



Florida Arbovirus Surveillance Week 3: January 14-20, 2018

Arbovirus surveillance in Florida includes endemic mosquito-borne viruses such as West Nile virus (WNV), Eastern equine encephalitis virus (EEEV), and St. Louis encephalitis virus (SLEV), as well as exotic viruses such as dengue virus (DENV), chikungunya virus (CHIKV) and California encephalitis group viruses (CEV). Malaria, a parasitic mosquito-borne disease is also included. During the period of January 14-20, 2018, the following arboviral activity was recorded in Florida.

[This report contains information for 2017 and 2018.](#)

WNV activity: No human cases of WNV infection were reported this week. No horses with WNV infection were reported this week. Fourteen sentinel chickens tested positive for antibodies to WNV this week in Hillsborough, Manatee, Orange, Palm Beach, and Sarasota counties. In 2018, there have been no positive samples reported. In 2017, positive samples from four human cases, two blood donors, two hundred seventy-one sentinel chickens, four horses, one eagle, and two mosquito pools have been reported from twenty-three counties.

SLEV activity: No human cases of SLEV infection were reported this week. No sentinel chickens tested positive for antibodies to SLEV this week. In 2018, there have been no positive samples reported. In 2017, positive samples from eleven sentinel chickens have been reported from seven counties.

EEEV activity: No human cases of EEEV infection were reported this week. No horses with EEEV infection were reported this week. One sentinel chicken tested positive for antibodies to EEEV this week in Citrus County. In 2018, a positive sample from one sentinel chicken has been reported. In 2017, positive samples from one human, six horses, one deer, and forty-three sentinel chickens have been reported from fourteen counties.

International Travel-Associated Dengue Fever Cases: No cases of dengue fever were reported this week in persons that had international travel. In 2017, 19 travel-associated cases have been reported.

Dengue Fever Cases Acquired in Florida: No cases of locally acquired dengue fever were reported this week. In 2017, no cases of locally acquired dengue fever have been reported.

International Travel-Associated Chikungunya Fever Cases: One case of chikungunya fever was reported this week in a person that had international travel. In 2017, five travel-associated cases have been reported.

Chikungunya Fever Cases Acquired in Florida: No cases of locally acquired chikungunya fever were reported this week. In 2017, no cases of locally acquired chikungunya fever have been reported.

International Travel-Associated Zika Fever Cases: Three cases of Zika fever were reported this week in persons that had international travel. In 2017, 215 cases have been reported.

Zika Fever Cases Acquired in Florida: No cases of locally acquired Zika fever were reported this week. In 2017, two cases of locally-acquired Zika fever have been reported from two counties. In addition, thirteen cases of locally acquired Zika fever exposed in 2016 and tested in 2017 have been reported.

Advisories/Alerts: No counties are currently under mosquito-borne illness advisory or alert.

There are no areas of ongoing, active Zika transmission in Florida. On June 2nd, CDC removed the cautionary area designation for Miami-Dade County after more than 45 days since the last confirmed local case. For

additional information on current CDC recommendations, please visit <https://www.cdc.gov/zika/intheus/florida-update.html>. For additional information on Zika virus cases from 2016, please visit <https://zikafreefl.org/>.

There is a Level 2 (Alert) Travel Health Notice from the CDC for multiple countries in the Caribbean, Central and South America, Mexico, Cape Verde, Southeast Asia, and Pacific Islands related to Zika virus transmission and an association with poor pregnancy outcomes. Pregnant women should consider postponing travel to these areas. There is also a Level 2 Travel Health Notice for Brazil related to the transmission of yellow fever virus. There is a Level 1 (Watch) Travel Health Notice from the CDC for Brazil and Italy related to the transmission of chikungunya virus. There is also a Level 1 Travel Health Notice for Sri Lanka and Vietnam related to the transmission of dengue virus. Additional information on travel health notices can be found at the following link: <http://wwwnc.cdc.gov/travel/notices>.

2017 Human Case Summary*

West Nile Virus Infection Acquired in Florida: A total of four human cases of WNV illness acquired in Florida have been reported in 2017; one in Escambia County (October), one in Santa Rosa County (September), one in Taylor County (October), and one in Volusia County (November). Two asymptomatic positive blood donors were reported from Escambia County (August) and Lee County (November).

EEEV Infection Acquired in Florida: One human case of eastern equine encephalitis has been reported in 2017 in Duval County (September).

International Travel-Associated Chikungunya Fever Cases: Five cases of chikungunya with onset in 2017 have been reported in individuals with travel history to a chikungunya endemic country in the two weeks prior to onset. Countries of origin were: Brazil and India (4). Counties reporting cases were: Broward (2), Hillsborough (2), and Miami-Dade.

International Travel-Associated Dengue Fever Cases: Nineteen cases of dengue with onset in 2017 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Bhutan/India, Brazil, Cuba (6), Cuba/Mexico, Guatemala, India (3), Indonesia, Jamaica (2), Nigeria, Pakistan, and Philippines. Counties reporting cases were: Brevard, Broward (4), Manatee, Miami-Dade (9), Osceola, Palm Beach (2), and Sumter. Two cases were reported in non-Florida residents. In 2017, 17 of the 19 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

| | # of cases per serotype – 2017 |
|--------------|--------------------------------|
| DENV-1 | 2 |
| DENV-2 | 11 |
| DENV-3 | 4 |
| Total | 17 |

International Travel-Associated Zika Fever Cases: In 2017, two hundred fifteen cases of Zika fever have been reported in individuals with travel history to a country or area experiencing Zika virus activity. Countries of origin were: Barbados (2), Barbados/Virgin Islands, Bolivia, Cayman Islands/St. Martin, Colombia (2), Costa Rica, Cuba (84), Curacao (3), Dominican Republic (10), Dominican Republic/Haiti, Dominican Republic/Puerto Rico, Ecuador (3), El Salvador (2), Guatemala (2), Haiti (40), Honduras (6), Jamaica (9), Mexico (5), Mexico/Thailand, Nicaragua, Panama, Philippines, Puerto Rico (6), Saint Kitts and Nevis, Sri Lanka, Trinidad and Tobago, Venezuela (18), and multiple countries/regions (7). Counties reporting cases were: Broward (31), Collier (12), Duval, Flagler, Franklin, Hillsborough (9), Indian River (2), Lee, Manatee, Marion, Miami-Dade (112), Monroe (2), Orange (18), Palm Beach (9), Pinellas (2), Polk (4), Seminole (4), St. Johns (2), Volusia, and Walton. Eighteen cases were reported in non-Florida residents. One Hillsborough County, one Miami-Dade County, and one Pinellas County case were acquired through sexual transmission. Florida is monitoring a total of 127 pregnant women in 2017.

Zika Virus Infections Acquired in Florida: In 2017, two cases have been identified with exposure in 2017; one in Manatee County and one in Miami-Dade County. Thirteen locally acquired Zika virus infection cases

with exposure in 2016 and testing in 2017 have been reported by Miami-Dade County. In addition, thirty-two individuals reported travel in 2016 to both Miami-Dade and countries with areas of active Zika virus transmission and exposure location could not definitively be determined.

International Travel-Associated Malaria Cases: Three cases of malaria with onset in 2018 have been reported. Countries of origin were: Haiti, India, and Kenya. Counties reporting cases were: Miami-Dade (3).

Two cases (67%) were diagnosed with *Plasmodium falciparum*. One case (33%) was diagnosed with *Plasmodium vivax*.

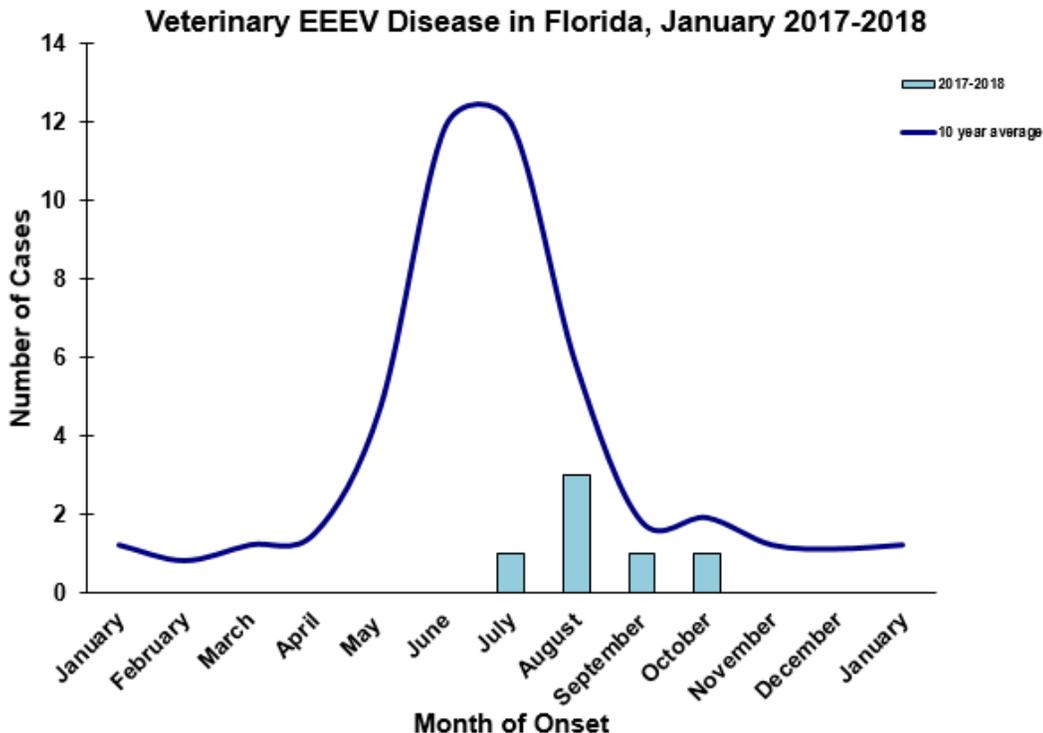
Seventy-four cases of malaria with onset in 2017 have been reported. Countries of origin were: Afghanistan, Africa, Angola, Brazil (3), Cameroon (5), Central African Republic (2), Central America/Mexico, Ethiopia/Malawi, Ghana (5), Ghana/Liberia, Guatemala, Guinea/Sierra Leone, Guyana, Haiti (6), India (6), Indonesia, Kenya (2), Kenya/South Africa/Tanzania, Liberia, Mexico, Mozambique, Mozambique/South Africa, Niger, Nigeria (15), Pakistan, Sierra Leone (2), South Africa, Togo, Uganda (5), Venezuela (3), and Zambia. Counties reporting cases were: Alachua (3), Bay, Brevard (3), Broward (8), Clay, Collier, Desoto, Duval (3), Escambia (2), Hillsborough (7), Lee (4), Leon (7), Marion, Miami-Dade (9), Monroe (2), Okaloosa, Orange (3), Osceola (5), Palm Beach (5), Pasco, Polk, Santa Rosa, Seminole, St. Johns, St. Lucie, and Volusia. Sixteen cases were reported in non-Florida residents.

Fifty cases (68%) were diagnosed with *Plasmodium falciparum*. Twenty cases (27%) were diagnosed with *Plasmodium vivax*. Two cases (3%) were diagnosed with *Plasmodium malariae*. One case (1%) was diagnosed with *Plasmodium ovale*. One case (1%) was diagnosed with both *Plasmodium malariae* and *Plasmodium ovale*.

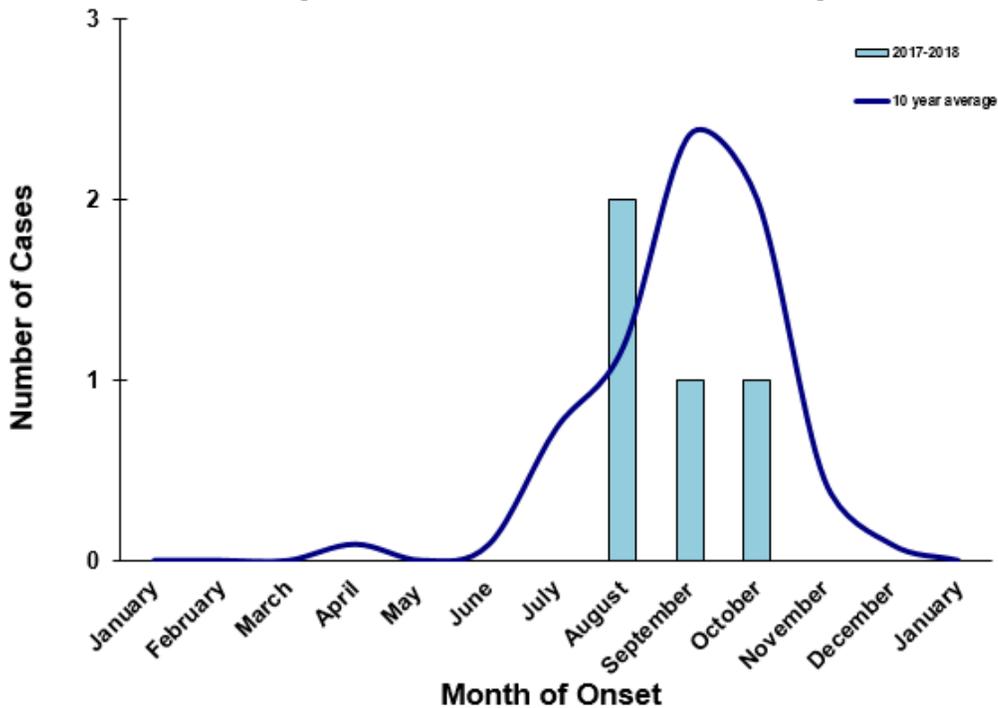
Veterinary Cases*

*Veterinary cases are reported by date of onset

No horses with EEEV or WNV infection were reported this week.



Veterinary WNV Disease in Florida, January 2017-2018



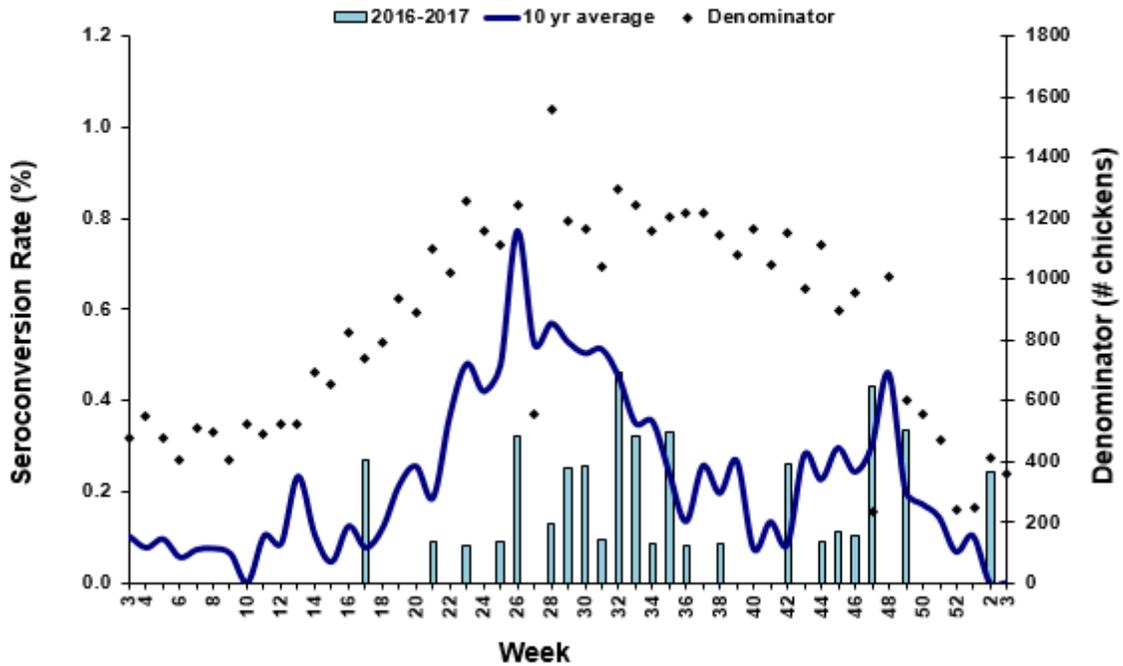
Sentinel Chickens*

The table below is for the reporting of confirmatory laboratory results from this week. Some of the samples were collected at earlier dates. The date of collection is recorded for samples collected on that day along with the total number of positives and the corresponding seroconversion rate for the week the sample was collected.

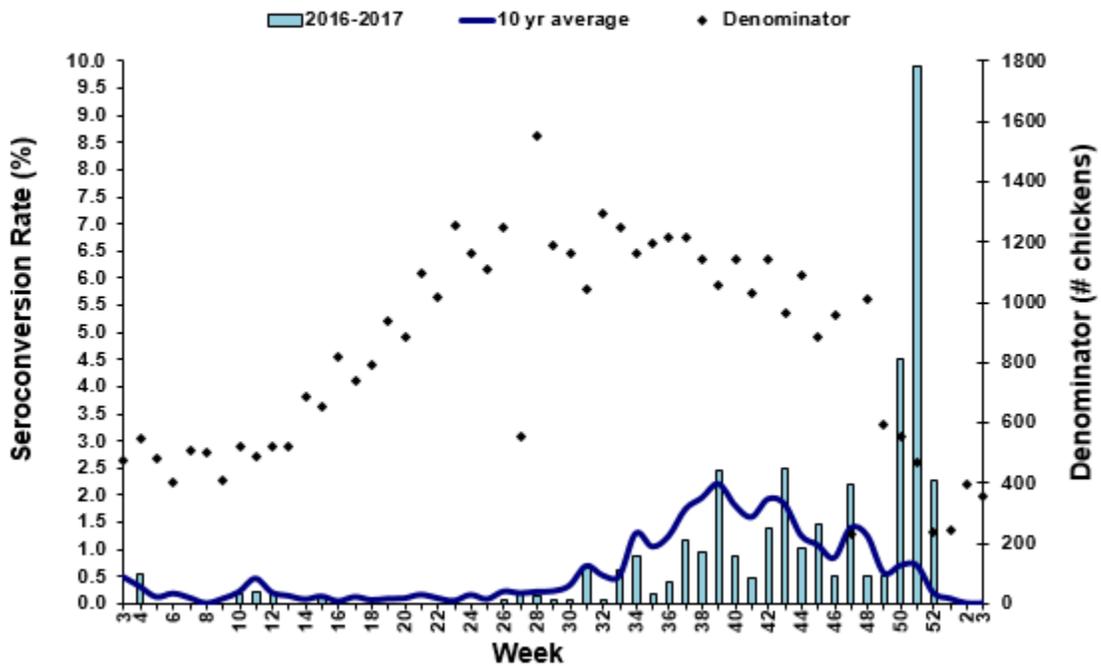
Fourteen sentinel chickens tested positive for antibodies to WNV this week in Hillsborough, Manatee, Orange, Palm Beach, and Sarasota counties.* One sentinel chicken tested positive for antibodies to EEEV this week in Citrus County.

| County | Collection Date | Seroconversion Rates (%) | | | | | | County Totals | |
|--------------|--------------------|--------------------------|------|-------|-------|------|-----|-----------------|----------------|
| | | Flavi | SLEV | WNV | Alpha | EEEV | HJV | Collection Week | YTD |
| Citrus | 1/8/18 | | | | 1.41 | 1.41 | | 1 EEEV | 1 EEEV |
| Hillsborough | 12/27/17 | 5.66 | | 5.66 | | | | 3 WNV | 31 WNV, 2 SLEV |
| Manatee | 12/19/17 | 12.20 | | 12.20 | | | | 5 WNV | 50 WNV |
| Orange | 12/14/17 | 1.77 | | 1.77 | | | | 2 WNV | 5 WNV, 1 EEEV |
| Palm Beach | 12/11/17 | 50.00 | | 50.00 | | | | 10 WNV | 10 WNV, 1 SLEV |
| Sarasota | 12/21/17 | 19.15 | | 19.15 | | | | 9 WNV | 49 WNV, 4 SLEV |
| | 12/26/17, 12/29/17 | 4.26 | | 4.26 | | | | 2 WNV | |

Sentinel Seroconversions to EEEV in Florida, 2017-2018



Sentinel Seroconversions to WNV in Florida, 2017-2018



* Please note that a change in testing procedure starting on week 50 resulted in an artificial spike in positive test results that can not be directly compared with past results.

Mosquito Pools

No mosquito pools tested positive for EEEV, WNV, or Zika this week.

| County | Collection Week | Result | Species | County YTD |
|--------|-----------------|--------|---------|------------|
| | | | | |

Dead Birds

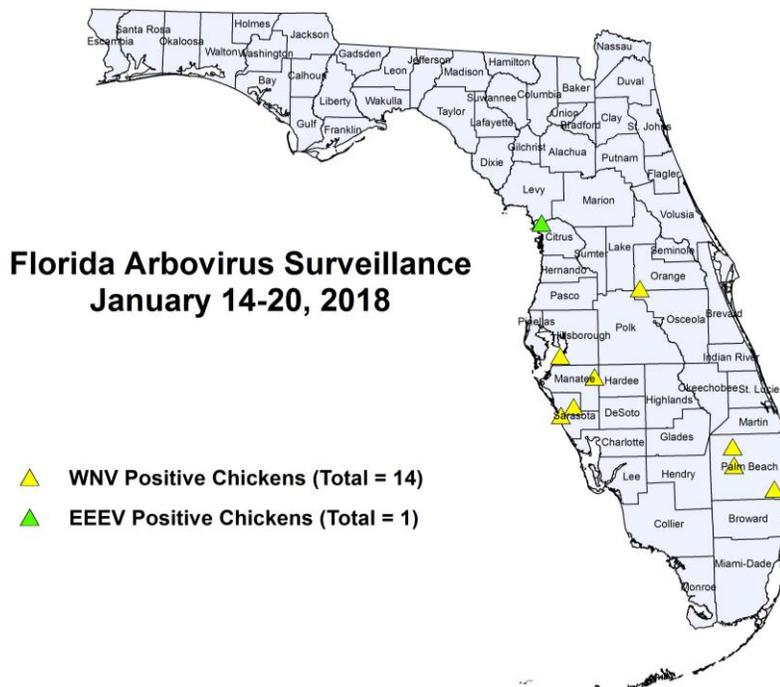
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, eleven reports representing a total of forty-eight dead birds including four raptors and one dove were received from eight counties.

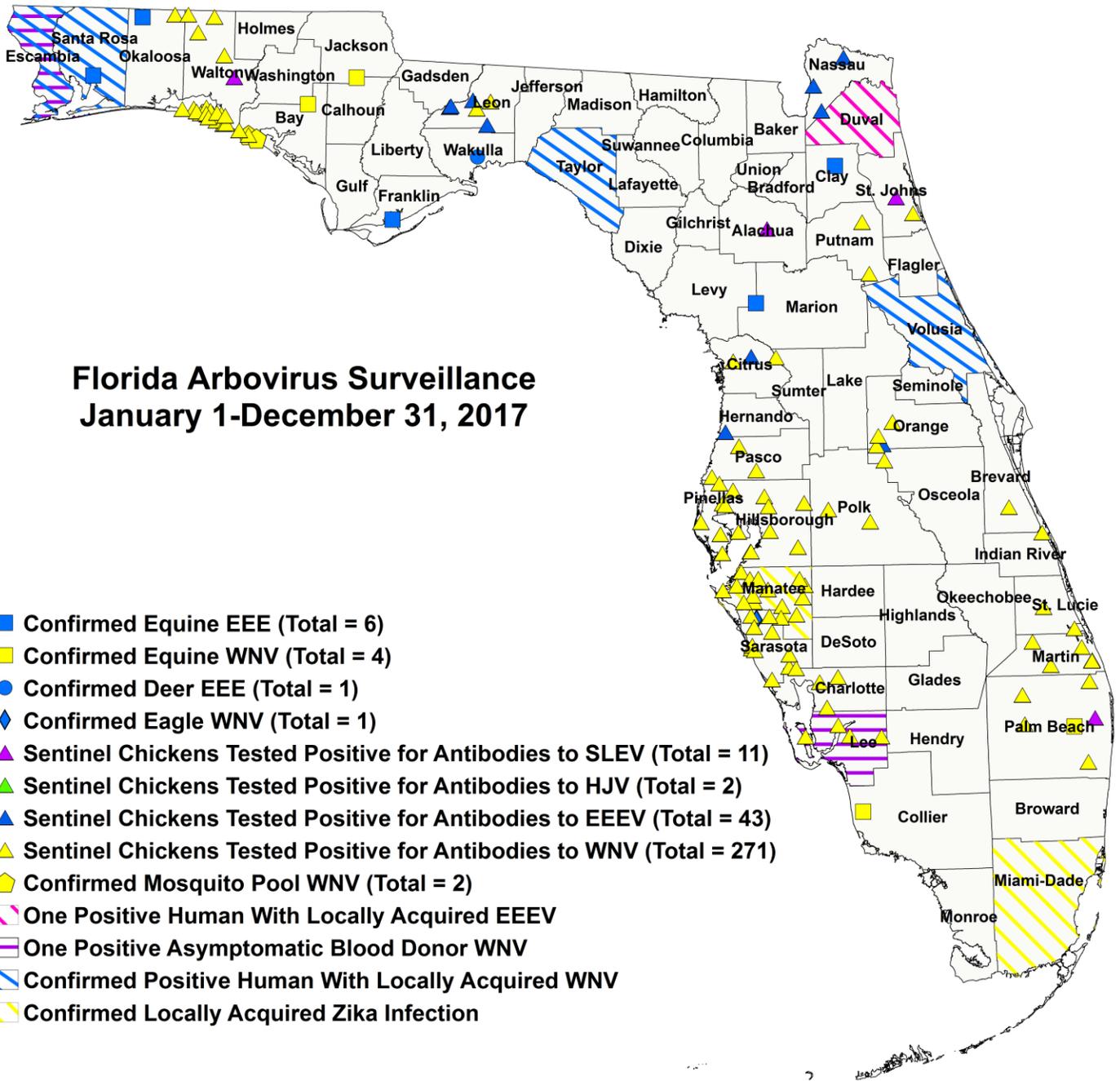
In 2018, twenty-eight reports representing a total of one hundred one dead birds (7 raptors, 2 doves) were received from seventeen of Florida's sixty-seven counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/.

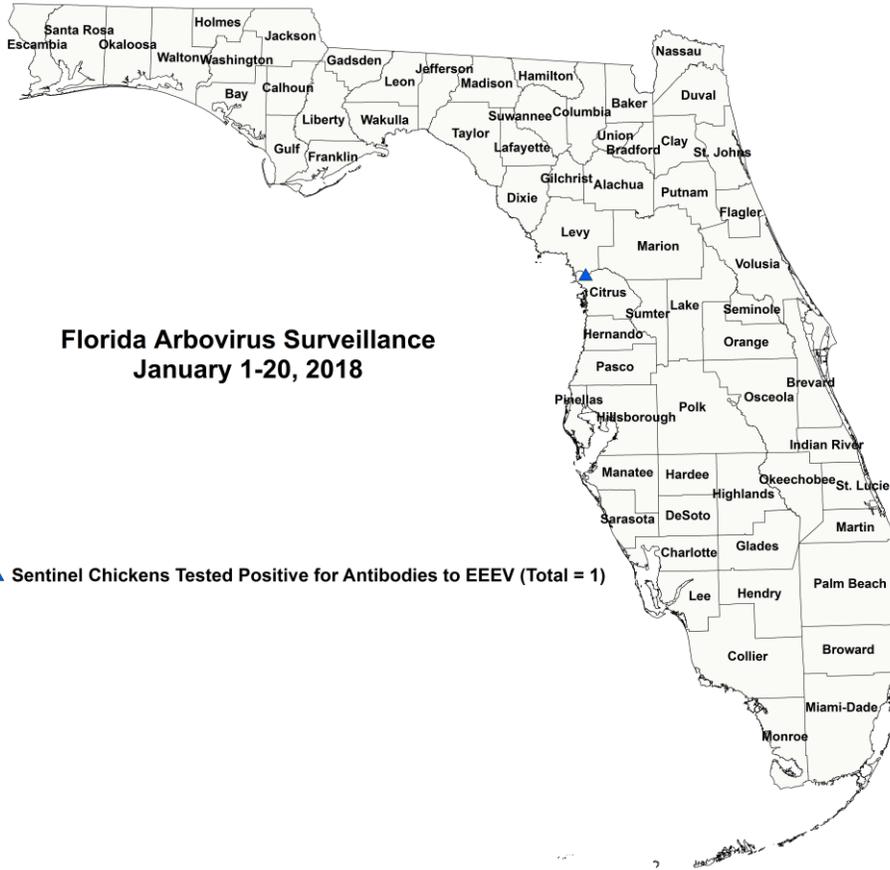
2018

| County | Total Dead Birds | Crows | Jays | Raptors | Dove |
|--------------|------------------|-------|------|---------|------|
| Dade | 1 | 0 | 0 | 0 | 1 |
| Duval | 15 | 0 | 0 | 0 | 0 |
| Escambia | 1 | 0 | 0 | 0 | 0 |
| Indian River | 10 | 0 | 0 | 0 | 0 |
| Martin | 11 | 0 | 0 | 1 | 0 |
| Okaloosa | 5 | 0 | 0 | 0 | 0 |
| Pinellas | 2 | 0 | 0 | 2 | 0 |
| Walton | 3 | 0 | 0 | 1 | 0 |

Maps







2018 Arbovirus Activity by County

| County | Arbovirus Activity |
|--------|------------------------|
| Citrus | EEEV: 1 sentinel (1/8) |

2017 Arbovirus Activity by County

| County | Arbovirus Activity |
|--------------|---|
| Alachua | SLEV: 1 sentinel (5/30) |
| Bay | WNV: 1 horse (8/28), 2 mosquito pools (7/26, 8/3), 1 sentinel (8/28) |
| Brevard | WNV: 1 sentinel (11/1) |
| Charlotte | WNV: 11 sentinels (8/4, 9/22, 9/29, 10/20, 12/15) |
| Citrus | WNV: 6 sentinels (11/7, 11/14, 11/20, 11/27, 12/18) EEEV: 1 sentinel (8/8) |
| Clay | EEEV: 1 horse (10/6) |
| Collier | WNV: 1 horse (9/22) |
| Duval | EEEV: 1 human (September) |
| Escambia | WNV: 1 asymptomatic blood donor (August), 1 human (October) |
| Franklin | EEEV: 1 horse (7/17) |
| Hernando | EEEV: 1 sentinel (5/22) |
| Hillsborough | WNV: 31 sentinels (1/24, 7/26, 8/1, 8/15, 8/23, 9/6, 9/13, 9/26, 10/3, 11/6, 11/7, 12/19, 12/27) SLEV: 2 sentinels (6/28, 8/1) |
| Indian River | WNV: 1 sentinel (10/5) |
| Jackson | WNV: 1 horse (8/30) EEEV: 1 horse (8/30) |
| Lee | WNV: 1 asymptomatic blood donor (November), 5 sentinels (8/21, 10/16, 10/30, 12/11) |
| Leon | WNV: 3 sentinels (9/27) EEEV: 10 sentinels (7/17, 8/7, 8/14, 8/28, 9/5) SLEV: 1 sentinel (8/22) |

| | |
|-------------------|--|
| Levy | EEEV: 1 horse (9/20) |
| Manatee | WNV: 50 sentinels (6/27, 7/5, 7/11, 7/18, 7/30, 8/22, 8/31, 9/13, 9/21, 9/28, 10/5, 10/11, 10/20, 10/11, 10/20, 10/26, 11/6, 11/28, 12/19) ZIKV: 1 human (September) |
| Martin | WNV: 9 sentinels (10/6, 10/27, 11/3, 12/15) |
| Miami-Dade | ZIKV: 1 human (September) |
| Nassau | EEEV: 4 sentinels (7/20, 9/21, 10/20, 11/2) |
| Okaloosa | EEEV: 1 horse (8/7) |
| Orange | WNV: 2 sentinels (11/16, 12/14, 12/19, 12/20) EEEV: 1 sentinel (12/7) |
| Palm Beach | WNV: 1 horse (10/25), 10 sentinels (12/11) SLEV: 1 sentinel (10/25) |
| Pasco | WNV: 5 sentinels (8/1, 8/22, 9/27, 10/24) |
| Pinellas | WNV: 27 sentinels (8/14, 8/21, 9/5, 9/13, 9/25, 10/2, 10/16, 10/23, 11/6, 11/13, 11/20, 11/27, 12/18) |
| Polk | WNV: 4 sentinels (9/18, 9/25, 11/6) |
| Putnam | WNV: 2 sentinels (9/27, 11/9) |
| Santa Rosa | WNV: 1 human (September) EEEV: 1 horse (8/27) |
| Sarasota | WNV: 1 eagle (June), 490sentinels (1/23, 8/7, 8/18, 9/5, 9/8, 9/12, 9/22, 9/25, 10/23, 10/27, 10/30, 11/3, 12/8, 12/14, 12/15, 12/18, 12/21, 12/26, 12/29) SLEV: 4 sentinels (1/20, 8/7, 9/18, 10/20) |
| St. Lucie | WNV: 1 sentinel (10/27) |
| St. Johns | WNV: 1 sentinel (11/27) SLEV: 1 sentinel (6/26) |
| Taylor | WNV: 1 human (October) |
| Volusia | WNV: 1 human (November) |
| Wakulla | EEEV: 1 deer (7/24) |
| Walton | WNV: 49 sentinels (3/7, 3/14, 3/20, 4/13, 6/5, 7/10, 7/31, 8/21, 9/12, 9/20, 9/27, 10/2, 10/9, 10/17, 10/24, 10/31, 11/6, 11/20, 11/28, 12/5, 12/18) EEEV: 26 sentinels (4/24, 6/5, 6/19, 6/26, 7/10, 7/17, 7/24, 7/26, 7/31, 8/7, 8/9, 8/14, 8/21, 8/28, 8/29, 10/16, 10/17, 11/6, 11/14, 11/20) SLEV: 1 sentinel (6/21) HJV: 2 sentinels (8/21) |

Acknowledgements and Data Sources

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For more surveillance information, please see the DOH website at: <http://www.floridahealth.gov/diseases-and-conditions/mosquito-borne-diseases/surveillance.html>

For arbovirus surveillance information for the United States, please see the Centers for Disease Control and Prevention website at: <http://www.cdc.gov/ncidod/dvbid/westnile/surv&control.htm>

Case tallies included in the weekly Florida arbovirus surveillance report include confirmed and probable cases for EEE, WNV infection, SLE, dengue, chikungunya, and malaria by date of onset. Suspect cases are not included. Activity is mapped by county of exposure rather than county of residence. Case definitions being used in Florida are consistent with national criteria provided by the Council of State and Territorial Epidemiologists (CSTE) and may be viewed at: <http://www.floridahealth.gov/diseases-and-conditions/disease-reporting-and-management/disease-reporting-and-surveillance/index.html>. Case tallies reported by CDC do not include suspect cases and cases are reported by patient state of residence rather than where the exposure occurred. Data is provided by county health departments, Department of Health Bureau of Public Health Laboratories, Department of Agriculture and Consumer Services, mosquito control agencies, Florida Fish and Wildlife Conservation Commission, medical providers and veterinarians. Equine cases are provided by the Department of Agriculture and Consumer Services.