



Florida Arbovirus Surveillance Week 37: September 6-12, 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 September 6-12, 2020, the following arboviral activity was recorded in Florida.

WNV activity: Five human cases of WNV infection were reported this week in Miami-Dade County. One horse with WNV infection was reported this week in Palm Beach County. Twenty-one sentinel chickens tested positive for antibodies to WNV this week in Lee, Manatee, Nassau, Palm Beach, St. Lucie, and Walton counties. In 2020, positive samples from 27 humans, 34 asymptomatic blood donors, nine horses, four crows, 11 blue jays, two ibises, 13 mosquito pools, and 148 sentinel chickens have been reported from 22 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, no positive samples have been reported.

EEEV activity: No human cases of EEEV infection were reported this week. One horse with EEEV infection was reported this week in Lake County. Nine sentinel chickens tested positive for antibodies to EEEV this week in Brevard, Leon, Palm Beach, Sarasota, St. Johns, and Walton counties. In 2020, positive samples from 39 sentinel chickens, 17 horses, one duck, two sparrows, and one mosquito pool have been reported from 22 counties.

International Travel-Associated Dengue Fever Cases: No cases of dengue fever were reported this week in persons that had international travel. In 2020, 32 travel-associated cases have been reported.

Dengue Fever Cases Acquired in Florida: One case of locally acquired dengue fever was reported in Monroe County this week. This case was identified through retrospective case finding efforts to better characterize activity early in the outbreak. Two mosquito pools tested presumptive positive for DENV this week in Miami-Dade County and will need additional testing at a reference laboratory to confirm the presence of DENV. In 2020, positive samples from 56 humans, three mosquito pools, and two presumptive positive 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, Holmes, Lee, and Martin counties are currently under a mosquito-borne illness advisory. Broward, 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 Ethiopia related to chikungunya virus transmission, and for Burundi related to malaria transmission. 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 visit: www.cdc.gov/arbovet/maps/ADB_Diseases_Map/index.html.

2020 Human Case Summary*

West Nile Virus Illnesses Acquired in Florida: Twenty-seven human cases of WNV illness acquired in Florida have been reported in 2020: 21 in Miami-Dade County (June, July, August), three in Palm Beach County (July), and three in Broward County (July). Thirty-four asymptomatic positive blood donors have been reported in 2020: 33 in Miami-Dade County (May, June, July, and August) and one in Broward County (August).

International Travel-Associated Dengue Fever Cases: Thirty-two 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 (13), Orange, Palm Beach, Sarasota, Seminole, and St. Lucie. Five cases were reported in non-Florida residents. In 2020, 20 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	DENV-1/ DENV-3	Unknown	Total
Cuba	2	1				1	4
Jamaica			3		1		4
Bolivia	2					2	4
Colombia	2						2
Dominican Republic	2						2
Indonesia						2	2
Antigua and Barbuda			1				1
Bahamas	1						1
Brazil		1					1
Mexico						1	1
Nicaragua		1					1
Paraguay				2			2
Puerto Rico						2	2
Puerto Rico/US Virgin Islands	1						1
St. Barts/St. Martin						1	1
Thailand						1	1
US Virgin Islands						2	2
Total	10	3	4	2	1	12	32

Dengue Fever Cases Acquired in Florida: In 2020, 56 cases of locally acquired dengue fever have been reported in Miami-Dade and Monroe (55) counties, with onsets in February, March, April, May, June, July, and August. One case was reported in a non-Florida resident.

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

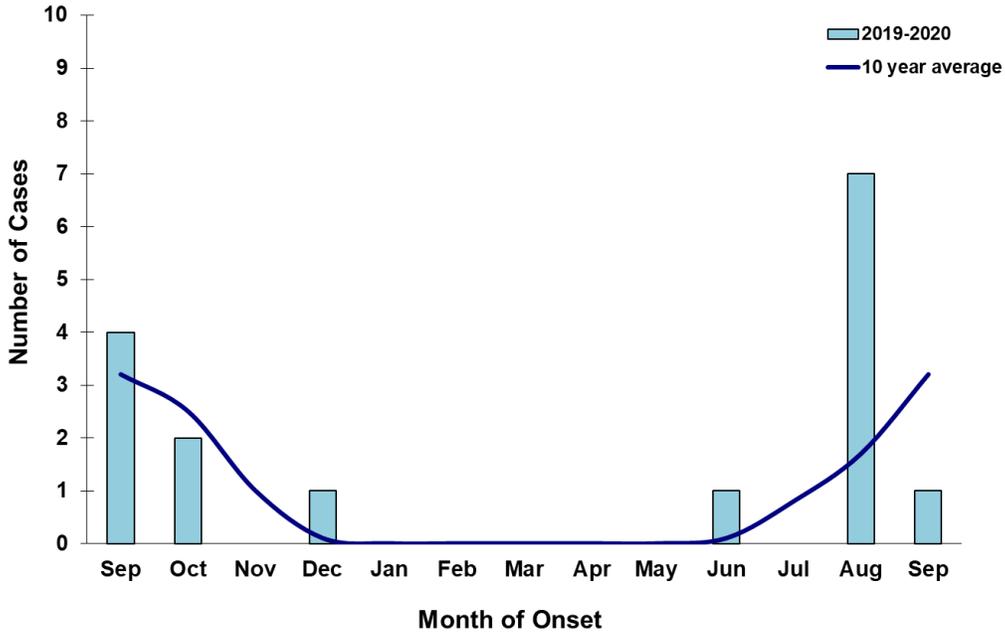
Five cases (45%) were diagnosed with *Plasmodium falciparum*. Four cases (36%) were diagnosed with *Plasmodium vivax*. One case (9%) was diagnosed with *Plasmodium ovale*. The *Plasmodium* species for one case (9%) was unknown due to low parasitemia.

Veterinary Cases*

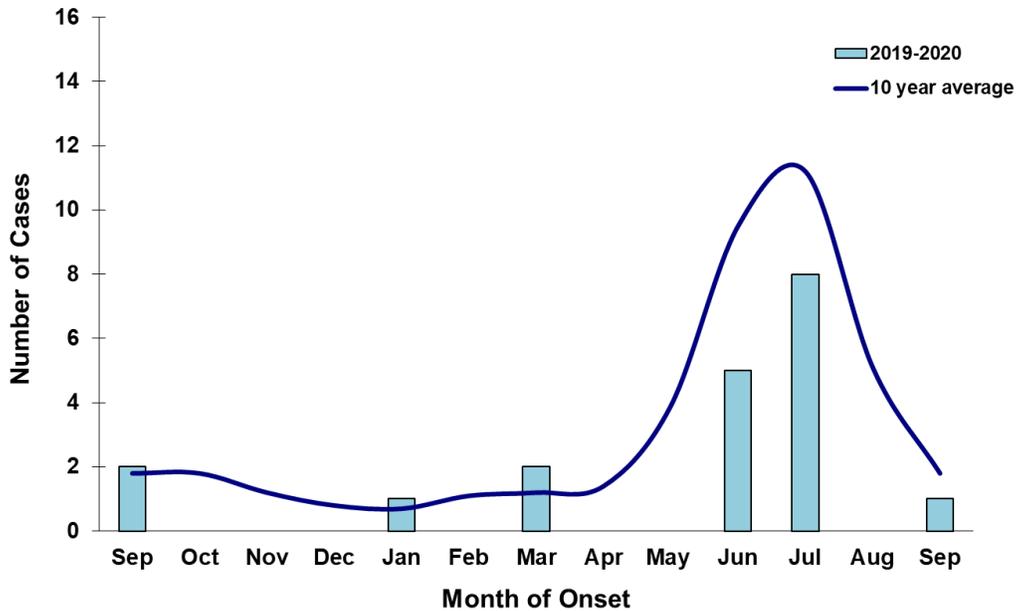
*Veterinary cases are reported by date of onset. Only mammalian veterinary cases are included in the graphs.

One horse with WNV infection was reported this week in Palm Beach County. One horse with EEEV infection was reported this week in Lake County.

Veterinary WNV Disease in Florida, September 2019-2020



Veterinary EEEV Disease in Florida, September 2019-2020



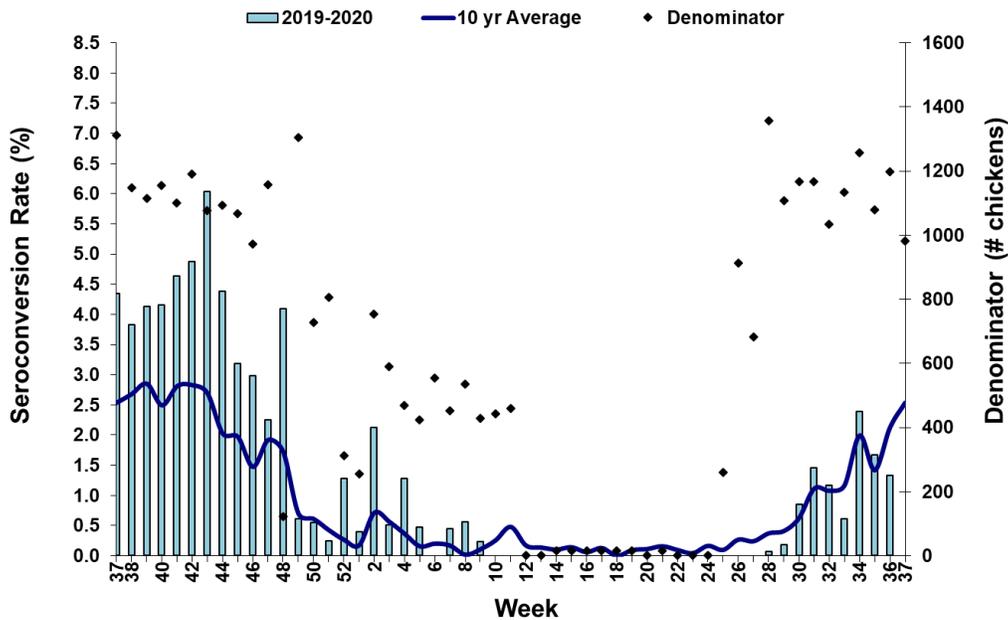
Sentinel Chickens*

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.

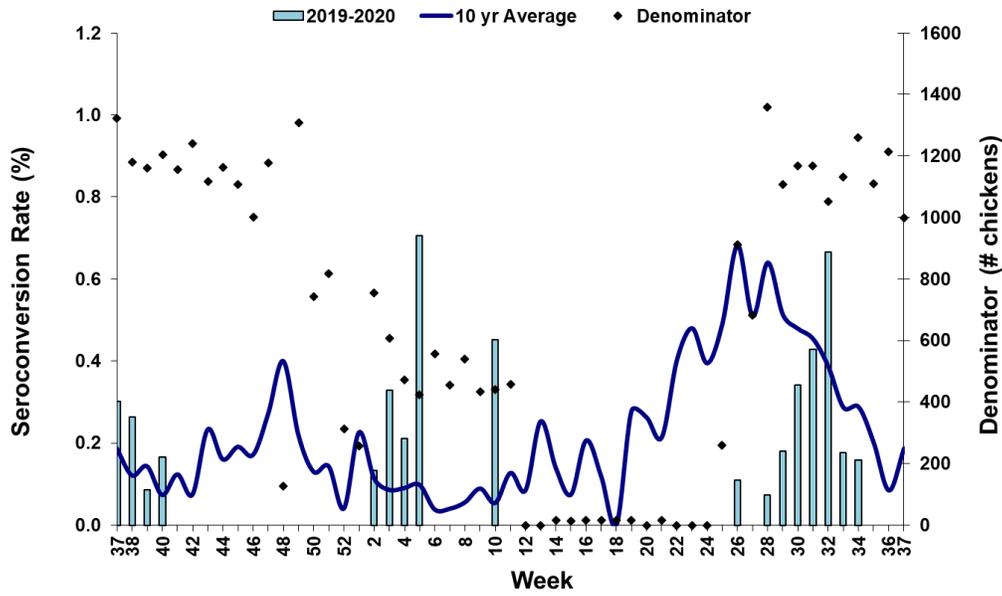
Twenty-one sentinel chickens tested positive for antibodies to WNV this week in Lee, Manatee, Nassau, Palm Beach, St. Lucie, and Walton counties. Nine sentinel chickens tested positive for antibodies to EEEV this week in Brevard, Leon, Palm Beach, Sarasota, St. Johns, and Walton counties.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Brevard	7/15/2020				3.51	3.51		2 EEEV	2 WNV, 3 EEEV
	7/31/2020				1.67	1.67		1 EEEV	
Lee	8/31/2020-9/1/2020	21.95		21.95				9 WNV	68 WNV
Leon	7/20/2020				4.17	4.17		2 EEEV	5 EEEV
	8/4/2020				2.38	2.38		1 EEEV	
Manatee	9/2/2020	3.28		3.28				2 WNV	6 WNV
Nassau	8/29/2020	5.71		5.71				2 WNV	5 WNV, 2 EEEV
Palm Beach	8/3/2020				5.00	5.00		1 WNV, 1 EEEV	7 WNV, 1 EEEV
	8/31/2020	15.38		15.38				4 WNV	
Sarasota	7/28/2020				1.52	1.52		1 EEEV	1 WNV, 1 EEEV
St. Johns	8/4/2020				1.89	1.89		1 EEEV	2 EEEV
	8/10/2020				1.89	1.89		1 EEEV	
St. Lucie	8/27/2020	10.71		10.71				3 WNV	7 WNV
Walton	8/3/2020				1.12	1.12		3 EEEV	4 WNV, 8 EEEV
	8/31/2020	1.09		1.09				1 WNV	

Sentinel Seroconversions to WNV in Florida, 2019-2020



Sentinel Seroconversions to EEEV in Florida, 2019-2020



Mosquito Pools

Two mosquito pools tested presumptive positive for DENV this week in Miami-Dade County and will need additional testing at a reference laboratory to confirm the presence of DENV.

County	Collection Date	Result	Species	County YTD
Miami-Dade	7/30/2020	Presumptive DENV-2	<i>Ae. aegypti</i>	2 Presumptive
Miami-Dade	7/30/2020	Presumptive DENV-2	<i>Ae. aegypti</i>	DENV-2

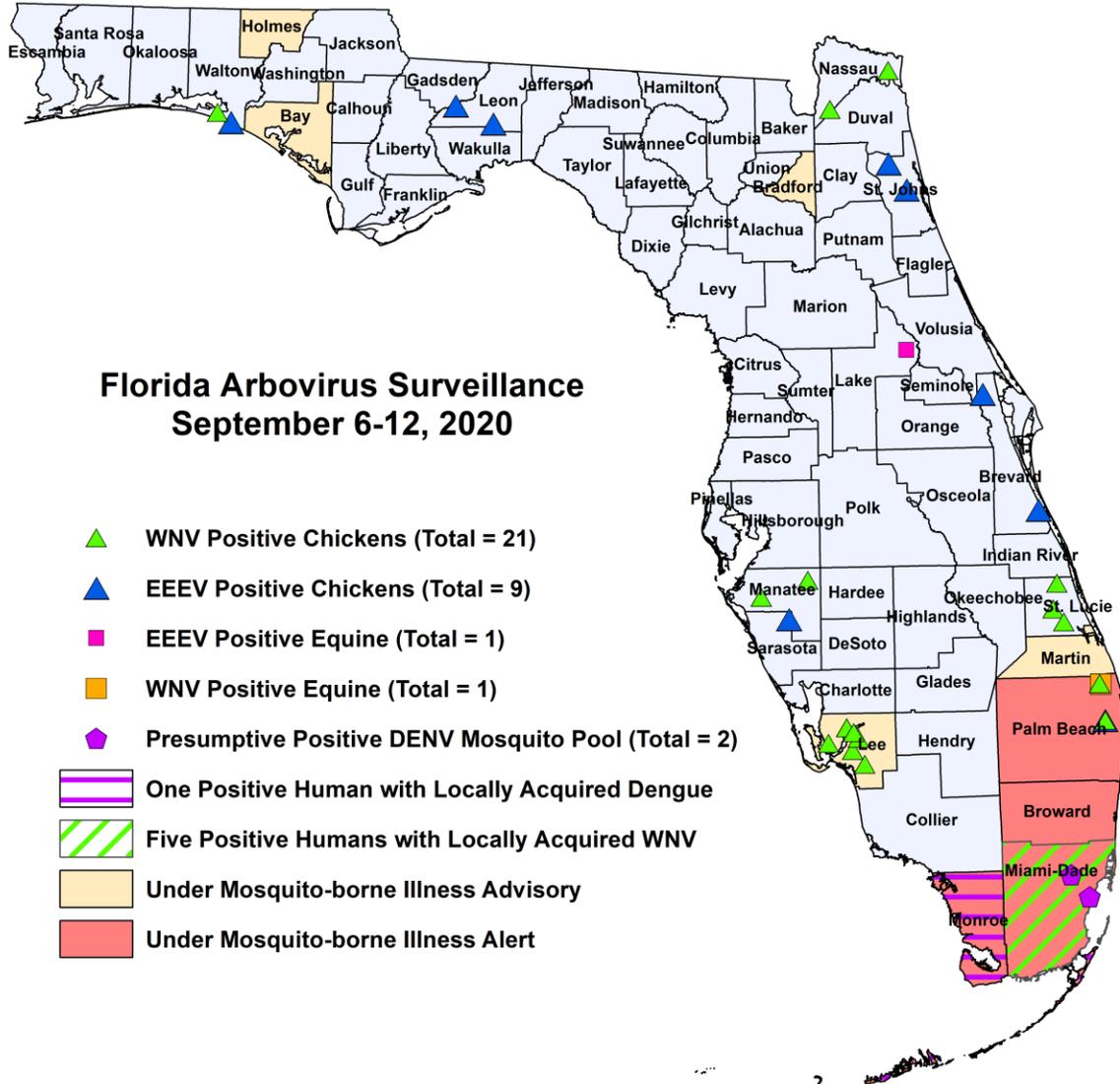
Dead Birds

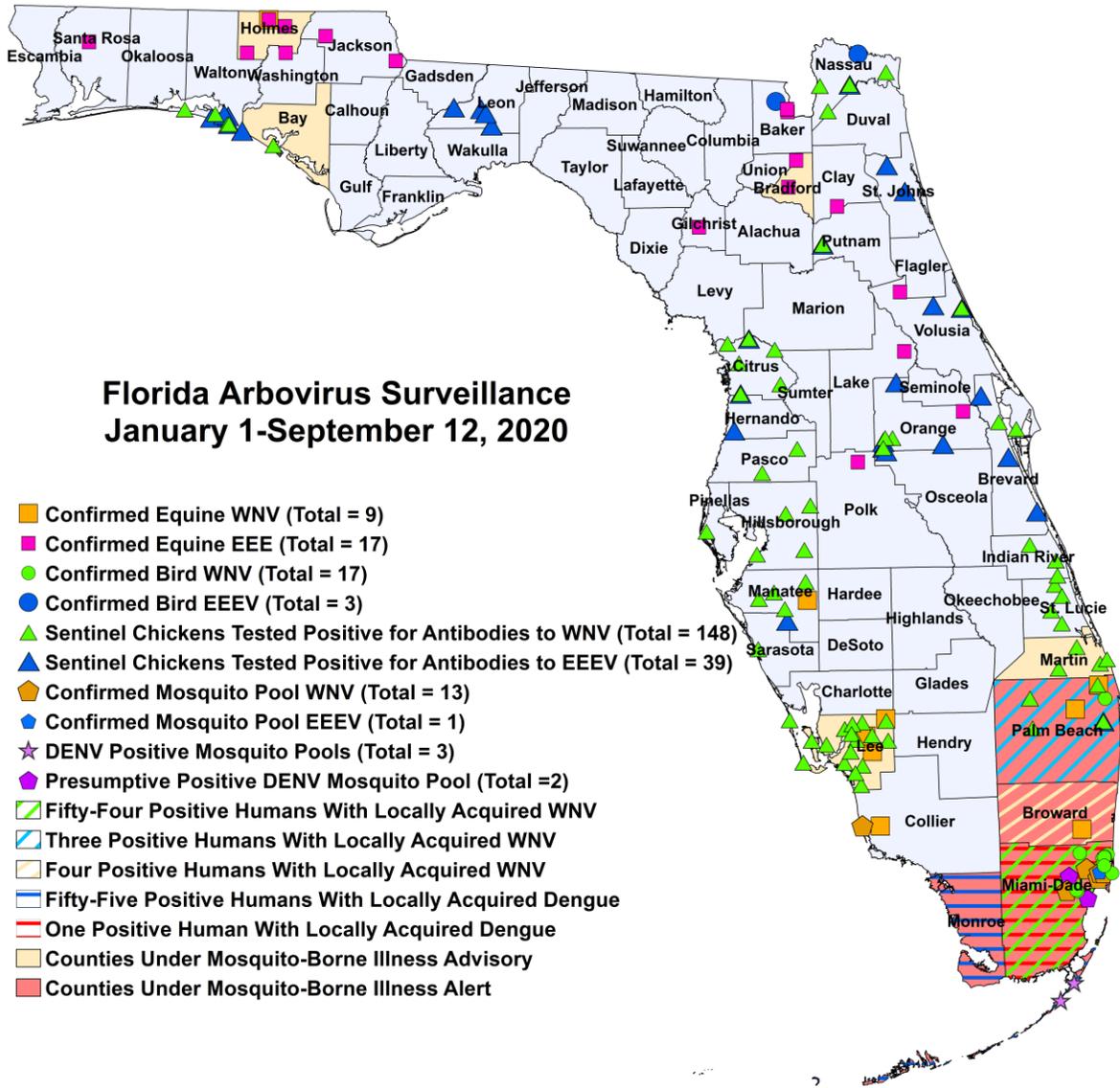
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 12 reports representing a total of 37 dead birds, including one raptor, were received from nine counties.

In 2020, 309 reports representing a total of 833 dead birds (41 crows, 40 jays, 72 raptors, 36 doves) were received from 40 of Florida's 67 counties.

2020

County	Total Dead Birds	Crows	Jays	Raptors	Doves
Broward	8	0	0	0	0
Collier	9	0	0	0	0
Lee	5	0	0	0	0
Marion	1	0	0	0	0
Nassau	1	0	0	0	0
Palm Beach	5	0	0	0	0
Pinellas	6	0	0	0	0
Polk	1	0	0	0	0
Sarasota	1	0	0	1	0





2020 Arbovirus Activity by County	
County	Arbovirus Activity
Baker	EEEV: 2 horses (6/17, 7/5), 1 bird (5/7)
Bay	WNV: 6 sentinels (8/17)
Bradford	EEEV: 2 horses (7/18, 7/19)
Brevard	WNV: 2 sentinels (1/23, 1/24) EEEV: 3 sentinels (7/15, 7/16, 7/31)
Broward	WNV: 3 humans (July), 1 asymptomatic blood donor (August), 1 horse (8/13)
Citrus	WNV: 9 sentinels (1/8, 1/14, 1/21, 7/14) EEEV: 2 sentinels (1/8, 3/2)
Clay	EEEV: 1 horse (7/11)
Collier	WNV: 1 horse (8/23), 1 mosquito pool (8/5)
Gilchrist	EEEV: 1 horse (7/6)
Hernando	EEEV: 1 sentinel (1/21)
Hillsborough	WNV: 12 sentinels (1/6, 1/21, 1/29, 2/11, 2/18, 2/25)
Holmes	WNV: 1 horse (6/7) EEEV: 4 horses (6/3, 6/7, 6/9, 7/13)
Indian River	WNV: 3 sentinels (1/2, 1/9, 1/10)
Jackson	EEEV: 2 horses (6/27, 7/13)

Lake	EEEV: 1 horse (9/1)
Lee	WNV: 3 horses (8/9, 8/14, 8/18), 68 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)
Leon	EEEV: 5 sentinels (7/20, 7/27, 8/4)
Manatee	WNV: 1 horse (8/10), 6 sentinels (1/8, 8/4, 9/2)
Martin	WNV: 8 sentinels (7/17, 7/24, 8/7, 8/21)
Miami-Dade	WNV: 21 humans (June, July, August), 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), 12 mosquito pools (6/9, 6/16, 6/23, 6/30, 7/14) EEEV: 1 mosquito pool (1/7) Dengue: 1 human (March), 2 presumptive positive mosquito pools (7/30)
Monroe	Dengue: 55 humans (February, April, May, June, July, August), 3 mosquito pools (6/23, 6/27, 7/29)
Nassau	WNV: 5 sentinels (7/25, 8/15, 8/22, 8/29) EEEV: 2 birds (6/16, 7/4), 2 sentinels (7/25)
Orange	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)
Palm Beach	WNV: 3 humans (July), 2 horses (8/4, 9/5), 7 sentinels (1/20, 8/3, 8/24, 8/31), 2 birds (6/19) EEEV: 1 sentinel (8/3)
Pasco	WNV: 2 sentinels (1/7)
Pinellas	WNV: 1 sentinel (8/24)
Polk	EEEV: 1 horse (3/29)
Putnam	WNV: 2 sentinels (7/21, 8/17) EEEV: 1 sentinel (8/17)
Santa Rosa	EEEV: 1 horse (7/20)
Sarasota	WNV: 1 sentinel (8/14) EEEV: 1 sentinel (7/28)
St. Johns	EEEV: 2 sentinels (8/4, 8/10)
St. Lucie	WNV: 7 sentinels (7/23, 8/6, 8/13, 8/27)
Volusia	WNV: 1 sentinel (5/4) EEEV: 1 horse (1/24), 4 sentinels (2/24, 3/30, 5/18)
Walton	WNV: 4 sentinels (7/27, 8/17, 8/24, 8/31) EEEV: 8 sentinels (6/22, 7/6, 7/27, 8/3, 8/10, 8/17)

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.