Florida Arbovirus Surveillance
Week 29: July 14-20, 2019

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 July 14-20, 2019, 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. Six sentinel chickens tested positive for antibodies to WNV this week in Indian River, Lee, and Orange counties. In 2019, one horse and 27 sentinel chickens have been reported from 14 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 2019, no positive samples have been reported.

EEEV activity: No human cases of EEEV infection were reported this week. One horse with EEEV infection was reported this week in DeSoto County. Seven sentinel chickens tested positive for antibodies to EEEV this week in Alachua, St. Johns, and Walton counties. In 2019, 25 horses, one emu, one eagle, and 77 sentinel chickens have been reported from 27 counties.

International Travel-Associated Dengue Fever Cases: Five cases of dengue fever were reported this week in persons that had international travel. In 2019, 54 travel-associated cases have been reported.

Dengue Fever Cases Acquired in Florida: No cases of locally acquired dengue fever were reported this week. In 2019, one case of locally acquired dengue fever has been reported.

International Travel-Associated Chikungunya Fever Cases: No cases of chikungunya fever were reported this week in persons that had international travel. In 2019, four travel-associated cases have been reported.

Chikungunya Fever Cases Acquired in Florida: No cases of locally acquired chikungunya fever were reported this week. In 2019, no cases of locally acquired chikungunya fever have been reported.

International Travel-Associated Zika Fever Cases: One case of Zika fever was reported this week in a person that had international travel. In 2019, 27 travel-associated cases have been reported.

Zika Fever Cases Acquired in Florida: No cases of locally acquired Zika fever were reported this week. In 2019, no cases of locally acquired Zika fever have been reported.

Advisories/Alerts: Bay, Calhoun, DeSoto, Holmes, Suwannee, and Walton counties are currently under a mosquito-borne illness advisory. No other counties are currently under mosquito-borne illness advisory or alert.

There are no areas of ongoing, active Zika transmission in Florida. For additional information on current CDC recommendations, please visit www.cdc.gov/zika/intheus/florida-update.html. For additional information on Zika virus cases from 2016–2018, including up-to-date numbers, please visit https://zikafreefl.org/.

There are Level 2 Travel Health Notices for Brazil and Nigeria related to the transmission of yellow fever virus. Additional information on travel health notices can be found at the following link: wwwnc.cdc.gov/travel/notices. For a map of arboviral disease activity in the United States, please visit the following link: wwn.cdc.gov/arbonet/maps/ADB_Diseases_Map/index.html.
International Travel-Associated Chikungunya Fever Cases: Four cases of chikungunya fever with onset in 2019 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, Haiti, India, and Thailand. Counties reporting cases were: Manatee, Marion, Orange, and Palm Beach. Two cases were reported in non-Florida residents.

International Travel-Associated Dengue Fever Cases: Fifty-four cases of dengue fever with onset in 2019 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Belize (2), Brazil (2), Central America/Mexico, Colombia, Colombia/Venezuela, Costa Rica, Cuba (32), Guatemala, Haiti, Honduras (2), Jamaica (4), Malaysia/Singapore, Mexico, Nicaragua, Thailand, and Venezuela (2). Counties reporting cases were: Broward (6), Hillsborough (3), Lake, Lee, Miami-Dade (32), Orange (5), Palm Beach (2), Pasco, Pinellas, Putnam, and St. Lucie. Four cases were reported in non-Florida residents. In 2019, 43 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

<table>
<thead>
<tr>
<th># of cases per serotype – 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENV-1</td>
</tr>
<tr>
<td>DENV-2</td>
</tr>
<tr>
<td>DENV-3</td>
</tr>
<tr>
<td>DENV-2 &amp; 3</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Dengue Fever Cases Acquired in Florida: In 2019, one case of locally acquired dengue fever has been reported in Miami-Dade County, with onset in March.

International Travel-Associated Zika Fever Cases: In 2019, 27 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: Brazil, Colombia (1), Cuba (3), Guatemala (5), Haiti (7), Honduras (4), Jamaica, Nicaragua, Philippines, Puerto Rico, and Venezuela. Counties reporting cases were: Broward (3), Collier (2), Duval, Hillsborough, Indian River, Lee, Miami-Dade (12), Orange (4), Palm Beach, and Sarasota. Two cases were reported in non-Florida residents. Florida is monitoring a total of 15 pregnant women in 2019.

International Travel-Associated Malaria Cases: Twenty-eight cases of malaria with onset in 2019 have been reported. Countries of origin were: Angola (2), Congo, Democratic Republic of the Congo (4), Ghana (5), Ivory Coast (4), Kenya (3), Liberia, Nigeria (5), Papua New Guinea, Sudan, and Uganda. Counties reporting cases were: Broward (2), Duval, Hillsborough (4), Lake (2), Miami-Dade (5), Orange (4), Pasco (3), Pinellas (3), Polk (2), Seminole, and Volusia. Six cases were reported in non-Florida residents.

Twenty-seven cases (96%) were diagnosed with *Plasmodium falciparum*. One case (4%) was diagnosed with *Plasmodium vivax*. 
*Veterinary cases are reported by date of onset. Only mammalian veterinary cases are included in the graphs.

One horse with EEEV infection was reported this week in DeSoto County.
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.

Six sentinel chickens tested positive for antibodies to WNV this week in Indian River, Lee, and Orange counties. Seven sentinel chickens tested positive for antibodies to EEEV this week in Alachua, St. Johns, and Walton counties.

<table>
<thead>
<tr>
<th>County</th>
<th>Collection Date</th>
<th>Flavi</th>
<th>SLEV</th>
<th>WNV</th>
<th>Alpha</th>
<th>EEEV</th>
<th>HJV</th>
<th>Collection Week</th>
<th>YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alachua</td>
<td>7/8/19</td>
<td>5.56</td>
<td>5.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 EEEV</td>
<td>1 EEEV</td>
</tr>
<tr>
<td>Indian River</td>
<td>7/3/19-7/5/19</td>
<td>4.26</td>
<td>4.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 WNV</td>
<td>3 WNV</td>
</tr>
<tr>
<td>Lee</td>
<td>7/9/19</td>
<td>0.98</td>
<td>0.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 WNV</td>
<td>1 WNV</td>
</tr>
<tr>
<td>Orange</td>
<td>6/20/19</td>
<td>0.88</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 WNV, 1 EEEV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6/24/19</td>
<td>1.75</td>
<td>1.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 WNV</td>
<td>8 WNV, 1 EEEV</td>
</tr>
<tr>
<td></td>
<td>7/1/19</td>
<td>0.89</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 WNV</td>
<td></td>
</tr>
<tr>
<td>St. Johns</td>
<td>7/8/19</td>
<td>1.69</td>
<td>1.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 EEEV</td>
<td>1 WNV, 5 EEEV</td>
</tr>
<tr>
<td>Walton</td>
<td>7/8/19</td>
<td>6.17</td>
<td>6.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 EEEV</td>
<td>1 WNV, 40 EEEV, 1 HJV</td>
</tr>
</tbody>
</table>

**Sentinel Seroconversions to EEEV in Florida, 2018-2019**

![Graph showing seroconversion rates and counts over time.](image enviado)
Mosquito Pools

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

<table>
<thead>
<tr>
<th>County</th>
<th>Collection Date</th>
<th>Result</th>
<th>Species</th>
<th>County YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<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, eight reports representing a total of 19 dead birds, including one crow and one raptor, were received from seven counties.

In 2019, 236 reports representing a total of 434 dead birds (12 crows, 8 jays, 59 raptors, and 10 doves) were received from 38 of Florida’s 67 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/.

2019

<table>
<thead>
<tr>
<th>County</th>
<th>Total Dead Birds</th>
<th>Crows</th>
<th>Jays</th>
<th>Raptors</th>
<th>Doves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alachua</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bay</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Indian River</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Manatee</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Monroe</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pinellas</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Volusia</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Florida Arbovirus Surveillance
July 14-20, 2019

- EEEV Positive Equine (Total = 1)
- EEEV Positive Chickens (Total = 7)
- WNV Positive Chickens (Total = 6)
- Under Mosquito-borne Illness Advisory
Florida Arbovirus Surveillance
January 1-July 20, 2019

2019 Arbovirus Activity by County

<table>
<thead>
<tr>
<th>County</th>
<th>Arbovirus Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alachua</td>
<td>EEEV: 1 sentinel (7/8)</td>
</tr>
<tr>
<td>Bay</td>
<td>EEEV: 2 horses (2/24, 2/26), 9 sentinels (4/29, 7/1)</td>
</tr>
<tr>
<td>Brevard</td>
<td>WNV: 1 sentinel (1/3)</td>
</tr>
<tr>
<td>Calhoun</td>
<td>EEEV: 3 horses (3/3, 3/22)</td>
</tr>
<tr>
<td>Columbia</td>
<td>EEEV: 1 horse (3/30)</td>
</tr>
<tr>
<td>Citrus</td>
<td>WNV: 2 sentinels (1/8, 1/29) EEEV: 1 horse (5/11), 3 sentinels (4/26, 6/18)</td>
</tr>
<tr>
<td>DeSoto</td>
<td>EEEV: 2 horses (6/23, 7/2)</td>
</tr>
<tr>
<td>Flagler</td>
<td>EEEV: 1 emu (3/17)</td>
</tr>
<tr>
<td>Gulf</td>
<td>EEEV: 1 horse (2/27)</td>
</tr>
<tr>
<td>Hamilton</td>
<td>EEEV: 1 eagle (3/21)</td>
</tr>
<tr>
<td>Hernando</td>
<td>EEEV: 1 sentinel (3/4)</td>
</tr>
<tr>
<td>County</td>
<td>EEEV: Horses/Sentinels</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Holmes</td>
<td>3 horses (6/1, 6/5, 6/20)</td>
</tr>
<tr>
<td>Indian River</td>
<td>3 sentinel(s) (1/10, 7/3, 7/5)</td>
</tr>
<tr>
<td>Jackson</td>
<td>1 horse (6/19)</td>
</tr>
<tr>
<td>Lee</td>
<td>1 sentinel (7/9)</td>
</tr>
<tr>
<td>Leon</td>
<td>4 sentinel(s) (5/28, 6/10)</td>
</tr>
<tr>
<td>Levy</td>
<td>1 horse (6/19)</td>
</tr>
<tr>
<td>Madison</td>
<td>1 horse (4/1)</td>
</tr>
<tr>
<td>EEEV: 1 horse (4/1)</td>
<td></td>
</tr>
<tr>
<td>Manatee</td>
<td>1 sentinel (2/5)</td>
</tr>
<tr>
<td>Miami-Dade</td>
<td>Dengue: 1 human (March)</td>
</tr>
<tr>
<td>Nassau</td>
<td>1 sentinel (6/21)</td>
</tr>
<tr>
<td>Orange</td>
<td>8 sentinel(s) (1/7, 1/10, 1/14, 6/27, 6/20, 6/24, 7/1)</td>
</tr>
<tr>
<td>EEEV: 1 sentinel (6/17)</td>
<td></td>
</tr>
<tr>
<td>Osceola</td>
<td>1 horse (6/10)</td>
</tr>
<tr>
<td>Palm Beach</td>
<td>1 horse (2/25)</td>
</tr>
<tr>
<td>Pasco</td>
<td>1 horse (6/20)</td>
</tr>
<tr>
<td>Polk</td>
<td>1 horse (4/24), 5 sentinel(s) (5/21, 5/24, 5/31, 6/21, 6/28)</td>
</tr>
<tr>
<td>Putnam</td>
<td>1 sentinel (6/24)</td>
</tr>
<tr>
<td>EEEV: 1 horse (4/28)</td>
<td></td>
</tr>
<tr>
<td>Sarasota</td>
<td>2 sentinel(s) (2/15, 2/22)</td>
</tr>
<tr>
<td>Seminole</td>
<td>1 sentinel (6/3)</td>
</tr>
<tr>
<td>EEEV: 1 sentinel (4/8)</td>
<td></td>
</tr>
<tr>
<td>St. Johns</td>
<td>1 sentinel(s) (7/1)</td>
</tr>
<tr>
<td>EEEV: 5 sentinel(s) (4/8, 4/15, 6/3, 6/24, 7/8)</td>
<td></td>
</tr>
<tr>
<td>Sumter</td>
<td>1 sentinel (1/8)</td>
</tr>
<tr>
<td>Suwannee</td>
<td>2 horses (6/4, 6/7)</td>
</tr>
<tr>
<td>Volusia</td>
<td>4 sentinel(s) (6/17, 6/24, 7/1)</td>
</tr>
<tr>
<td>EEEV: 4 sentinel(s) (1/14, 1/22, 1/28, 7/1)</td>
<td></td>
</tr>
<tr>
<td>Walton</td>
<td>1 sentinel (4/23)</td>
</tr>
<tr>
<td>EEEV: 40 sentinel(s) (3/5, 3/11, 3/12, 3/18, 3/25, 3/26, 4/1, 4/9, 4/15, 4/23, 5/20, 6/3, 6/10, 6/17, 6/24, 7/1, 7/8)</td>
<td></td>
</tr>
<tr>
<td>HJV: 1 sentinel (6/3)</td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td>2 horses (5/28)</td>
</tr>
</tbody>
</table>

**Acknowledgements and Data Sources**

Contributors: Andrea Morrison, PhD, MSPH, Dana Giandomenico, MPH, and Danielle Stanek, DVM, DOH Bureau of Epidemiology; Lea Heberlein-Larson, Maribel Castaneda, and Valerie Mock, DOH Bureau of Public Health Laboratories; Carina Blackmore, DVM, PhD, DOH Division of Disease Control and Health Protection.

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](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.