

# 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  
1 August to 7 August, 2021, CDC Week 31  
Data download 2:20 pm 6 August



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 165 positive WNV pools, 162 in *Culex Mix*, and one each in *Cx. pipiens*, *Aedes triseriatus*, and *Ae. trivittatus*. Four positive birds (1 *Corvus brachyrhynchos*, 3 *Accipiter cooperii*).
- There is two positive EEE pools detected in *Cs. melanura*, one from Gloucester County, collected 30 June and the second from Camden County.
- There is one positive JCV pool detected in *Aedes vexans*, from Sussex County, collected 8 July.
- There is one human case of Jamestown Canyon virus, in Sussex County. Date of onset was May 8.
  
- 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).
- 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 all 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           | 0.16                     | ND                  | 0                         | 0                               |                     |       |
| Green Bank (Burlington Co.)/25 | Coastal           | 3.13                     | 0.00                | 12 (17)                   | 3 (4)                           |                     |       |
| Corbin City (Atlantic Co.)/25  | Coastal           | 0.86                     | 1.68                | 183                       | 9                               |                     |       |
| Dennisville (Cape May Co.)/50  | Coastal           | 6.06                     | 0.02                | 66 (77)                   | 8 (9)                           |                     |       |
| Winslow (Camden Co.)/50        | Inland            | 1.69                     | 0.74                | 137                       | 6                               | 1                   | 7.299 |
| Centerton (Salem Co.)/50       | Inland            | 1.55                     | 0.00                | 92                        | 8                               |                     |       |
| Turkey Swamp (Monmouth Co.)/50 | Inland            | 0.82                     | 0.14                | 21                        | 5                               |                     |       |
| Glassboro (Gloucester Co.)/50  | Inland            | 0.29                     | 0.08                | 110                       | 7                               |                     |       |

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

**Remarks:** Currently, two positive EEE pools in *Cs. melanura* have been detected. First detected pool was from a county-run site in Gloucester, sampled 30 June. Second came from a traditional resting box site in Camden County sampled 20 July. Sampling near Bass River has begun again with the understanding that the canopy has opened up after a fire and the site might not see much activity. Current weekly mean is for Week 30.

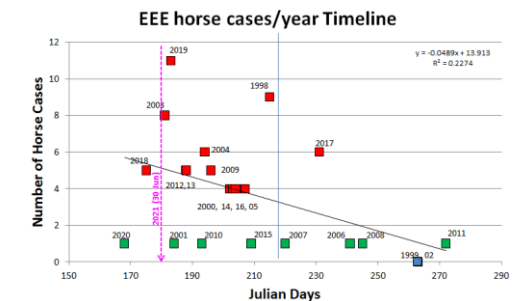
Statewide: 5707 *Cs. melanura* from 332 pools have been tested, with two positive pools detected and an overall *Cs. melanura* MFIR of 0.350. 87,711 specimens in 2979 pools from 35 other species have also been tested with no positive pools detected. Overall MFIR for all species statewide is 0.021.

**Traditional Resting Box Sites:** 591 *Cs. melanura* from 46 pools have been tested, with one positive pool detected at Winslow in Camden County. 16 mosquitoes in 2 pools pending. Overall *Cs. melanura* MFIR at the traditional resting box site is 1.692.

| Additional <i>Cs. melanura</i> trapped by counties<br>*traps with positives indicated in <b>BOLD UNDERLINED&gt;</b> |              |            |             |           |              |
|---|--------------|------------|-------------|-----------|--------------|
| County  | Trap types*  | Pools      | Mosquitoes  | Positives | MFIR         |
| Atlantic  | CO2, RB      | 43         | 1144        |           |              |
| Bergen  | NJLT, RB     | 5          | 48          |           |              |
| Burlington  | ULVT         | 28         | 967         |           |              |
| Camden  | GRA          | 1          | 2           |           |              |
| Cape May  | GRA, RB      | 29         | 405         |           |              |
| Cumberland  | CO2, GRA, RB | 29         | 255         |           |              |
| Gloucester  | RB           | 66         | 1942        | 1         | 0.515        |
| Middlesex   | NJLT         | 5          | 16          |           |              |
| Monmouth  | Other        | 2          | 3           |           |              |
| Morris  | CO2, RB      | 14         | 51          |           |              |
| Ocean   | CO2          | 7          | 12          |           |              |
| Salem   | CO2, GRA, RB | 22         | 137         |           |              |
| Sussex  | CO2, GRA, RB | 34         | 118         |           |              |
| Warren  | Co2          | 1          | 16          |           |              |
| <b>TOTAL</b>  |              | <b>286</b> | <b>5116</b> | <b>1</b>  | <b>0.210</b> |

**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.

**Graph below** indicate start times to detection of EEE in *Culiseta melanura* from 1998 to 2020. Last year was the earliest collected during that time period, suggesting the possibility of multiple horse cases.



**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 |
|------|--------|-----|-----|--------|---------------|--------------|-------------|---------|
|------|--------|-----|-----|--------|---------------|--------------|-------------|---------|

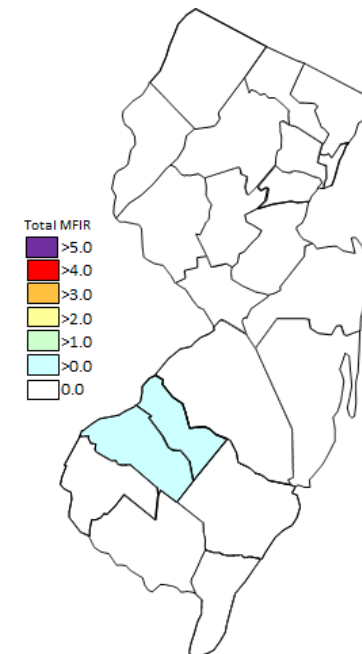
**Horses and Vaccinations:** The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: [http://www.aaep.org/vaccination\\_guidelines.htm](http://www.aaep.org/vaccination_guidelines.htm)

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>                | 14          | 118          |           |      |
| <i>Aedes albopictus</i>                | 131         | 968          |           |      |
| <i>Aedes atlanticus</i>                | 4           | 105          |           |      |
| <i>Aedes aurifer</i>                   | 5           | 102          |           |      |
| <i>Aedes canadensis canadensis</i>     | 68          | 943          |           |      |
| <i>Aedes cantator</i>                  | 40          | 563          |           |      |
| <i>Aedes cinereus</i>                  | 2           | 79           |           |      |
| <i>Aedes grossbecki</i>                | 9           | 33           |           |      |
| <i>Aedes japonicus</i>                 | 147         | 745          |           |      |
| <i>Aedes mitchellae</i>                | 1           | 1            |           |      |
| <i>Aedes sollicitans</i>               | 15          | 317          |           |      |
| <i>Aedes sticticus</i>                 | 15          | 261          |           |      |
| <i>Aedes stimulans</i>                 | 5           | 28           |           |      |
| <i>Aedes taeniorhynchus</i>            | 21          | 1023         |           |      |
| <i>Aedes thibaulti</i>                 | 2           | 105          |           |      |
| <i>Aedes triseriatus</i>               | 18          | 46           |           |      |
| <i>Aedes trivittatus</i>               | 10          | 122          |           |      |
| <i>Aedes vexans</i>                    | 67          | 1531         |           |      |
| <i>Anopheles spp.</i>                  | 5           | 90           |           |      |
| <i>Anopheles bradleyi</i>              | 15          | 450          |           |      |
| <i>Anopheles crucians</i>              | 10          | 114          |           |      |
| <i>Anopheles punctipennis</i>          | 132         | 1986         |           |      |
| <i>Anopheles quadrimaculatus</i>       | 52          | 622          |           |      |
| <i>Anopheles walkeri</i>               | 12          | 873          |           |      |
| <i>Coquillettidia perturbans</i>       | 150         | 5650         |           |      |
| <i>Culex erraticus</i>                 | 33          | 314          |           |      |
| <i>Culex Mix</i>                       | 1644        | 62040        |           |      |
| <i>Culex pipiens</i>                   | 181         | 5706         |           |      |
| <i>Culex restuans</i>                  | 72          | 1391         |           |      |
| <i>Culex salinarius</i>                | 39          | 453          |           |      |
| <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>              | 5           | 103          |           |      |
| <i>Psorophora columbiae</i>            | 14          | 367          |           |      |
| <i>Psorophora ferox</i>                | 16          | 207          |           |      |
| <b>State Total</b>                     | <b>2979</b> | <b>87711</b> |           |      |

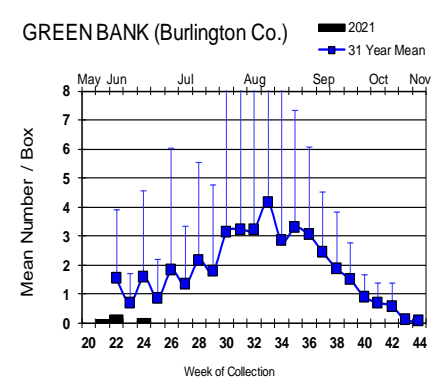
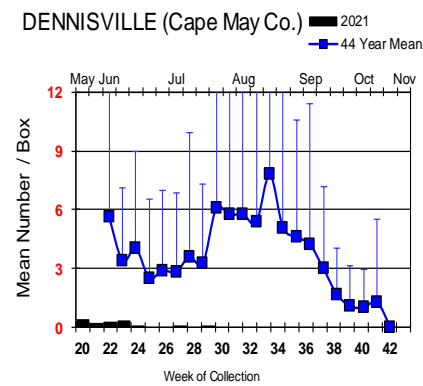
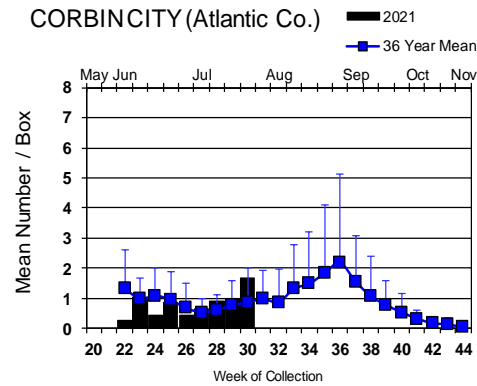
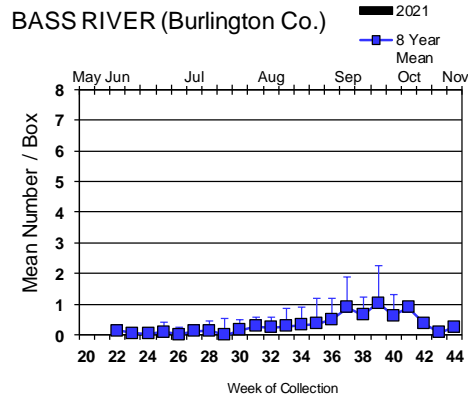
**Additional Species:** 34 additional species were tested for EEE. No positive pools have been detected to date.

**Overall MFIR rates, human and animal cases per county:**

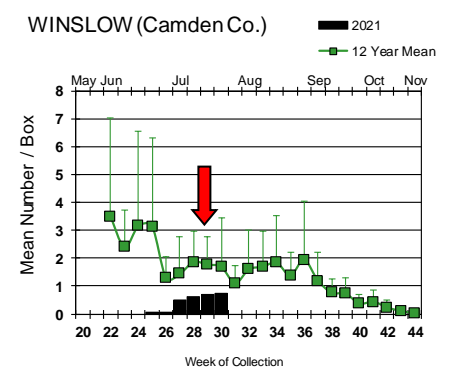
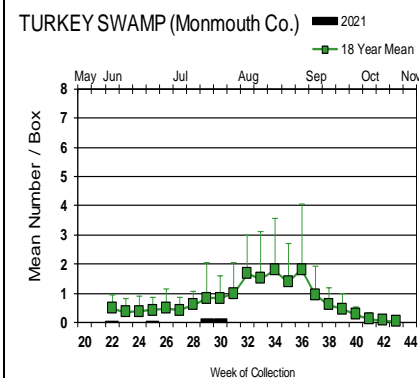
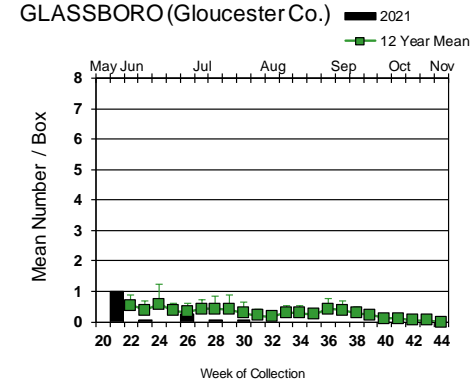
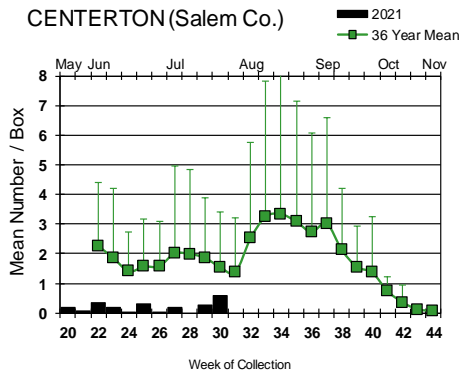


# Culiseta melanura Populations



## Coastal



## Inland



This year's surveillance season began two weeks earlier to accommodate increasing indications of earlier population emergences. Currently, populations remain at or well below the historical averages at most traditional resting box sites, with rising rates at Corbin City and Winslow. One positive pool has been detected at Winslow, in addition to a non-traditional resting box site pool collected earlier. Adult mosquito surveillance reports at <http://vectorbio.rutgers.edu/reports/mosquito/> continue to suggest resting box collections are lower than light box collections, apart from Corbin City.



 = 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) 12(FL) 1(Ontario)
- mosquito pools: 2(NJ)
- sentinel: 148(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       |        |                |           |         | 3      |
| Alaska        |        |                |           |         |        |
| Arizona       |        |                |           |         | 13     |
| Arkansas      |        |                |           |         | 1      |
| California    | 94/109 | 414/770        | 10        | 1       | 4/8    |
| Colorado      |        | 5              |           | 1/1     | 0      |
| Connecticut   |        | 10/25          |           |         |        |
| Delaware      |        |                |           |         |        |
| Florida       |        |                | 5/10      |         |        |
| Georgia       |        |                |           |         |        |
| Hawaii        |        |                |           |         |        |
| Idaho         |        | 9/23           |           |         | 2      |
| Illinois      | 3      | 238/406        | 0         | 0       | 0      |
| Indiana       | 0      | 2/4            |           | 0       | 0      |
| Iowa          |        |                |           |         | 2      |
| Kansas        |        |                |           |         |        |
| Kentucky      |        |                |           |         |        |
| Louisiana     |        |                |           |         |        |
| Maine         |        |                |           |         |        |
| Maryland(+DC) |        |                |           |         |        |
| Mass.         |        | 23/30          |           |         |        |
| Michigan      |        |                |           |         |        |
| Minnesota     |        |                |           |         |        |
| Mississippi   |        | 3/11           |           | 2?      |        |
| Missouri      |        |                |           |         | 1      |

|                | Birds | Mosquito Pools | Sentinels | Horses* | Humans |
|----------------|-------|----------------|-----------|---------|--------|
| Montana        |       |                |           |         |        |
| Nebraska       | 0     | 2/6            |           | 0       | 1      |
| Nevada         |       |                |           |         |        |
| New Hampshire  |       |                |           |         |        |
| New Jersey     | 1/4   | 86/165         |           | 0       | 0      |
| New Mexico     |       |                |           |         |        |
| New York       |       |                |           |         |        |
| North Carolina |       |                |           |         |        |
| North Dakota   |       |                |           |         | 1      |
| Ohio           |       | 86/160         |           |         |        |
| Oklahoma       |       |                |           | 1       |        |
| Oregon         | 0     | 0              | 0         | 0       | 0      |
| Pennsylvania   | 0     | 76             | 0         | 0       | 0      |
| Rhode Island   |       |                |           |         |        |
| South Carolina |       |                |           | 1       |        |
| South Dakota   |       |                |           |         |        |
| Tennessee      |       |                |           |         |        |
| Texas          | 3/5   | 274/395        | 0         | 0       | 1      |
| Utah           |       |                |           |         |        |
| Vermont        |       |                |           |         |        |
| Virginia       |       |                |           |         |        |
| Washington     |       | 12/30          |           | 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 6 August 2021

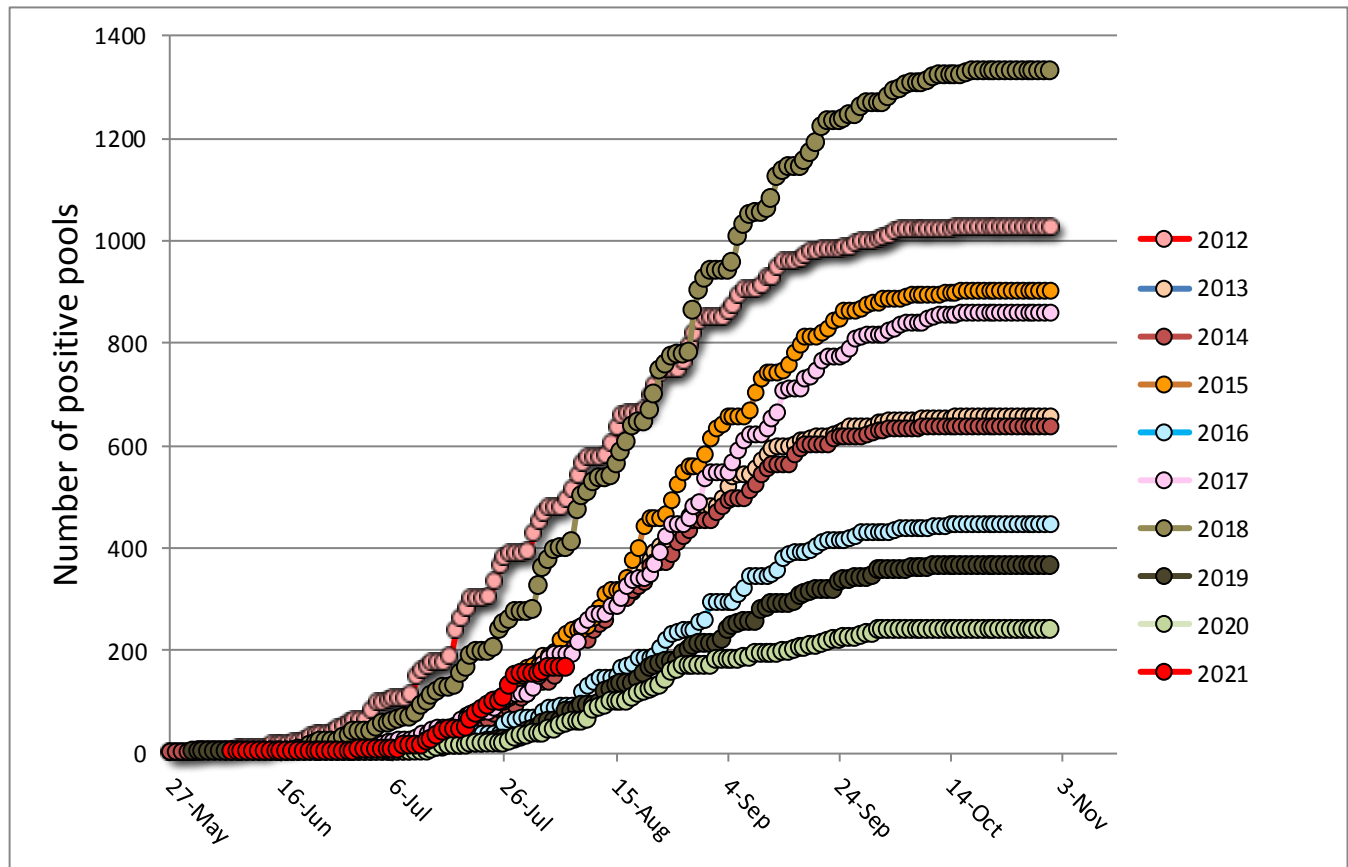
| Species                            | Pools       | Mosquitoes    | Positives  | MFIR         |
|------------------------------------|-------------|---------------|------------|--------------|
| <i>Aedes abserratus</i>            | 15          | 120           |            |              |
| <i>Aedes albopictus</i>            | 184         | 1428          |            |              |
| <i>Aedes atlanticus</i>            | 5           | 114           |            |              |
| <i>Aedes aurifer</i>               | 5           | 102           |            |              |
| <i>Aedes canadensis canadensis</i> | 78          | 1063          |            |              |
| <i>Aedes cantator</i>              | 46          | 720           |            |              |
| <i>Aedes cinereus</i>              | 2           | 79            |            |              |
| <i>Aedes grossbecki</i>            | 9           | 33            |            |              |
| <i>Aedes japonicus</i>             | 192         | 1330          |            |              |
| <i>Aedes mitchellae</i>            | 1           | 1             |            |              |
| <i>Aedes sollicitans</i>           | 18          | 447           |            |              |
| <i>Aedes sticticus</i>             | 15          | 261           |            |              |
| <i>Aedes stimulans</i>             | 5           | 28            |            |              |
| <i>Aedes taeniorhynchus</i>        | 29          | 1251          |            |              |
| <i>Aedes thibaulti</i>             | 2           | 105           |            |              |
| <i>Aedes triseriatus</i>           | 47          | 138           | 1          | 7.246        |
| <i>Aedes trivittatus</i>           | 16          | 138           | 1          | 7.246        |
| <i>Aedes vexans</i>                | 80          | 1788          |            |              |
| <i>Anopheles</i> spp.              | 7           | 159           |            |              |
| <i>Anopheles bradleyi</i>          | 17          | 575           |            |              |
| <i>Anopheles crucians</i>          | 14          | 150           |            |              |
| <i>Anopheles punctipennis</i>      | 161         | 2512          |            |              |
| <i>Anopheles quadrimaculatus</i>   | 62          | 753           |            |              |
| <i>Anopheles walkeri</i>           | 13          | 898           |            |              |
| <i>Coquillettidia perturbans</i>   | 150         | 5650          |            |              |
| <i>Culex erraticus</i>             | 33          | 314           |            |              |
| <i>Culex</i> spp.                  | 2133        | 84471         | 162        | 1.918        |
| <i>Culex pipiens</i>               | 246         | 7610          | 1          | 0.131        |
| <i>Culex restuans</i>              | 79          | 1448          |            |              |
| <i>Culex salinarius</i>            | 50          | 794           |            |              |
| <i>Culex territans</i>             | 1           | 1             |            |              |
| <i>Culiseta inornata</i>           | 18          | 244           |            |              |
| <i>Culiseta melanura</i>           | 332         | 5707          |            |              |
| <i>Culiseta morsitans</i>          | 4           | 8             |            |              |
| <i>Orthopodomyia signifera</i>     | 3           | 4             |            |              |
| <i>Psorophora ciliata</i>          | 6           | 112           |            |              |
| <i>Psorophora columbiae</i>        | 19          | 478           |            |              |
| <i>Psorophora ferox</i>            | 27          | 383           |            |              |
| <i>Psorophora howardii</i>         | 1           | 50            |            |              |
| <b>Grand Total</b>                 | <b>4125</b> | <b>121467</b> | <b>165</b> | <b>1.358</b> |

**Remarks:** To date 4125 pools of 121,467 mosquitoes from 36 species have been tested. 163 pools of *Culex* Mix or *Cx. pipiens*, 1 pool of *Ae. trivittatus* and 1 pool of *Ae. triseriatus* have been identified as positive for WNV in Atlantic, Bergen, Burlington, Camden, Cape May, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren counties. First positive detected in a pool of *Culex* Mix collected on 7 June in

Somerset County and the *Ae. trivittatus* pool was collected on 2 July in Essex County. Cumulative MFIR for all mosquitoes in New Jersey is 1.358.

**Humans, Horses and Wild Birds:** No horses have been reported infected with WNV in 2021. No human activity 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.