



Florida Arbovirus Surveillance Week 31: July 28-August 3, 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 28-August 3, 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. Twenty sentinel chickens tested positive for antibodies to WNV this week in Brevard, Charlotte, Citrus, Indian River, Orange, Polk, Putnam, St. Johns, and Volusia counties. In 2019, one horse and 55 sentinel chickens have been reported from 17 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. No horses with EEEV infection were reported this week. Three sentinel chickens tested positive for antibodies to EEEV this week in Brevard, Orange, and Walton counties. In 2019, 25 horses, one emu, one eagle, and 86 sentinel chickens have been reported from 29 counties.

International Travel-Associated Dengue Fever Cases: Seventeen cases of dengue fever were reported this week in persons that had international travel. In 2019, 75 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: One case of chikungunya fever was reported this week in a person that had international travel. In 2019, five 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, 29 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, Orange, 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:
www.cdc.gov/arbovet/maps/ADB_Diseases_Map/index.html.

2019 Human Case Summary*

International Travel-Associated Chikungunya Fever Cases: Five 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 (2). Counties reporting cases were: Alachua, Manatee, Marion, Orange, and Palm Beach. Two cases were reported in non-Florida residents.

International Travel-Associated Dengue Fever Cases: Seventy-five 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 (46), Dominican Republic, El Salvador, Guatemala (2), Haiti, Honduras (2), India (2), Jamaica (6), Malaysia/Singapore, Mexico, Nicaragua, Thailand, and Venezuela (2). Counties reporting cases were: Brevard, Broward (9), Hillsborough (5), Lake, Lee, Miami-Dade (41), Orange (6), Palm Beach (5), Pasco, Pinellas (2), Polk, Putnam, and St. Lucie. Four cases were reported in non-Florida residents. One case 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 2019, 63 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2019
DENV-1	5
DENV-2	48
DENV-3	9
DENV-2 & 3	1
Total	63

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, 29 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 (9), Honduras (4), Jamaica, Nicaragua, Philippines, Puerto Rico, and Venezuela. Counties reporting cases were: Broward (4), Collier (2), Duval, Hillsborough, Indian River, Lee, Miami-Dade (13), Orange (4), Palm Beach, and Sarasota. Three cases were reported in non-Florida residents. Florida is monitoring a total of 16 pregnant women in 2019.

International Travel-Associated Malaria Cases: Thirty-two cases of malaria with onset in 2019 have been reported. Countries of origin were: Angola (2), Congo, Democratic Republic of the Congo (4), Ghana (6), Ivory Coast (4), Kenya (3), Liberia (2), Nigeria (5), Papua New Guinea, Sudan, Uganda, and Zambia (2). Counties reporting cases were: Broward (2), Duval (3), Hillsborough (4), Lake (2), Miami-Dade (5), Orange (4), Pasco (3), Pinellas (5), Polk (2), Seminole, and Volusia. Six cases were reported in non-Florida residents.

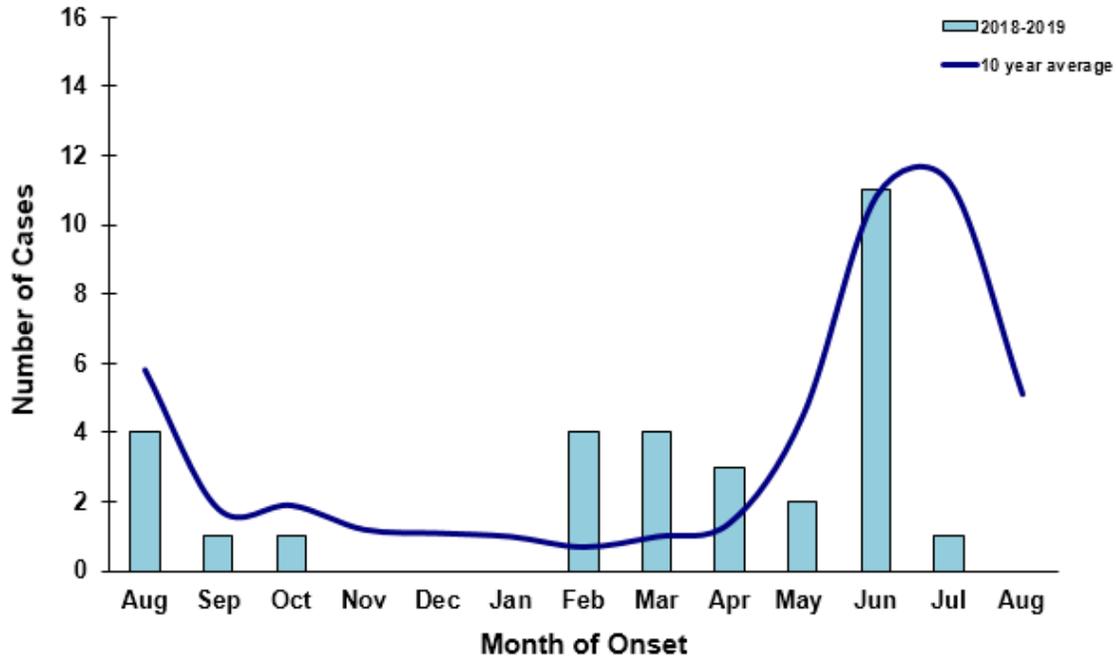
Thirty-one cases (97%) were diagnosed with *Plasmodium falciparum*. One case (3%) was diagnosed with *Plasmodium vivax*.

Veterinary Cases*

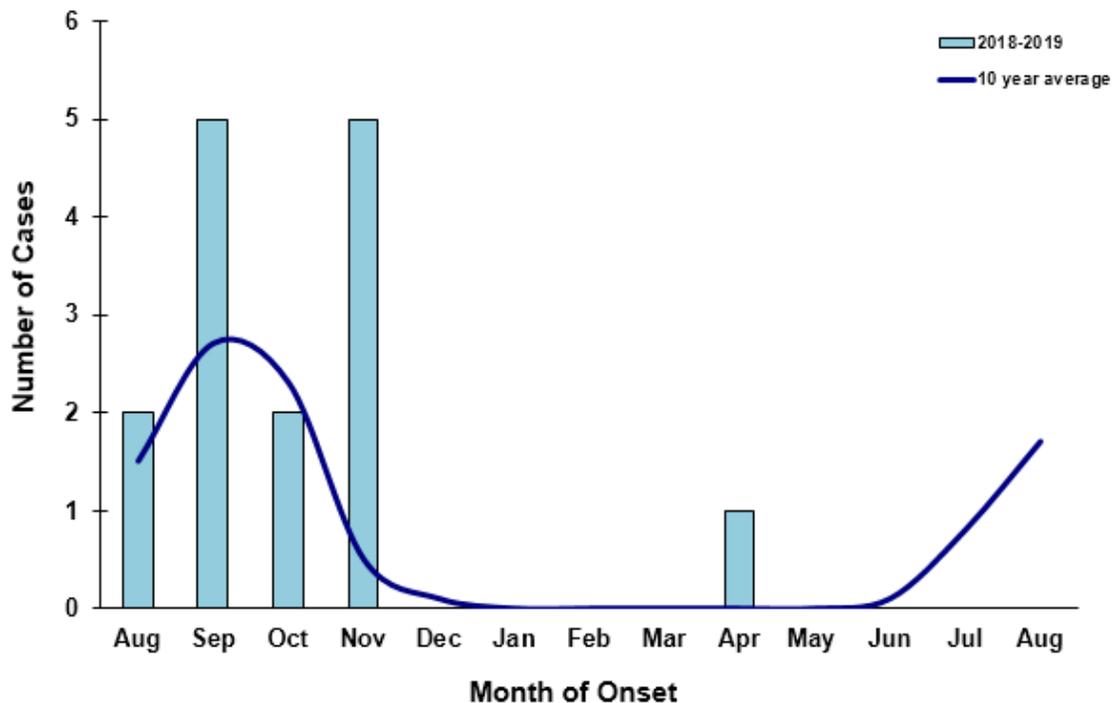
*Veterinary cases are reported by date of onset. Only mammalian veterinary cases are included in the graphs.

No horses with EEEV or WNV infection were reported this week.

Veterinary EEEV Disease in Florida, August 2018-2019



Veterinary WNV Disease in Florida, August 2018-2019



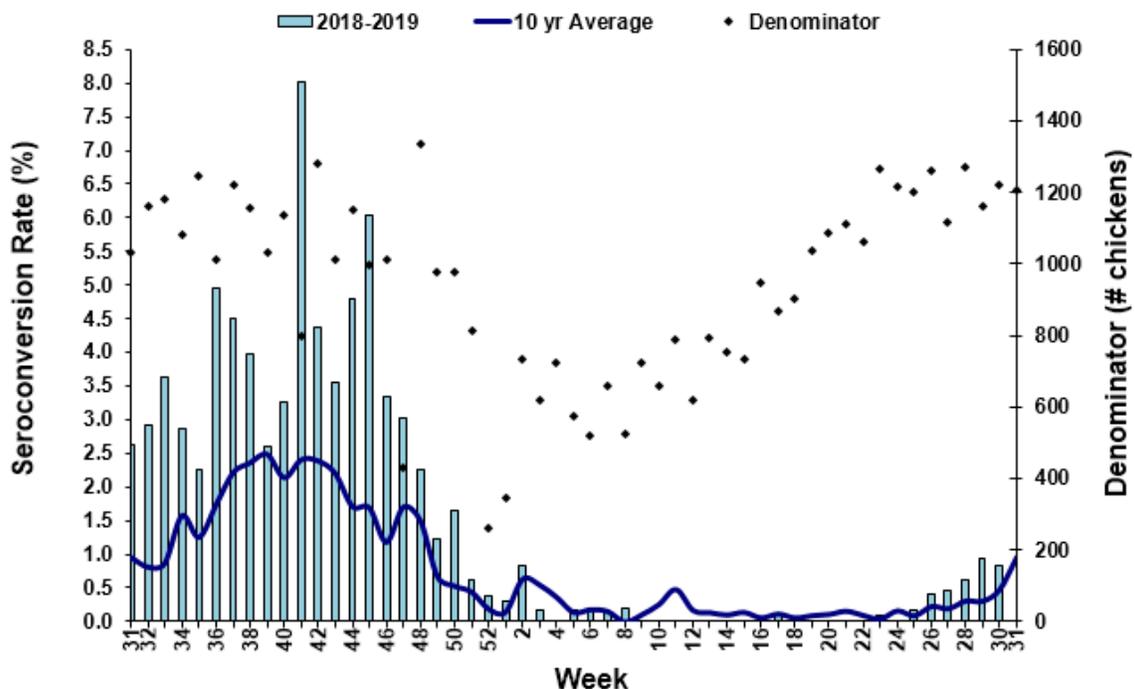
Sentinel Chickens*

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.

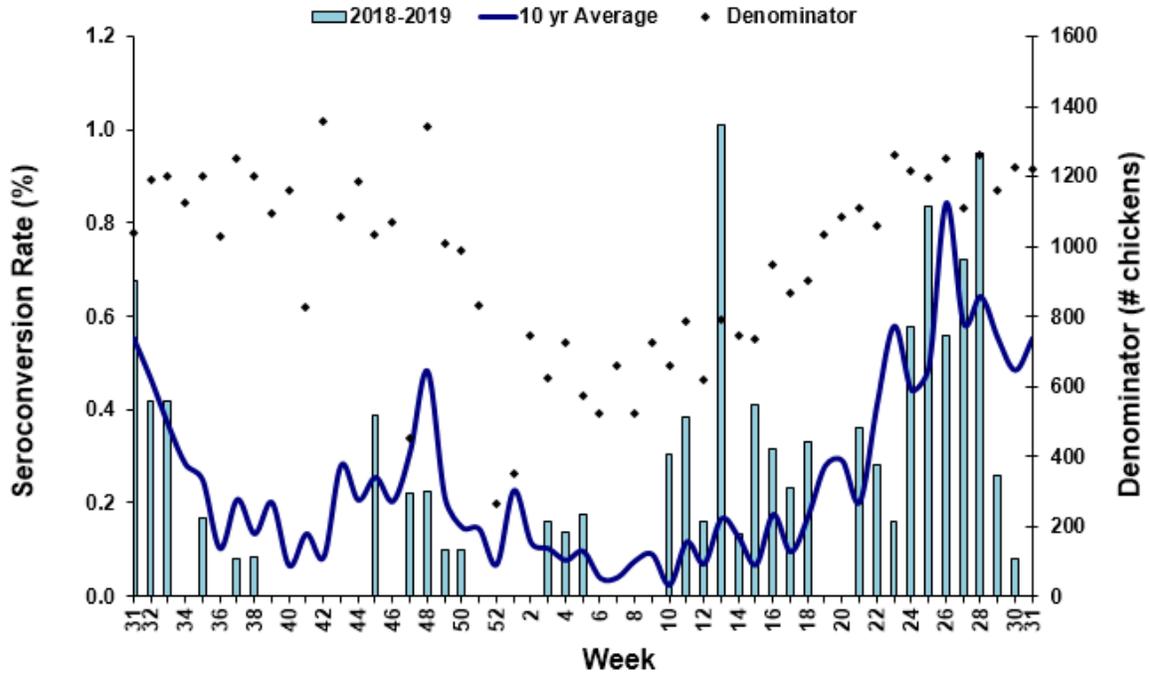
Twenty sentinel chickens tested positive for antibodies to WNV this week in Brevard, Charlotte, Citrus, Indian River, Orange, Polk, Putnam, St. Johns, and Volusia counties. Three sentinel chickens tested positive for antibodies to EEEV this week in Brevard, Orange, and Walton counties. One sentinel chicken tested positive for antibodies to HJV this week in Walton County.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Brevard	7/18/19-7/19/19	4.62		4.62	1.54	1.54		3 WNV, 1 EEEV	4 WNV, 1 EEEV
Charlotte	7/19/19	5.88		5.88				1 WNV	1 WNV
Citrus	7/23/19	1.28		1.28				1 WNV	3 WNV, 3 EEEV
Indian River	7/19/19	4.55		4.55				1 WNV	5 WNV
Orange	7/11/19	4.62		4.62	0.90	0.90		3 WNV, 3 EEEV	15 WNV, 5 EEEV
	7/18/19-7/22/19	3.77		3.77				4 WNV, 1 EEEV	
Polk	7/22/19	6.67		6.67				2 WNV	5 WNV, 5 EEEV
Putnam	7/17/19	6.25		6.25				1 WNV	2 WNV, 2 EEEV
St. Johns	7/19/19	3.39		3.39				2 WNV	3 WNV, 5 EEEV
Volusia	7/15/19	2.17		2.17				1 WNV, 1 EEEV	8 WNV, 5 EEEV
	7/22/19	6.25		6.25				3 WNV	
Walton	7/9/19				7.41	6.17	1.23	5 EEEV, 1 HJV	1 WNV, 41 EEEV, 2 HJV
	7/22/19				0.89	0.89		1 EEEV	

Sentinel Seroconversions to WNV in Florida, 2018-2019



Sentinel Seroconversions to EEEV in Florida, 2018-2019



Mosquito Pools

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

County	Collection Date	Result	Species	County YTD

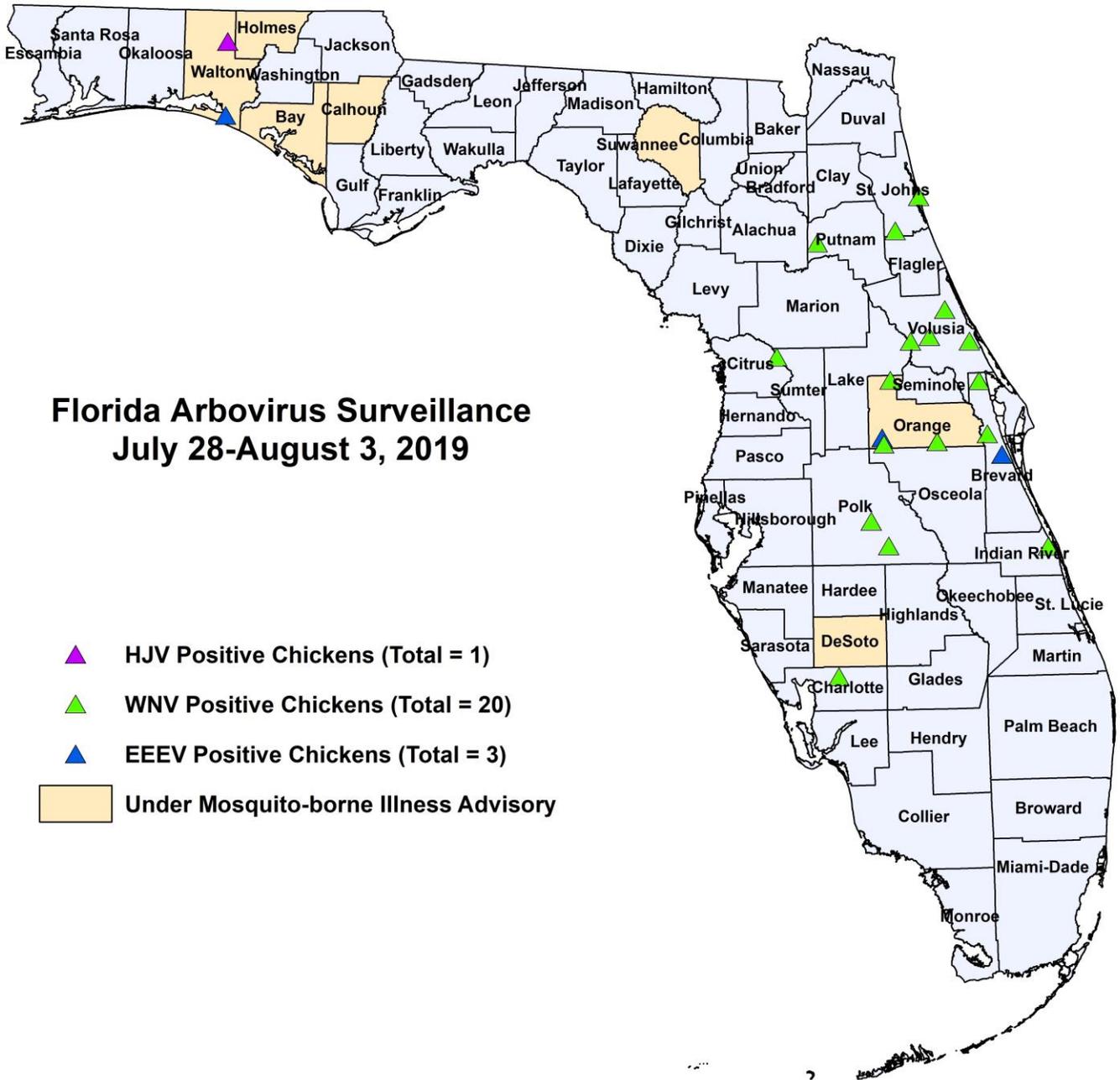
Dead Birds

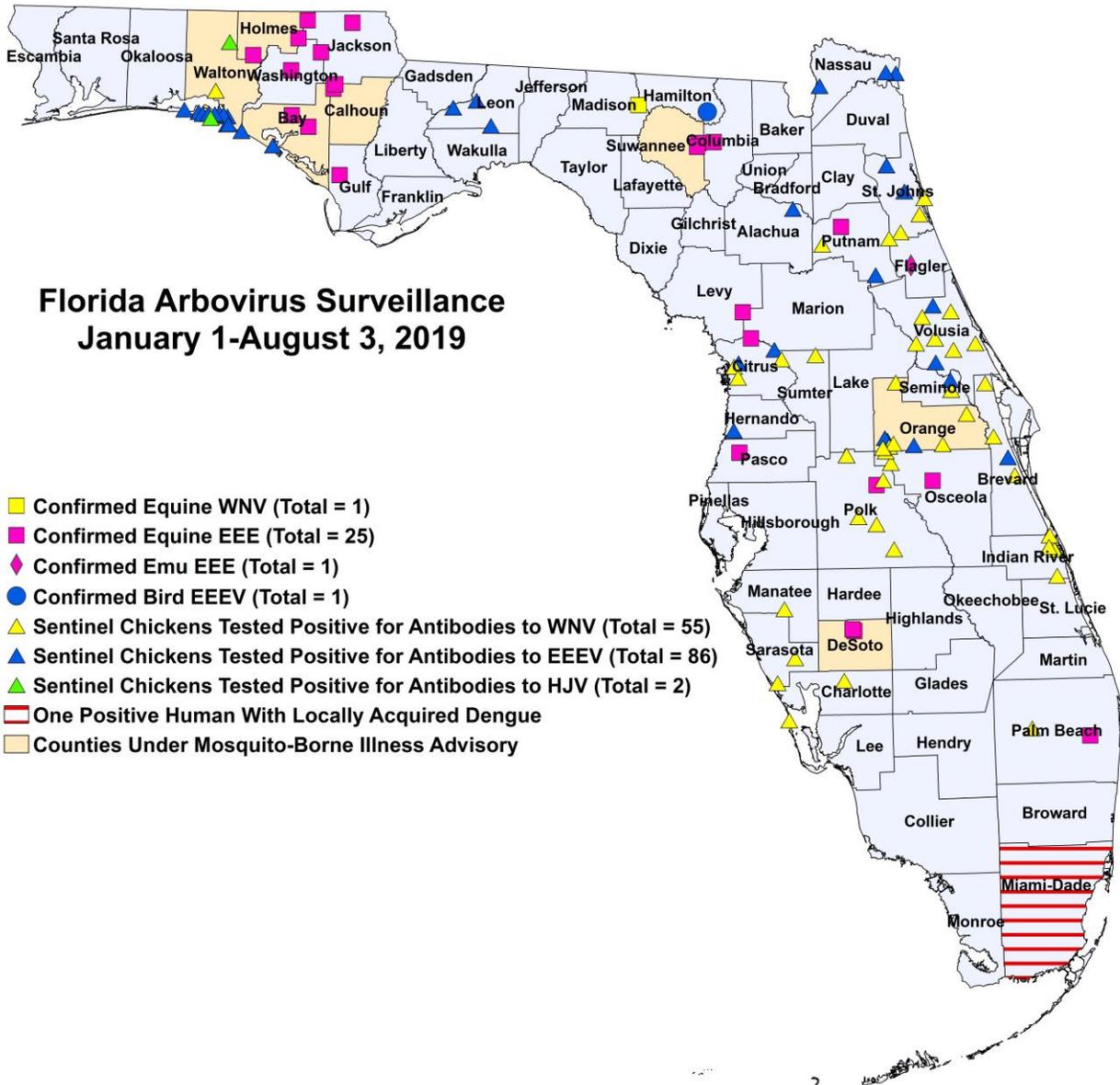
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, five reports representing a total of six dead birds, including two raptors, were received from six counties.

In 2019, 250 reports representing a total of 463 dead birds (12 crows, 8 jays, 63 raptors, and 23 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

County	Total Dead Birds	Crows	Jays	Raptors	Doves
Broward	1	0	0	0	0
Lee	1	0	0	1	0
Orange	1	0	0	0	0
Pinellas	1	0	0	1	0
St. Johns	2	0	0	0	0





**Florida Arbovirus Surveillance
January 1-August 3, 2019**

- Confirmed Equine WNV (Total = 1)
- Confirmed Equine EEE (Total = 25)
- ◆ Confirmed Emu EEE (Total = 1)
- Confirmed Bird EEEV (Total = 1)
- ▲ Sentinel Chickens Tested Positive for Antibodies to WNV (Total = 55)
- ▲ Sentinel Chickens Tested Positive for Antibodies to EEEV (Total = 86)
- ▲ Sentinel Chickens Tested Positive for Antibodies to HJV (Total = 2)
- One Positive Human With Locally Acquired Dengue
- Counties Under Mosquito-Borne Illness Advisory

2019 Arbovirus Activity by County	
County	Arbovirus Activity
Alachua	EEEV: 1 sentinel (7/8)
Bay	EEEV: 2 horses (2/24, 2/26), 9 sentinels (4/29, 7/1)
Brevard	WNV: 4 sentinels (1/3, 7/18, 7/19) EEEV: 1 sentinel (7/18)
Calhoun	EEEV: 3 horses (3/3, 3/22)
Charlotte	WNV: 1 sentinel (7/23)
Columbia	EEEV: 1 horse (3/30)
Citrus	WNV: 3 sentinels (1/8, 1/29, 7/23) EEEV: 1 horse (5/11), 3 sentinels (4/26, 6/18)
DeSoto	EEEV: 2 horses (6/23, 7/2)
Flagler	EEEV: 1 emu (3/17)
Gulf	EEEV: 1 horse (2/27)
Hamilton	EEEV: 1 eagle (3/21)
Hernando	EEEV: 1 sentinel (3/4)
Holmes	EEEV: 3 horses (6/1, 6/5, 6/20)
Indian River	WNV: 5 sentinels (1/10, 7/3, 7/5, 7/12, 7/19)

Jackson	EEEV: 1 horse (6/19)
Lee	WNV: 1 sentinel (7/9)
Leon	EEEV: 4 sentinels (5/28, 6/10)
Levy	EEEV: 1 horse (6/19)
Madison	WNV: 1 horse (4/1) EEEV: 1 horse (4/1)
Manatee	WNV: 1 sentinel (2/5)
Miami-Dade	Dengue: 1 human (March)
Nassau	EEEV: 3 sentinels (6/21, 7/13)
Orange	WNV: 15 sentinels (1/7, 1/10, 1/14, 6/27, 6/20, 6/24, 7/1, 7/11, 7/22) EEEV: 5 sentinels (6/17, 7/11, 7/18)
Osceola	EEEV: 1 horse (6/10)
Palm Beach	WNV: 1 sentinel (7/8) EEEV: 1 horse (2/25)
Pasco	EEEV: 1 horse (6/20)
Polk	WNV: 5 sentinels (7/8, 7/15, 7/22) EEEV: 1 horse (4/24), 5 sentinels (5/21, 5/24, 5/31, 6/21, 6/28)
Putnam	WNV: 2 sentinels (6/24, 7/17) EEEV: 1 horse (4/28) 2 sentinels (5/29, 6/12)
Sarasota	WNV: 2 sentinels (2/15, 2/22)
Seminole	WNV: 2 sentinels (6/3, 7/15) EEEV: 1 sentinel (4/8)
St. Johns	WNV: 3 sentinels (7/1, 7/19) EEEV: 5 sentinels (4/8, 4/15, 6/3, 6/24, 7/8)
Sumter	WNV: 1 sentinel (1/8)
Suwannee	EEEV: 2 horses (6/4, 6/7)
Volusia	WNV: 8 sentinels (6/17, 6/24, 7/1, 7/15, 7/22) EEEV: 5 sentinels (1/14, 1/22, 1/28, 7/1, 7/15)
Walton	WNV: 1 sentinel (4/23) EEEV: 41 sentinels (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, 7/22) HJV: 2 sentinels (6/3, 7/9)
Washington	EEEV: 2 horses (5/28)

Acknowledgements and Data Sources

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For more surveillance information, please see the DOH website at: 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

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. 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.