



## Florida Arbovirus Surveillance Week 28: July 8-14, 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 8-14, 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. One crow with WNV infection was reported this week in Alachua County. One mosquito pool tested positive for WNV this week in Walton County. One sentinel chicken tested positive for antibodies to WNV this week in Walton County. In 2018, positive samples from one blood donor, one crow, one mosquito pool, and thirty-two sentinel chickens have been reported from eight 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. An outbreak of EEEV in a flock of emus was reported this week in Nassau County. Three horses with EEEV infection were reported this week in Jackson, Okeechobee, and Osceola counties. Seven sentinel chickens tested positive for antibodies to EEEV this week in Alachua, Nassau, and Walton counties. In 2018, positive samples from one human, forty horses, one mule, one donkey, one owl, one emu, five emu flocks, two mosquito pools, and ninety-six sentinel chickens have been reported from twenty-nine counties.

**International Travel-Associated Dengue Fever Cases:** Two cases of dengue fever were reported this week in persons that had international travel. In 2018, six 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:** One case of Zika fever was reported this week in a person that had international travel. In 2018, fifty-three 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, 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 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://www.cdc.gov/arbovet/maps/ADB\\_Diseases\\_Map/index.html](https://www.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:** Six 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 (3), Haiti (2), and Venezuela. Counties reporting cases were: Broward, Lake, Miami-Dade (2), Orange, and Palm Beach. In 2018, six 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>	3
<b>DENV-2</b>	3
<b>Total</b>	<b>6</b>

**International Travel-Associated Zika Fever Cases:** In 2018, fifty-three 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 (11), Cuba/Mexico, Dominica, Guatemala, Guatemala/Mexico, Haiti (18), Honduras (4), Jamaica, Puerto Rico, and Venezuela (9). Counties reporting cases were: Broward (3), Collier (19), Hernando, Lee, Miami-Dade (13), Orange (9), Osceola (3), Palm Beach (2), and Walton. Eight cases were reported in non-Florida residents. Florida is monitoring a total of thirty-nine pregnant women in 2018.

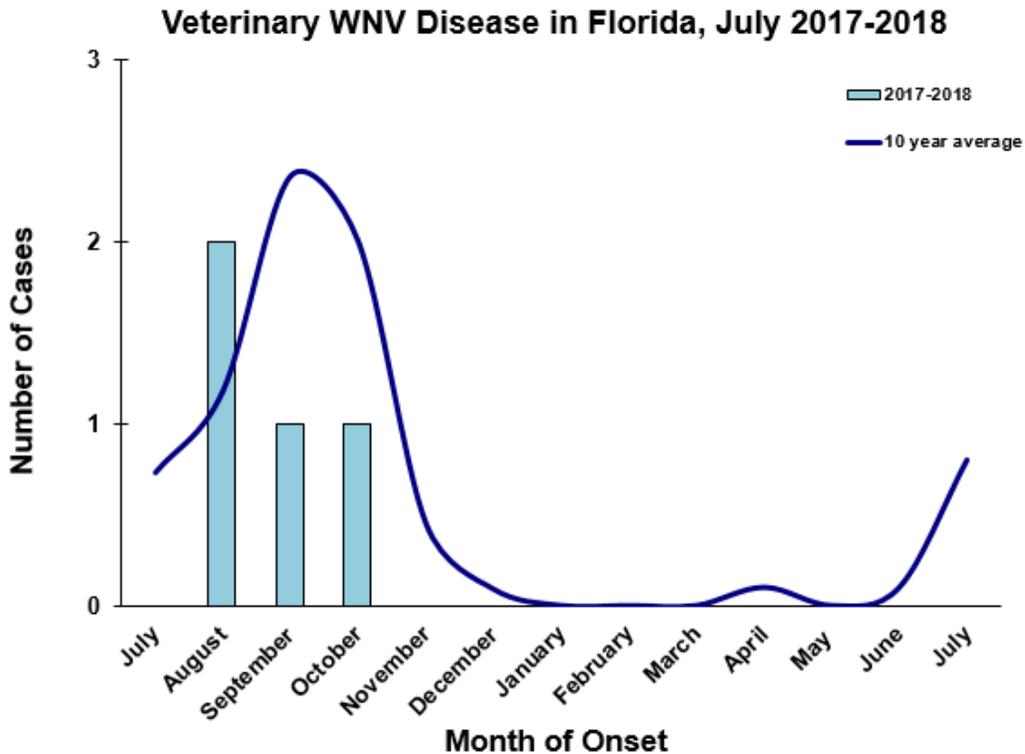
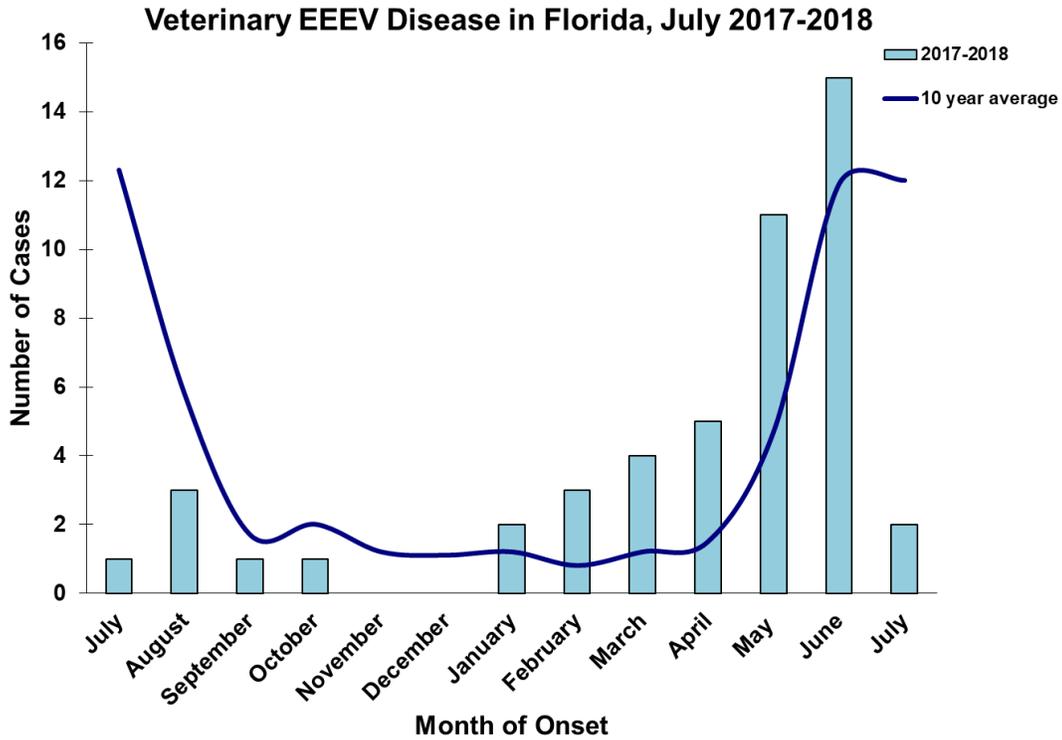
**International Travel-Associated Malaria Cases:** Thirty-two cases of malaria with onset in 2018 have been reported. Countries of origin were: Afghanistan, Angola, Brazil, Cameroon, Ethiopia, Ghana (2), Haiti (2), India (4), Kenya, Liberia, Nicaragua (3), Nigeria (10), Sierra Leone, and Togo (3). Counties 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.

One crow with WNV infection was reported this week in Alachua County. Three horses with EEEV infection were reported this week in Jackson, Okeechobee, and Osceola counties. An outbreak of EEEV was reported among a flock of emus in Nassau County.



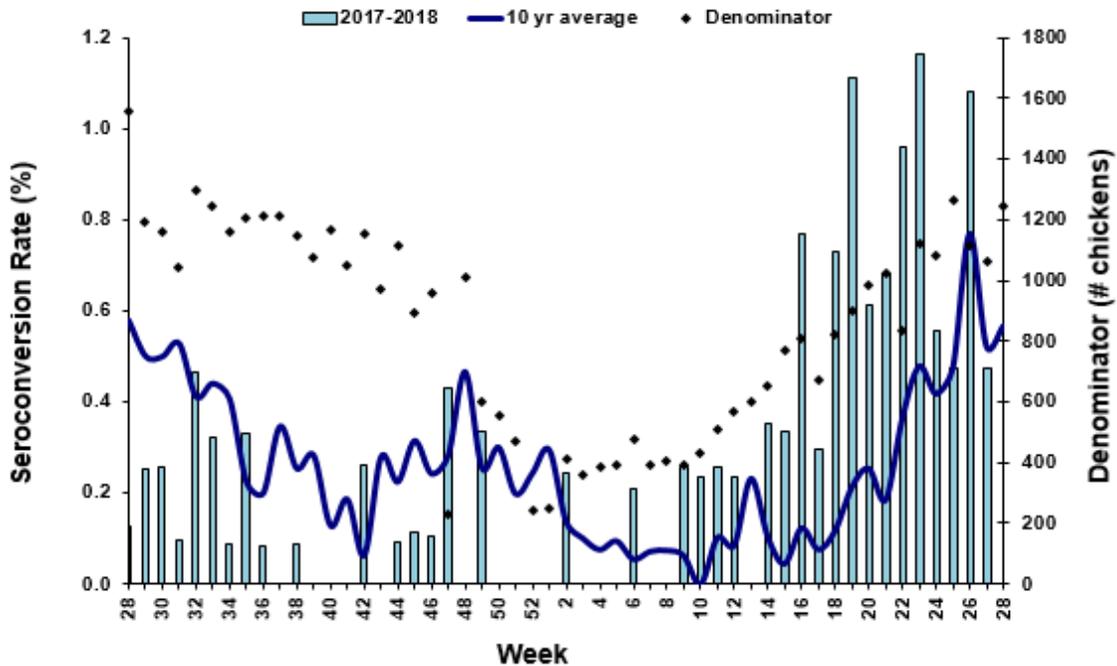
## Sentinel Chickens\*

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.

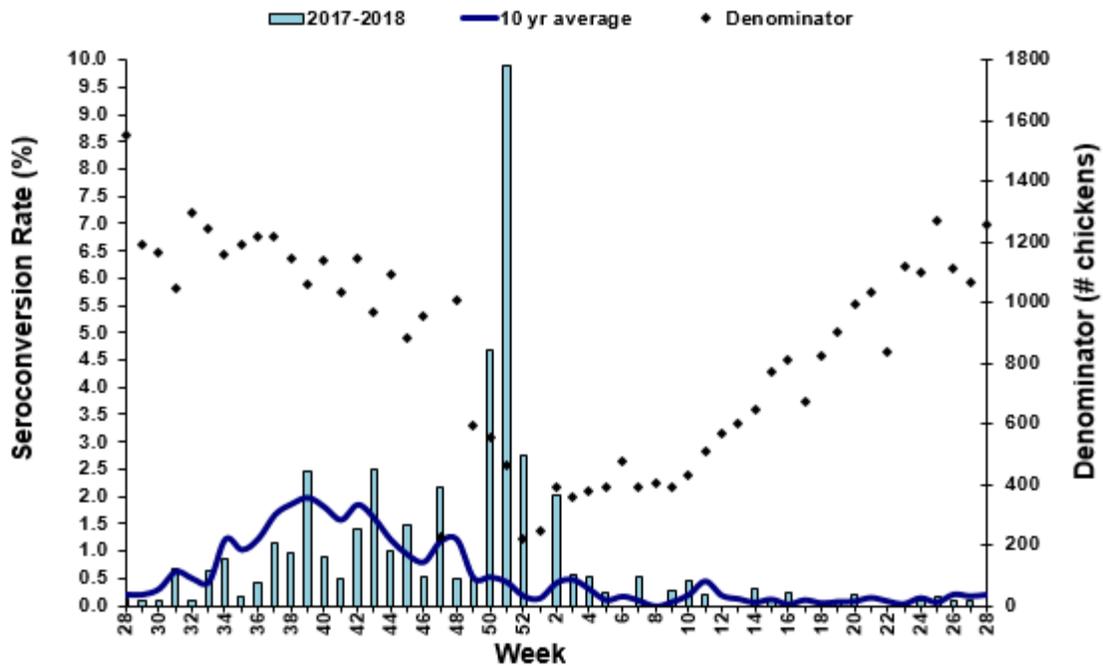
One sentinel chicken tested positive for antibodies to WNV this week in Walton County. Seven sentinel chickens tested positive for antibodies to EEEV this week in Alachua, Nassau, and Walton counties.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Alachua	6/26/18				11.11	11.11		1 EEEV	7 EEEV
Nassau	6/28/18				2.86	2.86		1 EEEV	6 EEEV
Walton	7/2/18	0.78		0.78	3.82	3.82		1 WNV, 5 EEEV	12 WNV, 15 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

One mosquito pool tested positive for WNV this week in Walton County.

County	Collection Date	Result	Species	County YTD
Walton	7/10/2018	WNV	<i>Cx. quinquefasciatus</i>	1 WNV

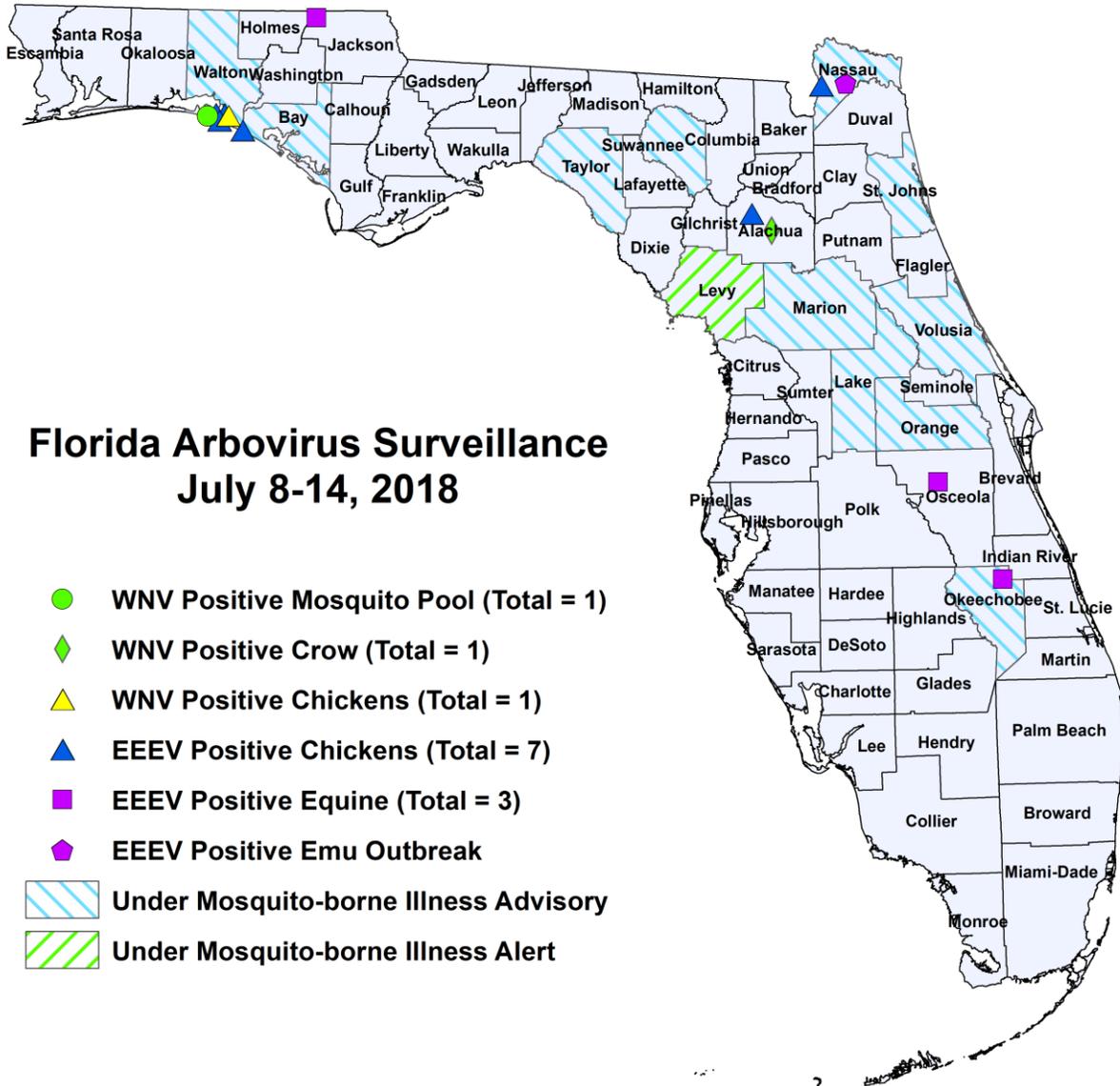
### Dead Birds

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, three reports representing a total of three dead birds, including one jay, were received from three counties.

In 2018, 279 reports representing a total of 715 dead birds (17 crows, 20 jays, 58 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/).

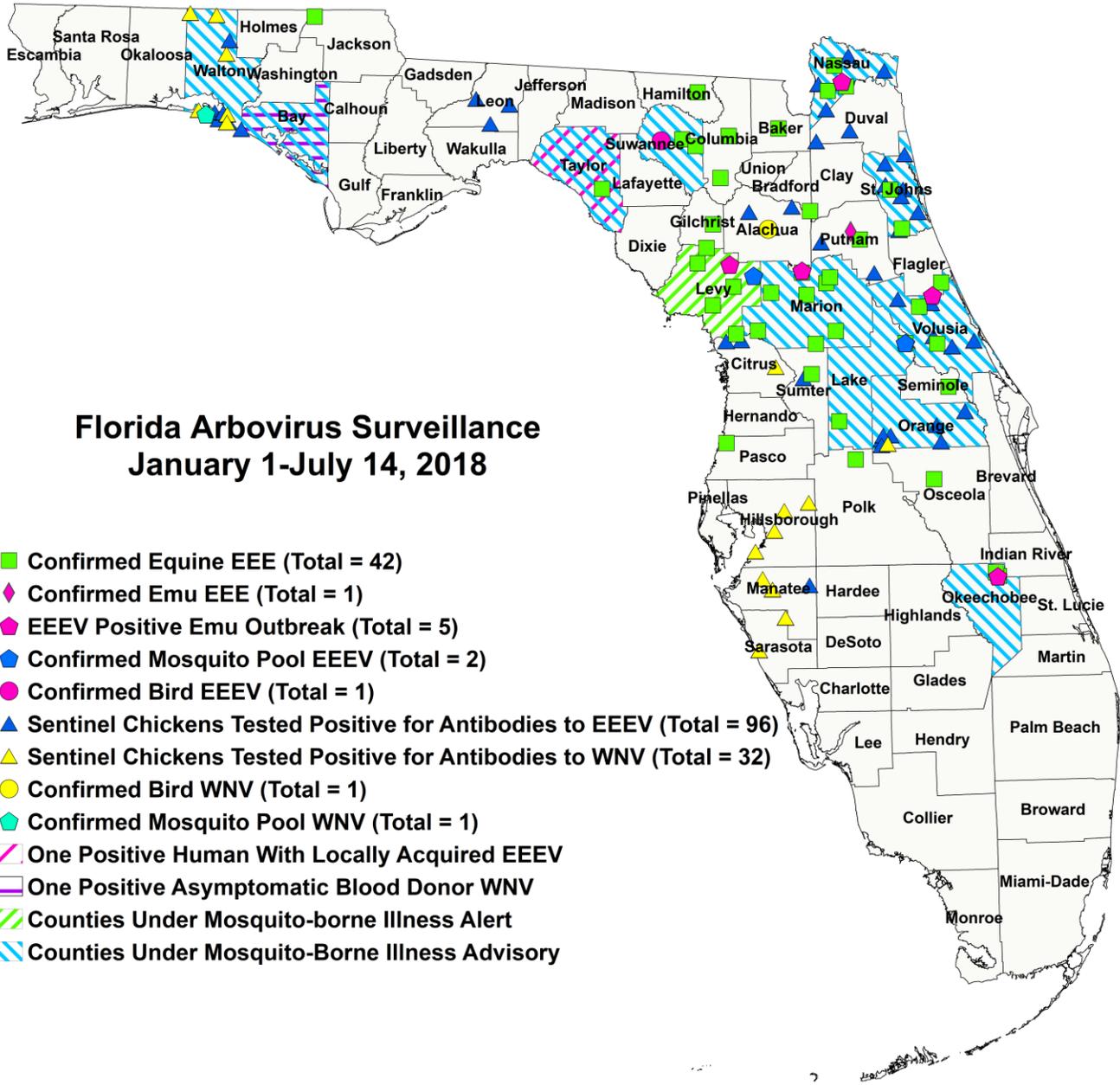
#### 2018

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Escambia	1	0	0	0	0
Hillsborough	1	0	0	0	0
Pinellas	1	0	1	0	0



**Florida Arbovirus Surveillance  
July 8-14, 2018**

- WNV Positive Mosquito Pool (Total = 1)
- ◆ WNV Positive Crow (Total = 1)
- ▲ WNV Positive Chickens (Total = 1)
- ▲ EEEV Positive Chickens (Total = 7)
- EEEV Positive Equine (Total = 3)
- ⬠ EEEV Positive Emu Outbreak
- ▨ Under Mosquito-borne Illness Advisory
- ▨ Under Mosquito-borne Illness Alert



## Florida Arbovirus Surveillance January 1-July 14, 2018

- Confirmed Equine EEE (Total = 42)
- ◆ Confirmed Emu EEE (Total = 1)
- ⬠ EEEV Positive Emu Outbreak (Total = 5)
- ▲ Confirmed Mosquito Pool EEEV (Total = 2)
- Confirmed Bird EEEV (Total = 1)
- ▲ Sentinel Chickens Tested Positive for Antibodies to EEEV (Total = 96)
- ▲ Sentinel Chickens Tested Positive for Antibodies to WNV (Total = 32)
- Confirmed Bird WNV (Total = 1)
- ◆ Confirmed Mosquito Pool WNV (Total = 1)
- ▨ One Positive Human With Locally Acquired EEEV
- ▨ One Positive Asymptomatic Blood Donor WNV
- ▨ Counties Under Mosquito-borne Illness Alert
- ▨ Counties Under Mosquito-Borne Illness Advisory

2018 Arbovirus Activity by County	
County	Arbovirus Activity
<b>Alachua</b>	WNV: 1 crow (7/1) EEEV: 7 sentinels (5/15, 5/22, 6/5, 6/19, 6/26)
<b>Baker</b>	EEEV: 1 horse (3/11)
<b>Bay</b>	WNV: 1 asymptomatic blood donor (June)
<b>Bradford</b>	EEEV: 1 horse (6/8)
<b>Citrus</b>	WNV: 1 sentinel (4/17) EEEV: 3 sentinels (1/8, 4/30, 5/7)
<b>Columbia</b>	EEEV: 2 horses (3/5, 5/30)
<b>Duval</b>	EEEV: 4 sentinels (6/11, 6/18, 6/25)
<b>Flagler</b>	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: 4 sentinels (6/5, 6/25)
<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), 6 sentinels (5/17, 5/25, 5/31, 6/8, 6/23, 6/28), 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: 1 horse (2/27)
<b>Putnam</b>	EEEV: 1 horse (4/21), 1 emu (2/13), 2 sentinels (5/30)
<b>Sarasota</b>	WNV: 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), 2 horses (6/4, 6/22)
<b>Taylor</b>	EEEV: 1 human (May), 1 horse (5/31)
<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: 1 mosquito pool (7/10), 12 sentinels (1/9, 1/22, 1/23, 2/26, 6/11, 6/18, 6/25, 7/2) EEEV: 15 sentinels (2/5, 3/5, 3/19, 4/2, 4/16, 4/30, 5/1, 6/11, 6/25, 7/2)

### 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.