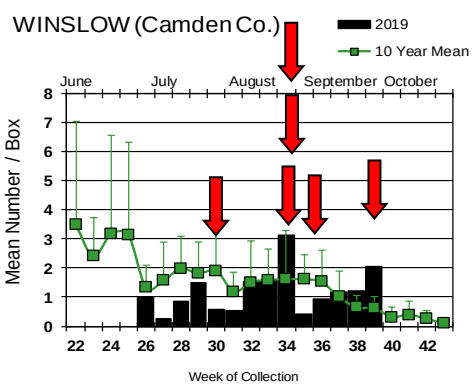


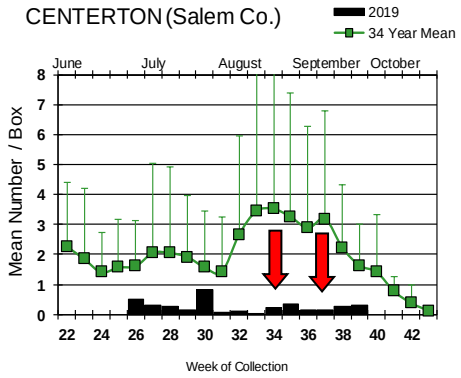


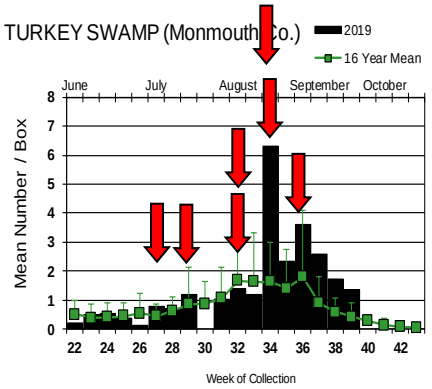


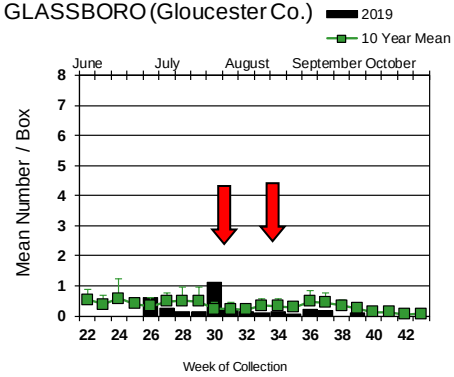


Inland









Culiseta melanura populations at Turkey Swamp and Winslow were still above historical levels. Additional positive pools were detected at Winslow.

= 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) 7(IN) 23(LA) 8(MA) 1(MD) 1(ME) 23(+1 deer (MI) 1(MN) 7(MS) 1(NC) 1(NH) 9(+1 alpaca, NJ) 5(+1 goat NY) 2(OH) 1(+3 deer RI) 3(SC) 4(TX) 3(WI) 5(CAN-ON)
- **mosquito pools:** 104(CT) 1(IN) 3(LA) 422(MA) 3(MD) 1(ME) 12(NH) 71(NJ) 53(NY) 7(RI)
- **sentinel:** 103(+1 emu 1 BAEA, FL) 3(DE) 1(LA)
- **human:** 1(CT) 12(MA) 8(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	1/3
Alaska					
Arizona	2	355	1	1	156
Arkansas					3
California	139	3070	105	11	98
Colorado		99/105		3	32/54
Connecticut		75/78		1	3
Delaware					
Florida	1		233/269	2/4	1
Georgia					1
Hawaii					
Idaho	0	41		3	9
Illinois	4	896/1069		1	5/8
Indiana	0	117		0	0
Iowa				2	3
Kansas					2/5
Kentucky					1
Louisiana	1	157/160		1	12/14
Maine		0			0
Maryland(+DC)		3			3(2DC)
Mass.		83		0	2
Michigan	9/11	41/54			2/4
Minnesota				1	1
Mississippi		26		7	13
Missouri		0		0	1/2

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska	1	28		0	15/18
Nevada					13/25
New Hampshire		1		1	1
New Jersey		288/318		0	4/5
New Mexico					9/28
New York		396/479		0	7
North Carolina					1
North Dakota	1	6		0	7
Ohio		254		0	1
Oklahoma					3/4
Oregon	0	85	0	4	6
Pennsylvania	1	400		1	1
Rhode Island		2			
South Carolina	1	3			
South Dakota		9			9/11
Tennessee					1
Texas	1	106		1	16/17
Utah		246/262		1/2	16/17
Vermont		4			
Virginia					1
Washington	0	26/27		1	3
West Virginia					
Wisconsin	1/2	31/43		0	1
Wyoming	0	7/8		3	3/4

* 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 28 September 2019

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	13	258		
Aedes albopictus	1340	8242	4	0.485
Aedes atlanticus	15	134		
Aedes aurifer	3	14		
Aedes canadensis canadensis	139	2536		
Aedes cantator	19	297	1	3.367
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	697	4785	3	0.627
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	33	789		
Aedes sticticus	5	100		
Aedes stimulans	2	10		
Aedes taeniorhynchus	22	345		
Aedes thibaulti	2	27		
Aedes triseriatus	478	2108	1	0.474
Aedes trivittatus	27	497		
Aedes vexans	93	837		
Anopheles barberi	3	3		
Anopheles bradleyi	134	1166		
Anopheles crucians	26	317		
Anopheles punctipennis	120	758	2	2.639
Anopheles quadrimaculatus	182	1395		
Anopheles walkeri	7	397		
Coquillettidia perturbans	278	5190	2	0.385
Culex spp.	3222	127363	277	2.175
Culex erraticus	193	1889	1	0.529
Culex pipiens	651	6570	7	1.065
Culex restuans	477	1316		
Culex salinarius	309	2075		
Culex territans	41	112		
Culiseta melanura	2	5		
Culiseta melanura	810	12344	20	1.620
Orthopodomyia signifera	8	8		
Psorophora ciliata	1	1		
Psorophora columbiae	25	287		
Psorophora ferox	45	785		
Psorophora howardii	1	1		
Uranotaenia sapphirina	19	171		
Grand Total	**9451**	**183154**	**318**	**1.736**

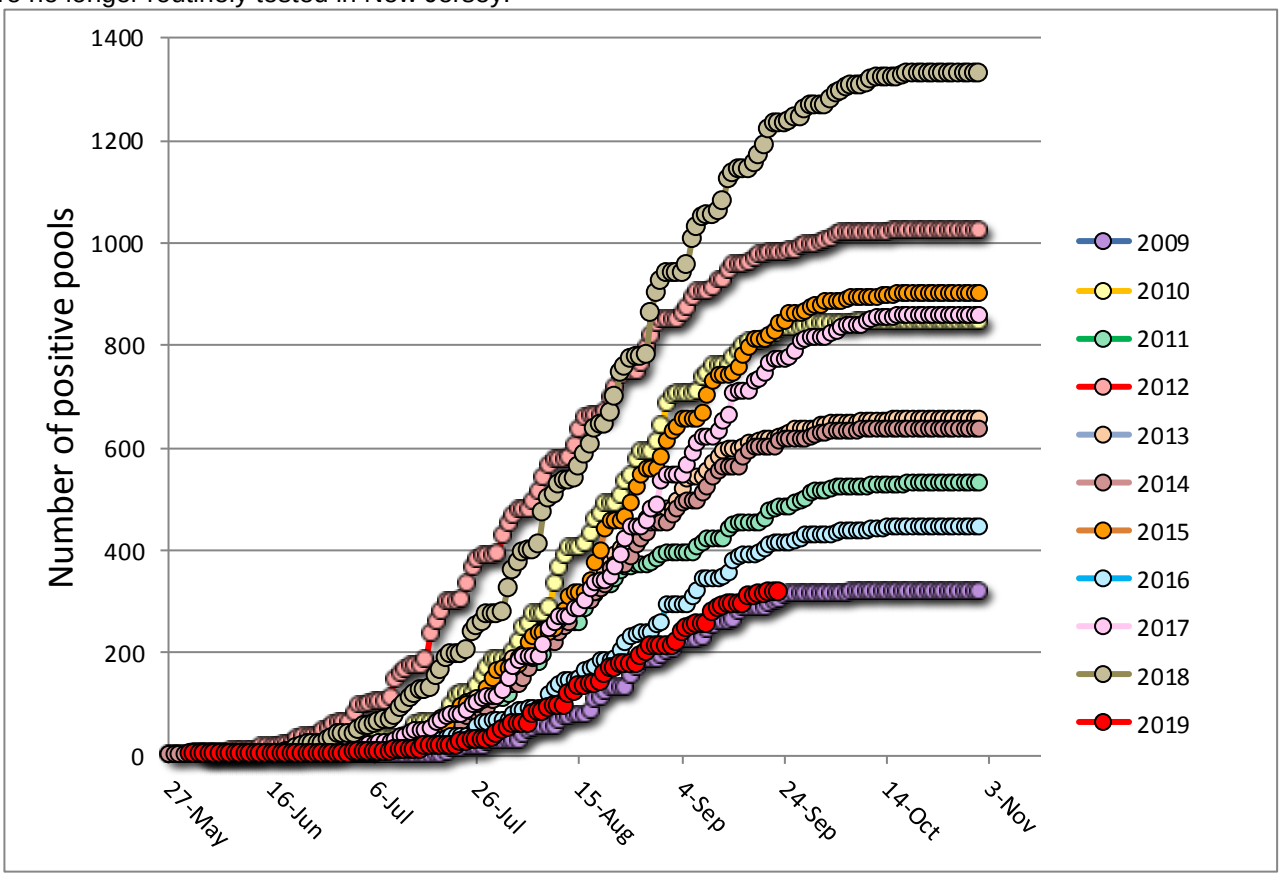
Remarks: To date 9,451 pools of 183,154 mosquitoes from 39 species have been tested. A total of 318 positive WNV pools have been detected throughout the state beginning with a pool of *Aedes triseriatus*, collected on 31 May, 2019 in Passaic County. This pool was also co-infected with LAC (see table below). 284 (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 1.664 to 1.736.

Humans, Horses and Wild Birds: There have been five human cases of West Nile virus. 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. 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.