# VECTOR SURVEILLANCE IN NEW JERSEY

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

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31 October to 6 November, 2021, CDC Week 44
Data download 5:45 am 5 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

- **Currently, there are 998 positive WNV pools (932 pools of *Culex* Mix, *Cx. pipiens* or *Cx. restuans*, 12 pools of *Cs melanura*, 30 pools of *Ae albopictus*, 5 pools of *Ae. japonicus*, 3 pools of *Ae. triseriatus, Ae. vexans* and *Anopheles punctipennis* each, 2 pools of *Coquillettidia perturbans* and *Cx. erraticus* each, one pool each of *Ae. taeniorhynchus, Ae. trivittatus, An. bradleyi, An. quadrimaculatus, Psorophora ciliata,* and *Ps. ferox*). Six positive birds (1 *Corvus brachyrhynchos*, 4 *Accipiter cooperii* and 1 *Falco peregrinus*) have been detected. There are a total of 35 confirmed or probable human cases statewide with 4 fatalities.**
- **There are 28 positive EEE pools, 20 detected in *Cs. melanura*, 4 in *Cx.* Mix, 2 in *Culex erraticus* and one each in *Ae. taeniorhynchus* and *Ae. triseriatus*. There have been 3 EEE horse cases, 1 each in Atlantic, Camden and Cumberland County.**
- **There are 8 positive JCV pool, first detected in *Aedes vexans*, from Sussex County, collected 8 July. Positive pools were also detected in *Anopheles* spp. (3), *Anopheles punctipennis* (2), *Culex* Mix (1), and *Aedes albopictus* (1). There is one human case of Jamestown Canyon virus, in Sussex County. Date of onset was May 8.**
- **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.**

- **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** | 0.08 | 0.20 | 52 | 6 | | |
| **Green Bank (Burlington Co.)/25** | **Coastal** | 0.11 | 0.04 | 127 | 14 | | |
| **Corbin City (Atlantic Co.)/25** | **Coastal** | 0.14 | 0.20 | 501 | 21 | | |
| **Dennisville (Cape May Co.)/50** | **Coastal** | 0.01 | 0.04 | 116 | 17 | 2 | 17.241 |
| **Winslow (Camden Co.)/50** | **Inland** | 0.10 | 0.62 | 1023 | 30 | 5 | 5.888 |
| **Centerton (Salem Co.)/50** | **Inland** | 0.12 | 0.04 | 290 | 23 | | |
| **Turkey Swamp (Monmouth Co.)/50** | **Inland** | 0.04 | 0.00 | 161 | 16 | | |
| **Glassboro (Gloucester Co.)/50** | **Inland** | 0.06 | 0.00 | 110 | 7 | | |

*Current week (in parentheses) results pending. ‡ corrected from previous week NC=No Collec0.00tion ND=No Data (site offline) NR=Not Recorded a=pool tested

**Remarks:** Currently, 28 positive EEE pools (20 in *Cs. melanura,* 4 in *Cx.* Mix, 2 in *Culex erraticus,* and one each in *Aedes taeniorhynchus* and *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 43.

**Statewide**: 13,780 *Cs. melanura* from 726 pools have been tested, with 20 positive pools detected and an overall *Cs. melanura* MFIR of 1.451. 195,478 specimens in 7046 pools from 39 other species have also been tested with 8 positive pools detected, two in *Culex erraticus* (first non-*melanura* detection), and one each in *Aedes taeniorhynchus, Ae. triseriatus* and 4 in *Culex* Mix. Overall MFIR for all species statewide is 0.041.

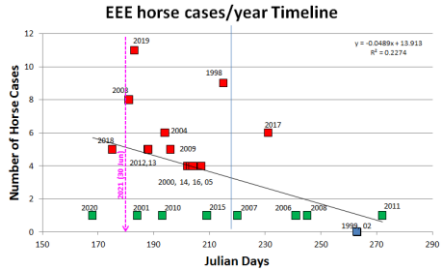
**CDC Investigations**: The CDC came in September to evaluate and help determine potential EEE sampling sites. Currently, there are 73 pools of 523 mosquitoes at PHEL for arbovirus testing that were collected by the CDC. Mosquitoes sampled are listed in the table to the right. These numbers are not included in totals reported elsewhere in this report.

| Species sampled by the CDC. Site | Negative pools | Total mosquitoes |
|---|---|---|
| **GreenBankCDC** | **40** | **473** |
| *Aedes canadensis canadensis* | 4 | 9 |
| *Aedes cantator* | 2 | 2 |
| *Aedes cinereus* | 1 | 1 |
| *Aedes vexans* | 5 | 20 |
| *Anopheles* spp. | 4 | 83 |
| *Anopheles crucians* | 4 | 78 |
| *Coquillettidia perturbans* | 4 | 6 |
| *Culex erraticus* | 2 | 2 |
| *Culex salinarius* | 4 | 239 |
| *Culex territans* | 1 | 1 |
| *Culiseta melanura* | 5 | 27 |
| *Psorophora ciliata* | 1 | 1 |
| *Uranotaenia sapphirina* | 3 | 4 |
| **WinslowCDC** | **33** | **50** |
| *Anopheles crucians* | 9 | 11 |
| *Anopheles punctipennis* | 5 | 6 |
| *Anopheles quadrimaculatus* | 3 | 4 |
| *Culex erraticus* | 1 | 3 |
| *Culex Mix* | 9 | 17 |
| *Culiseta melanura* | 6 | 9 |
| **Grand Total** | **73** | **523** |

**Traditional Resting Box Sites:** 2380 *Cs. melanura* from 134 pools have been tested, with 7 positive pools detected, 5 at Winslow in Camden County and 2 at Dennisville, Cape May County. The latest positive came in Winslow during week 42. Additional mosquitoes at Green Bank and Winslow were captured by CDC and turned over to PHEL for testing (not included in top table). Overall *Cs. melanura* MFIR at the traditional resting box site is 2.941. The Winslow resting box site produced not only EEE positive pools, but 1 pool of WNV (in *Cs. melanura*) and three pools of JCV (in *Anopheles* spp.).

| | Additional *Cs. melanura* trapped by counties<br>*traps with positives indicated in **BOLD UNDERLINED.** | | | | |
|---|---|---|---|---|---|
| **County** | **Trap types*** | **Pools** | **Mosquitoes** | **Positives** | **MFIR** |
| Atlantic | CO2, GRA, RB | 90 | 2255 | 5 | 2.217 |
| Bergen | NJLT, RB | 14 | 236 | | |
| Burlington | ULVT | 72 | 2645 | 3 | 1.134 |
| Camden | GRA | 2 | 3 | | |
| Cape May | GRA, RB | 49 | 921 | | |
| Cumberland | CO2, GRA, RB | 45 | 355 | | |
| Gloucester | RB | 127 | 4071 | 5 | 1.228 |
| Middlesex | CO2, NJLT | 6 | 18 | | |
| Monmouth | CO2, Other | 8 | 12 | | |
| Morris | CO2, GRA, RB | 39 | 149 | | |
| Ocean | CO2, GRA | 29 | 130 | | |
| Salem | CO2, GRA, RB | 38 | 237 | | |
| Sussex | CO2, GRA, RB | 69 | 327 | | |
| Union | NJLT | 3 | 25 | | |
| Warren | CO2 | 1 | 16 | | |
| **TOTAL** | | **592** | **11400** | **13** | **1.140** |

**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 Burlington County for a total of 13 positive pools from county-set sites. OMCC represents CDC efforts in September.




**Graph above** indicate start times to detection of EEE in *Culiseta melanura* and associated number of 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 | Cumberland | Aug 18 | Aug 19 | no | https://jerseyfresh.nj.gov/agriculture/news/press/2021/approved/press210824.html |
| 2 | horse | 8 | mare | Atlantic | Aug 26 | Aug 27 | no | |
| 3 | horse | 7 | stallion | Camden | Aug 28 | Aug 29 | no | Miniature horse |

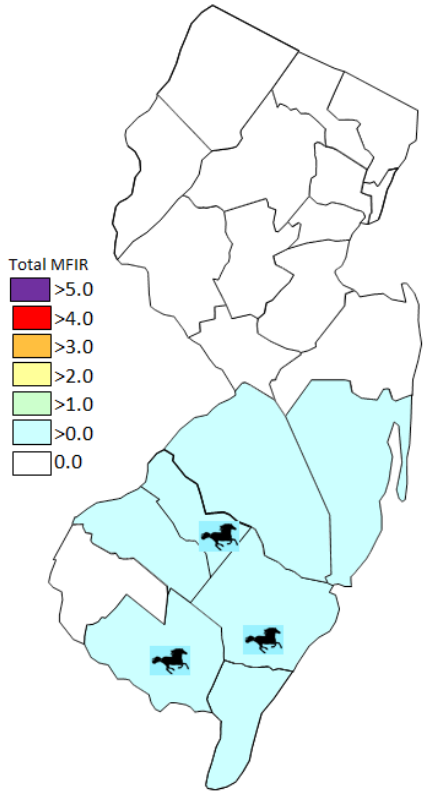
**Horses and Vaccinations:** The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

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/

| Species other than *Cs. melanura* | Pools | Mosquitoes | Positives | MFIR |
|---|---|---|---|---|
| *Aedes abserratus* | 15 | 129 | | |
| *Aedes albopictus* | 589 | 5514 | | |
| *Aedes atlanticus* | 22 | 349 | | |
| *Aedes atlanticus/tormentor* | 1 | 17 | | |
| *Aedes aurifer* | 5 | 102 | | |
| *Aedes canadensis canadensis* | 98 | 1401 | | |
| *Aedes cantator* | 42 | 573 | | |
| *Aedes cinereus* | 3 | 80 | | |
| *Aedes grossbecki* | 9 | 33 | | |
| *Aedes japonicus* | 323 | 1677 | | |
| *Aedes mitchellae* | 1 | 1 | | |
| *Aedes sollicitans* | 28 | 726 | | |
| *Aedes sticticus* | 16 | 275 | | |
| *Aedes stimulans* | 6 | 29 | | |
| *Aedes taeniorhynchus* | 40 | 1625 | 1 | 0.615 |
| *Aedes thibaulti* | 2 | 105 | | |
| *Aedes triseriatus* | 72 | 137 | 1 | 7.299 |
| *Aedes trivittatus* | 73 | 2544 | | |
| *Aedes vexans* | 256 | 7519 | | |
| *Anopheles* spp. | 35 | 1227 | | |
| *Anopheles bradleyi* | 52 | 1279 | | |
| *Anopheles crucians* | 34 | 353 | | |
| *Anopheles punctipennis* | 277 | 3730 | | |
| *Anopheles quadrimaculatus* | 120 | 1929 | | |
| *Anopheles walkeri* | 13 | 902 | | |
| *Coquillettidia perturbans* | 216 | 6594 | | |
| *Culex erraticus* | 216 | 3364 | 2 | 0.595 |
| *Culex* Mix | 3677 | 131383 | 4 | 0.030 |
| *Culex pipiens* | 471 | 16045 | | |
| *Culex restuans* | 123 | 2543 | | |
| *Culex salinarius* | 72 | 1108 | | |
| *Culex territans* | 1 | 1 | | |
| *Culiseta inornata* | 18 | 244 | | |
| *Culiseta morsitans* | 4 | 8 | | |
| *Orthopodomyia signifera* | 5 | 6 | | |
| *Psorophora ciliata* | 11 | 119 | | |
| *Psorophora columbiae* | 37 | 773 | | |
| *Psorophora cyanescens* | 1 | 1 | | |
| *Psorophora ferox* | 57 | 988 | | |
| *Psorophora howardii* | 3 | 18 | | |
| *Uranotaenia sapphirina* | 2 | 27 | | |
| **State Total** | **7046** | **195478** | **8** | **0.041** |

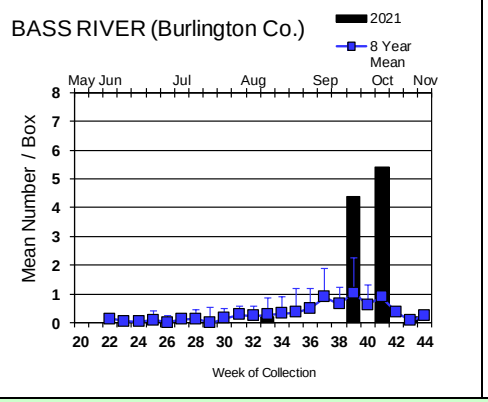
**Additional Species:** 39 additional species were tested for EEE. 8 positive pools in four species have been detected positive. The first included a pool of *Culex erraticus* in Atlantic County on 5 Aug. The latest positive pools were detected *Culex* Mix and *Cx. erraticus*.

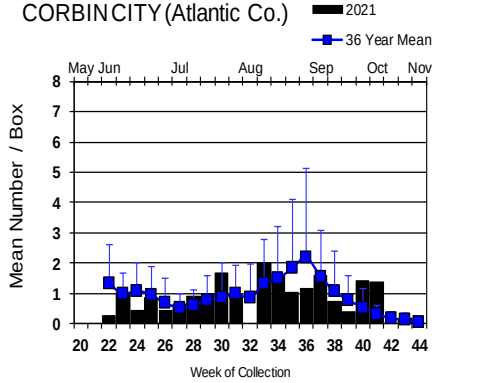
**Overall MFIR rates, human and animal cases per county:**

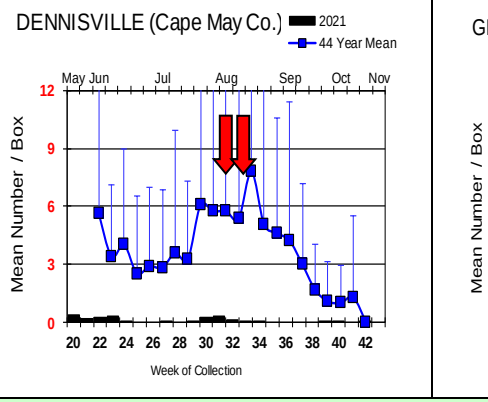


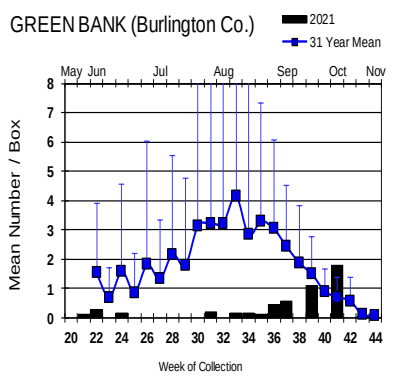
# *Culiseta melanura* Populations

## Coastal

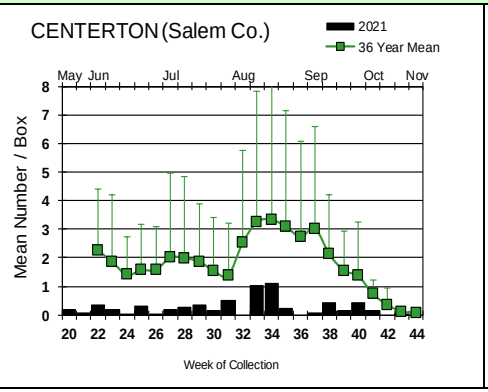


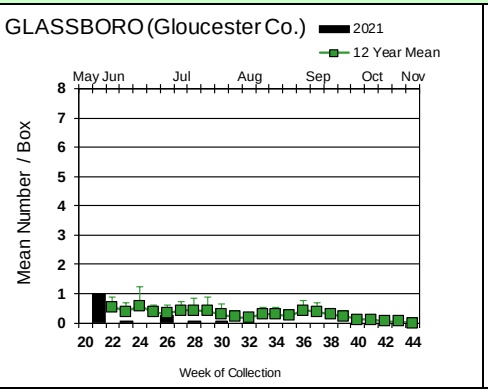



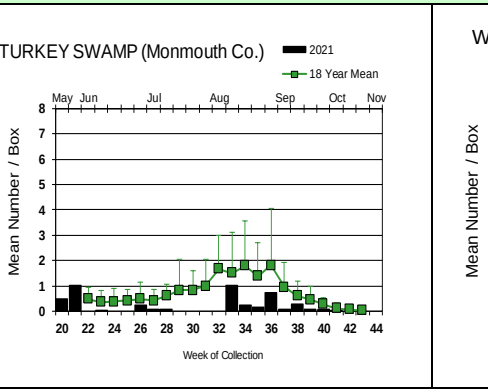



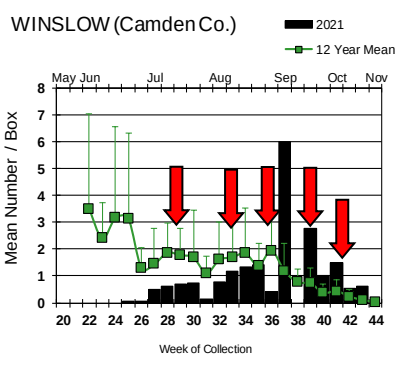




## Inland




**This year's surveillance season began two weeks earlier to accommodate increasing indications of earlier population emergences. To date, 7 positive pools have been detected, two at Dennisville, and five at Winslow, the latest at Winslow coming in week 42. Some smaller emergences continue in some locations, although these numbers have decreased from recent higher activities. 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, although some populations are beginning to reflect NJLT trapping patterns. WNV positive pools were also detected in *Cs. melanura* as well as JCV in three pools of *Anopheles* spp. at Winslow.**

= 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) 18(FL) 1(MD) 1(MI) 1(MN) 3(NC) 3(NJ) 4(NY) 2(SC) 6(TX) 5(WI) 1(Ontario)**

**- mosquito pools:2(CT) 1(MD) 28(NJ) 2(TX)**

**- sentinel: 178(+1 emu, 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 | | | | | 10 |
| Alaska | | | | | |
| Arizona | | 843 | 15 | 3 | 626 |
| Arkansas | | | | | 1 |
| California | 208/209 | 2255/2258 | 88 | 13 | 88/98 |
| Colorado | | 290 | | 20 | 160/162 |
| Connecticut | | 208 | | | 3 |
| Delaware | | | | | 1 |
| Florida | | 8 | 109/123 | 2 | 4 |
| Georgia | | | | | 2 |
| Hawaii | | | | | |
| Idaho | 2 | 54 | | 13 | 15 |
| Illinois | 27 | 2662 | 0 | 1/4 | 56 |
| Indiana | 0 | 257 | | 1/9 | 9/10 |
| Iowa | | | | | 2 |
| Kansas | | | | | 1 |
| Kentucky | | | | 5 | |
| Louisiana | | | | | 3/11 |
| Maine | | | | | |
| Maryland(+DC) | | 145 | | | 3 |
| Mass. | | 144 | | 1 | 9 |
| Michigan | | | | 1 | 40 |
| Minnesota | | | | 2 | 13 |
| Mississippi | | 39 | | 3 | 6 |
| Missouri | | | | 3 | 10 |

| | Birds | Mosquito Pools | Sentinels | Horses* | Humans |
|---|---|---|---|---|---|
| Montana | | | | | 2 |
| Nebraska | | 38 | | 7 | 92 |
| Nevada | | | | | |
| New Hampshire | | 6 | | | |
| New Jersey | 6 | 992/998 | | 0 | 35 |
| New Mexico | | | | | 11 |
| New York | | | | 2 | 24 |
| North Carolina | | | | | |
| North Dakota | 2 | 22 | | 5 | 27/28 |
| Ohio | | 1286 | | | 9 |
| Oklahoma | | | | 4 | 31 |
| Oregon | 2 | 74 | 0 | 8 | 5 |
| Pennsylvania | 0 | 76 | 0 | 1 | 16 |
| Rhode Island | | | | | |
| South Carolina | | | | 1 | 2/4 |
| South Dakota | 2 | 22 | | 5 | 50 |
| Tennessee | | | | | 3/4 |
| Texas | 10 | 1488/1502 | 5 | 6 | 37/44 |
| Utah | | 654 | | 12 | 25/28 |
| Vermont | | | | | |
| Virginia | | | | | 2 |
| Washington | | 51 | | 11 | 3 |
| West Virginia | | | | | |
| Wisconsin | | | | | |
| Wyoming | | 17 | | 5 | 1 |

* 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.

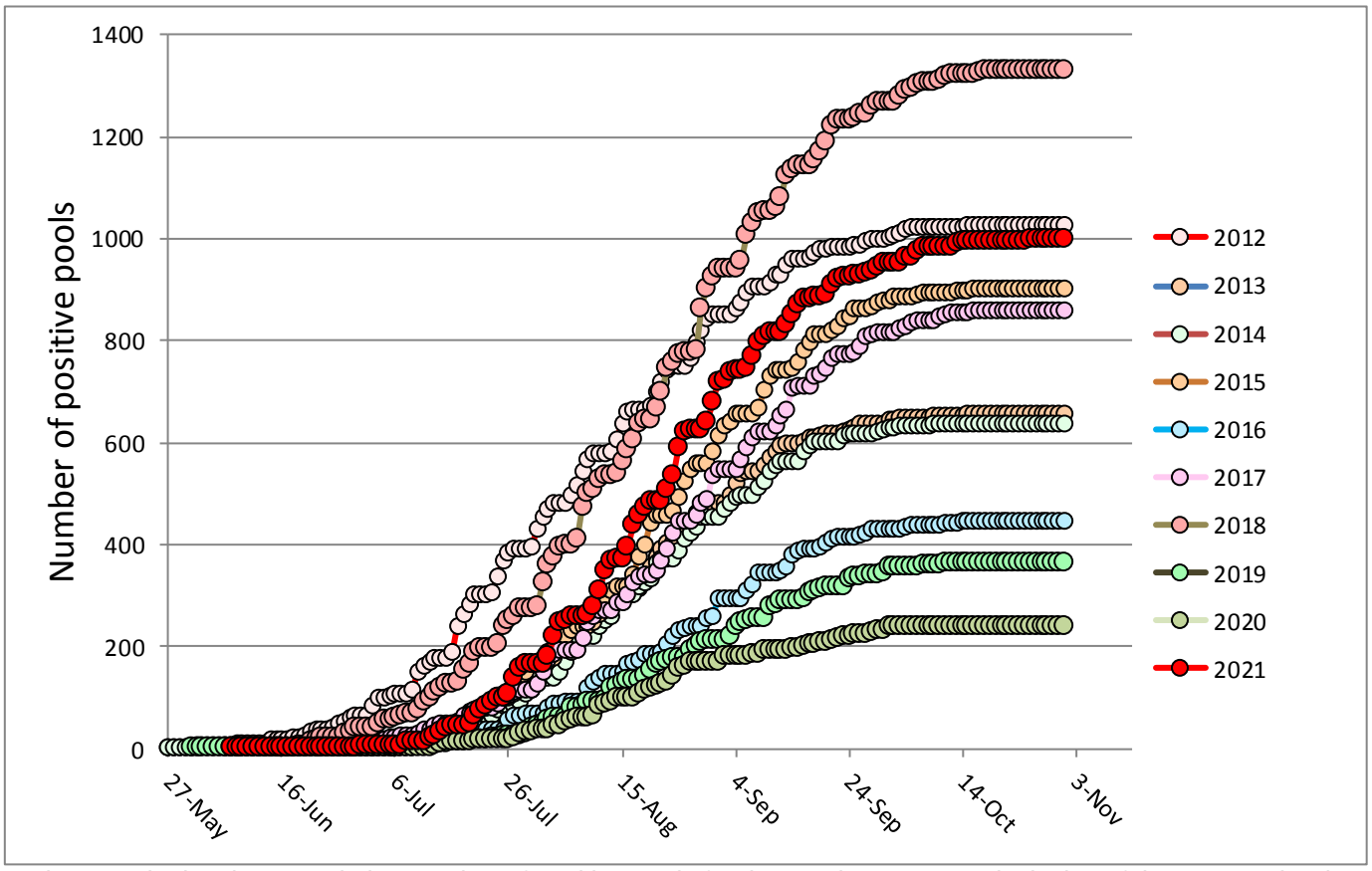
# Mosquito Species Submitted and Tested for West Nile Virus through 5 November 2021

| Species | Pools | Mosquitoes | Positives | MFIR |
|---|---|---|---|---|
| *Aedes abserratus* | 16 | 131 | | |
| *Aedes albopictus* | 642 | 5974 | 30 | 5.022 |
| *Aedes atlanticus* | 23 | 358 | | |
| *Aedes atlanticus/tormentor* | 1 | 17 | | |
| *Aedes aurifer* | 5 | 102 | | |
| *Aedes canadensis canadensis* | 108 | 1521 | | |
| *Aedes cantator* | 48 | 730 | | |
| *Aedes cinereus* | 3 | 80 | | |
| *Aedes grossbecki* | 9 | 33 | | |
| *Aedes japonicus* | 368 | 2262 | 5 | 2.210 |
| *Aedes mitchellae* | 1 | 1 | | |
| *Aedes sollicitans* | 31 | 856 | | |
| *Aedes sticticus* | 16 | 275 | | |
| *Aedes stimulans* | 6 | 29 | | |
| *Aedes taeniorhynchus* | 48 | 1853 | 1 | 0.540 |
| *Aedes thibaulti* | 2 | 105 | | |
| *Aedes triseriatus* | 133 | 360 | 3 | 8.333 |
| *Aedes trivittatus* | 79 | 2560 | 1 | 0.391 |
| *Aedes vexans* | 269 | 7776 | 3 | 0.386 |
| *Anopheles* spp. | 37 | 1296 | | |
| *Anopheles bradleyi* | 54 | 1404 | 1 | 0.712 |
| *Anopheles crucians* | 38 | 389 | | |
| *Anopheles punctipennis* | 306 | 4256 | 3 | 0.705 |
| *Anopheles quadrimaculatus* | 130 | 2060 | 1 | 0.485 |
| *Anopheles walkeri* | 14 | 927 | | |
| *Coquillettidia perturbans* | 216 | 6594 | 2 | 0.303 |
| *Culex erraticus* | 216 | 3364 | 2 | 0.595 |
| *Culex* spp. | 4166 | 153804 | 875 | 5.689 |
| *Culex pipiens* | 536 | 17949 | 51 | 2.841 |
| *Culex restuans* | 130 | 2600 | 6 | 2.308 |
| *Culex salinarius* | 83 | 1449 | | |
| *Culex territans* | 1 | 1 | | |
| *Culiseta inornata* | 19 | 246 | | |
| *Culiseta melanura* | 726 | 13780 | 12 | 0.871 |
| *Culiseta morsitans* | 4 | 8 | | |
| *Orthopodomyia signifera* | 5 | 6 | | |
| *Psorophora ciliata* | 12 | 128 | 1 | 7.813 |
| *Psorophora columbiae* | 42 | 884 | | |
| *Psorophora cyanescens* | 1 | 1 | | |
| *Psorophora ferox* | 68 | 1164 | 1 | 0.859 |
| *Psorophora howardii* | 4 | 68 | | |
| *Uranotaenia sapphirina* | 2 | 27 | | |
| **Grand Total** | **8618** | **237428** | **998** | **4.203** |

**Remarks:** To date 8618 pools of 237,428 mosquitoes from 39 species have been tested. 998 positive WNV pools (932 pools of *Culex* Mix, *Cx. pipiens* or *Cx. restuans*, 12 pools of *Cs melanura*, 30 pools of *Ae albopictus*, 5 pools of *Ae. japonicus,* 3 pools of *Ae. triseriatus, Ae. vexans* and *Anopheles punctipennis* each, 2 pools of *Coquillettidia perturbans* and *Cx. erraticus* each, one pool each of *Ae. taeniorhynchus, Ae. trivittatus, An. bradleyi, An. quadrimaculatus, Psorophora ciliata,* and *Ps. ferox*) 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 4.203.

**Humans, Horses and Wild Birds:** No horses have been reported infected with WNV in 2021. 32 human cases (three fatalities from Camden County 2 and Mercer County 1), and cases also in Atlantic, Bergen, Burlington, Camden, Cumberland, Essex, Gloucester, Mercer, Middlesex, Monmouth, Ocean, and Somerset counties have 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, 1 American Crow (*Corvus brachyrhynchos*) from Burlington County, 3 Cooper's Hawks (*Accipiter cooperii*) from Union County, 1 Cooper's Hawk from Middlesex County and 1 Peregrine Falcon (*Falco peregrinus*) from Atlantic County all tested positive for WNV..




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.