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), Zika virus (ZIKV) and California encephalitis group viruses (CEV). Malaria, a parasitic mosquito-borne disease is also included. During the period of November 20-26, 2022, the following arboviral activity was recorded in Florida.

**WNV activity:** No human cases of WNV infection were reported this week. No horses with WNV infection were reported this week. No sentinel chickens tested positive for antibodies to WNV this week. No mosquito pools tested positive for WNV this week. In 2022, positive samples from four humans, five horses, 353 sentinel chickens, and eight mosquito pools have been reported from 26 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 2022, 18 positive samples have been reported from 11 counties.

**Flavivirus (WNV or SLEV)* activity:** No sentinel chickens tested positive for antibodies to a flavivirus this week. In 2022, positive samples from 13 sentinel chickens have been reported from 10 counties.

**EEEV activity:** No human cases of EEEV infection were reported this week. No horses with EEEV infection were reported this week. No sentinel chickens tested positive for antibodies to EEEV this week. In 2022, positive samples from 68 sentinel chickens and 11 horses have been reported from 24 counties.

**International Travel-Associated Dengue:** Five cases of dengue were reported this week in persons that had international travel. In 2022, 707 travel-associated dengue cases have been reported.

**Dengue Cases Acquired in Florida:** No cases of locally acquired dengue were reported this week. In 2022, 48 cases of locally acquired dengue have been reported.

**International Travel-Associated Chikungunya Fever Cases:** No cases of chikungunya fever were reported this week in persons that had international travel. In 2022, no travel-associated chikungunya fever cases have been reported.

**Chikungunya Fever Cases Acquired in Florida:** No cases of locally acquired chikungunya fever were reported this week. In 2022, no cases of locally acquired chikungunya fever have been reported.

**International Travel-Associated Zika Fever Cases:** No cases of Zika fever were reported this week in persons that had international travel. In 2022, no travel-associated Zika fever cases have been reported.

**Zika Fever Cases Acquired in Florida:** No cases of locally acquired Zika fever were reported this week. In 2022, no cases of locally acquired Zika fever have been reported.

**Advisories/Alerts:** Broward, Miami-Dade, and Volusia Counties are currently under a mosquito-borne illness alert. Bay, Charlotte, Collier, Hillsborough, Lee, Martin, Osceola, Palm Beach, Pinellas, Sarasota, St. Johns, and Walton counties are currently under a mosquito-borne illness advisory. No other counties are currently under a mosquito-borne illness advisory or alert.

There are currently multiple travel health notices from the Centers for Disease Control and Prevention related to mosquito-borne diseases.
<table>
<thead>
<tr>
<th>Country of Exposure</th>
<th>DENV-1</th>
<th>DENV-2</th>
<th>DENV-3</th>
<th>DENV-4</th>
<th>DENV-1/ DENV-2</th>
<th>DENV-1/ DENV-3</th>
<th>DENV-2/ DENV-3</th>
<th>Unknown</th>
<th>Total</th>
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<td>77</td>
<td>651</td>
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<tr>
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<td>Guyana</td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>
No veterinary cases were reported this week.

**Veterinary Cases**

**Veterinary WNV Disease in Florida, November 2021-2022**

<table>
<thead>
<tr>
<th>Panama</th>
<th>1</th>
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<tbody>
<tr>
<td>Puerto Rico</td>
<td>2</td>
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<tr>
<td>Sri Lanka</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
</tr>
</tbody>
</table>

**Dengue Cases Acquired in Florida:** In 2022, 48 cases of locally acquired dengue have been reported in Collier, Broward (2), Miami-Dade (44), and Volusia counties, with onsets in June, July (5), August (17), September (9), October (15) and November. One case was reported in a non-Florida resident. Forty-four of the cases have been serotyped by PCR. Serotypes reported were DENV-3 (41), DENV-4 (2), and DENV-2.

**International Travel-Associated Malaria Cases:** Fifty-one cases of malaria with onset in 2022 have been reported. Countries of origin were: Brazil (3), Cameroon (3), Central African Republic, Côte D’Ivoire, Ethiopia (2), Equatorial Guinea (2), Ghana (4), Guinea (2), India, Kenya, multiple countries (3), Nicaragua (5), Nigeria (13), Pakistan (2), Sierra Leone (3), Sudan, Uganda (2), Venezuela, and Zambia. Counties reporting cases were: Brevard, Broward (7), Duval (5), Flagler (3), Hillsborough (4), Lee (4), Leon, Miami-Dade (9), Nassau, Orange (5), Palm Beach (4), Pasco (2), Pinellas (2), Santa Rosa, and St. Johns (2). Seven cases were reported in non-Florida residents.

Thirty cases (59%) were diagnosed with *Plasmodium falciparum*. Eighteen cases (35%) were diagnosed with *Plasmodium vivax*. Three cases (6%) were diagnosed with *Plasmodium malariae*.
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.

No sentinel chickens tested positive for antibodies to SLEV, WNV, EEEV or HJV this week.

<table>
<thead>
<tr>
<th>County</th>
<th>Collection Date</th>
<th>Seroconversion Rates (%)</th>
<th>County Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Flavi</td>
<td>SLEV</td>
</tr>
<tr>
<td></td>
<td>Nov</td>
<td>Dec</td>
<td>Jan</td>
</tr>
</tbody>
</table>

Veterinary EEEV Disease in Florida, November 2021-2022
Mosquito Pools

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

<table>
<thead>
<tr>
<th>County</th>
<th>Collection Date</th>
<th>Result</th>
<th>Species</th>
<th>County YTD</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

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, 18 reports representing a total of 74 dead birds, including three crows, one jay, one raptor, and 3 doves, were received from 14 counties.

In 2022, 1495 reports representing a total of 4994 dead birds (116 crows, 39 jays, 199 raptors, 169 doves) were received from 59 of Florida’s 67 counties.

2022

<table>
<thead>
<tr>
<th>County</th>
<th>Total Dead Birds</th>
<th>Crows</th>
<th>Jays</th>
<th>Raptors</th>
<th>Doves</th>
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<tr>
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<td>3</td>
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<td>Brevard</td>
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<tr>
<td>Broward</td>
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</tr>
<tr>
<td>Clay</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Duval</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hillsborough</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lee</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Levy</td>
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<td>0</td>
<td>0</td>
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<td>Marion</td>
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<td>0</td>
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<td>0</td>
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</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>St. Lucie</td>
<td>20</td>
<td>0</td>
<td>0</td>
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<td>0</td>
</tr>
</tbody>
</table>
Florida Arbovirus Surveillance
November 20-26, 2022

No sentinel chickens tested positive for antibodies to SLEV, WNV, EEEV or HJV this week

- Under Mosquito-borne Illness Advisory
- Under Mosquito-borne Illness Alert
<table>
<thead>
<tr>
<th>County</th>
<th>Humans</th>
<th>Equines</th>
<th>Sentinel Chickens</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citrus</td>
<td></td>
<td></td>
<td>7 WNV (1/4, 1/11, 7/19, 8/30, 10/18)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11 EEEV (1/11, 1/18, 4/19, 5/17, 5/23, 6/1, 6/14, 6/21, 6/28, 7/6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 SLEV (9/6, 10/24)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 Flavivirus (1/25)</td>
<td></td>
</tr>
<tr>
<td>Collier</td>
<td>1 dengue (July)</td>
<td>1 WNV (8/21)</td>
<td>3 WNV (8/29, 9/19, 10/4)</td>
<td></td>
</tr>
<tr>
<td>Columbia</td>
<td></td>
<td></td>
<td>1 EEEV (5/9)</td>
<td></td>
</tr>
<tr>
<td>Duval</td>
<td></td>
<td></td>
<td>2 WNV (8/15)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 EEEV (10/24)</td>
<td></td>
</tr>
<tr>
<td>Gulf</td>
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<td>13 WNV (8/2, 8/10, 8/24, 9/7, 9/13, 9/21)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 SLEV (10/26)</td>
<td></td>
</tr>
<tr>
<td>Hernando</td>
<td></td>
<td></td>
<td>1 EEEV (4/28)</td>
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<tr>
<td>Hillsborough</td>
<td>1 WNV (10/23)</td>
<td>2 EEEV (8/28, 9/2)</td>
<td>60 WNV (6/27, 7/5, 7/11, 7/18, 7/25, 7/26, 8/7, 8/8, 8/9, 8/15, 8/16, 8/22, 8/23, 8/29, 9/5, 9/6, 9/12, 9/13, 9/19, 9/20, 10/3, 10/10, 10/17, 10/31)</td>
<td>3 WNV mosquito pools (Cx. nigripalpus [8/2, 8/9, 9/5])</td>
</tr>
<tr>
<td>Indian River</td>
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<td>1 EEEV (6/16)</td>
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<tr>
<td>Lee</td>
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<td>33 WNV (7/26, 8/9, 8/24, 8/30, 9/6, 9/13, 9/21, 9/26, 10/5, 10/19)</td>
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<td>10 WNV (9/23, 10/7, 10/14, 10/28)</td>
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</tr>
<tr>
<td>Miami-Dade</td>
<td>44 dengue (June, July (4), August (17), September (8), October (13), November)</td>
<td>13 WNV (8/11, 9/2, 9/23, 9/24, 10/1, 10/28, 11/4)</td>
<td></td>
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<tr>
<td></td>
<td></td>
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<td>4 EEEV (7/29, 8/6, 11/4)</td>
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<td>1 Flavivirus (10/8)</td>
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<tr>
<td>Nassau</td>
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<td>1 WNV (9/6)</td>
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</tr>
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<td>18 EEEV (1/3, 3/28, 4/11, 4/25, 5/16, 5/31, 6/6, 6/20, 6/27, 7/5, 7/11, 7/25, 8/1, 10/17, 10/31)</td>
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<td>1 HJV (5/31)</td>
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<td>1 WNV (7/25)</td>
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<td>3 EEEV (4/11, 8/29, 10/23)</td>
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<tr>
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<td>20 WNV (7/25, 8/1, 8/8, 9/6, 9/12, 9/19, 9/26, 10/17, 10/31)</td>
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<td>1 EEEV (3/7)</td>
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</tr>
<tr>
<td>County</td>
<td>Humans</td>
<td>Equines</td>
<td>Sentinel Chickens</td>
<td>Other</td>
</tr>
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<td>----------</td>
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<td>----------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Polk</td>
<td></td>
<td>1 EEEV (6/19)</td>
<td>44 WNV (7/15, 7/22, 7/26, 7/29, 8/2, 8/5, 8/9, 8/15, 8/16, 8/19, 8/26, 8/30, 9/2, 9/7, 9/9, 9/13, 9/16, 9/20, 9/23, 10/17)</td>
<td>5 WNV mosquito pools (Cx. quinquefasciatus [7/20, 7/27, 9/8, 9/12])</td>
</tr>
<tr>
<td>Sarasota</td>
<td>1 WNV (September)</td>
<td>1 WNV (8/28)</td>
<td>3 SLEV (8/26, 9/9, 10/21) 1 Flavivirus (6/7)</td>
<td></td>
</tr>
<tr>
<td>Seminole</td>
<td></td>
<td></td>
<td>2 WNV (8/22, 9/19) 1 SLEV (8/22) 1 Flavivirus (9/6)</td>
<td></td>
</tr>
<tr>
<td>St. Johns</td>
<td>1 WNV (October)</td>
<td>1 EEEV (7/5)</td>
<td>12 WNV (7/25, 8/8, 8/15, 8/29, 9/6, 9/19, 10/17, 11/7) 2 SLEV (10/24) 3 Flavivirus (9/6, 9/12)</td>
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</tr>
<tr>
<td>St. Lucie</td>
<td></td>
<td>1 WNV (10/25)</td>
<td>4 WNV (9/27, 10/5, 10/26) 1 Flavivirus (10/7)</td>
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</tr>
<tr>
<td>Sumter</td>
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<td></td>
<td>4 WNV (8/8, 8/15, 9/12, 10/24, 11/2) 1 SLEV (9/6)</td>
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</tr>
<tr>
<td>Volusia</td>
<td>2 WNV (July, August)</td>
<td></td>
<td>19 WNV (7/11, 7/25, 8/8, 8/15, 9/6, 9/12, 9/26, 10/3, 10/10, 10/17) 2 EEEV (2/21, 6/27) 1 SLEV (9/6) 1 HJV (5/23)</td>
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</tr>
<tr>
<td>Walton</td>
<td></td>
<td></td>
<td>39 WNV (7/25, 8/8, 8/15, 8/22, 8/29, 8/31, 9/6, 9/12, 9/19, 10/10, 10/17, 10/24, 10/31, 11/7) 14 EEEV (4/4, 5/9, 6/13, 6/20, 6/27, 7/5, 7/11, 7/13, 7/25, 8/1, 10/10, 10/18) 1 SLEV (3/21) 2 HJV (6/20, 7/25) 2 Flavivirus (3/21, 8/22)</td>
<td></td>
</tr>
</tbody>
</table>

*Thirteen chickens in 2022 have tested positive for flavivirus antibodies and require additional specialized testing to distinguish between WNV and SLEV antibodies. Testing is currently delayed due to supply chain issues. The final determination of these birds will be updated as more information becomes available. In Florida, both WNV and SLEV have similar disease vectors and epidemiology. Seroconversion rates for flavivirus are included in the table.

### Acknowledgements and Data Sources

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For more surveillance information, please see the DOH website at: [www.floridahealth.gov/diseases-and-conditions/mosquito-borne-diseases/surveillance.html](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: [www.cdc.gov/ncidod/dvbid/westnile/surv&control.htm](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: 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.