



## Florida Arbovirus Surveillance Week 44: October 25-31, 2020

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 October 25-31, 2020, the following arboviral activity was recorded in Florida.

**WNV activity:** One human case of WNV infection was reported this week in Manatee County. Two horses with WNV infection were reported this week in Okaloosa and Okeechobee counties. No sentinel chickens tested positive for antibodies to WNV this week. In 2020, positive samples from 41 humans, 35 asymptomatic blood donors, 13 horses, four crows, 11 blue jays, two ibises, one squirrel, 18 mosquito pools, and 259 sentinel chickens have been reported from 30 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 2020, positive samples from two sentinel chickens have been reported from one county.

**EEEV activity:** No human cases of EEEV infection were reported this week. No horses with EEEV infection were reported this week. No sentinel chicken tested positive for antibodies to EEEV this week. In 2020, positive samples from 41 sentinel chickens, 20 horses, one deer, one duck, two sparrows, and one mosquito pool have been reported from 25 counties.

**International Travel-Associated Dengue Fever Cases:** No cases of dengue fever were reported this week in persons that had international travel. In 2020, 35 travel-associated cases have been reported.

**Dengue Fever Cases Acquired in Florida:** One case of locally acquired dengue fever was reported this week in Miami-Dade County. In 2020, positive samples from 71 humans and seven mosquito pools have been reported from two counties.

**International Travel-Associated Chikungunya Fever Cases:** No cases of chikungunya fever were reported this week in persons that had international travel. In 2020, 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 2020, 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 2020, 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 2020, no cases of locally acquired Zika fever have been reported.

**Advisories/Alerts:** Bay, Bradford, Charlotte, Hendry, Holmes, Indian River, Lee, Manatee, Martin, Sarasota, and St. Lucie counties are currently under a mosquito-borne illness advisory. Broward, Collier, Miami-Dade, Monroe, and Palm Beach counties are currently under a mosquito-borne illness alert. No other counties are currently under mosquito-borne illness advisory or alert.

A Level 1 Travel Health Notice has been issued for Central and South America, Mexico, the Caribbean, Asia, the Pacific Islands, Africa, and the Middle East related to the transmission of dengue virus, for Chad and Ethiopia related to chikungunya virus transmission, and for Burundi related to malaria transmission. Additional information on travel health notices can be found at: [wwwnc.cdc.gov/travel/notices](http://wwwnc.cdc.gov/travel/notices). For a map of arboviral disease activity in the United States visit: [www.cdc.gov/arbovet/maps/ADB\\_Diseases\\_Map/index.html](http://www.cdc.gov/arbovet/maps/ADB_Diseases_Map/index.html).

## 2020 Human Case Summary\*

**West Nile Virus Illnesses Acquired in Florida:** Forty-one human cases of WNV illness acquired in Florida have been reported in 2020: 26 in Miami-Dade County (April, June, July, August, September), five in Palm Beach County (June, July, August), four in Broward County (July), four in Collier County (July, August, September), one in Bay County (August), and one in Charlotte County (September). Thirty-five asymptomatic positive blood donors have been reported in 2020: 33 in Miami-Dade County (May, June, July, and August), one in Broward County (August), and one in Manatee County (September).

**International Travel-Associated Dengue Fever Cases:** Thirty-five cases of dengue fever with onset in 2020 have been reported in individuals with travel history to a dengue endemic area in the two weeks prior to onset. Counties reporting cases were: Brevard (2), Broward (5), Clay, Collier, Duval, Franklin, Hillsborough (3), Miami-Dade (15), Orange (2), Palm Beach, Sarasota, Seminole, and St. Lucie. Five cases were reported in non-Florida residents. In 2020, 24 cases of dengue reported in Florida have been serotyped by PCR. Please see the table below for a breakdown of cases by country of origin and serotype.

Country of Exposure	DENV-1	DENV-2	DENV-3	DENV-4	Unknown	Total
Bolivia	2				2	4
Cuba	2	1			1	4
Jamaica			3		1	4
Puerto Rico	1				2	3
Colombia	2					2
Dominican Republic	2					2
Indonesia					2	2
Paraguay				2		2
US Virgin Islands		1			1	2
Antigua and Barbuda			1			1
Bahamas	1					1
Brazil		1				1
French Polynesia		1				1
Mexico					1	1
Nicaragua		1				1
Puerto Rico/US Virgin Islands	1					1
St. Martin	1					1
St. Martin/St. Barts	1					1
Thailand					1	1
<b>Total</b>	<b>13</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>11</b>	<b>35</b>

**Dengue Fever Cases Acquired in Florida:** In 2020, 71 cases of locally acquired dengue fever have been reported in Miami-Dade (4) and Monroe (67) counties, with onsets in February, March, April, May, June, July, August, and September. One case was reported in a non-Florida resident.

**International Travel-Associated Malaria Cases:** Fourteen cases of malaria with onset in 2020 have been reported. Countries of origin were: Cameroon, Côte d'Ivoire, Dominican Republic, India (2), Kenya (2), Nicaragua, Nigeria, Sierra Leone (3), Uganda, and Venezuela. Counties reporting cases were: Broward (3), Clay, Duval, Hillsborough, Miami-Dade (2), Orange, Osceola, Palm Beach, Pasco, Pinellas, and Polk. Three cases were reported in non-Florida residents.

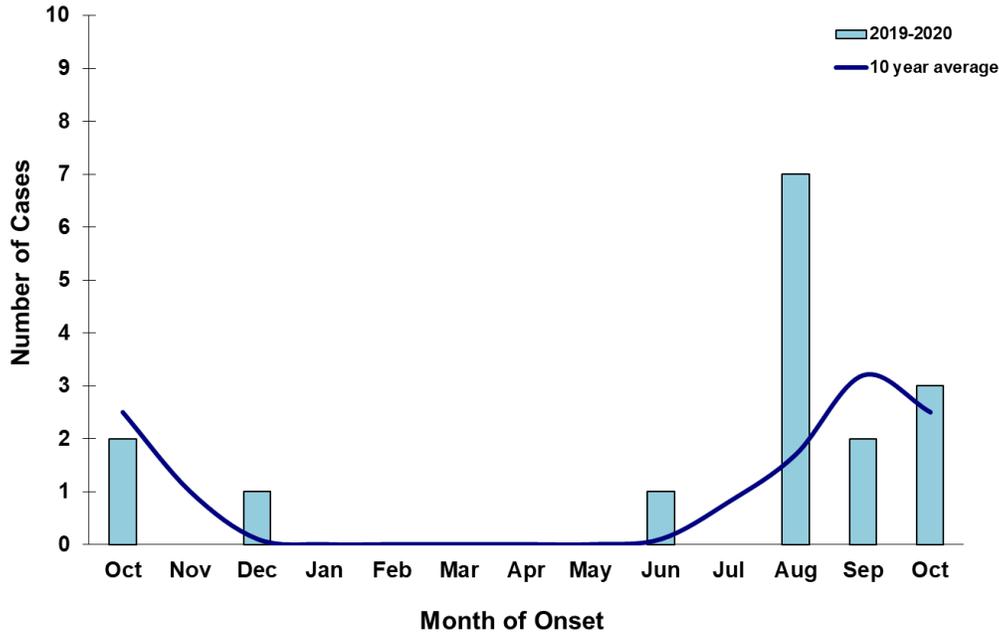
Eight cases (57%) were diagnosed with *Plasmodium falciparum*. Four cases (29%) were diagnosed with *Plasmodium vivax*. One case (7%) was diagnosed with *Plasmodium ovale*. The *Plasmodium* species for one case (7%) was unknown due to low parasitemia.

## Veterinary Cases\*

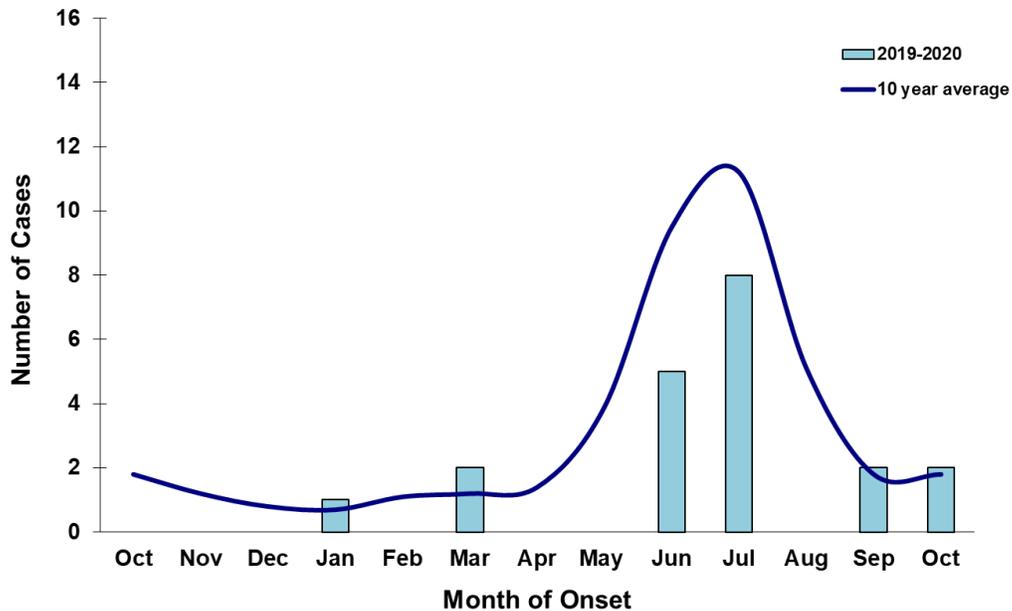
\*Veterinary cases are reported by date of onset. Only mammalian veterinary cases are included in the graphs.

Two horses with WNV infection were reported this week in Okaloosa and Okeechobee counties.

### Veterinary WNV Disease in Florida, October 2019-2020



### Veterinary EEEV Disease in Florida, October 2019-2020



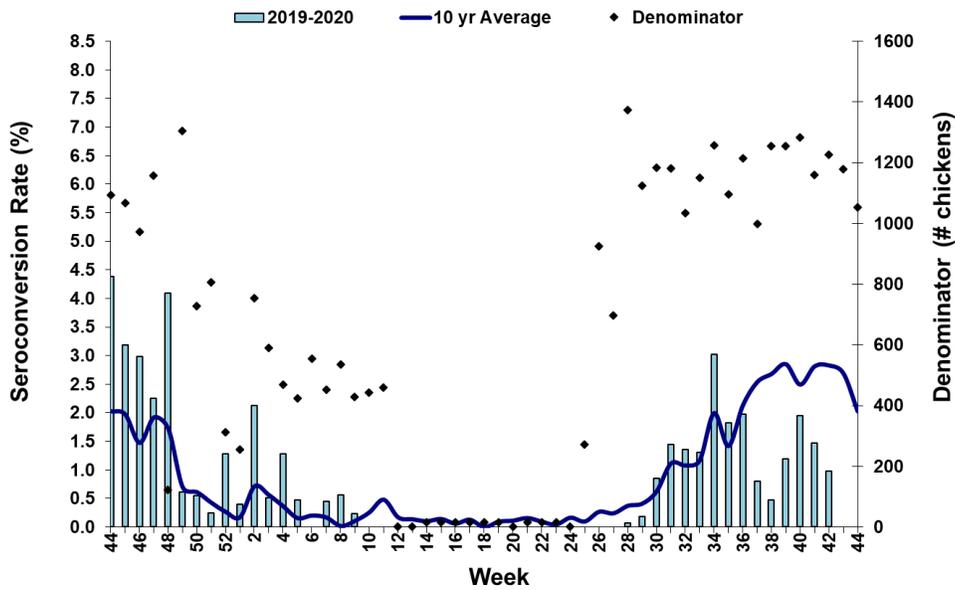
## Sentinel Chickens\*

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.

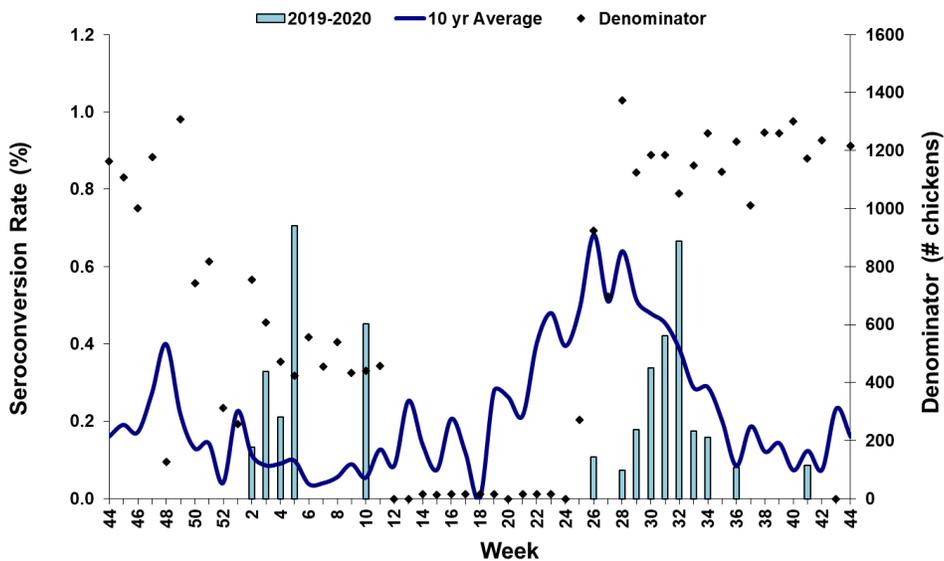
Sentinel chicken results were delayed this week due to a reagent issue. The results for these chickens will be included in next week's report.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD

**Sentinel Seroconversions to WNV in Florida, 2019-2020**



**Sentinel Seroconversions to EEEV in Florida, 2019-2020**



## Mosquito Pools

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

County	Collection Date	Result	Species	County YTD

## Dead Birds

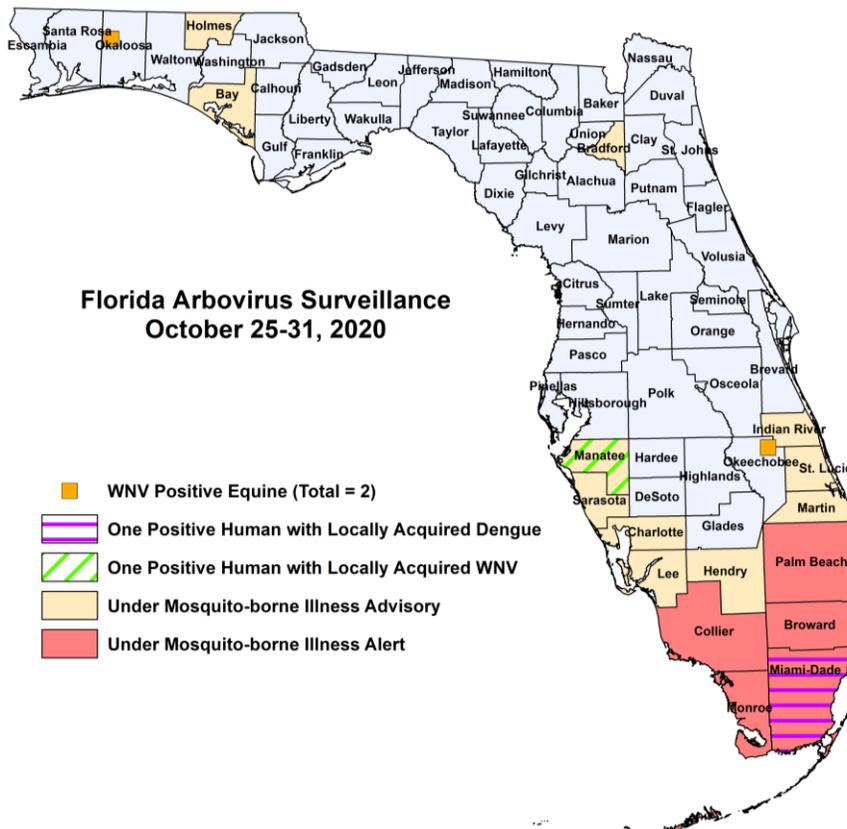
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, eight reports representing a total of eight dead birds, including four raptors, were received from seven counties.

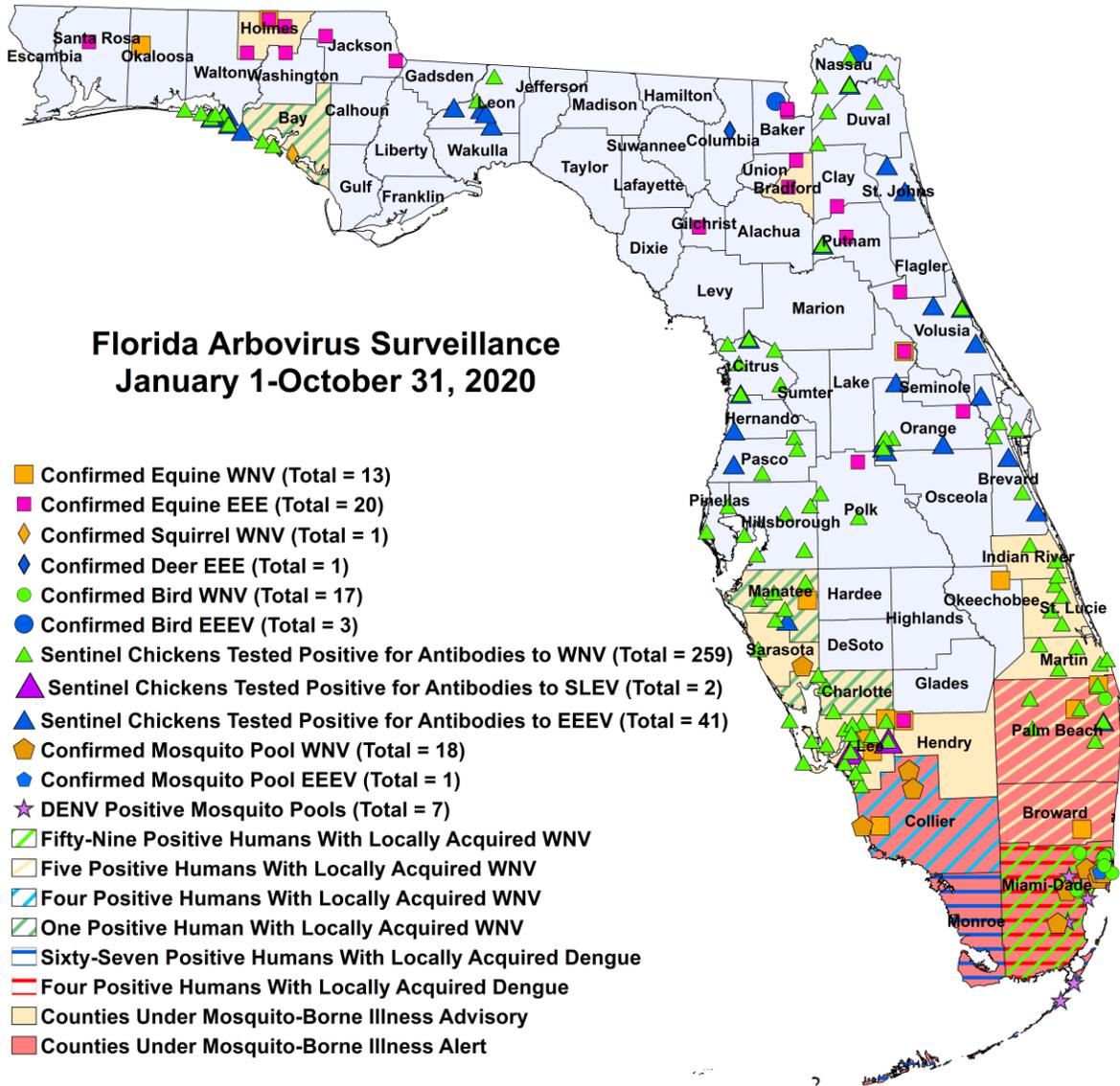
In 2020, 381 reports representing a total of 977 dead birds (41 crows, 42 jays, 84 raptors, 37 doves) were received from 41 of Florida's 67 counties.

### 2020

County	Total Dead Birds	Crows	Jays	Raptors	Doves
Brevard	1	0	0	0	0
Broward	1	0	0	1	0
Miami-Dade	1	0	0	1	0
Nassau	1	0	0	0	0
Pasco	1	0	0	1	0
Seminole	2	0	0	1	0
St. Lucie	1	0	0	0	0

## Maps





2020 Arbovirus Activity by County	
County	Arbovirus Activity
Baker	EEEV: 2 horses (6/17, 7/5), 1 bird (5/7)
Bay	WNV: 1 human (August), 7 sentinels (8/17, 9/28), 1 squirrel (9/18)
Bradford	EEEV: 2 horses (7/18, 7/19)
Brevard	WNV: 5 sentinels (1/23, 1/24, 9/2, 10/8) EEEV: 3 sentinels (7/15, 7/16, 7/31)
Broward	WNV: 4 humans (July), 1 asymptomatic blood donor (August), 1 horse (8/13)
Charlotte	WNV: 1 human (September), 5 sentinels (9/11, 10/9)
Citrus	WNV: 10 sentinels (1/8, 1/14, 1/21, 7/14, 10/13) EEEV: 2 sentinels (1/8, 3/2)
Clay	EEEV: 1 horse (7/11)
Collier	WNV: 4 humans (July, August, September), 1 horse (8/23), 4 mosquito pools (8/5, 9/1, 9/15)
Columbia	EEEV: 1 deer (6/24)
Duval	WNV: 5 sentinels (8/10, 8/31, 9/14, 10/5)
Gilchrist	EEEV: 1 horse (7/6)
Hendry	WNV: 1 horse (10/8) EEEV: 2 horses (10/4, 10/8)
Hernando	EEEV: 1 sentinel (1/21)
Hillsborough	WNV: 17 sentinels (1/6, 1/21, 1/29, 2/11, 2/18, 2/25, 9/8, 9/23)

<b>Holmes</b>	WNV: 1 horse (6/7) EEEV: 4 horses (6/3, 6/7, 6/9, 7/13)
<b>Indian River</b>	WNV: 4 sentinels (1/2, 1/9, 1/10, 10/9)
<b>Jackson</b>	EEEV: 2 horses (6/27, 7/13)
<b>Lake</b>	WNV: 1 horse (9/14) EEEV: 1 horse (9/1)
<b>Lee</b>	WNV: 3 horses (8/9, 8/14, 8/18), 117 sentinels (7/6, 7/20, 7/21, 7/27, 7/28, 8/3, 8/4, 8/10, 8/17, 8/18, 8/24, 8/25, 8/31, 9/1, 9/7, 9/8, 9/15, 9/21, 9/22, 9/28, 9/29, 10/5, 10/12, 10/13) SLEV: 2 sentinels (9/28)
<b>Leon</b>	WNV: 3 sentinels (9/21, 10/12) EEEV: 5 sentinels (7/20, 7/27, 8/4)
<b>Manatee</b>	WNV: 1 asymptomatic blood donor (September), 1 horse (8/10), 8 sentinels (1/8, 8/4, 8/12, 9/2, 9/30)
<b>Martin</b>	WNV: 11 sentinels (7/17, 7/24, 8/7, 8/21, 8/28)
<b>Miami-Dade</b>	WNV: 26 humans (April, June, July, August, September), 33 asymptomatic blood donors (May, June, July, August), 15 birds (5/20, 6/15, 6/18, 6/24, 6/25, 6/26, 7/10, 7/11, 7/12, 7/13, 7/20), 13 mosquito pools (6/9, 6/16, 6/23, 6/30, 7/14, 8/20) EEEV: 1 mosquito pool (1/7) Dengue: 4 humans (March, August, September), 4 mosquito pools (7/30, 8/28)
<b>Monroe</b>	Dengue: 67 humans** (February, March, April, May, June, July, August), 3 mosquito pools (6/23, 6/27, 7/29)
<b>Nassau</b>	WNV: 10 sentinels (7/25, 8/15, 8/22, 8/29, 10/3) EEEV: 2 birds (6/16, 7/4), 2 sentinels (7/25)
<b>Okaloosa</b>	WNV: 1 horse (10/20)
<b>Okeechobee</b>	WNV: 1 horse (10/22)
<b>Orange</b>	WNV: 4 sentinels (1/6, 8/17) EEEV: 1 horse (3/25), 9 sentinels (1/13, 1/27, 1/28, 2/24, 3/2, 8/3)
<b>Palm Beach</b>	WNV: 5 humans (June, July, August), 2 horses (8/4, 9/5), 19 sentinels (1/20, 8/3, 8/17, 8/24, 8/31, 10/5, 10/13), 2 birds (6/19) EEEV: 1 sentinel (8/3)
<b>Pasco</b>	WNV: 3 sentinels (1/7, 10/13) EEEV: 1 sentinel (8/31)
<b>Pinellas</b>	WNV: 1 sentinel (8/24)
<b>Polk</b>	WNV: 2 sentinels (10/2, 10/9) EEEV: 1 horse (3/29)
<b>Putnam</b>	WNV: 2 sentinels (7/21, 8/17) EEEV: 1 horse (9/17), 1 sentinel (8/17)
<b>Santa Rosa</b>	EEEV: 1 horse (7/20)
<b>Sarasota</b>	WNV: 2 sentinels (8/14, 9/15), 1 mosquito pool (9/22) EEEV: 1 sentinel (7/28)
<b>St. Johns</b>	EEEV: 2 sentinels (8/4, 8/10)
<b>St. Lucie</b>	WNV: 12 sentinels (7/23, 8/6, 8/13, 8/27, 10/1)
<b>Volusia</b>	WNV: 1 sentinel (5/4) EEEV: 1 horse (1/24), 5 sentinels (2/24, 3/30, 5/18, 5/30, 10/5)
<b>Walton</b>	WNV: 10 sentinels (7/27, 8/17, 8/24, 8/31, 9/14, 9/28, 10/12) EEEV: 8 sentinels (6/22, 7/6, 7/27, 8/3, 8/10, 8/17)

### Acknowledgements and Data Sources

Contributors: Andrea Morrison, PhD, MSPH, Devin Rowe, MS, Catherine McDermott, MPH, MHS, and Danielle Stanek, DVM, DOH Bureau of Epidemiology; Lea Heberlein-Larson, DrPH; Alexis LaCrue, PhD, MS; Maribel Castaneda, and Valerie Mock, BS; 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.

\*\*Multiple cases were identified through retrospective antibody testing. Although these persons reported a dengue-like illness, dengue fever symptoms are non-specific and some infections may be asymptomatic. Therefore, we cannot be certain that the reported illness was definitively when dengue infection occurred. Per CDC, dengue fever IgM antibodies may be detected for approximately 12 weeks after infection but may persist longer.