

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
9 October to 15 October 2022, CDC Week 41
Data download 4:30 pm 14 October



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

- 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.
- One pool of *Culex Mix* tested positive for EEE virus in Morris County, collected 17 August. No pools of *Culiseta melanura* have tested positive. No horse or human cases have been reported.
- 595 pools have tested positive for WN virus, the first in *Aedes cantator*, collected in Burlington County on 2 June. Also positive were pools of *Culex Mix*, *Culex pipiens*, *Culex restuans*, *Culex erraticus*, *Aedes albopictus*, *Ae. canadensis canadensis*, *Aedes cantator*, *Ae. japonicus*, *Ae. triseriatus*, *Ae. vexans*, *Anopheles punctipennis*, *An. quadrimaculatus*, and *Coquillettidia perturbans*. 15 humans have been reported with WNV infection, in Bergen (3), Burlington, Camden (3), Middlesex, Monmouth (2), Morris, Ocean (2) and Union (2) counties. One Cooper's Hawk (*Accipiter cooperii*) and four Red-tailed Hawks (*Buteo jamaicensis*) tested positive for WNV. No horse cases have been reported.
- No pools tested for SLE, LAC, DENG, CHIK, or ZIKA virus have been detected positive in any species submitted to date.
- 3 pools have tested positive for JC virus, the latest in *Anopheles punctipennis*, collected 18 Aug in Sussex County. The first two were both in *Aedes cantator*, collected in Bergen County at the same location, first collected on 3 June.
- In 2021, there were 35 positive EEE pools in *Culiseta melanura*, *Culex erraticus*, *Ae. taeniorhynchus*, and *Ae. triseriatus*. There were 3 horse case reported. There were no human cases reported.
- There were 997 positive WNV pools, in *Culex Mix*, *Culex pipiens*, *Culex restuans*, *Culex erraticus*, *Culiseta melanura*, *Aedes albopictus*, *Aedes japonicus*, *Ae. taeniorhynchus*, *Ae. triseriatus*, *Ae. trivittatus*, *Ae. vexans*, *Anopheles bradleyi*, *An. punctipennis*, *An. quadrimaculatus*, *Coquillettidia perturbans*, *Psorophora ciliate*, and *Ps. ferox*. There were 36 human cases with 5 fatalities, plus 13 positive birds. There were no horse cases.
- There were 8 positive JVC pools in *Aedes albopictus*, *Ae. vexans*, *Anopheles punctipennis* and *Culex Mix*. There were 2 human cases reported.

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	1.34	0.00	1	1		
Green Bank (Burlington Co.)/25	Coastal	0.75	0.00	17	7		
Corbin City (Atlantic Co.)/25	Coastal	0.37	0.04	178	21		
Dennisville (Cape May Co.)/50	Coastal	0.97	0.00	27	7		
Winslow (Camden Co.)/50	Inland	0.49	0.00	226	15		
Centerton (Salem Co.)/50	Inland	0.72	0.04	49	13		
Turkey Swamp (Monmouth Co.)/50	Inland	0.12	0.00	127‡	19‡		
Glassboro (Gloucester Co.)/50	Inland	0.14	0.00	33	13		

*Current week (in parentheses) results pending. ‡ Corrected from previous week. PW = Previous week na =not available ND=No Data NR=Not Recorded

Remarks: Currently, there is one positive EEE pool detected in a pool of *Culex* Mix, caught 17 August in Morris County, in northern NJ. EEE is thought to be refractory in *Culex pipiens*. Minimally, this positive pool can indicate virus circulating, but from this species, would not likely be involved in transmission. No pools of *Culiseta melanura* have been found positive.

Statewide: 2252 *Cs. melanura* from 316 pools have been submitted for testing, with no positive pools detected and an overall *Cs. melanura* MFIR of 0.000. 169,028 specimens in 6667 pools from 36 other species have also been tested with one positive pool in *Culex* Mix detected. Overall MFIR for *all* species statewide is 0.006.

Traditional Resting Box Sites: 658 *Cs. melanura* from 96 pools have been collected at the traditional resting box sites with no positive pools detected. Overall *Cs. melanura* MFIR at the traditional resting box site is 0.00.

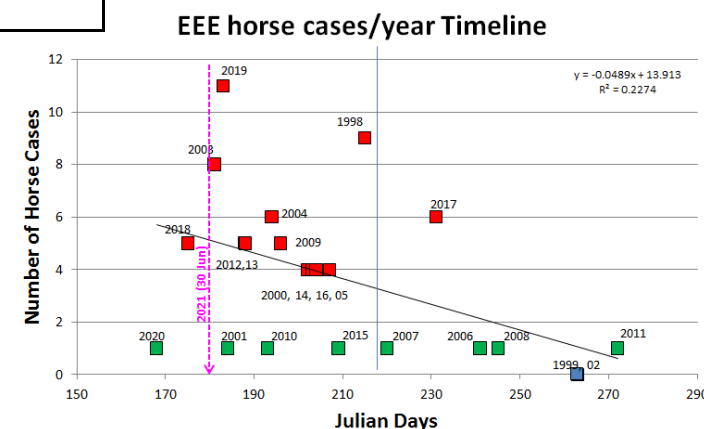
Additional <i>Cs. melanura</i> trapped by counties *traps with positives indicated in BOLD UNDERLINED>					
County	Trap types*	Pools	Mosquitoes	Positives	MFIR
Atlantic	CO2, RB	49	582		
Bergen	RB	2	42		
Burlington	UVLT	20	192		
Cape May	GRA, RB	12	20		
Cumberland	CO2, GRA, RB	31	105		
Gloucester	RB	13	129		
Middlesex	NJLT	3	15		
Monmouth	CO2	5	8		
Morris	ASP, CO2, GRA, RB	40	207		
Ocean	CO2	3	5		
Salem	CO2, RB	14	121		
Sussex	CO2, RB	27	161		
Union	BGPRO	1	7		
TOTAL		220	1594		

Additional County-set *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. In 2021, first positive pools of *Cs. melanura* were detected at a non-traditional resting box site in Gloucester County, collected 30 Jun. Currently, there are no positive EEE pools detected.

Graph to the right indicate start times to detection of EEE in *Culiseta melanura* and associated number of horse cases from 1998 to 2021. Early detections are associated with multiple horse cases.

Horses and Humans: In 2021, 3 horses were reported with EEE. Currently, no horse or humans have been reported. For more information, see DOH Vectorborne Surveillance reports:

<https://www.nj.gov/health/cd/statistics/arboviral-stats/>



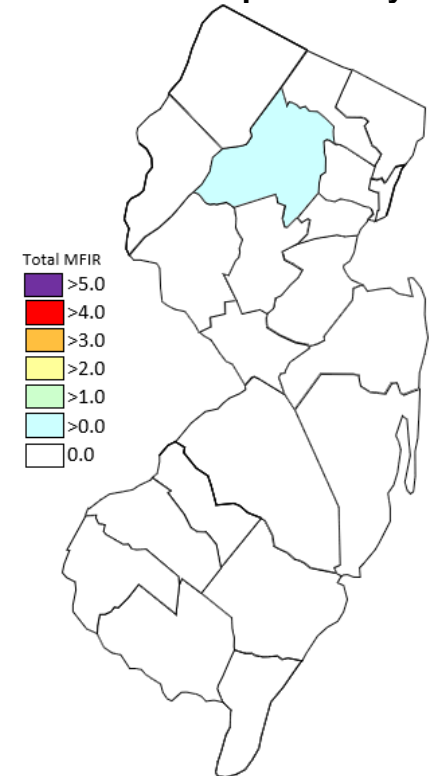
Case	Animal	Age	Sex	County	Date of Onset	Euthanized?	Vaccinated?	Comment
------	--------	-----	-----	--------	---------------	-------------	-------------	---------

Horses and Vaccinations: *Horse owners are urged to make sure their horses are up to date on their vaccinations (see link below). EEE horse cases are known to occur through October and sometimes into November.* Other sensitive species are non-native birds, such as Ostriches/Emus and Gallinaceous birds such as pheasants of Eurasian origins. 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

Species other than <i>Cs. melanura</i>	Pools	Mosquitoes	Positives	MFIR
<i>Aedes abserratus</i>	17	393		
<i>Aedes albopictus</i>	723	7329		
<i>Aedes atlanticus</i>	3	7		
<i>Aedes atropalpus</i>	1	1		
<i>Aedes aurifer</i>	16	154		
<i>Aedes canadensis canadensis</i>	78	1254		
<i>Aedes cantator</i>	54	1739		
<i>Aedes cinereus</i>	4	48		
<i>Aedes grossbecki</i>	9	51		
<i>Aedes japonicus</i>	543	3208		
<i>Aedes provocans</i>	2	3		
<i>Aedes sollicitans</i>	59	1882		
<i>Aedes sticticus</i>	7	166		
<i>Aedes stimulans</i>	13	71		
<i>Aedes taeniorhynchus</i>	67	2259		
<i>Aedes triseriatus</i>	109	281		
<i>Aedes trivittatus</i>	9	68		
<i>Aedes vexans</i>	209	4974		
<i>Anopheles spp.</i>	3	97		
<i>Anopheles barberi</i>	4	4		
<i>Anopheles bradleyi</i>	31	740		
<i>Anopheles crucians</i>	11	55		
<i>Anopheles punctipennis</i>	242	2348		
<i>Anopheles quadrimaculatus</i>	112	1339		
<i>Coquillettidia perturbans</i>	190	3974		
<i>Culex erraticus</i>	219	4506		
<i>Culex Mix</i>	3453	120916	1	0.008
<i>Culex pipiens</i>	245	7933		
<i>Culex restuans</i>	150	2087		
<i>Culex salinarius</i>	34	704		
<i>Culex territans</i>	2	5		
<i>Culiseta inornata</i>	8	17		
<i>Culiseta morsitans</i>	2	2		
<i>Orthopodomyia signifera</i>	3	3		
<i>Psorophora ciliata</i>	3	9		
<i>Psorophora columbiae</i>	9	43		
<i>Psorophora ferox</i>	19	265		
<i>Uranotaenia sapphirina</i>	4	93		
State Total	6667	169028	1	0.006

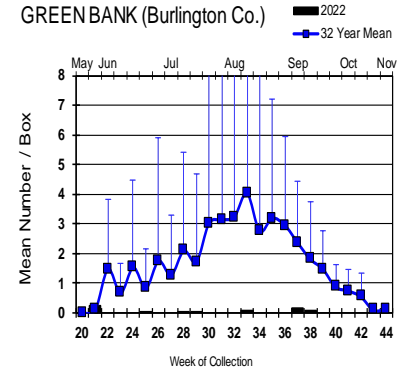
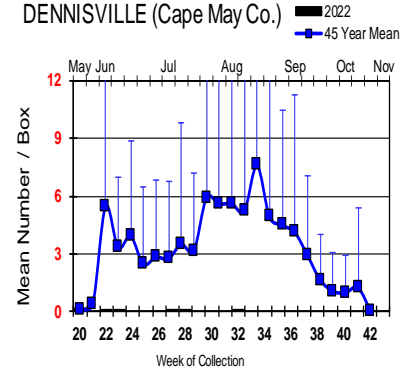
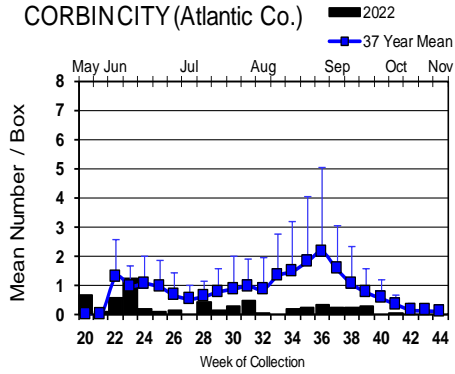
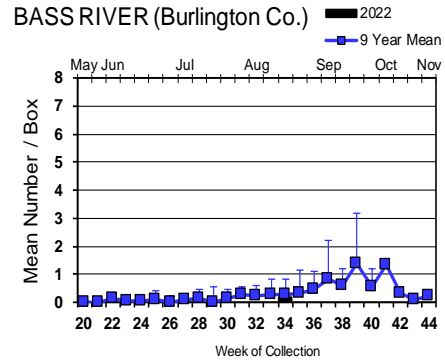
Additional Species: 36 additional species were tested for EEE. No positive pools were detected. In 2021, the first positive non-*melanura* pool was detected in of *Culex erraticus* in Atlantic County on 5 Aug.

Overall MFIR rates, human and animal cases per county:

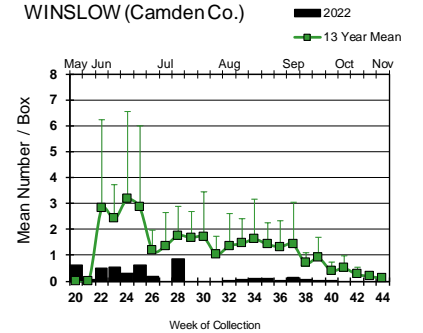
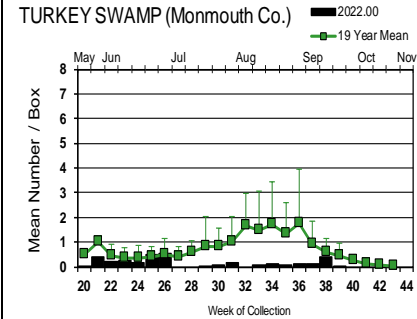
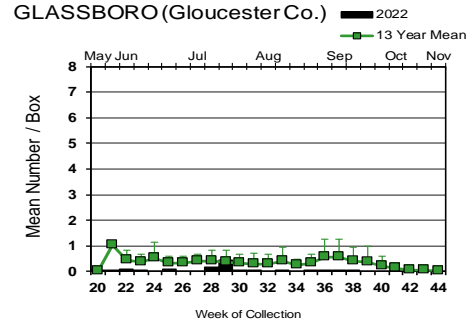
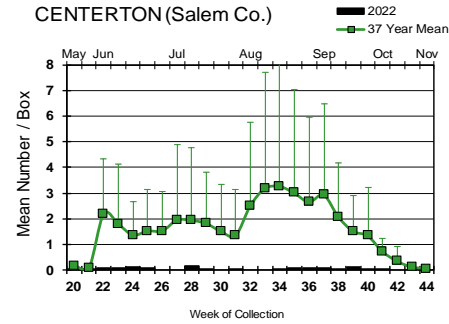


Culiseta melanura Populations



Coastal



Inland



***Cs. melanura* populations continue to remain well below historic levels at the traditional resting box sites. Currently, one positive EEE pool have been detected at a Morris County (northern part of the state) in a pool of *Culex pipiens* (refractory for the EEE virus). No *Culiseta melanura* pools have been detected positive for EEE.**



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

EEE in US (2022 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 11(FL) 3(IN) 3(MI)
- mosquito pools: 1(NJ) 1(RI) 1(NY)
- sentinel: 58(FL)
- human:

West Nile Virus Positive Organisms in US, 2022

West Nile in US (2022 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
Alaska					
Arizona		2	0		29/39
Arkansas					1/2
California	173/181	2987/3057	127/139	14/14	90/93
Colorado		251/251			180/192
Connecticut		185/185			2/5
Delaware					1
Florida		4/4	259/259	3/3	2/2
Georgia					6/8
Hawaii					
Idaho	0	38/38		3/3	2/2
Illinois	19/19	2350/2400		1/1	23/24
Indiana	0	244/248		2/2	2/4
Iowa					1/5
Kansas					2/7
Kentucky					1/2
Louisiana					36/36
Maine					
Maryland(+DC)					3/3
Mass.		95/95		0	5/7
Michigan	12/12	56/66		12/12	7/9
Minnesota					2/2
Mississippi		72/72			6/7
Missouri		0		3/3	7/9

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska		88/88		1/1	23/33
Nevada					
New Hampshire					
New Jersey	5/5	594/595			15/15
New Mexico					4
New York		218			31
North Carolina					4
North Dakota	1/1	29/29		0	18/18
Ohio		862/862		0	5/5
Oklahoma					1/1
Oregon	0	38/52	0	2/3	3
Pennsylvania	6/6	2806/2806		3/3	20/26
Rhode Island		2/3			
South Carolina					
South Dakota		7/7			65/68
Tennessee					
Texas	1/1	311/331	0	0	17/18
Utah					
Vermont		7/7		0	0
Virginia					4
Washington		6/6			4/4
West Virginia					
Wisconsin	1			1	
Wyoming		9/9		1/1	2/2

* 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 14 October 2022

Species	Pools	Mosquitoes	Positives	MFIR
<i>Aedes abserratus</i>	17	393		
<i>Aedes albopictus</i>	723	7329	13	1.774
<i>Aedes atlanticus</i>	3	7		
<i>Aedes atropalpus</i>	1	1		
<i>Aedes aurifer</i>	16	154		
<i>Aedes canadensis canadensis</i>	78	1254	1	0.797
<i>Aedes cantator</i>	54	1739	1	0.575
<i>Aedes cinereus</i>	4	48		
<i>Aedes grossbecki</i>	9	51		
<i>Aedes japonicus</i>	570	3443	11	3.195
<i>Aedes provocans</i>	2	3		
<i>Aedes sollicitans</i>	71	2660		
<i>Aedes sticticus</i>	7	166		
<i>Aedes stimulans</i>	13	71		
<i>Aedes taeniorhynchus</i>	67	2259		
<i>Aedes triseriatus</i>	210	622	2	3.215
<i>Aedes trivittatus</i>	9	68		
<i>Aedes vexans</i>	210	4983	1	0.201
<i>Anopheles spp.</i>	3	97		
<i>Anopheles barberi</i>	4	4		
<i>Anopheles bradleyi</i>	31	740		
<i>Anopheles crucians</i>	11	55		
<i>Anopheles punctipennis</i>	242	2348	1	0.426
<i>Anopheles quadrimaculatus</i>	112	1339	1	0.747
<i>Coquillettidia perturbans</i>	190	3974	1	0.252
<i>Culex erraticus</i>	219	4506	2	0.444
<i>Culex spp.</i>	3468	121351	539	4.442
<i>Culex pipiens</i>	245	7933	19	2.395
<i>Culex restuans</i>	150	2087	3	1.437
<i>Culex salinarius</i>	34	704		
<i>Culex territans</i>	2	5		
<i>Culiseta inornata</i>	8	17		
<i>Culiseta melanura</i>	321	2270		
<i>Culiseta morsitans</i>	2	2		
<i>Orthopodomyia signifera</i>	3	3		
<i>Psorophora ciliata</i>	3	9		
<i>Psorophora columbiae</i>	9	43		
<i>Psorophora ferox</i>	19	265		
<i>Uranotaenia sapphirina</i>	4	93		
Grand Total	7144	173096	595	3.437

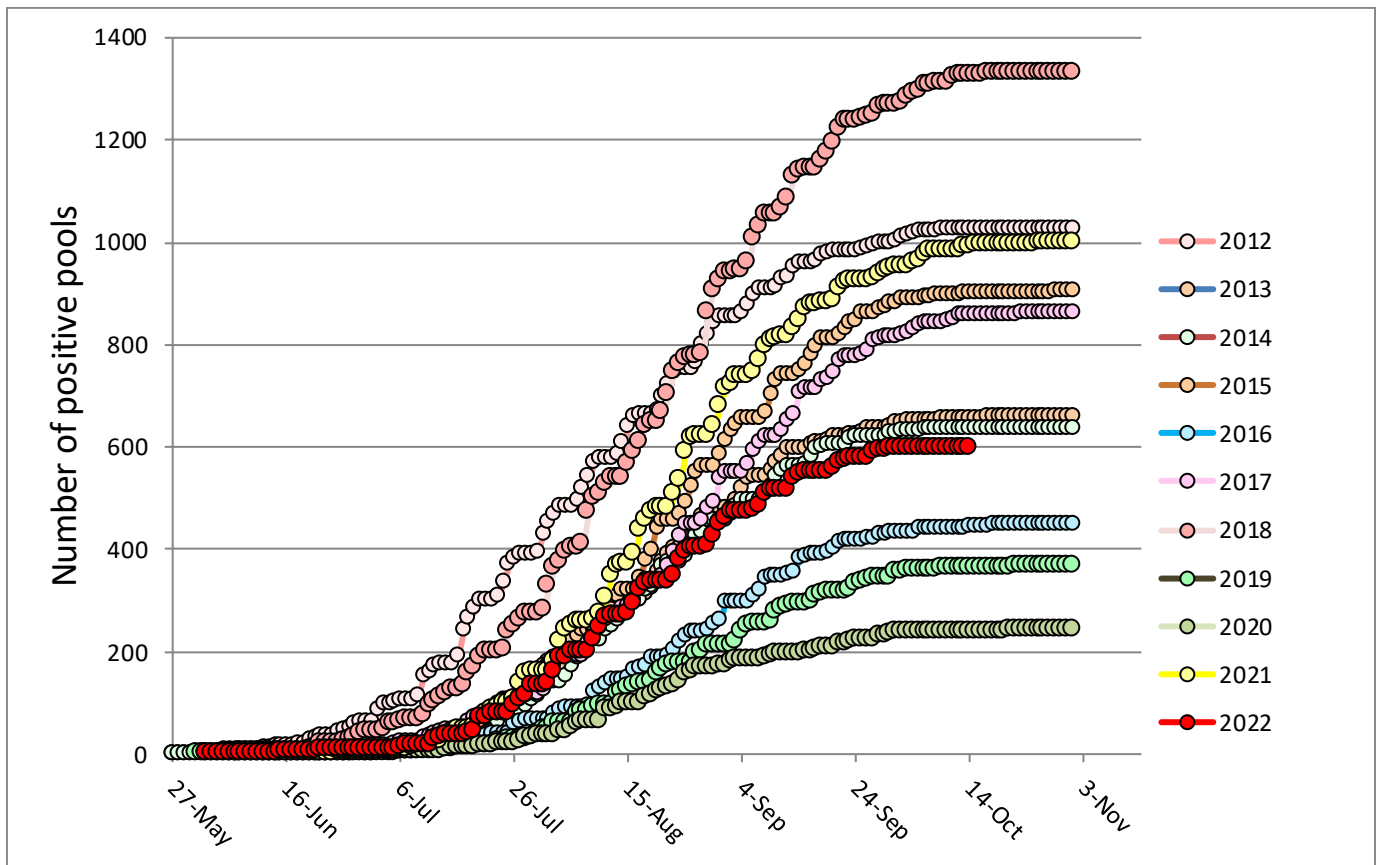
Remarks: To date 7144 pools of 173,096 mosquitoes from 36 species have been tested, with 595 positive pools of WNV detected. First positive pool was detected in *Aedes cantator*, collected 2 June in Burlington County at a traditional resting box site. Positive species include *Culex Mix*, *Culex pipiens*, *Cx. erraticus*, *Cx. restuans*, *Aedes albopictus*, *Ae. canadensis canadensis*, *Ae. cantator*, *Ae. japonicus*, *Ae. triseriatus*, *Ae. vexans*, *Anopheles punctipennis*, *An. quadrimaculatus*, and

Coquillettidia perturbans. Cumulative MFIR for all mosquitoes in New Jersey is 3.437, **down** from last week's value of 3.480.

Humans, Horses, and Wild Birds: 15 human cases of WNV have been detected in Bergen (3), Burlington, Camden (3), Middlesex, Monmouth (2), Morris, Ocean (2) and Union (2) counties. Last year, no horses have been reported infected but 36 human cases were detected. See DOH reports on arbovirus activity for further information:

<https://www.nj.gov/health/cd/statistics/arboviral-stats/index.shtml>

Although birds are no longer routinely tested in New Jersey, last year 13 corvids and birds of prey were reported positive for WNV. This year, WNV was first detected in a Red-tailed Hawk (*Buteo jamaicensis*) from Somerset County. Infections also include one Cooper's Hawk (*Accipiter cooperii*) and three Red-tailed Hawks (*Buteo jamaicensis*), all adult males from a raptor rehabilitation center (Essex, Morris, and Somerset County origins).



Above is a graph showing cumulative number of positive pools for the previous 10 years, inclusive of the most active (2018) year. 2022 is represented in RED (first positive collected 2 June).

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