

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

25 October to 31 October, 2020, CDC Week 44

Data download 12:30 pm 2 November



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

- In 2020, there are **ten** positive EEE pools in *Culiseta melanura*. (One *Culex Mix* pool is pending.)
- There are 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 are 6 positive JVC pools in *Aedes cantator* (2), *Aedes taeniorhynchus* (1), *Anopheles quadrimaculatus* (1) and *Coquillettidia perturbans* (2).
- There is one EEE horse case reported. There are no WNV horse cases.
- There are 3 human WNV cases; in Essex County (1) and Monmouth County (2).
- There is 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.

This is the last report for the regular season. A final year report done at the end of the fiscal year will include any late or currently pending results.

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	-	0.80	14	3		
Green Bank (Burlington Co.)/25	Coastal	-	0.16	41	11		
Corbin City (Atlantic Co.)/25	Coastal	0.08	0	306	20	2	6.536
Dennisville (Cape May Co.)/50	Coastal	-	0.02	47 (48)	9 (10)		
Winslow (Camden Co.)/50	Inland	-	0.04	222 (224)	12 (13)	3	13.514
Centerton (Salem Co.)/50	Inland	-	0.08	126 (130)	12 (13)	1	7.937
Turkey Swamp (Monmouth Co.)/49	Inland	-	0.00	48	16 [‡]		
Glassboro (Gloucester Co.)/50	Inland	-	0.00	58	14		

*Current week (in parentheses) results pending. [‡] corrected from previous week NC=No Collection NR=Not Recorded

Remarks: This is the last report of the season. Currently 10 positive EEE pools have been detected, all in pools of *Culiseta melanura*. The last positive pool was detected in Camden County on 21 October, at the Winslow traditional resting box site. One horse case in Atlantic County has been detected.

Statewide: 7,136 *Cs. melanura* from 692 pools have been tested, with an overall *Cs. melanura* MFIR of 1.401. 177,319 specimens in 8075 pools from 40 other species have also been tested with no positive pools detected (one pool of *Culex Mix* is pending). Overall MFIR for all species statewide is 0.050.

Traditional Resting Box Sites: 862 *Cs. melanura* from 98 pools has been tested, with six positive pools, the latest at Winslow collected 21 October. Previous positives include one collected at Centerton on 6 October, two at Corbin City, collected 17 June and 30 September, and two at Winslow, collected 8 and 14 September. Overall *Cs. melanura* MFIR at the traditional resting box site is 6.961.

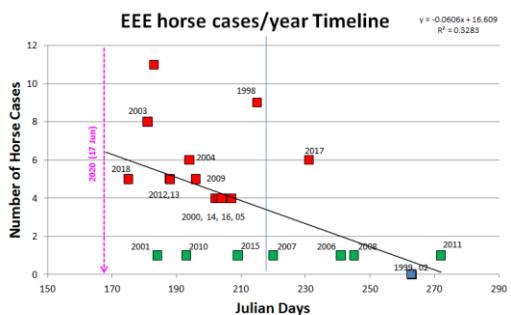
County	Additional <i>Cs. melanura</i> trapped by counties *traps with positives indicated in BOLD UNDERLINE .				
	Trap types*	Pools	Mosquitoes	Positives	MFIR
Atlantic	BGS, CO2, RB	69 7 74 1 110 18 84 16 5 40 19 39 112	1175	3	2.553
Bergen	CO2, RB		63		
Burlington	ULVT		1630	1	0.613
Camden	GRA		1		
Cape May	GRA, RB		182		
Cumberland	CO2, RB		90		
Gloucester	RB		2032		
Middlesex	CO2, GRA, LT, RB		92		
Monmouth	CO2, Other		13		
Morris	CO2, RB		355		
Ocean	CO2, GRA, RB		61		
Salem	CO2, GRA, Other, RB		125		
Sussex	CO2, GRA, RB		455		
TOTAL		594	6274	4	0.638

Horses and Humans: Currently one horse has been reported with EEE. Last year eleven horses (plus 1 deer and 1 alpaca) were reported with EEE. All equids 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.

Additional County-set *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. Currently, four positive pools of *Cs. melanura* have been detected: one in Burlington County, sampled 10 August and three in Atlantic County, sampled 13 August, 17 September, and the latest on 6 October.

Graph below indicate start times to detection of EEE in *Culiseta melanura* from 1998 to 2020. This year is the earliest collected during that time period, suggesting multiple horse cases could occur this year.

Note - first horse case had date on onset late into the season.



Case	Animal	Age	Sex	County	Date of Onset	Euthanized?	Vaccinated?	Comment
1	thoroughbred	4	female	Atlantic	7 Sep	yes	No history	

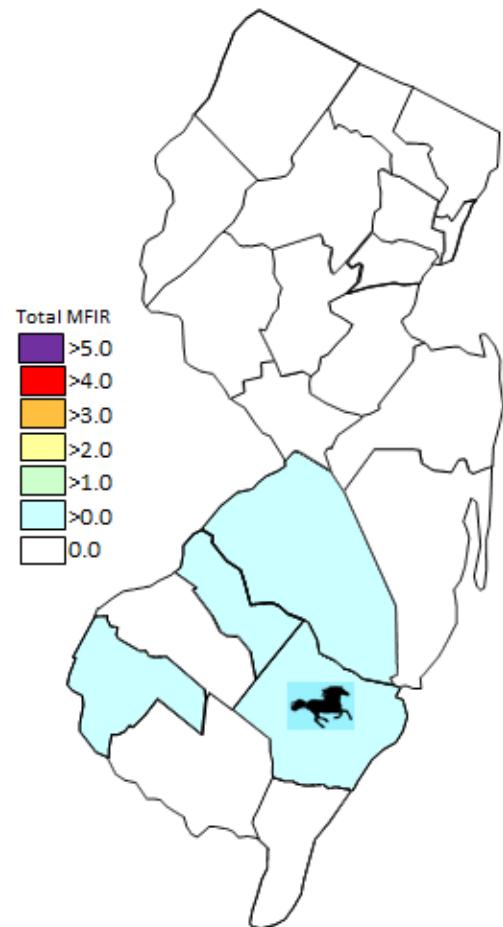
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

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>	11	29		
<i>Aedes albopictus</i>	1189	8905		
<i>Aedes atlanticus</i>	48	563		
<i>Aedes canadensis canadensis</i>	67	906		
<i>Aedes cantator</i>	36	828		
<i>Aedes cinereus</i>	1	16		
<i>Aedes excrucians</i>	2	2		
<i>Aedes grossbecki</i>	1	4		
<i>Aedes infirmatus</i>	3	3		
<i>Aedes japonicus</i>	331	1327		
<i>Aedes mitchellae</i>	1	4		
<i>Aedes provocans</i>	1	1		
<i>Aedes sollicitans</i>	38	849		
<i>Aedes sticticus</i>	7	176		
<i>Aedes stimulans</i>	14	32		
<i>Aedes taeniorhynchus</i>	43	1517		
<i>Aedes thibaulti</i>	1	5		
<i>Aedes triseriatus</i>	219	600		
<i>Aedes trivittatus</i>	9	151		
<i>Aedes vexans</i>	111	1142		
<i>Anopheles barberi</i>	2	4		
<i>Anopheles bradleyi</i>	65	1378		
<i>Anopheles crucians</i>	38	411		
<i>Anopheles punctipennis</i>	163	2230		
<i>Anopheles quadrimaculatus</i>	134	2012		
<i>Anopheles walkeri</i>	4	75		
<i>Coquillettidia perturbans</i>	216	4869		
<i>Culex erraticus</i>	310	3331		
<i>Culex Mix</i>	3566	127720		
<i>Culex pipiens</i>	746	12259		
<i>Culex restuans</i>	378	2206		
<i>Culex salinarius</i>	179	2065		
<i>Culex territans</i>	1	2		
<i>Culiseta inornata</i>	17	108		
<i>Culiseta morsitans</i>	13	48		
<i>Orthopodomyia signifera</i>	13	16		
<i>Psorophora ciliata</i>	3	5		
<i>Psorophora columbiae</i>	32	603		
<i>Psorophora cyanescens</i>	1	5		
<i>Psorophora ferox</i>	52	784		
<i>Psorophora howardii</i>	1	1		
<i>Uranotaenia sapphirina</i>	8	127		
State Total	8075	177319		

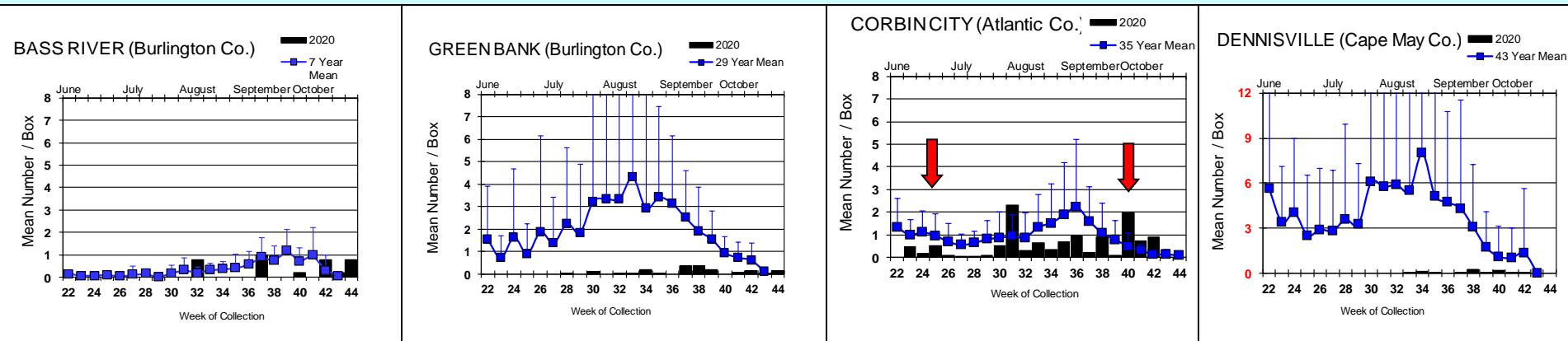
Additional Species: 40 additional species were tested for EEE. No positive pools have been detected to date.

Overall MFIR rates, human and animal cases per county:

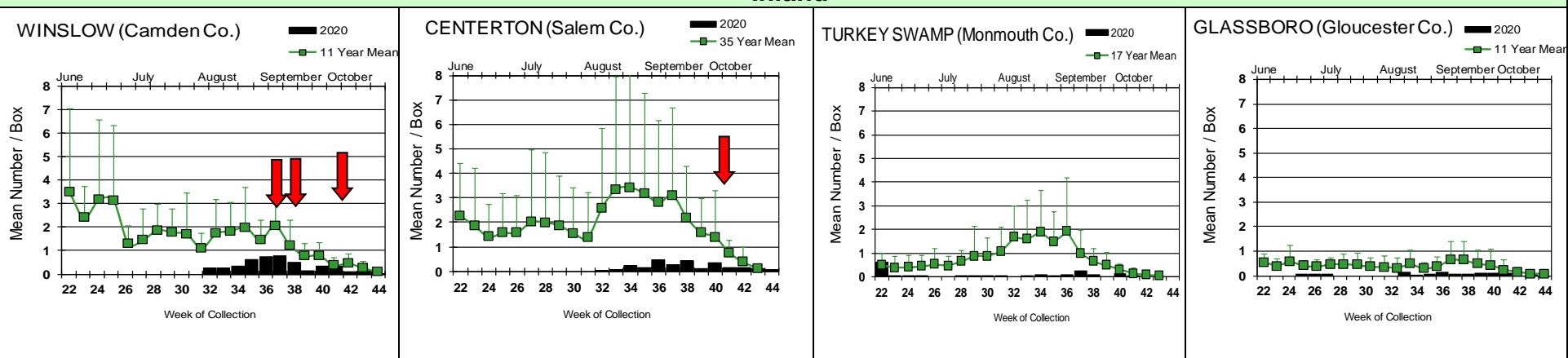


Culiseta melanura Populations

Coastal



Inland



At the end of the season, *Culiseta melanura* populations continue to be present at a few sites (Corbin City and Bass River) a week beyond normal surveillance. This may be another indication of the widening of the season due to global warming. First positive EEE pool has been detected at Corbin City, on 17 June. Two more positive melanura pools detected at Winslow during CDC weeks 37 and 38. Next positive was detected at Corbin City on 30 September followed by a positive at Centerton during week 41 and finally a third positive at Winslow on 14 October. Although cooler weather is beginning, *Culiseta melanura* is a cold-hardy species, with equine bloodmeals occasionally showing up in this ornithophilic species. Horse cases have been recorded into November in New Jersey.



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

EEE in US (2020 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 20+1deer(FL) 1(GA) 4(IN) 5(LA) 39(MI) 7(NC) 1(MN) 1(NJ) 7(NY) 13(SC) 4(VA) 16(WI)
- mosquito pools: 2(CT) 1(FL) 1(LA) 66(MA) 10(NJ) 1(RI)
- sentinel: 41+1duck, 2sparrows(FL)
- human: 1(IN) 5(MA) 2(MI)

West Nile Virus Positive Organisms in US, 2020

West Nile in US (2020 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					6
Alaska					
Arizona	94	27			7
Arkansas					2
California	333/336	2598/2617	129/138	17	135/155
Colorado		66			34
Connecticut		143			6
Delaware					
Florida	17	18	259	11/13	41
Georgia					
Hawaii					
Idaho	1	22/23		2	5/6
Illinois	10	2345		1	35/35
Indiana	0	55		3	1
Iowa					2
Kansas					1
Kentucky				2	
Louisiana	5	433/450		4	16/18
Maine					0
Maryland(+DC)		3		1	1
Mass.		97			8
Michigan	7/8	45			29
Minnesota					0
Mississippi		91			7
Missouri		0		1	1

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					0
Nebraska		21		2	11
Nevada					0
New Hampshire		2			0
New Jersey		239/241		0	3
New Mexico					3
New York					3
North Carolina					
North Dakota					6
Ohio		666		0	2
Oklahoma					0
Oregon	1	3	0	0	0
Pennsylvania		623			8
Rhode Island					0
South Carolina					
South Dakota			6		8
Tennessee					
Texas	1	1352/1380	1		48/54
Utah		44			
Vermont					0
Virginia					0
Washington	0	11		0	2
West Virginia					
Wisconsin					
Wyoming		1		1	0

* 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.

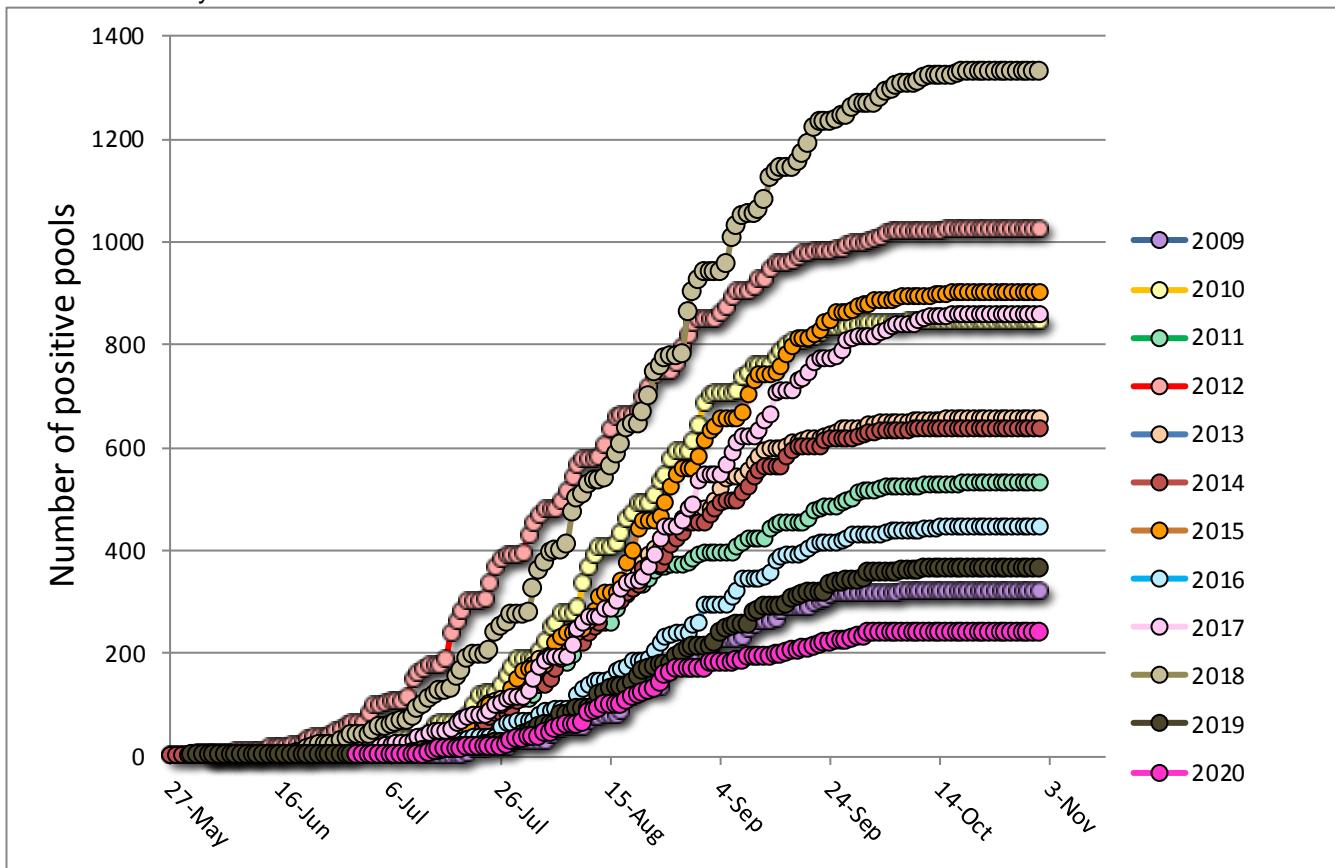
Mosquito Species Submitted and Tested for West Nile Virus through 2 November 2020

Species	Pools	Mosquitoes	Positives	MFIR
<i>Aedes abserratus</i>	11	29		
<i>Aedes albopictus</i>	1199	9200	2	0.217
<i>Aedes atlanticus</i>	48	563		
<i>Aedes canadensis canadensis</i>	67	906	1	1.104
<i>Aedes cantator</i>	36	828		
<i>Aedes cinereus</i>	1	16		
<i>Aedes excrucians</i>	2	2		
<i>Aedes grossbecki</i>	1	4		
<i>Aedes infirmatus</i>	3	3		
<i>Aedes japonicus</i>	338	1413		
<i>Aedes mitchellae</i>	1	4		
<i>Aedes provocans</i>	1	1		
<i>Aedes sollicitans</i>	38	849		
<i>Aedes sticticus</i>	7	176		
<i>Aedes stimulans</i>	14	32		
<i>Aedes taeniorhynchus</i>	43	1517		
<i>Aedes thibaulti</i>	1	5		
<i>Aedes triseriatus</i>	320	995		
<i>Aedes trivittatus</i>	9	151		
<i>Aedes vexans</i>	111	1142		
<i>Anopheles barberi</i>	2	4		
<i>Anopheles bradleyi</i>	65	1378		
<i>Anopheles crucians</i>	38	411		
<i>Anopheles punctipennis</i>	163	2230		
<i>Anopheles quadrimaculatus</i>	134	2012		
<i>Anopheles walkeri</i>	4	75		
<i>Coquillettidia perturbans</i>	216	4869		
<i>Culex erraticus</i>	310	3331		
<i>Culex</i> spp.	3566	127720	231	1.809
<i>Culex pipiens</i>	745	12248	4	0.327
<i>Culex restuans</i>	378	2206	1	0.453
<i>Culex salinarius</i>	179	2065		
<i>Culex territans</i>	1	2		
<i>Culiseta inornata</i>	17	108		
<i>Culiseta melanura</i>	692	7136	2	0.280
<i>Culiseta morsitans</i>	13	48		
<i>Orthopodomyia signifera</i>	13	16		
<i>Psorophora ciliata</i>	3	5		
<i>Psorophora columbiae</i>	32	603		
<i>Psorophora cyanescens</i>	1	5		
<i>Psorophora ferox</i>	52	784		
<i>Psorophora howardii</i>	1	1		
<i>Uranotaenia sapphirina</i>	8	127		
Grand Total	8884	185220	241	1.301

Remarks: To date 8,884 pools of 185,220 mosquitoes from 42 species have been tested. 241 positive WNV pools have been detected by RTPCR this year, 231 pools in *Culex Mix*, 4 in *Culex pipiens*, 2 pools in *Aedes albopictus* and 1 in *Aedes canadensis canadensis* and 2 in *Culiseta melanura*. The pools were in Atlantic, Bergen, Burlington, Camden, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Passaic, Salem, Somerset, Union, and Warren counties (earliest collected 30 June).

Humans, Horses and Wild Birds: No horses have been reported infected with WNV in 2020. Three human case of WNV has been reported: first case in Essex County, the second and third in Monmouth County. Last year, eight human cases were reported. No horses were detected with WNV in 2019. See DOH reports on arbovirus activity for further information: <https://www.nj.gov/health/cd/statistics/arboviral-stats/index.shtml>

Birds are no longer routinely tested in New Jersey. One positive Red-tailed Hawk (*Buteo jamaicensis*) was found 6 October in Cumberland County.



Above is a graph showing cumulative number of positive pools for the previous 11 years, inclusive of the most active (2018) and least active (2009) years. 2020 is represented in PINK.

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