



## Florida Arbovirus Surveillance Week 32: August 5-11, 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 August 5-11, 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. Five mosquito pools tested positive for WNV this week in Sarasota County. Thirty-five sentinel chickens tested positive for antibodies to WNV this week in Alachua, Bay, Duval, Leon, Nassau, Sarasota, and Walton counties. In 2018, positive samples from one human, one blood donor, one crow, eighteen mosquito pools, and ninety-two sentinel chickens have been reported from fourteen 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:** One human case of EEEV infection was reported this week in Columbia County. One horse with EEEV infection was reported this week in Marion County. Four sentinel chickens tested positive for antibodies to EEEV this week in Leon and Walton counties. In 2018, positive samples from three humans, forty-eight horses, one mule, one donkey, one owl, one emu, five emu flocks, two mosquito pools, and one hundred twenty-three sentinel chickens have been reported from thirty-one counties.

**International Travel-Associated Dengue Fever Cases:** Three cases of dengue fever were reported this week in persons that had international travel. In 2018, fourteen 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:** One case of chikungunya fever was reported this week in a person that had international travel. In 2018, two travel-associated cases have 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:** Two cases of Zika fever were reported this week in persons that had international travel. In 2018, sixty-two 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:** Columbia, Duval, Lake, Marion, Nassau, Okeechobee, Orange, Sarasota, St. Johns, Suwannee, Taylor, Volusia, and Walton counties are currently under a mosquito-borne illness advisory. Bay and Levy counties are 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 Africa, 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 human case (July) and one asymptomatic positive blood donor (June) have been reported in 2018 from Bay County.

**EEEV Infection Acquired in Florida:** Three human cases of Eastern equine encephalitis acquired in Florida have been reported in 2018 in Columbia (July), Taylor (May), and Volusia (July) counties.

**International Travel-Associated Chikungunya Fever Cases:** Two cases of chikungunya fever with onset in 2018 have been reported in individuals with travel history to a chikungunya endemic country in the two weeks prior to onset. Country of origin was: Brazil (2). Counties reporting the case were: Orange and Miami-Dade.

**International Travel-Associated Dengue Fever Cases:** Fourteen 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 (8), Haiti (4), Thailand, and Venezuela. Counties reporting cases were: Broward (3), Hillsborough (4), Lake, Lee, Miami-Dade (3), Orange, and Palm Beach. Two cases met the criteria for severe dengue (dengue shock syndrome [DSS] or dengue hemorrhagic fever [DHF]). Those at greater risk for DSS and DHF include persons with previous dengue infection, pregnant women, infants, the elderly, and those with co-morbidities. However, severe illness can also occur in those without any of these risk factors. In 2018, thirteen cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2018
DENV-1	5
DENV-2	8
<b>Total</b>	<b>13</b>

**International Travel-Associated Zika Fever Cases:** In 2018, sixty-two 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 (14), Cuba/Mexico, Dominica, Dominican Republic, Guatemala (2), Guatemala/Mexico, Haiti (22), Honduras (4), Jamaica, Puerto Rico, and Venezuela (9). Counties reporting cases were: Broward (3), Collier (22), Hernando, Hillsborough, Lee, Miami-Dade (16), 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-six pregnant women in 2018.

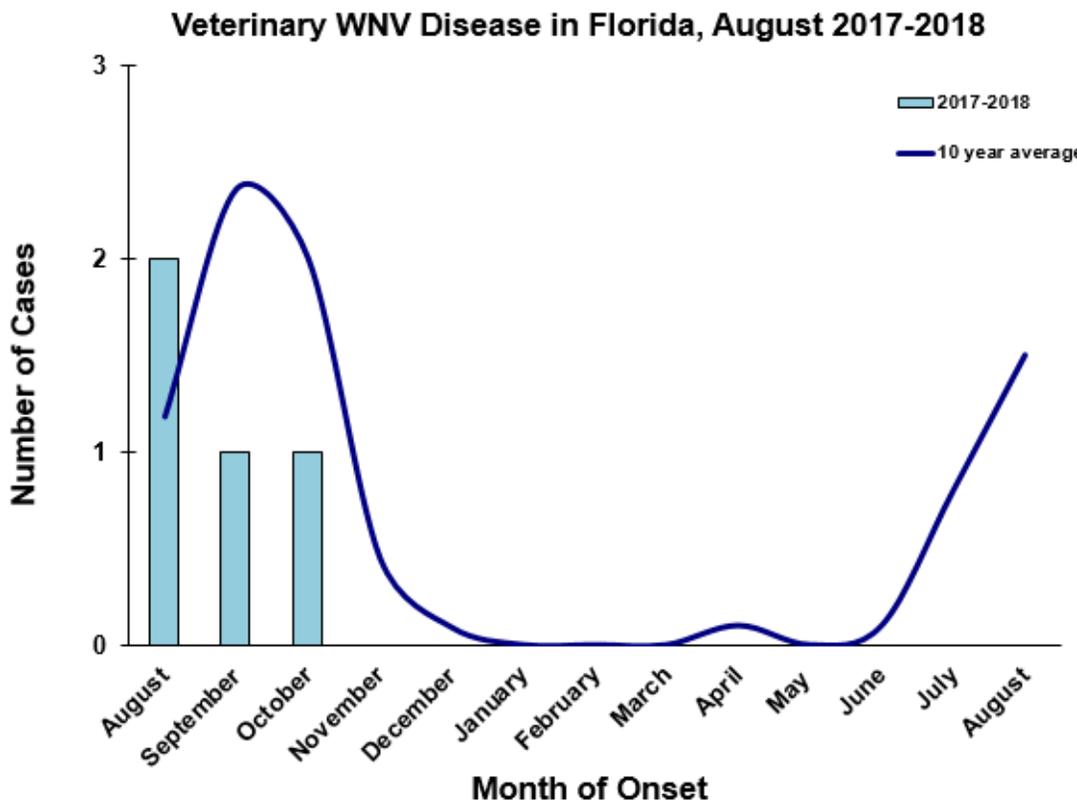
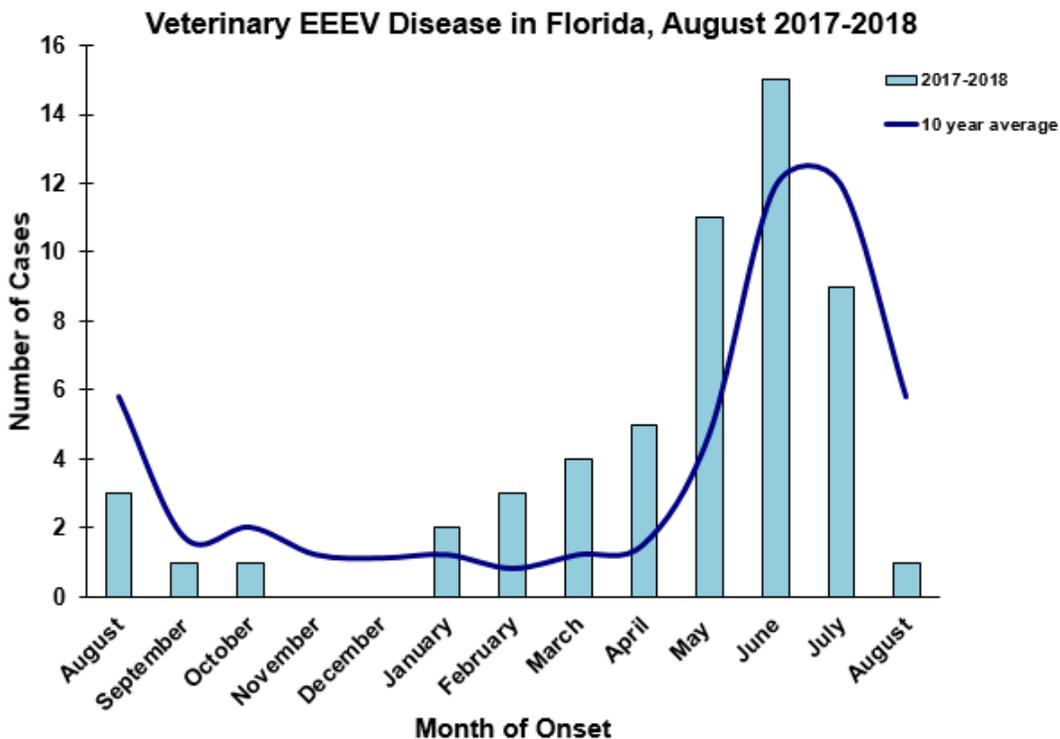
**International Travel-Associated Malaria Cases:** Thirty-six cases of malaria with onset in 2018 have been reported. Countries of origin were: Afghanistan (2), Angola, Brazil, Cameroon, Ethiopia, Ghana (3), Haiti (2), India (4), Kenya, Liberia, Nicaragua (3), Nigeria (11), Sierra Leone, South Africa, and Togo (3). Counties reporting cases were: Broward (11), Duval (3), Hillsborough (4), Miami-Dade (10), Okaloosa, Orange, Palm Beach, Pasco, Polk, Sarasota, and Seminole (2). Six cases were reported in non-Florida residents.

Twenty-two cases (61%) were diagnosed with *Plasmodium falciparum*. Twelve cases (33%) were diagnosed with *Plasmodium vivax*. Two cases (6%) 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 horse with EEEV infection was reported this week in Marion County.



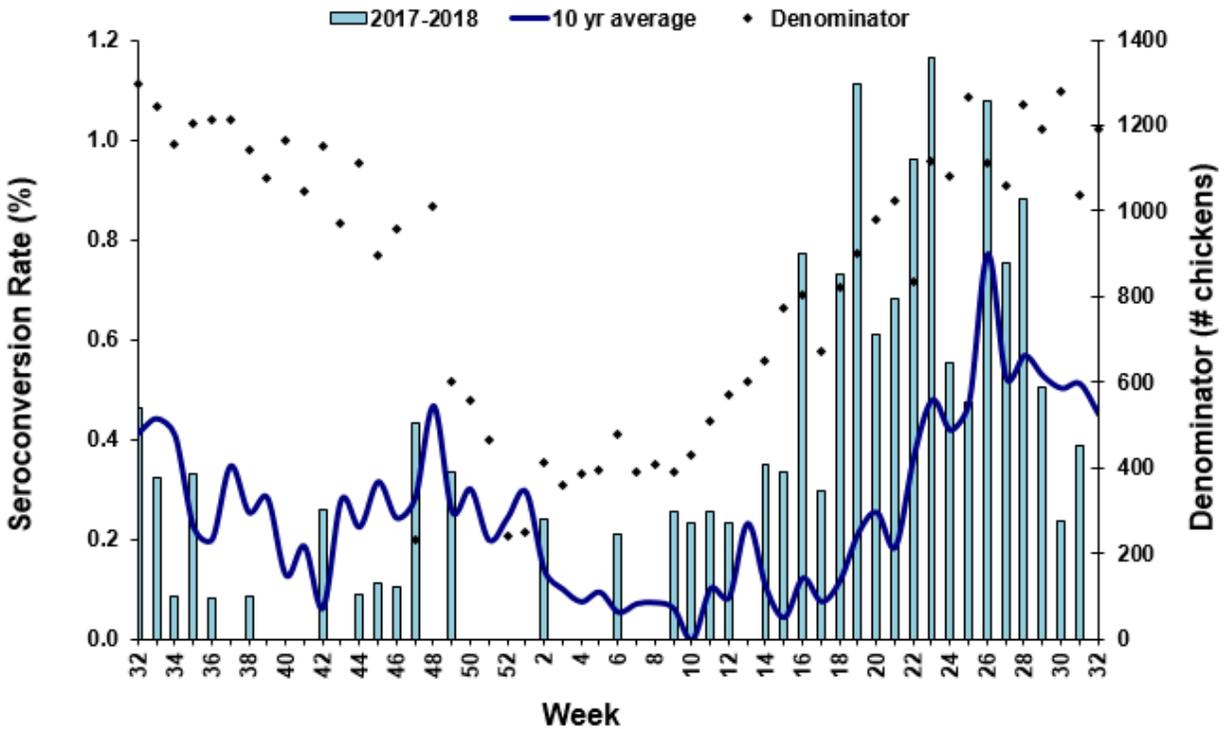
## Sentinel Chickens\*

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.

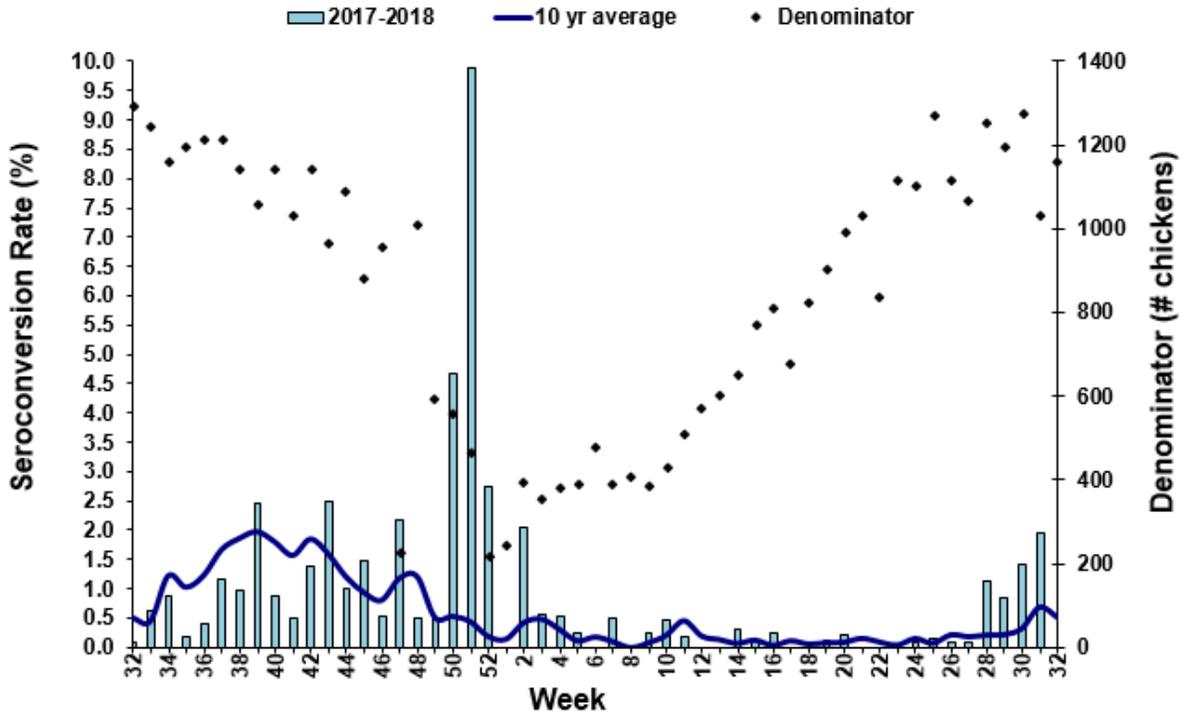
Thirty-five sentinel chickens tested positive for antibodies to WNV this week in Alachua, Bay, Duval, Leon, Nassau, Sarasota, and Walton counties. Four sentinel chickens tested positive for antibodies to EEEV this week in Leon and Walton counties.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Alachua	7/31/18	6.25		6.25				1 WNV	4 WNV, 7 EEEV
Bay	7/30/18	20.00		20.00				3 WNV	8 WNV
Duval	7/30/18	18.52		18.52				5 WNV	5 WNV, 4 EEEV
Leon	7/31/18	5.26		5.26	7.89	7.89		2 WNV, 3 EEEV	2 WNV, 9 EEEV
Nassau	7/27/18- 7/28/18	44.44		44.44				12 WNV	17 WNV, 10 EEEV, 1 HJV
Sarasota	7/27/18	3.17		3.17				2 WNV	13 WNV
	7/30/18	3.28		3.28				2 WNV	
Walton	7/23/18	2.38		2.38				3 WNV	28 WNV, 22 EEEV, 1 HJV
	7/30/18	8.54		8.54	1.19	1.19		7 WNV, 1 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

Five mosquito pools tested positive for WNV this week in Sarasota County.

County	Collection Date	Result	Species	County YTD
Sarasota	8/2/2018	WNV	<i>Cx. quinquefasciatus</i>	13 WNV
		WNV	<i>Cx. quinquefasciatus</i>	
		WNV	<i>Cx. quinquefasciatus</i>	
		WNV	<i>Cx. quinquefasciatus</i>	
		WNV	<i>Cx. quinquefasciatus</i>	

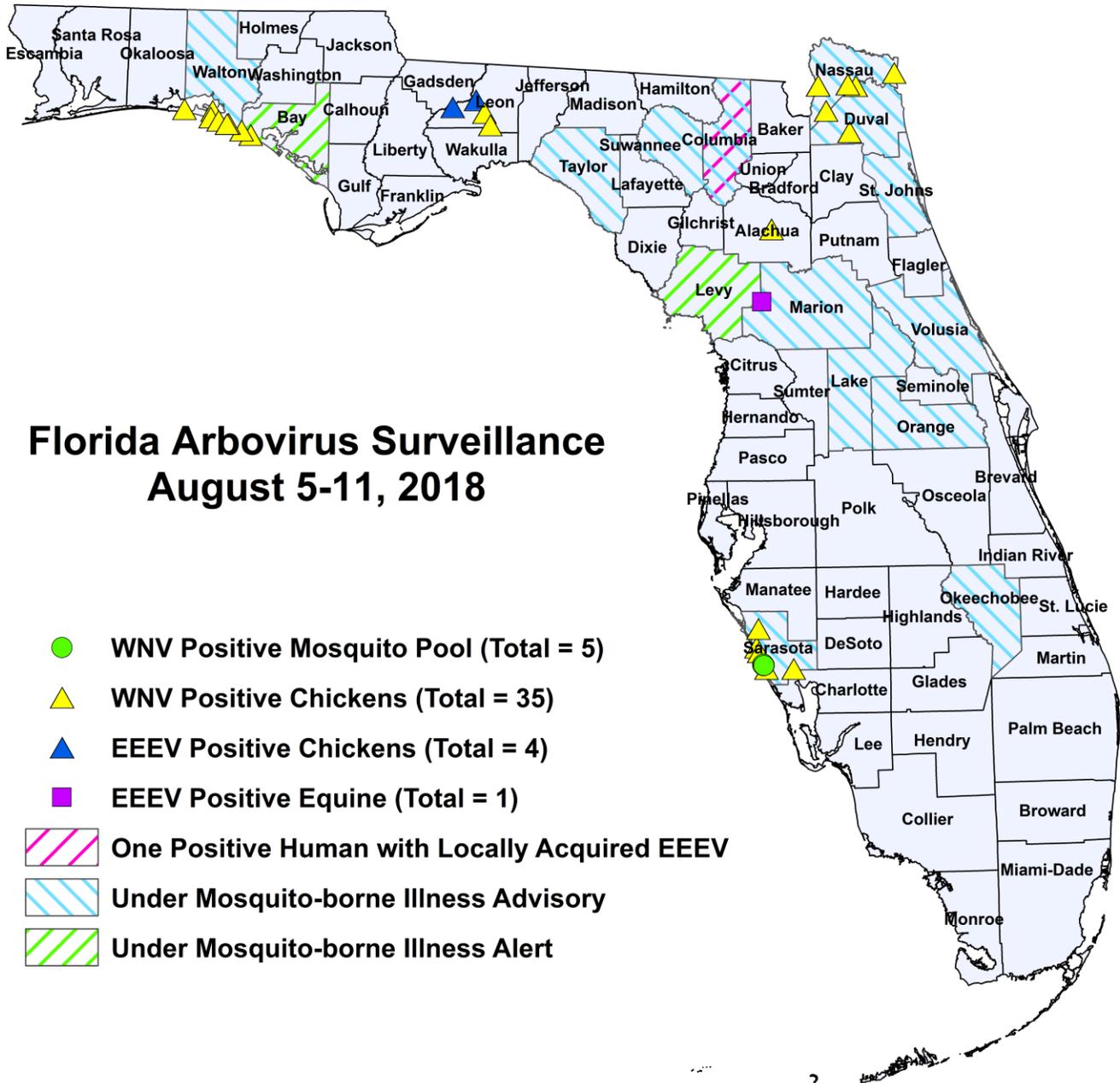
### Dead Birds

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, seven reports representing a total of ten dead birds, including one crow and two raptors, were received from four counties.

In 2018, 305 reports representing a total of 795 dead birds (18 crows, 20 jays, 64 raptors, 25 doves) were received from 42 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/).

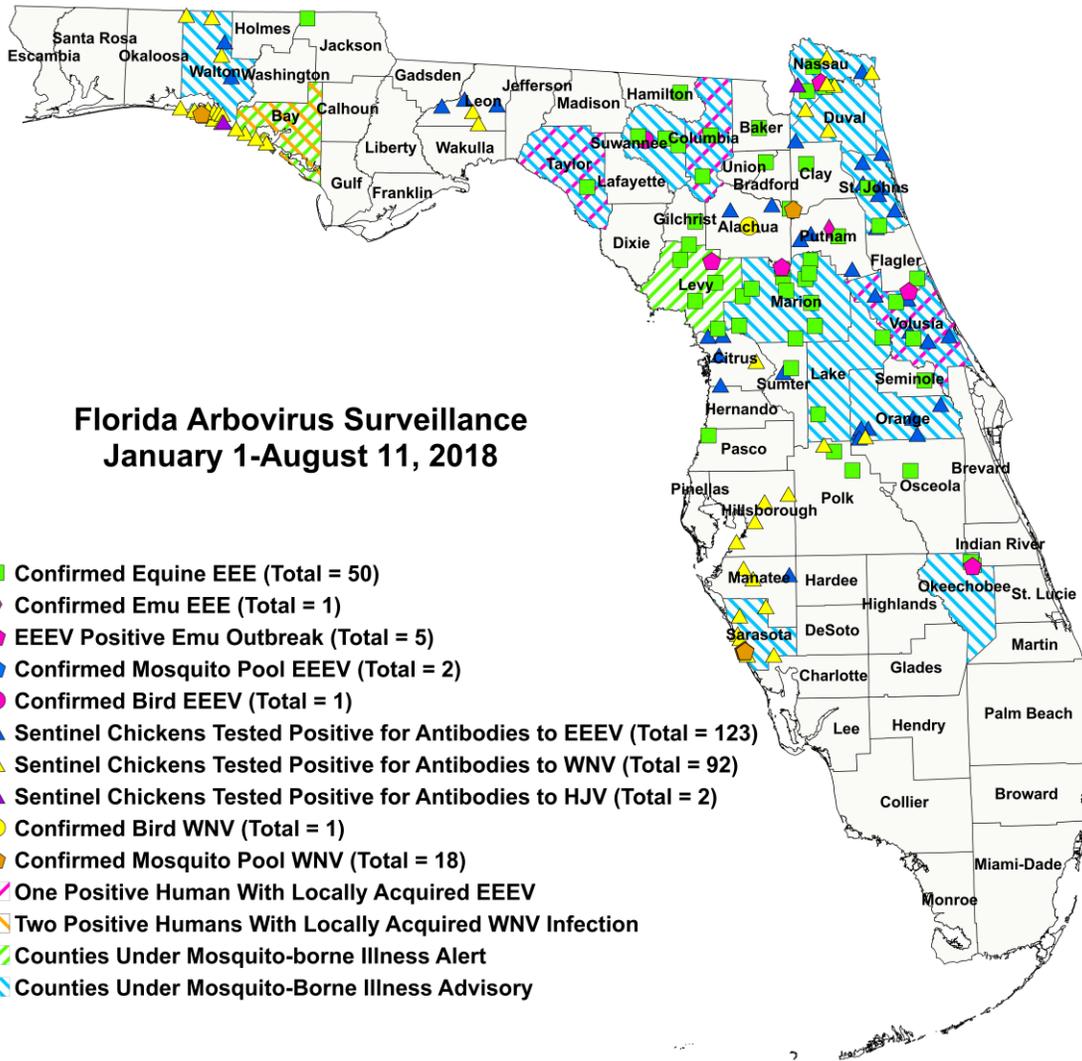
County	Total Dead Birds	Crows	Jays	Raptors	Dove
Lake	1	0	0	2	0
Lee	2	0	0	0	0
Manatee	2	0	0	0	0
Pinellas	5	1	0	0	0

Maps



**Florida Arbovirus Surveillance  
August 5-11, 2018**

- WNV Positive Mosquito Pool (Total = 5)
- ▲ WNV Positive Chickens (Total = 35)
- ▲ EEEV Positive Chickens (Total = 4)
- EEEV Positive Equine (Total = 1)
- / / / One Positive Human with Locally Acquired EEEV
- / / / Under Mosquito-borne Illness Advisory
- / / / Under Mosquito-borne Illness Alert



**Florida Arbovirus Surveillance  
January 1-August 11, 2018**

- Confirmed Equine EEE (Total = 50)
- ◆ 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 = 123)
- ▲ Sentinel Chickens Tested Positive for Antibodies to WNV (Total = 92)
- ▲ Sentinel Chickens Tested Positive for Antibodies to HJV (Total = 2)
- Confirmed Bird WNV (Total = 1)
- Confirmed Mosquito Pool WNV (Total = 18)
- ▨ One Positive Human With Locally Acquired EEEV
- ▨ Two Positive Humans With Locally Acquired WNV Infection
- ▨ Counties Under Mosquito-borne Illness Alert
- ▨ Counties Under Mosquito-Borne Illness Advisory

2018 Arbovirus Activity by County	
County	Arbovirus Activity
Alachua	WNV: 1 crow (7/1), 4 sentinels (7/10, 7/18, 7/31) 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), 1 human (July), 8 sentinels (7/9, 7/16, 7/30)
Bradford	EEEV: 1 horse (6/8)
Citrus	WNV: 1 sentinel (4/17) EEEV: 6 sentinels (1/8, 4/30, 5/7, 7/9, 7/23)
Clay	WNV: 1 mosquito pool (7/17) EEEV: 1 horse (7/10)
Columbia	EEEV: 1 human (July), 2 horses (3/5, 5/30)
Duval	WNV: 5 sentinels (7/30) EEEV: 4 sentinels (6/11, 6/18, 6/25)
Flagler	EEEV: 1 horse (3/6)
Gilchrist	EEEV: 2 horses (5/4, 6/11)
Hamilton	EEEV: 1 horse (4/3)
Hillsborough	WNV: 9 sentinels (1/10, 1/16, 2/13, 3/6, 3/13, 4/3, 5/15)
Jackson	EEEV: 1 horse (7/2)
Lake	EEEV: 2 horses (5/24, 5/30), 1 mosquito pool (6/13)
Leon	WNV: 2 sentinels (7/31) EEEV: 9 sentinels (6/5, 6/25, 7/9, 7/31)

<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: 12 horses (2/28, 4/23, 5/3, 5/14, 6/1, 6/12, 6/19, 6/21, 7/20, 7/21, 7/24, 8/1), 1 emu flock outbreak (5/2 for first emu)
<b>Nassau</b>	WNV: 17 sentinels (7/12, 7/14, 7/27, 7/28) EEEV: 4 horses (1/29, 4/30, 5/25, 6/2), 1 emu flock outbreak (7/5 for first emu), 10 sentinels (5/17, 5/25, 5/31, 6/8, 6/23, 6/28, 7/5, 7/12) HJV: 1 sentinel (7/5)
<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: 12 sentinels (2/27, 3/13, 6/5, 6/7, 6/12, 6/14, 6/21, 6/26, 7/17)
<b>Osceola</b>	EEEV: 1 horse (7/2)
<b>Pasco</b>	EEEV: 1 horse (6/10)
<b>Polk</b>	WNV: 1 sentinel (7/13) EEEV: 2 horses (2/27, 7/9)
<b>Putnam</b>	EEEV: 1 horse (4/21), 1 emu (2/13), 5 sentinels (5/30, 7/13)
<b>Sarasota</b>	WNV: 13 mosquito pools (7/3, 7/10, 7/24, 7/26, 8/2), 13 sentinels (1/12, 2/2, 4/2, 4/9, 4/16, 5/11, 5/18, 7/20, 7/27, 7/30)
<b>Seminole</b>	EEEV: 1 horse (5/29)
<b>St. Johns</b>	EEEV: 2 horses (1/9, 5/25), 36 sentinels (4/16, 4/23, 4/30, 5/7, 5/14, 5/21, 5/29, 6/4, 6/18, 6/25, 7/16, 7/23)
<b>Sumter</b>	WNV: 1 sentinel (7/24) 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 human (July), 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), 28 sentinels (1/9, 1/22, 1/23, 2/26, 6/11, 6/18, 6/25, 7/2, 7/9, 7/16, 7/23, 7/30) EEEV: 22 sentinels (2/5, 3/5, 3/19, 4/2, 4/16, 4/30, 5/1, 6/11, 6/25, 7/2, 7/9, 7/10, 7/16, 7/30) HJV: 1 sentinel (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.