VECTOR SURVEILLANCE IN NEW JERSEY

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

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25 August to 31 August, 2019, CDC Week 35
Data download 5:39 pm 30 August

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

Arbovirus Summary

- **48 EEE positive pools, 6 horse cases, 1 alpaca case, 1 human case (Somerset County)**
- **174 WNV positive pools, 0 horses, 1 human case (Hunterdon County)**
- **1 LAC positive pool**
- **3 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**	0.47	0.00	7	4		
Green Bank (Burlington Co.)/25	**Coastal**	3.51	0.64	65 (81)	9 (10)		
Corbin City (Atlantic Co.)/25	**Coastal**	1.92	0.40	129 (139)	12 (13)		
Dennisville (Cape May Co.)/50	**Coastal**	5.27	0.14	45 (52)	8 (9)		
Winslow (Camden Co.)/50	**Inland**	1.61	0.44	549 (571)	16 (17)	4	7.286
Centerton (Salem Co.)/50	**Inland**	3.25	0.34	126 (143)	9 (10)	1	7.937
Turkey Swamp (Monmouth Co.)/50	**Inland**	1.42	2.36	441 (841)	10 (18)	6	13.605
Glassboro (Gloucester Co.)/50	**Inland**	0.29	0.08	145 (149)	10 (11)	2	13.973

*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 48 detections of EEE virus: 38 pools of *Culiseta melanura* (13 collected at traditional resting box sites, and 25 collected at county trap sites) and 10 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 five animal cases and one human case (Somerset County).

Statewide, 8,481 *Cs. melanura* from 518 pools have been tested, with an overall *Cs. melanura* MFIR of 4.481. 130,170 specimens in 5,634 pools from 37 other species have also been tested, with 10 positive pools detected (*Aedes albopictus, Ae. canadensis, Ae. triseriatus,* and *Culex* Mix pools). Overall MFIR for all species statewide is 0.346.

Traditional Resting Box Sites: 1,517 *Cs. melanura* from 83 pools have been tested, with 13 positive pools detected – 1 at Centerton, 2 at Glassboro, 6 at Turkey Swamp, and 4 at Winslow. An additional 466 *Cs. melanura* in 13 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**	71	2212	5	2.260
Bergen	CO_2, RB	4	13		
Burlington	**ULVT**	44	1678	7	4.172
Cape May	GR, **RB**	126	346	1	2.890
Cumberland	AGO, RB	19	134		
Gloucester	CO_2, **RB**	41	1293	3	2.320
Middlesex	RB	11	65		
Monmouth	CO_2, **Other**	18	162	1	6.173
Morris	**CO_2, RB**	26	462	5	10.823
Ocean	**CO_2**, GR, RB	49	363	1	2.755
Salem	CO_2, GR, **RB**	17	64	1	15.625
Sussex	**CO_2**, GR	7	152	1	6.579
Union	NJLT	2	20		
TOTAL		**435**	**6964**	**25**	**3.590**

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, 25 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: A sixth horse case (7th animal case) was detected in a 3 or 4 month old gelded foal in Salem County with an unknown vaccination history. This foal was euthanized on 25 Aug. The sixth animal was an 18 year old gelding in Morris County with date of onset 15 Aug, and euthanized 16 Aug. Vaccination history unknown. The fifth animal case was detected in a 2 year old gelding from Ocean County. Date on onset was 15 Aug and the horse was euthanized the following day. Vaccination history is unknown. See the Department of Agriculture press release here cases 1-5 and other information: https://www.nj.gov/agriculture/news/press/2019/approved/press190812a.html . The fourth animal case involved a 7 year old alpaca in Camden County. This alpaca had an onset date of 2 August, and was euthanized on 3 August. There is an unknown vaccination history. The third horse was a Monmouth County yearling male with an onset date of 5 Aug, and was euthanized the same day. Vaccinations included an April date. The second horse case reported was a 20 year old gelding in Ocean County with date of onset 26 July, euthanized the same day. Vaccination history is unknown. The first horse case involved a 12-year-old mare in Ocean County, with onset date of 23 July, was euthanized the same day. This horse was about 11-14 miles from two active sites. There appears to be an incomplete vaccination history, with the first dose of EEE vaccine administered in April, but no follow up vaccination 4-6 weeks later was reported. 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.

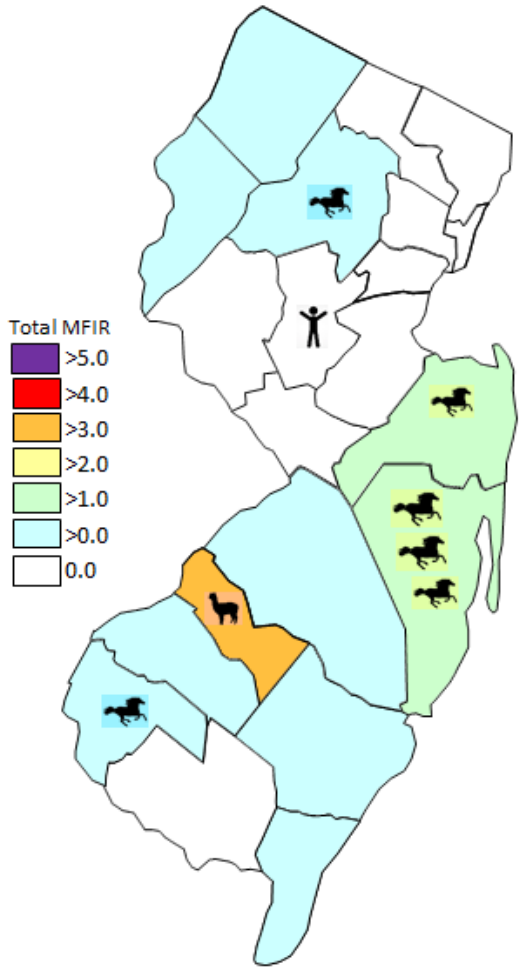
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

There is one human case from Somerset County. For more information, see DOH press release: https://www.nj.gov/health/news/2019/approved/20190816a.shtml

Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	13	258		
Aedes albopictus	503	4373	2	0.457
Aedes atlanticus	12	125		
Aedes aurifer	3	14		
Aedes canadensis canadensis	108	2207	1	0.453
Aedes cantator	16	292		
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	546	3671		
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	20	619		
Aedes sticticus	4	95		
Aedes stimulans	2	10		
Aedes taeniorhynchus	7	225		
Aedes thibaulti	2	27		
Aedes triseriatus	81	309	1	3.236
Aedes trivittatus	24	464		
Aedes vexans	69	600		
Anopheles barberi	2	2		
Anopheles bradleyi	83	457		
Anopheles crucians	11	148		
Anopheles punctipennis	71	448		
Anopheles quadrimaculatus	114	790		
Anopheles walkeri	1	18		
Coquillettidia perturbans	197	3969		
Culex Mix	2432	101570	6	0.059
Culex erraticus	91	724		
Culex pipiens	483	4959		
Culex restuans	366	1077		
Culex salinarius	249	1615		
Culex territans	37	100		
Orthopodomyia signifera	5	5		
Psorophora ciliate	1	1		
Psorophora columbiae	19	270		
Psorophora ferox	38	673		
Psorophora howardii	1	1		
Uranotaenia sapphirina	14	32		
State Total	**5634**	**130170**	**10**	**0.077**

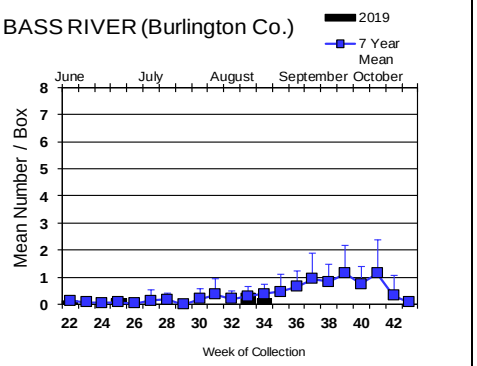
Additional Species: 37 additional species were tested for EEE. 10 positive pools have been detected in three species, the latest species being *Ae. canadensis* in Morris County. (One positive pool in *Aedes albopictus*, collected in Ocean County on 9 July was found. On 16 July, a positive pool of *Culex* Mix was detected in Camden County. A second *Culex* pool was detected in Ocean County 31 July. Note: *Culex pipiens* is refractory for EEE virus).

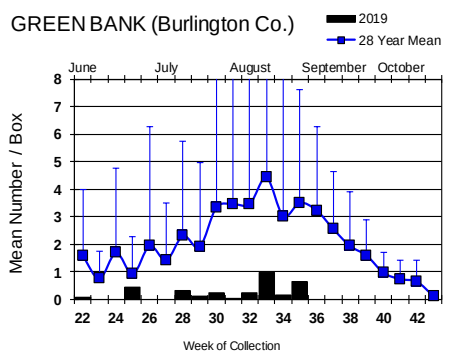
Overall MFIR rates, human and animal cases per county:

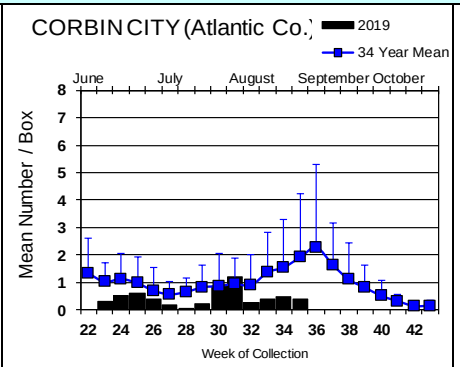


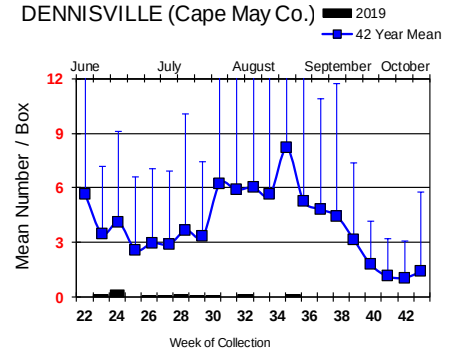
Culiseta melanura Populations

Coastal

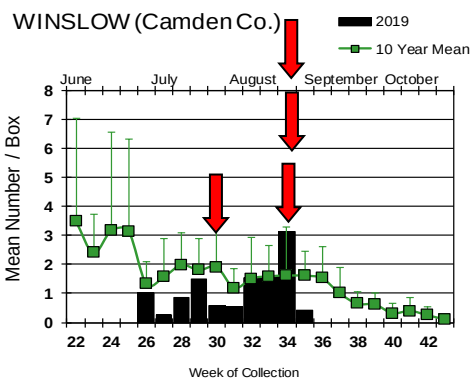


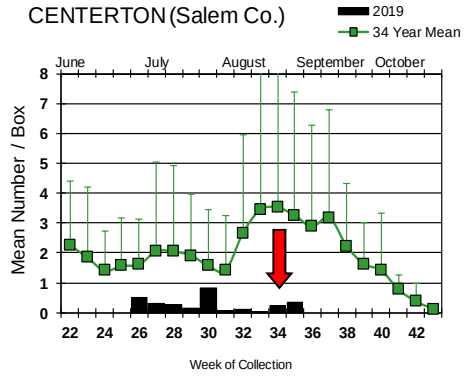


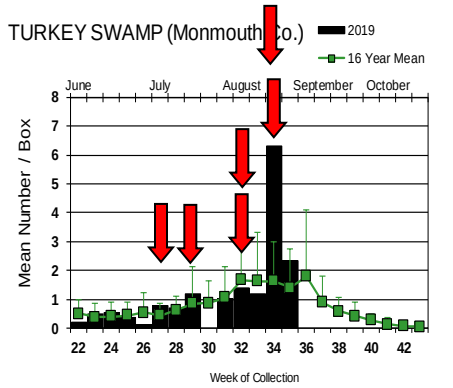


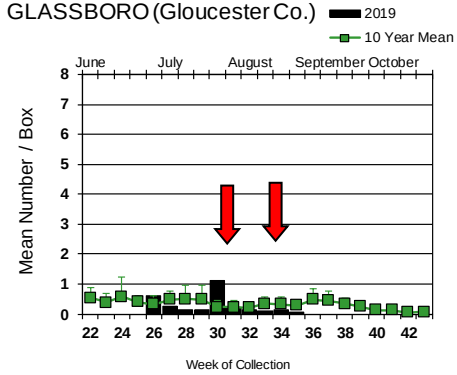


Inland









Culiseta melanura populations at Winslow and Turkey Swamp have decreased from the previous week, with positives found in the Turkey Swamp site at peak abundances. Positive pools continue to be detected 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:** 2(CT) 25(FL) 1(GA) 21(LA) 8(MA) 5(MI) 1(MN) 7(MS) 1(NC) 1(NH) 6(+1 alpaca, NJ) 2(NY) 3(SC) 4(TX) 2(WI) 1(CAN-ON)
- **mosquito pools:** 32(CT) 1(LA) 379(MA) 3(MD) 5(NH) 48(NJ) 30(NY) 2(RI)
- **sentinel:** 96(+1 emu 1 BAEA, FL) 3(DE)
- **human:** 4(MA) 2(MI) 1(NJ)

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	0	318/347	1	1	126/139
Arkansas					2
California	67/91	1985/2516	26/53	4/5	45/57
Colorado		32/62			3/3
Connecticut		28/37		0	3
Delaware					
Florida	1		100/129	1	
Georgia					1
Hawaii					
Idaho	0	19		2	2
Illinois	2	408/530		0	2/3
Indiana	0	59/73		0	0
Iowa				2	2/3
Kansas					0
Kentucky					1
Louisiana		103/124		1	9/10
Maine		0			0
Maryland(+DC)					3(2DC)
Mass.		54/61		0	0
Michigan	8/9	18/20			1
Minnesota					1
Mississippi		21/26		5	7/9
Missouri		0		0	1

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska	0	14/17		0	7/10
Nevada					4/13
New Hampshire					1
New Jersey		135/174		0	1
New Mexico					1/4
New York		220		0	0
North Carolina					
North Dakota	0	2		0	5
Ohio		172/197		0	0
Oklahoma					3/4
Oregon	0	57/59	0	1	1/3
Pennsylvania	1	196/279			
Rhode Island		0			
South Carolina	1	3			
South Dakota		9			4/6
Tennessee					1
Texas		80/97		1	3/7
Utah		125/162			2/4
Vermont		1/2			
Virginia					1
Washington	0	18/24		0	1
West Virginia					
Wisconsin	1	10		0	0
Wyoming	0	7		1	2

* 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 30 August 2019

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	13	258		
Aedes albopictus	920	5427	1	0.184
Aedes atlanticus	12	125		
Aedes aurifer	3	14		
Aedes canadensis canadensis	107	2173		
Aedes cantator	16	292	1	3.425
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	563	4218	1	0.237
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	20	619		
Aedes sticticus	4	95		
Aedes stimulans	2	10		
Aedes taeniorhynchus	7	225		
Aedes thibaulti	2	27		
Aedes triseriatus	359	1324	1	0.755
Aedes trivittatus	24	464		
Aedes vexans	69	600		
Anopheles barberi	2	2		
Anopheles bradleyi	83	457		
Anopheles crucians	11	148		
Anopheles punctipennis	72	449	1	2.227
Anopheles quadrimaculatus	114	790		
Anopheles walkeri	1	18		
Coquillettidia perturbans	201	4182	1	0.239
Culex spp.	2430	101422	152	1.499
Culex erraticus	91	724		
Culex pipiens	484	4960	4	0.806
Culex restuans	369	1080		
Culex salinarius	249	1615		
Culex territans	37	100		
Culiseta melanura	512	8327	12	1.441
Orthopodomyia signifera	5	5		
Psorophora ciliata	1	1		
Psorophora columbiae	19	270		
Psorophora ferox	38	673		
Psorophora howardii	1	1		
Uranotaenia sapphirina	14	32		0.000
Grand Total	**6864**	**141149**	**174**	**1.233**

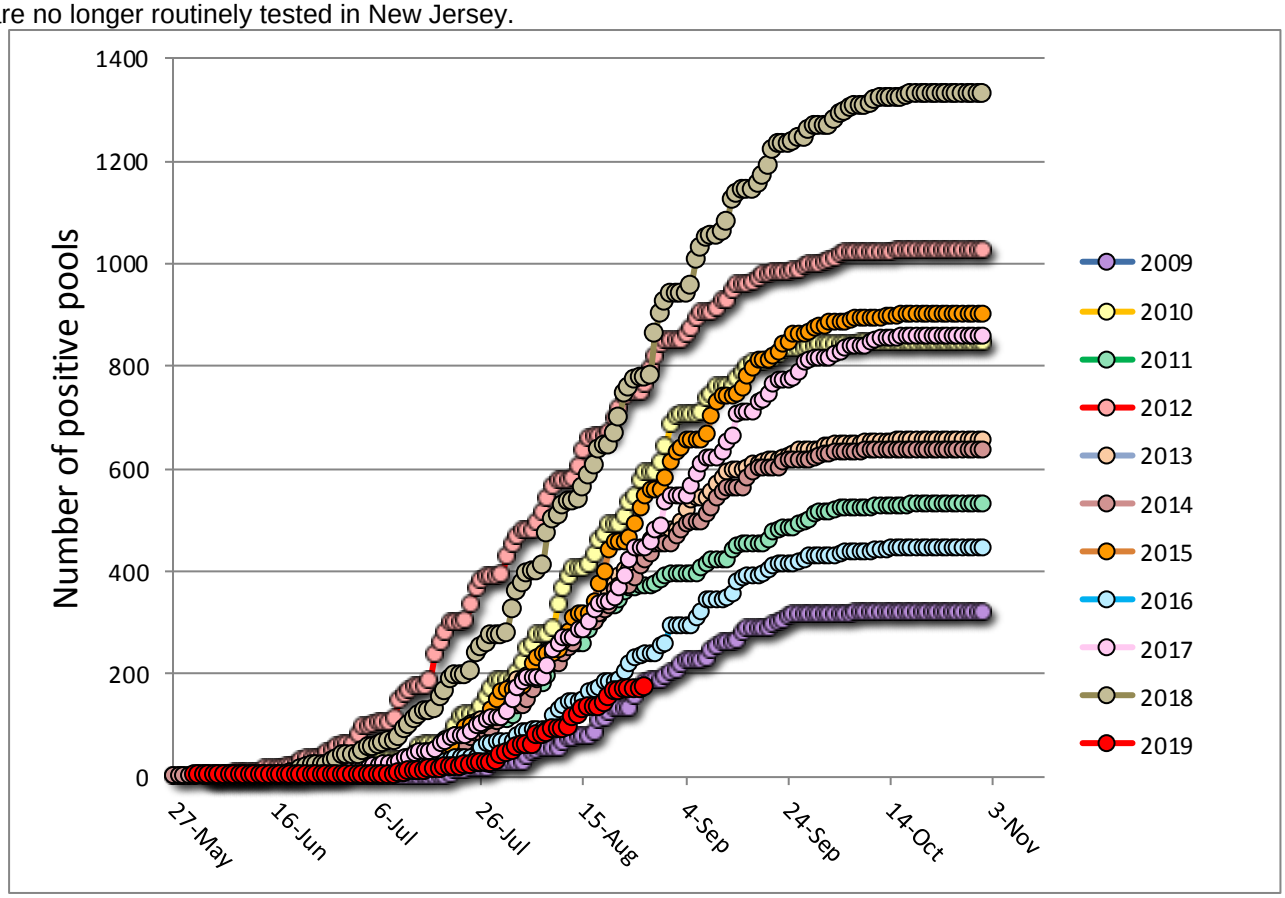
Remarks: To date, 6,864 pools of 141,149 mosquitoes from 38 species have been tested. A total of 174 positive WNV pools have been detected throughout the state beginning with a pool of *Aedes triseriatus*, collected on 31 May, 2019 in Passaic County. This pool was also co-infected with LAC (see table below). 118 (87%) of the positives are in *Culex* species pools. Also positive are *Aedes albopictus, Ae. cantator*, *Ae. japonicus, Anopheles punctipennis, Coquillettidia*

perturbans, 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 1.029 to 1.233.

Humans, Horses and Wild Birds: There has been one human case of West Nile virus from Hunterdon County reported, with an onset date of 21 June. This 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.