

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

5 September to 11 September, 2021, CDC Week 36

Data download 2:00 am 11 September



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

- Currently, there are 703 positive WNV pools, (661 pools of *Culex Mix*, *Cx. pipiens* or *Cx. restuans*, 6 pools of *Cs melanura*, 22 pools of *Ae albopictus*, 3 pools of *Ae. triseriatus* and *Ae. japonicus* each, and one pool each of *Ae. trivittatus*, *Ae. vexans*, *An. bradleyi*, *An. quadrimaculatus*, *Cx. erraticus*, and 2 pools of *Coquillettidia perturbans*). Four positive birds (*Corvus brachyrhynchos*, 3 *Accipiter cooperii*). There has been one fatal human case of WNV from Camden County and 6 confirmed or probable human cases one each from Bergen, Burlington, Essex, Gloucester, Passaic, and Somerset counties).
- There are 18 positive EEE pools, 12 detected in *Cs. melanura*, 3 in *Cx. Mix* and one each in *Culex erraticus*, *Ae. taeniorhynchus*, and *Ae. triseriatus*. There has been 3 EEE horse cases, 2 in Atlantic County and one in Cumberland County.
- There are 5 positive JCV pool, first detected in *Aedes vexans*, from Sussex County, collected 8 July. Positive pools were also detected in *Anopheles* spp. (2), *Anopheles punctipennis*, and *Culex Mix*. There is one human case of Jamestown Canyon virus, in Sussex County. Date of onset was May 8.
- 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.
- In 2020, there were 13 positive EEE pools in *Culiseta melanura*.
- There were 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 were 6 positive JVC pools in *Aedes cantator* (2), *Aedes taeniorhynchus* (1), *Anopheles quadrimaculatus* (1) and *Coquillettidia perturbans* (2).
- There was one EEE horse case reported. There are no WNV horse cases. There were 3 human WNV cases; in Essex County (1) and Monmouth County (2). There was one WNV positive Red-tailed Hawk (*Buteo jamaicensis*) in Cumberland County (regular surveillance of birds is no longer done in NJ).

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 | 0.37 | 0.00 | 1 | 1 | | |
| Green Bank (Burlington Co.)/25 | Coastal | 3.30 | 0.12 | 28 | 7 | | |
| Corbin City (Atlantic Co.)/25 | Coastal | 1.84 | 1.04 | 324 | 14 | | |
| Dennisville (Cape May Co.)/50 | Coastal | 5.04 | 0.04 | 101 | 13 | 2 | 19.802 |
| Winslow (Camden Co.)/50 | Inland | 1.39 | 1.42 | 380 | 15 | 2 | 5.263 |
| Centerton (Salem Co.)/50 | Inland | 3.09 | 0.24 | 235 | 17 | | |
| Turkey Swamp (Monmouth Co.)/50 | Inland | 1.39 | 0.16 | 96 | 10 | | |
| Glassboro (Gloucester Co.)/50 | Inland | 0.25 | 0.00 | 110 | 7 | | |

*Current week (in parentheses) results pending. ‡ corrected from previous week NC=No Collection ND=No Data (site offline) NR=Not Recorded a=pool tested

Remarks: Currently, 18 positive EEE pools (12 in *Cs. melanura*, 3 in *Cx. Mix*, and 1 each in *Culex erraticus*, *Aedes taeniorhynchus*, *Ae. triseriatus*) have been detected. First detected pool of *Cs. melanura* was from a county-run site in Gloucester, sampled 30 June. Current weekly mean is for Week 35.

Statewide: 8576 *Cs. melanura* from 483 pools have been tested, with 12 positive pools detected and an overall *Cs. melanura* MFIR of 1.399. 146,642 specimens in 4815 pools from 36 other species have also been tested with 6 positive pools detected, one each in *Culex erraticus* (first non-*melanura* detection), and *Aedes taeniorhynchus*, *Ae. triseriatus* and three in *Culex Mix*. Overall MFIR for all species statewide is 0.116.

Traditional Resting Box Sites: 1275 *Cs. melanura* from 84 pools have been tested, with 4 positive pools detected, two at Winslow in Camden County and 2 at Dennisville, Cape May County. Overall *Cs. melanura* MFIR at the traditional resting box site is 3.137.

| Additional <i>Cs. melanura</i> trapped by counties *traps with positives indicated in BOLD UNDERLINE . | | | | | |
|--|--------------|------------|-------------|-----------|--------------|
| County | Trap types* | Pools | Mosquitoes | Positives | MFIR |
| Atlantic | CO2, GRA, RB | 64 | 1770 | 5 | 2.825 |
| Bergen | NJLT, RB | 10 | 206 | | |
| Burlington | ULVT | 46 | 1775 | | |
| Camden | GRA | 1 | 2 | | |
| Cape May | GRA, RB | 36 | 465 | | |
| Cumberland | CO2, GRA, RB | 35 | 279 | | |
| Gloucester | RB | 81 | 2270 | 3 | 1.322 |
| Middlesex | CO2, NJLT | 5 | 16 | | |
| Monmouth | CO2, Other | 3 | 6 | | |
| Morris | CO2, GRA, RB | 23 | 65 | | |
| Ocean | CO2, GRA | 16 | 34 | | |
| Salem | CO2, GRA, RB | 29 | 150 | | |
| Sussex | CO2, GRA, RB | 49 | 247 | | |
| Warren | Co2 | 1 | 16 | | |
| TOTAL | | 399 | 7301 | 8 | 1.096 |

horse cases from 1998 to 2020.

Horses and Humans: Last year, only 1 horse was reported with EEE, detected in September. **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.

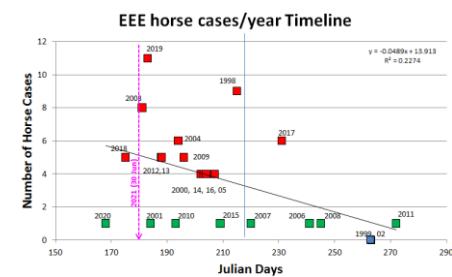
| Case | Animal | Age | Sex | County | Date of Onset | Euthanized? | Vaccinated? | Comment |
|------|--------|-----|----------|--------|---------------|-------------|-------------|---|
| 1 | horse | 7 | mare | Cumb. | Aug 18 | Aug 19 | no | https://jerseyfresh.nj.gov/agriculture/news/press/2021/approved/press210824.html |
| 2 | horse | 8 | mare | Atl. | Aug 26 | Aug 27 | no | |
| 3 | horse | 7 | stallion | Atl. | Aug 28 | Aug 29 | no | Miniature horse |

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/>

Additional County-set *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. First positive pools of *Cs. melanura* have been detected at a non-traditional resting box site in Gloucester County, collected 30Jun. The latest positive pools came from Atlantic County for a total of 8 positive pools from county-set sites.

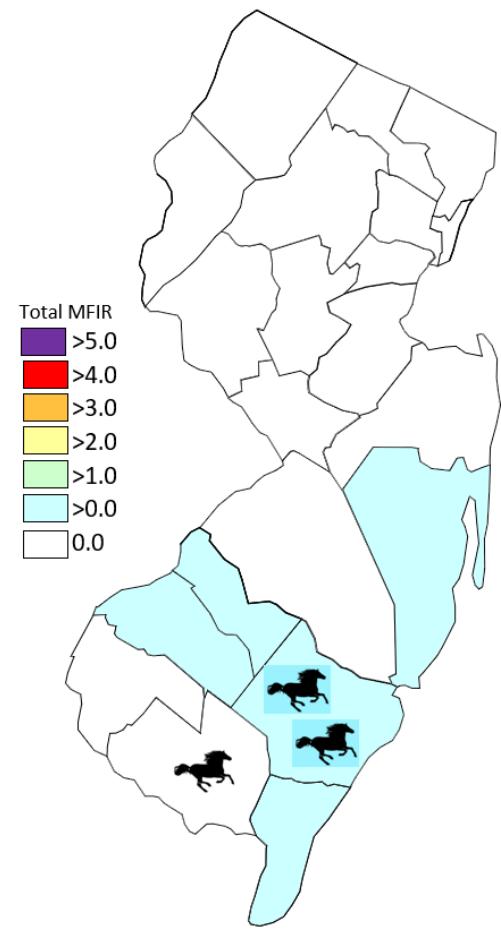


Graph above indicate start times to detection of EEE in *Culiseta melanura* and associated number of

| Species other than <i>Cs. melanura</i> | Pools | Mosquitoes | Positives | MFIR |
|--|-------------|---------------|-----------|--------------|
| <i>Aedes abserratus</i> | 14 | 118 | | |
| <i>Aedes albopictus</i> | 354 | 3547 | | |
| <i>Aedes atlanticus</i> | 11 | 263 | | |
| <i>Aedes aurifer</i> | 5 | 102 | | |
| <i>Aedes canadensis canadensis</i> | 78 | 1154 | | |
| <i>Aedes cantator</i> | 41 | 565 | | |
| <i>Aedes cinereus</i> | 3 | 80 | | |
| <i>Aedes grossbecki</i> | 9 | 33 | | |
| <i>Aedes japonicus</i> | 228 | 1298 | | |
| <i>Aedes mitchellae</i> | 1 | 1 | | |
| <i>Aedes sollicitans</i> | 21 | 525 | | |
| <i>Aedes sticticus</i> | 15 | 261 | | |
| <i>Aedes stimulans</i> | 5 | 28 | | |
| <i>Aedes taeniorhynchus</i> | 30 | 1278 | 1 | 0.782 |
| <i>Aedes thibaulti</i> | 2 | 105 | | |
| <i>Aedes triseriatus</i> | 45 | 90 | 1 | 11.111 |
| <i>Aedes trivittatus</i> | 21 | 314 | | |
| <i>Aedes vexans</i> | 106 | 2782 | | |
| <i>Anopheles</i> spp. | 13 | 300 | | |
| <i>Anopheles bradleyi</i> | 25 | 600 | | |
| <i>Anopheles crucians</i> | 18 | 229 | | |
| <i>Anopheles punctipennis</i> | 187 | 2924 | | |
| <i>Anopheles quadrimaculatus</i> | 72 | 1161 | | |
| <i>Anopheles walkeri</i> | 12 | 873 | | |
| <i>Coquillettidia perturbans</i> | 198 | 6421 | | |
| <i>Culex erraticus</i> | 95 | 1389 | 1 | 0.720 |
| <i>Culex Mix</i> | 2672 | 105717 | 3 | 0.028 |
| <i>Culex pipiens</i> | 310 | 10369 | | |
| <i>Culex restuans</i> | 91 | 1846 | | |
| <i>Culex salinarius</i> | 50 | 744 | | |
| <i>Culex territans</i> | 1 | 1 | | |
| <i>Culiseta inornata</i> | 17 | 242 | | |
| <i>Culiseta morsitans</i> | 4 | 8 | | |
| <i>Orthopodomyia signifera</i> | 3 | 4 | | |
| <i>Psorophora ciliata</i> | 7 | 106 | | |
| <i>Psorophora columbiae</i> | 24 | 662 | | |
| <i>Psorophora ferox</i> | 25 | 487 | | |
| <i>Psorophora howardii</i> | 2 | 15 | | |
| State Total | 4815 | 146642 | 6 | 0.041 |

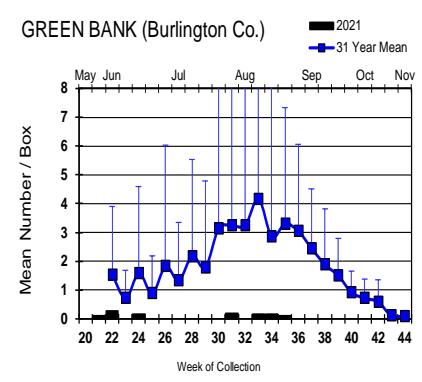
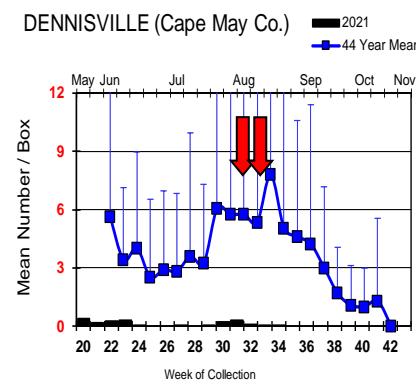
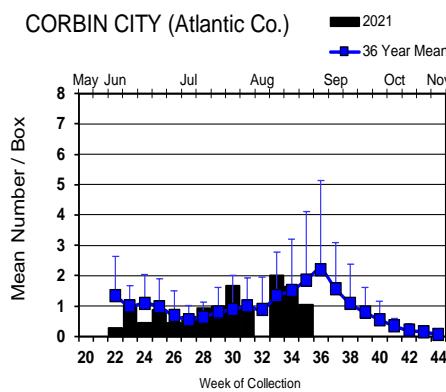
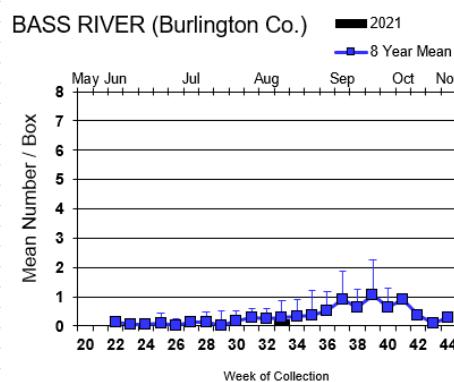
Additional Species: 36 additional species were tested for EEE. One positive pool of *Culex erraticus*, a known endemic vector that may also act as a bridge vector, was detected in Atlantic County on 5 Aug. The latest positive pools were detected *Culex Mix* (Atlantic and Camden counties).

Overall MFIR rates, human and animal cases per county:

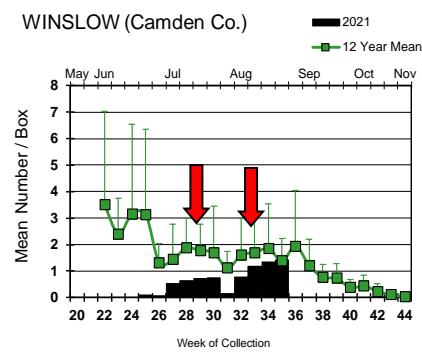
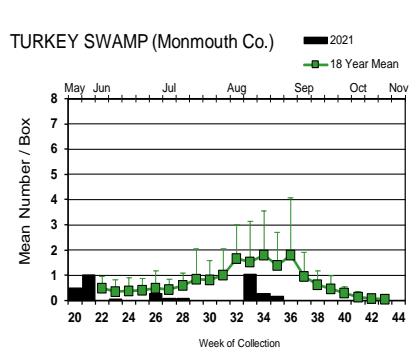
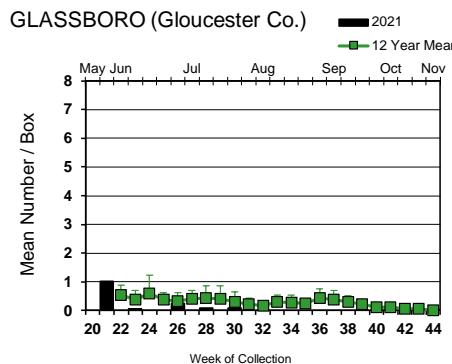
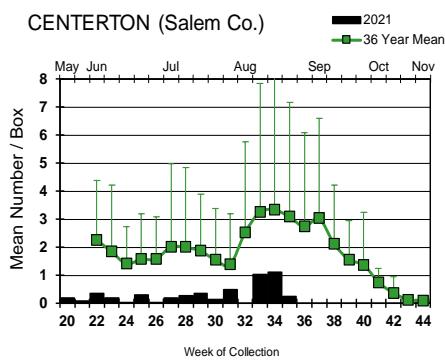


Culiseta melanura Populations

Coastal



Inland



This year's surveillance season began two weeks earlier to accommodate increasing indications of earlier population emergences. To date, 4 positive pools have been detected, two at Dennisville, and two at Winslow. The first seasonal positive pool on the state had been detected at Winslow. Adult mosquito surveillance reports at <http://vectorbio.rutgers.edu/reports/mosquito/> continue to suggest resting box collections are lower than light box collections.



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

EEE in US (2021 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: 1(AZ lab error) 2(AK) 15(FL) 1(MN) 3(NC) 3(NJ) 3(NY) 1(SC) 1(TX) 4(WI) 1(Ontario)
- mosquito pools: 1(MD) 18(NJ) 1(TX)
- sentinel: 169(FL)
- human:

West Nile Virus Positive Organisms in US, 2021

West Nile in US (2021 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 | | | | | 5/6 |
| Alaska | | | | | |
| Arizona | 118 | 12 | | | 29 |
| Arkansas | | | | | 1 |
| California | 160/173 | 1646/1877 | 45/63 | 6/7 | 32/35 |
| Colorado | | 200/246 | | 1 | 29/38 |
| Connecticut | | 81/154 | | | |
| Delaware | | | | | |
| Florida | | 1/2 | 41/43 | | |
| Georgia | | | | | 1 |
| Hawaii | | | | | |
| Idaho | 1 | 23/43 | | 1/8 | 2/6 |
| Illinois | 18/19 | 1921/2159 | 0 | 0 | 2/8 |
| Indiana | 0 | 75/84 | | 0 | 1 |
| Iowa | | | | | 2 |
| Kansas | | | | | 1 |
| Kentucky | | | | | |
| Louisiana | | | | | 3 |
| Maine | | | | | |
| Maryland(+DC) | | 96 | | | 1 |
| Mass. | | 98/108 | | 1 | 4 |
| Michigan | | | | 1 | |
| Minnesota | | | | | |
| Mississippi | | 16/24 | | 2/3 | |
| Missouri | | | | | 1/2 |

| | Birds | Mosquito Pools | Sentinels | Horses* | Humans |
|----------------|-------|----------------|-----------|---------|--------|
| Montana | | | | | |
| Nebraska | 0 | 6 | | 0 | 4 |
| Nevada | | | | | |
| New Hampshire | | | | | |
| New Jersey | 4 | 445/603 | | 0 | 5/7 |
| New Mexico | | | | | |
| New York | | | | | 3 |
| North Carolina | | | | | |
| North Dakota | 1 | 16 | | 2 | 5/19 |
| Ohio | | 160/1002 | | | 1/4 |
| Oklahoma | | | | | 1 |
| Oregon | 2 | 49 | 0 | 1 | 0 |
| Pennsylvania | 0 | 76 | 0 | 0 | 1 |
| Rhode Island | | | | | |
| South Carolina | | | | 1 | 2 |
| South Dakota | | | | | 4 |
| Tennessee | | | | | 2 |
| Texas | 10 | 832/1050 | 1 | 1 | 9/14 |
| Utah | | | | | 1 |
| Vermont | | | | | |
| Virginia | | | | | |
| Washington | | 46/4651 | | 5/6 | 1 |
| West Virginia | | | | | |
| Wisconsin | | | | | |
| Wyoming | | | | | |

* 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 11 September 2021

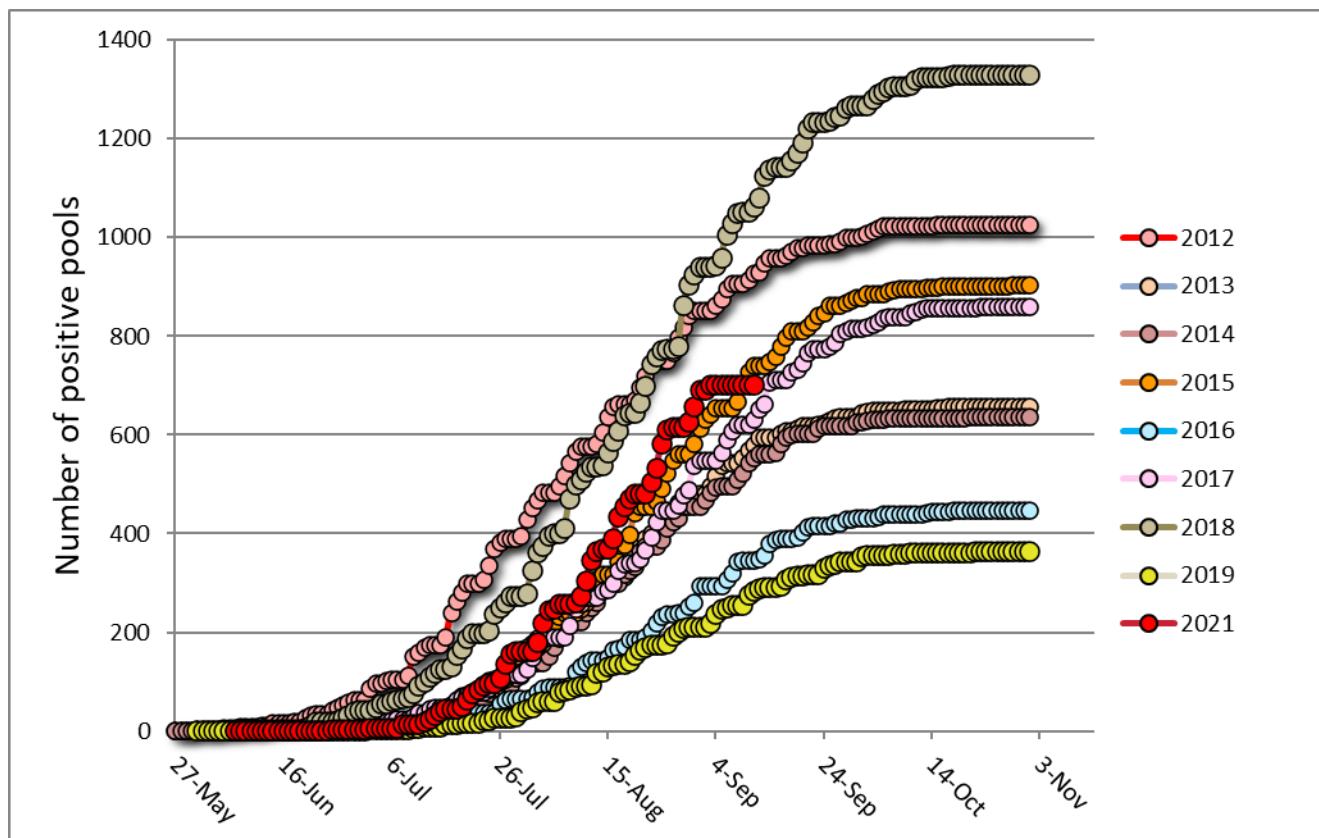
| Species | Pools | Mosquitoes | Positives | MFIR |
|------------------------------------|-------------|---------------|------------|--------------|
| <i>Aedes abserratus</i> | 15 | 120 | | |
| <i>Aedes albopictus</i> | 407 | 4007 | 22 | 5.490 |
| <i>Aedes atlanticus</i> | 12 | 272 | | |
| <i>Aedes aurifer</i> | 5 | 102 | | |
| <i>Aedes canadensis canadensis</i> | 88 | 1274 | | |
| <i>Aedes cantator</i> | 47 | 722 | | |
| <i>Aedes cinereus</i> | 3 | 80 | | |
| <i>Aedes grossbecki</i> | 9 | 33 | | |
| <i>Aedes japonicus</i> | 273 | 1883 | 3 | 1.593 |
| <i>Aedes mitchellae</i> | 1 | 1 | | |
| <i>Aedes sollicitans</i> | 24 | 655 | | |
| <i>Aedes sticticus</i> | 15 | 261 | | |
| <i>Aedes stimulans</i> | 5 | 28 | | |
| <i>Aedes taeniorhynchus</i> | 38 | 1506 | | |
| <i>Aedes thibaulti</i> | 2 | 105 | | |
| <i>Aedes triseriatus</i> | 89 | 267 | 3 | 11.236 |
| <i>Aedes trivittatus</i> | 27 | 330 | 1 | 3.030 |
| <i>Aedes vexans</i> | 119 | 3039 | 1 | 0.329 |
| <i>Anopheles</i> spp. | 15 | 369 | | |
| <i>Anopheles bradleyi</i> | 27 | 725 | 1 | 1.379 |
| <i>Anopheles crucians</i> | 22 | 265 | | |
| <i>Anopheles punctipennis</i> | 216 | 3450 | 1 | 0.290 |
| <i>Anopheles quadrimaculatus</i> | 82 | 1292 | 1 | 0.774 |
| <i>Anopheles walkeri</i> | 13 | 898 | | |
| <i>Coquillettidia perturbans</i> | 198 | 6421 | 2 | 0.311 |
| <i>Culex erraticus</i> | 95 | 1389 | 1 | 0.720 |
| <i>Culex</i> spp. | 3161 | 128138 | 648 | 5.057 |
| <i>Culex pipiens</i> | 375 | 12273 | 12 | 0.978 |
| <i>Culex restuans</i> | 98 | 1903 | 1 | 0.525 |
| <i>Culex salinarius</i> | 61 | 1085 | | |
| <i>Culex territans</i> | 1 | 1 | | |
| <i>Culiseta inornata</i> | 18 | 244 | | |
| <i>Culiseta melanura</i> | 483 | 8576 | 6 | 0.700 |
| <i>Culiseta morsitans</i> | 4 | 8 | | |
| <i>Orthopodomyia signifera</i> | 3 | 4 | | |
| <i>Psorophora ciliata</i> | 8 | 115 | | |
| <i>Psorophora columbiae</i> | 29 | 773 | | |
| <i>Psorophora ferox</i> | 36 | 663 | | |
| <i>Psorophora howardii</i> | 3 | 65 | | |
| Grand Total | 6127 | 183342 | 703 | 3.834 |

Remarks: To date 6127 pools of 183,342 mosquitoes from 36 species have been tested. 703 pools (661 pools of Culex Mix, Cx. pipiens or Cx. restuans, 6 pools of Cs melanura, 22 pools of Ae albopictus, 3 pools of Ae. triseriatus and Ae. japonicus each, and one pool each of Ae. trivittatus, Ae. vexans, An. bradleyi, An. quadrimaculatus, Cx. erraticus, and 2 pools of Coquillettidia perturbans) have been identified as positive for WNV in all but Salem County. First positive detected

in a pool of *Culex Mix* collected on 7 June in Somerset County. Cumulative MFIR for all mosquitoes in New Jersey is 3.452.

Humans, Horses and Wild Birds: No horses have been reported infected with WNV in 2021. Seven human cases (one fatality from Camden County, and one each in Bergen, Burlington, Essex, Gloucester, Passaic, and Somerset counties) has been reported to date. 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, one American Crow (*Corvus brachyrhynchos*) from Burlington County has tested positive for WNV. Three Cooper's Hawks (*Accipiter cooperii*) tested positive from Union County.



Above is a graph showing cumulative number of positive pools for the previous 9 years, inclusive of the most active (2018) year. 2021 is represented in RED, with first positive showing on 7 June.

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