



## Florida Arbovirus Surveillance Week 29: July 15-21, 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 July 15-21, 2018, 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 mosquito pools tested positive for WNV this week in Clay, Sarasota, and Walton counties. Five sentinel chickens tested positive for antibodies to WNV this week in Bay and Walton counties. In 2018, positive samples from one blood donor, one crow, seven mosquito pools, and thirty-seven sentinel chickens have been reported from nine 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.

**EEEV activity:** No human cases of EEEV infection were reported this week. Four horses with EEEV infection were reported this week in Clay, Polk, Suwannee, and Union counties. Nine sentinel chickens tested positive for antibodies to EEEV this week in Citrus, Leon, Nassau, and Walton counties. In 2018, positive samples from one human, forty-four horses, one mule, one donkey, one owl, one emu, five emu flocks, two mosquito pools, and one hundred five sentinel chickens have been reported from thirty-one counties.

**International Travel-Associated Dengue Fever Cases:** Four cases of dengue fever were reported this week in persons that had international travel. In 2018, ten travel-associated cases have been reported.

**Dengue Fever Cases Acquired in Florida:** No cases of locally acquired dengue fever were reported this week. In 2018, no cases of locally acquired dengue fever 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 2018, one travel-associated case has been reported.

**Chikungunya Fever Cases Acquired in Florida:** No cases of locally acquired chikungunya fever were reported this week. In 2018, no cases of locally acquired chikungunya fever have been reported.

**International Travel-Associated Zika Fever Cases:** Six cases of Zika fever was reported this week in persons that had international travel. In 2018, fifty-nine cases have been reported.

**Zika Fever Cases Acquired in Florida:** No cases of locally acquired Zika fever were reported this week. In 2018, no cases of locally acquired Zika fever have been reported.

**Advisories/Alerts:** Bay, Lake, Marion, Nassau, Okeechobee, Orange, St. Johns, Suwannee, Taylor, Volusia, and Walton counties are currently under a mosquito-borne illness advisory. Levy County is currently under a mosquito-borne illness alert. 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 <https://www.cdc.gov/zika/intheus/florida-update.html>. For additional information on Zika virus cases from 2016 or 2017, including up-to-date numbers, 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, 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 and a Level 1 Travel Health Notice in Nigeria related to the transmission of yellow fever virus. Additional information on travel health notices can be found at the following link: <http://wwwnc.cdc.gov/travel/notices>. For a map of arboviral disease activity in the United States, please visit the following link: [https://wwwn.cdc.gov/arbovet/maps/ADB\\_Diseases\\_Map/index.html](https://wwwn.cdc.gov/arbovet/maps/ADB_Diseases_Map/index.html).

**2018 Human Case Summary\***

**West Nile Virus Illnesses Acquired in Florida:** One asymptomatic positive blood donor has been reported in 2018 from Bay County (June).

**EEEV Infection Acquired in Florida:** One human case of Eastern equine encephalitis acquired in Florida has been reported in 2018 in Taylor County (May).

**International Travel-Associated Chikungunya Fever Cases:** One case of chikungunya fever with onset in 2018 has been reported in an individual with travel history to a chikungunya endemic country in the two weeks prior to onset. Country of origin was: Brazil. County reporting the case was: Orange.

**International Travel-Associated Dengue Fever Cases:** Ten cases of dengue fever with onset in 2018 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Cuba (5), Haiti (4), and Venezuela. Counties reporting cases were: Broward (3), Lake, Lee, Miami-Dade (3), Orange, and Palm Beach. In 2018, ten cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	<b># of cases per serotype – 2018</b>
<b>DENV-1</b>	5
<b>DENV-2</b>	5
<b>Total</b>	<b>10</b>

**International Travel-Associated Zika Fever Cases:** In 2018, fifty-nine 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 (3), Brazil/Haiti, Brazil/Mexico, Cuba (13), Cuba/Mexico, Dominica, Dominican Republic, Guatemala (2), Guatemala/Mexico, Haiti (20), Honduras (4), Jamaica, Puerto Rico, and Venezuela (9). Counties reporting cases were: Broward (3), Collier (21), Hernando, Hillsborough, Lee, Miami-Dade (14), Orange (9), Osceola (3), Palm Beach (4), Pinellas, and Walton. Eight cases were reported in non-Florida residents. Florida is monitoring a total of forty-four pregnant women in 2018.

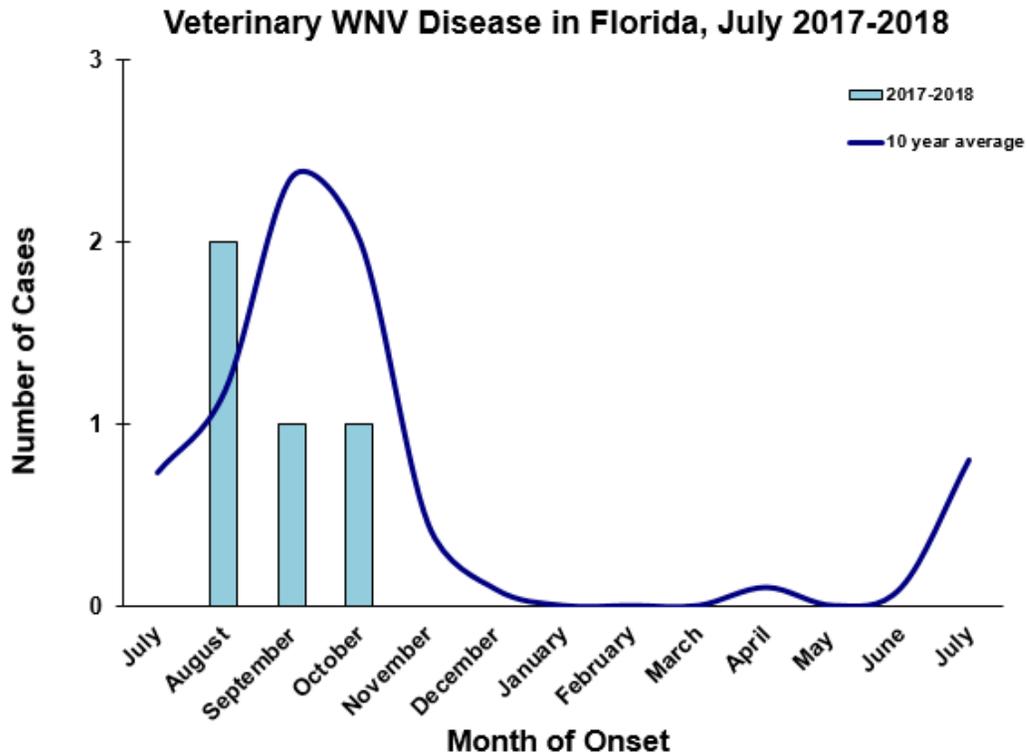
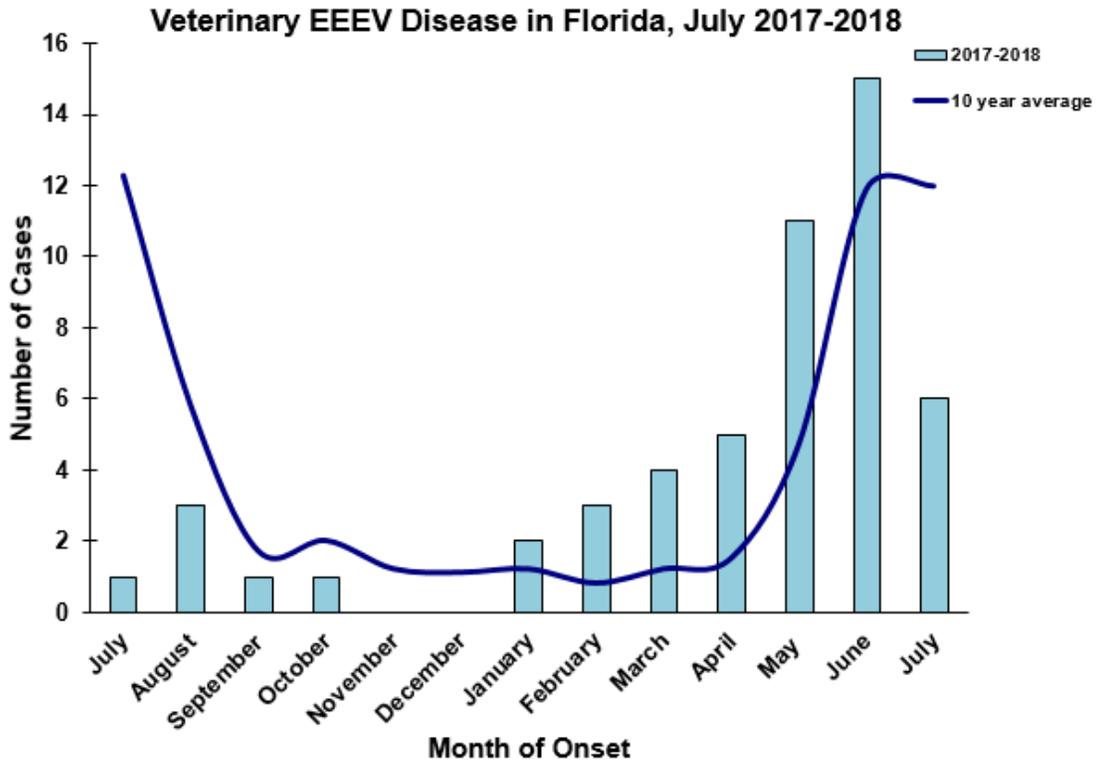
**International Travel-Associated Malaria Cases:** Thirty-two cases of malaria with onset in 2018 have been reported. Countries of origin were: Afghanistan, Angola, Brazil, Cameroon, Ethiopia, Ghana (2), Haiti (2), India (4), Kenya, Liberia, Nicaragua (3), Nigeria (10), Sierra Leone, and Togo (3). Counties reporting cases were: Broward (10), Duval (3), Hillsborough (4), Miami-Dade (9), Okaloosa, Orange, Palm Beach, Polk, and Seminole (2). Five cases were reported in non-Florida residents.

Twenty-one cases (66%) were diagnosed with *Plasmodium falciparum*. Ten cases (31%) were diagnosed with *Plasmodium vivax*. One case (3%) was diagnosed with *Plasmodium ovale*.

## Veterinary Cases\*

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

Four horses with EEEV infection were reported this week in Clay, Polk, Suwannee, and Union counties.



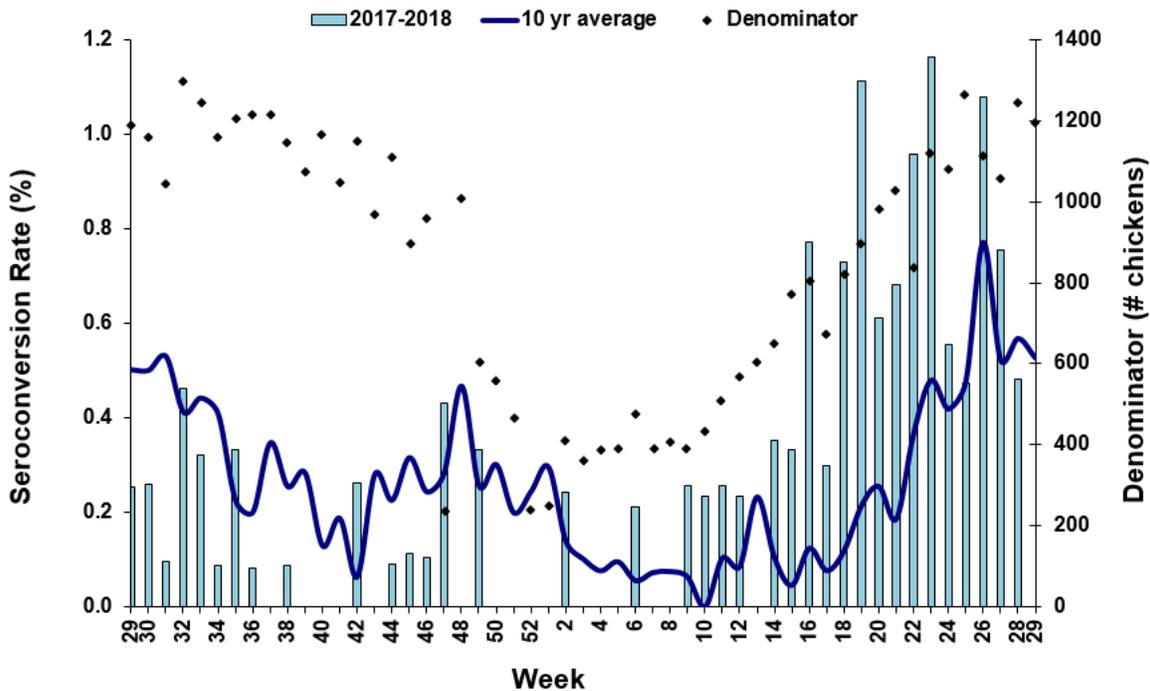
## Sentinel Chickens\*

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.

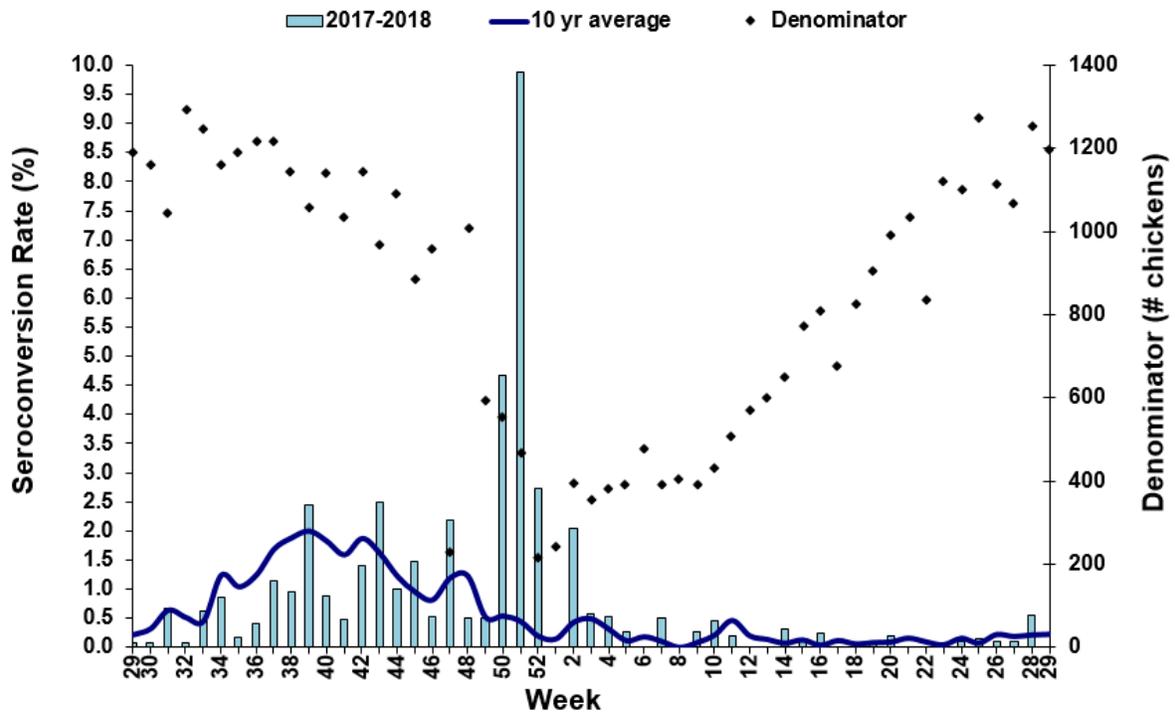
Five sentinel chickens tested positive for antibodies to WNV this week in Bay and Walton counties. Nine sentinel chickens tested positive for antibodies to EEEV this week in Citrus, Leon, Nassau, and Walton counties.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Bay	7/9/18	16.67		16.67				3 WNV	3 WNV
Citrus	7/9/18				2.78	2.78		2 EEEV	1 WNV, 5 EEEV
Leon	7/9/18				4.76	4.76		2 EEEV	6 EEEV
Nassau	7/5-7/6/18				8.82	8.82		3 EEEV	9 EEEV
Walton	7/9/18	2.41		2.41	2.53	2.53		2 WNV, 2 EEEV	14 WNV, 17 EEEV

**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 of 2017 resulted in an artificial spike in positive test results that cannot be directly compared with past results.

### Mosquito Pools

Six mosquito pools tested positive for WNV this week in Clay, Sarasota, and Walton counties.

County	Collection Date	Result	Species	County YTD
Clay	7/17/2018	WNV	<i>Cx. quinquefasciatus</i>	1 WNV
Sarasota	7/3/2018	WNV	<i>Cx. quinquefasciatus</i>	2 WNV
	7/10/2018	WNV	<i>Cx. quinquefasciatus</i>	
Walton	7/19/2018	WNV	<i>Cx. quinquefasciatus</i>	4 WNV
	7/19/2018	WNV	<i>Cx. quinquefasciatus</i>	
	7/19/2018	WNV	<i>Cx. quinquefasciatus</i>	

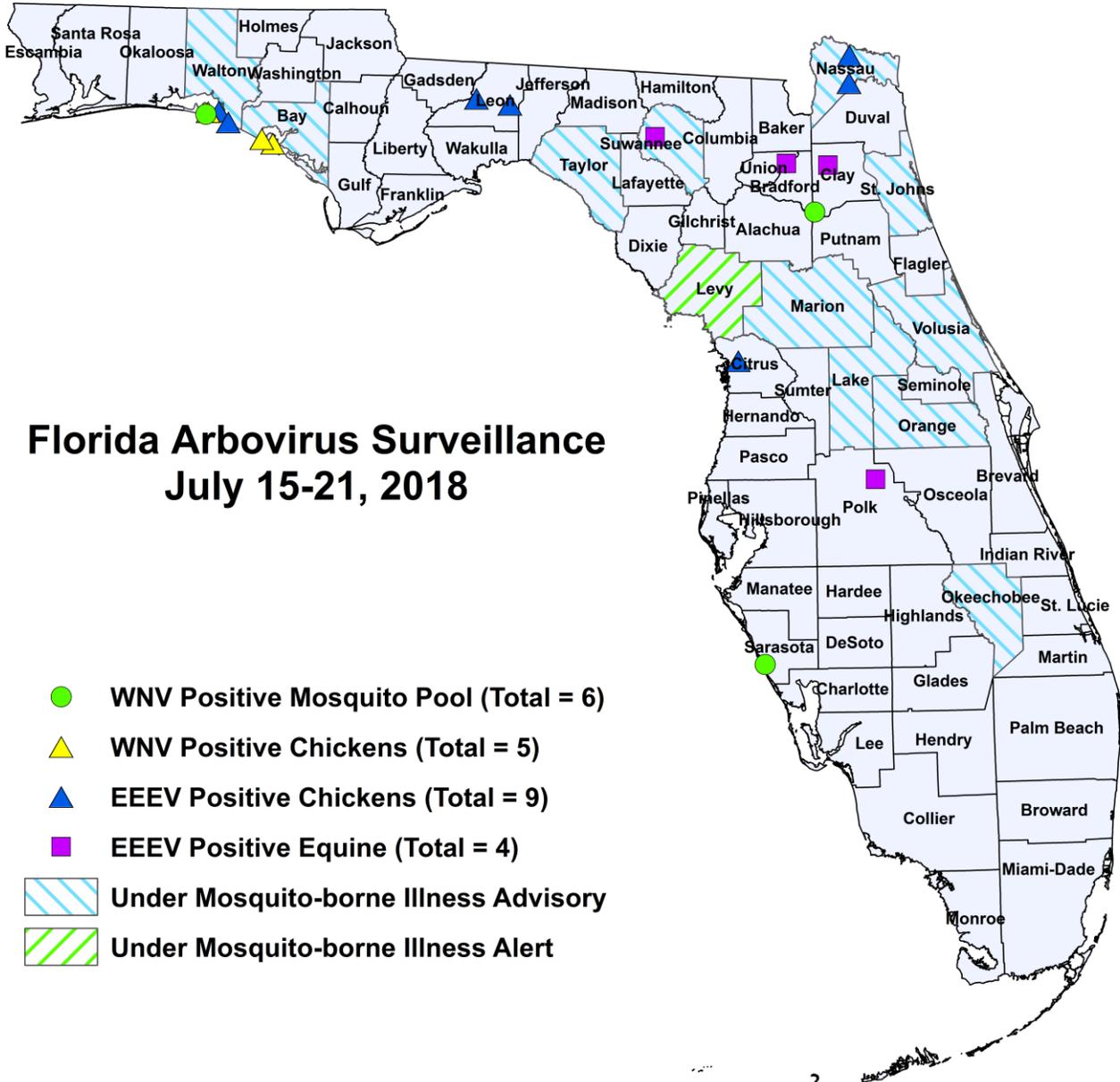
### Dead Birds

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, four reports representing a total of seven dead birds, including one raptor, were received from four counties.

In 2018, 283 reports representing a total of 722 dead birds (17 crows, 20 jays, 59 raptors, 6 doves) were received from 41 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/](http://www.myfwc.com/bird/).

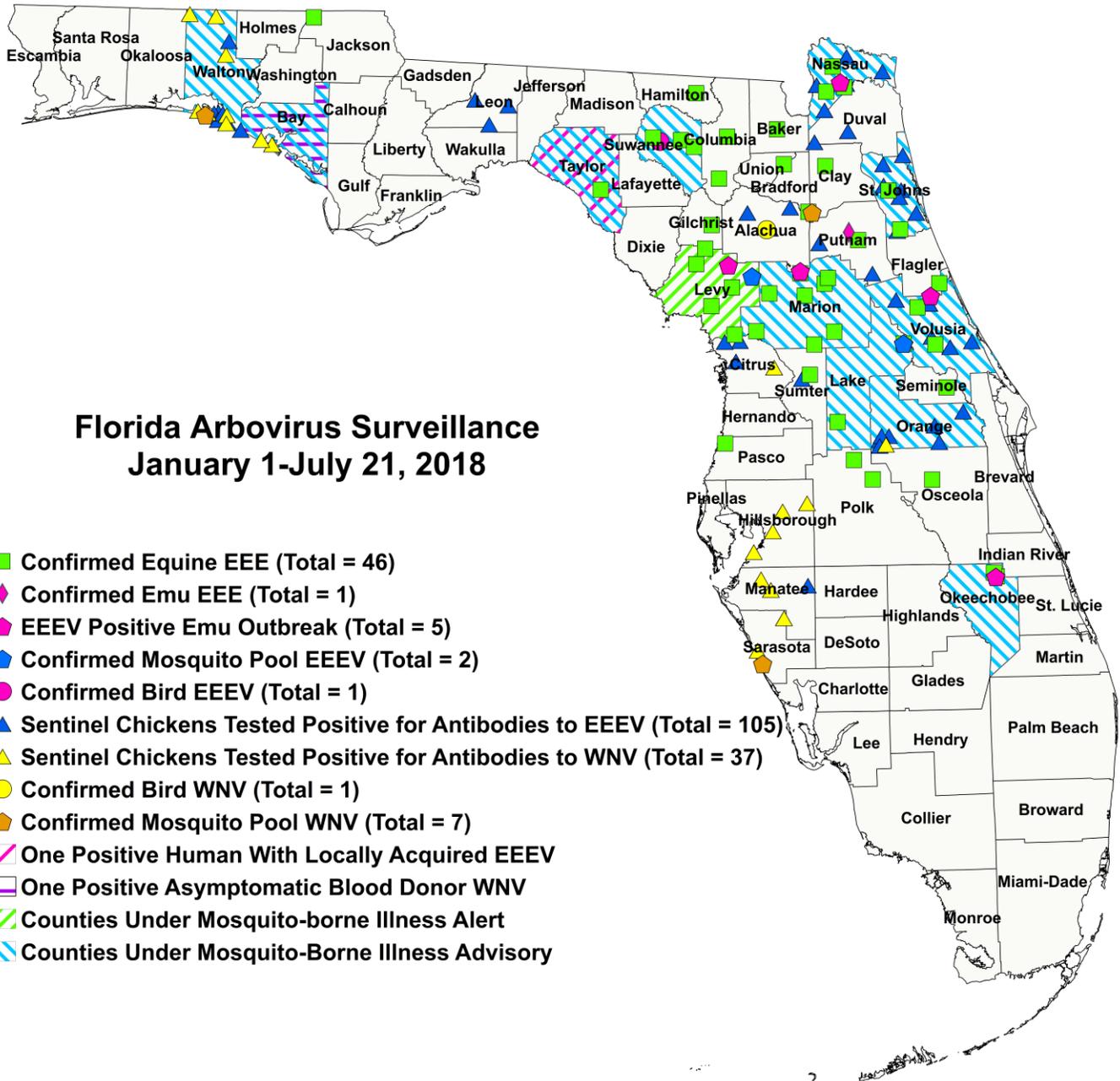
County	Total Dead Birds	Crows	Jays	Raptors	Dove
Bay	1	0	0	0	0
Brevard	1	0	0	1	0
Duval	2	0	0	0	0
Lee	3	0	0	0	0

**Maps**



**Florida Arbovirus Surveillance  
July 15-21, 2018**

- WNV Positive Mosquito Pool (Total = 6)
- ▲ WNV Positive Chickens (Total = 5)
- ▲ EEEV Positive Chickens (Total = 9)
- EEEV Positive Equine (Total = 4)
- ▨ Under Mosquito-borne Illness Advisory
- ▨ Under Mosquito-borne Illness Alert



2018 Arbovirus Activity by County	
County	Arbovirus Activity
Alachua	WNV: 1 crow (7/1) EEEV: 7 sentinels (5/15, 5/22, 6/5, 6/19, 6/26)
Baker	EEEV: 1 horse (3/11)
Bay	WNV: 1 asymptomatic blood donor (June), 3 sentinels (7/9)
Bradford	EEEV: 1 horse (6/8)
Citrus	WNV: 1 sentinel (4/17) EEEV: 5 sentinels (1/8, 4/30, 5/7, 7/9)
Clay	WNV: 1 mosquito pool (7/17) EEEV: 1 horse (7/10)
Columbia	EEEV: 2 horses (3/5, 5/30)
Duval	EEEV: 4 sentinels (6/11, 6/18, 6/25)
Flagler	EEEV: 1 horse (3/6)

<b>Gilchrist</b>	EEEV: 2 horses (5/4, 6/11)
<b>Hamilton</b>	EEEV: 1 horse (4/3)
<b>Hillsborough</b>	WNV: 9 sentinels (1/10, 1/16, 2/13, 3/6, 3/13, 4/3, 5/15)
<b>Jackson</b>	EEEV: 1 horse (7/2)
<b>Lake</b>	EEEV: 2 horses (5/24, 5/30), 1 mosquito pool (6/13)
<b>Leon</b>	EEEV: 6 sentinels (6/5, 6/25, 7/9)
<b>Levy</b>	EEEV: 3 horses (2/24, 3/5, 5/18), 1 mule (4/17), emu flock outbreak (3/2 for first emu), 1 mosquito pool (5/10)
<b>Manatee</b>	WNV: 2 sentinels (1/9, 2/13) EEEV: 1 sentinel (4/10)
<b>Marion</b>	EEEV: 8 horses (2/28, 4/23, 5/3, 5/14, 6/1, 6/12, 6/19, 6/21), 1 emu flock outbreak (5/2 for first emu)
<b>Nassau</b>	EEEV: 4 horses (1/29, 4/30, 5/25, 6/2), 9 sentinels (5/17, 5/25, 5/31, 6/8, 6/23, 6/28, 7/5, 7/6), 1 emu flock outbreak (7/5 for first emu)
<b>Okeechobee</b>	EEEV: 2 horses (6/11, 6/17), 1 emu flock outbreak (6/3 for first emu)
<b>Orange</b>	WNV: 1 sentinel (1/10) EEEV: 11 sentinels (2/27, 3/13, 6/5, 6/7, 6/12, 6/14, 6/21, 6/26)
<b>Osceola</b>	EEEV: 1 horse (7/2)
<b>Pasco</b>	EEEV: 1 horse (6/10)
<b>Polk</b>	EEEV: 2 horses (2/27, 7/9)
<b>Putnam</b>	EEEV: 1 horse (4/21), 1 emu (2/13), 2 sentinels (5/30)
<b>Sarasota</b>	WNV: 2 mosquito pools (7/3, 7/10), 7 sentinels (1/12, 2/2, 4/2, 4/9, 4/16, 5/11, 5/18)
<b>Seminole</b>	EEEV: 1 horse (5/29)
<b>St. Johns</b>	EEEV: 2 horses (1/9, 5/25), 32 sentinels (4/16, 4/23, 4/30, 5/7, 5/14, 5/21, 5/29, 6/4, 6/18, 6/25)
<b>Sumter</b>	EEEV: 1 horse (6/15), 1 sentinel (6/12)
<b>Suwannee</b>	EEEV: 1 owl (4/6), 3 horses (6/4, 6/22, 7/14)
<b>Taylor</b>	EEEV: 1 human (May), 1 horse (5/31)
<b>Union</b>	EEEV: 1 horse (7/3)
<b>Volusia</b>	EEEV: 1 emu flock outbreak (5/9 for first emu), 10 sentinels (4/9, 4/16, 4/23, 4/30, 5/7, 5/21), 1 donkey (6/21), 1 horse (6/21)
<b>Walton</b>	WNV: 4 mosquito pools (7/10, 7/19), 14 sentinels (1/9, 1/22, 1/23, 2/26, 6/11, 6/18, 6/25, 7/2, 7/9) EEEV: 17 sentinels (2/5, 3/5, 3/19, 4/2, 4/16, 4/30, 5/1, 6/11, 6/25, 7/2, 7/9)

### 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:** <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.