



Florida Arbovirus Surveillance Week 33: August 14-20, 2022

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 August 14-20, 2022, the following arboviral activity was recorded in Florida.

WNV activity: One human case of WNV infection was reported this week in Volusia County. No horses with WNV infection were reported this week. Forty-six sentinel chickens tested positive for antibodies to WNV this week in Bay, Brevard, Charlotte, Hillsborough, Lee, Pinellas, Sarasota, Sumter, Volusia, and Walton counties. No mosquito pools tested positive for WNV this week. In 2022, positive samples from one human, 83 sentinel chickens and two mosquito pools have been reported from 14 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 2022, two positive samples have been reported from two counties.

Flavivirus (WNV or SLEV)* activity: No sentinel chickens tested positive for antibodies to a flavivirus this week. In 2022, positive samples from three sentinel chickens have been reported from three counties.

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 Leon and Nassau counties. In 2022, positive samples from 47 sentinel chickens and nine horses have been reported from 20 counties.

International Travel-Associated Dengue: Forty-four cases of dengue were reported this week in persons that had international travel. In 2022, 216 travel-associated dengue cases have been reported.

Dengue Cases Acquired in Florida: Two cases of locally acquired dengue were reported this week in Miami-Dade County. In 2022, five cases of locally acquired dengue 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 2022, 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 2022, 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 2022, 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 2022, no cases of locally acquired Zika fever have been reported.

Advisories/Alerts: Miami-Dade County is currently under a mosquito-borne illness alert. Bay, Charlotte, Lee, Osceola, Pinellas, Sarasota, and Volusia counties are currently under a mosquito-borne illness advisory. No other counties are currently under a mosquito-borne illness advisory or alert.

There are currently multiple travel health notices from the Centers for Disease Control and Prevention related to mosquito-borne diseases.

Dengue			Yellow Fever
Africa and the Middle East	Americas	Asia and the Pacific Islands	Africa and the Middle East
São Tomé and Príncipe	Colombia	Afghanistan	Ghana
	Cuba	Bangladesh	Kenya
	Dominican Republic	India	Nigeria
	El Salvador	Laos	
	Guatemala	Malaysia	
	Honduras	Myanmar (Burma)	
	Nicaragua	Pakistan	
	Panama	Philippines	
	Peru	Singapore	
		Sri Lanka	
		Vietnam	

Level 1 Travel Health Notice, Level 2 Travel Health Alert: 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.

2022 Human Case Summary

West Nile Virus Illnesses Acquired in Florida: One human case of WNV illness acquired in Florida has been reported in 2022 from Volusia County (July).

International Travel-Associated Dengue Cases: Two hundred and sixteen cases with onset in 2022 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, Broward (11), Collier, Duval (4), Escambia, Hendry, Hillsborough (17), Lee (8), Manatee (2), Miami-Dade (140), Monroe (3), Orange (6), Osceola, Palm Beach (8), Pinellas (5), Polk (3), Sarasota, St. Johns, and St. Lucie (2). Four cases were reported in non-Florida residents. 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 2022, 189 cases of dengue reported in Florida have been serotyped by PCR. Please see the table below for a breakdown of case by country of origin and serotype.

Country of Exposure	DENV-1	DENV-2	DENV-3	DENV-4	Unknown	Total
Brazil	5				1	6
Caribbean			1			1
Colombia	2					2
Costa Rica	1				1	2
Cuba	24	44	86	15	24	193
Dominican Republic		1				1
El Salvador	1					1
Honduras				1	1	2
India		1				1
Mexico	2	2				4
Panama	1					1
Puerto Rico	1					1
Sri Lanka			1			1
Total	37	48	88	16	27	216

Dengue Cases Acquired in Florida: In 2022, five cases of locally acquired dengue have been reported in Miami-Dade County, with onset in June and July (4).

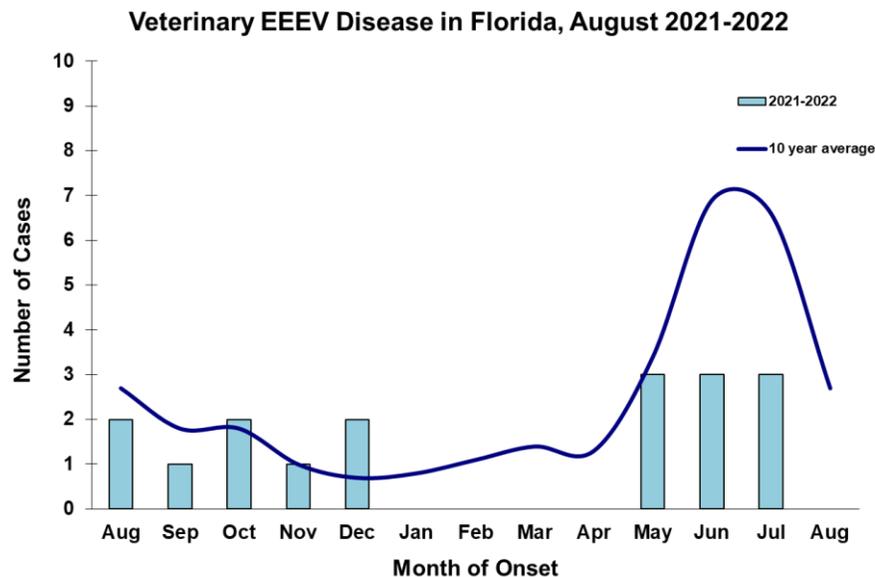
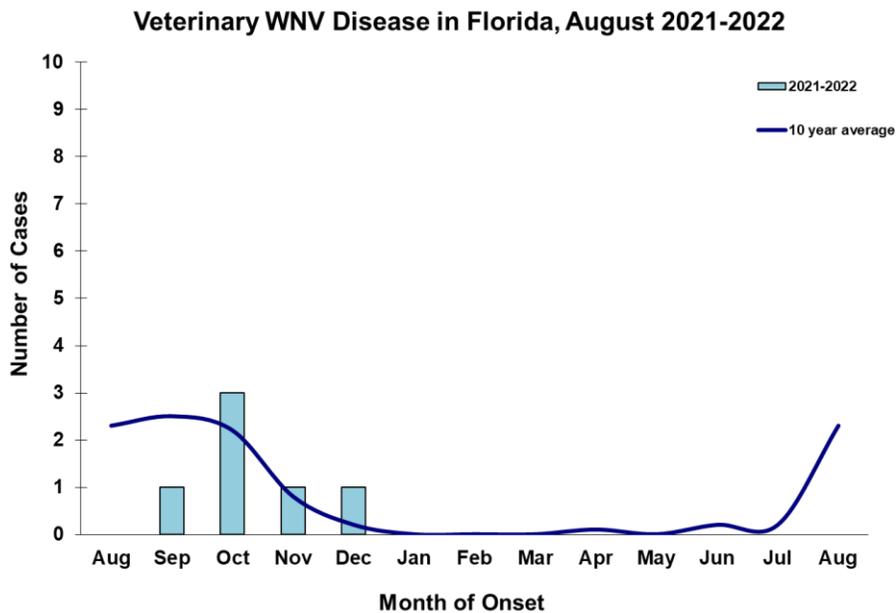
International Travel-Associated Malaria Cases: Thirty-three cases of malaria with onset in 2022 have been reported. Countries of origin were: Brazil (3), Cameroon, Central African Republic, Côte D'Ivoire, Ethiopia, Equatorial Guinea, Ghana (2), Guinea, India, Kenya, Nicaragua (3), Nigeria (10), Sierra Leone (2), Sudan, Uganda (2), Venezuela and Zambia. Counties reporting cases were: Brevard, Broward (7), Duval (5), Flagler, Hillsborough (3), Lee (3), Leon, Miami-Dade (2), Orange (3), Palm Beach (3), Pasco, Pinellas, Santa Rosa, and St. Johns. Five cases were reported in non-Florida residents.

Twenty cases (61%) were diagnosed with *Plasmodium falciparum*. Ten cases (30%) were diagnosed with *Plasmodium vivax*. Three cases (9%) were diagnosed with *Plasmodium malariae*.

Veterinary Cases**

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

No veterinary cases were reported this week.



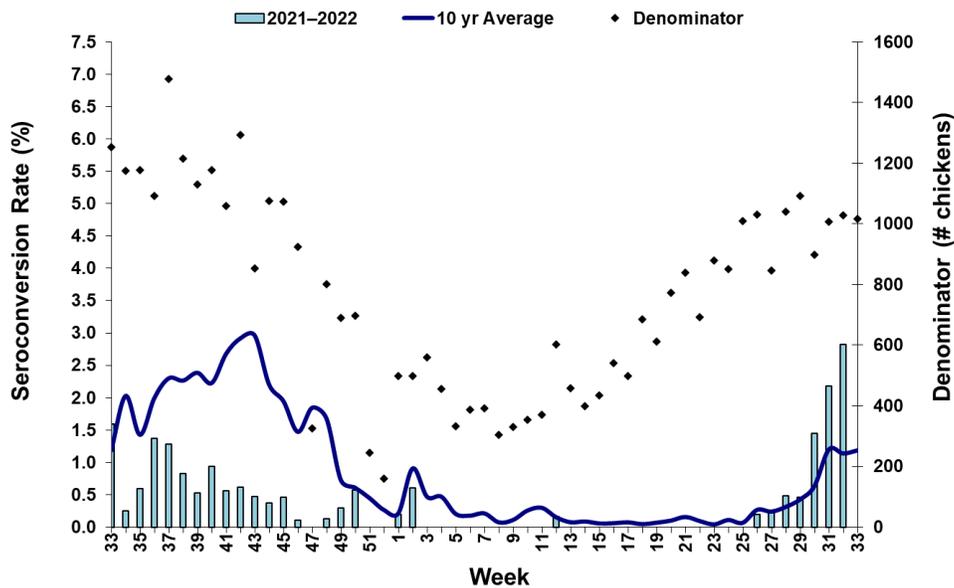
Sentinel Chickens

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.

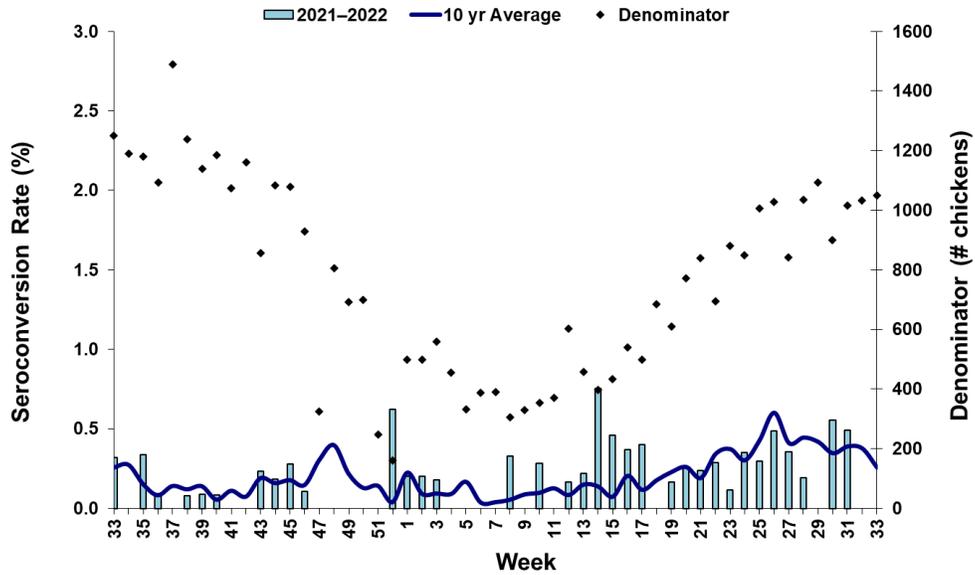
Forty-six sentinel chickens tested positive for antibodies to WNV this week in Bay, Brevard, Charlotte, Hillsborough, Lee, Pinellas, Sarasota, Sumter, Volusia, and Walton counties. Three sentinel chickens tested positive for antibodies to EEEV this week in Leon and Nassau counties.

County	Collection Date	Seroconversion Rates (%)						Collection Week	County Totals
		Flavi	SLEV	WNV	Alpha	EEEV	HJV		YTD
Bay	8/8/2022	53.85		53.85				7 WNV	16 WNV
Brevard	8/5/2022	3.03		3.03				1 WNV	1 WNV, 2 EEEV
Charlotte	8/5/2022	42.11		42.11				8 WNV	11 WNV
Hillsborough	8/10/2022	6.67		6.67				2 WNV	2 WNV, 1 EEEV
Lee	8/8/2022-8/9/2022	13.54		13.54				13 WNV	19 WNV
Leon	8/1/2022				11.11	11.11		2 EEEV	1 WNV, 3 EEEV
Nassau	8/6/2022				2.78	2.78		1 EEEV	2 EEEV
Pinellas	8/8/2022	6.25		6.25				2 WNV	6 WNV, 1 EEEV
Sarasota	8/2/2022-8/5/2022	12.90		12.90				8 WNV	12 WNV, 1 SLEV, 1 Flavivirus
Sumter	8/8/2022	4.17		4.17				1 WNV	1 WNV
Volusia	8/8/2022	2.00		2.00				1 WNV	4 WNV, 2 EEEV
Walton	8/8/2022	6.52		6.52				3 WNV	4 WNV, 11 EEEV, 1 SLEV, 1 HJV, 1 Flavivirus

Sentinel Seroconversions to WNV in Florida, 2021–2022



Sentinel Seroconversions to EEEV in Florida, 2021–2022



Mosquito Pools

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

County	Collection Date	Result	Species	County YTD

Dead Birds

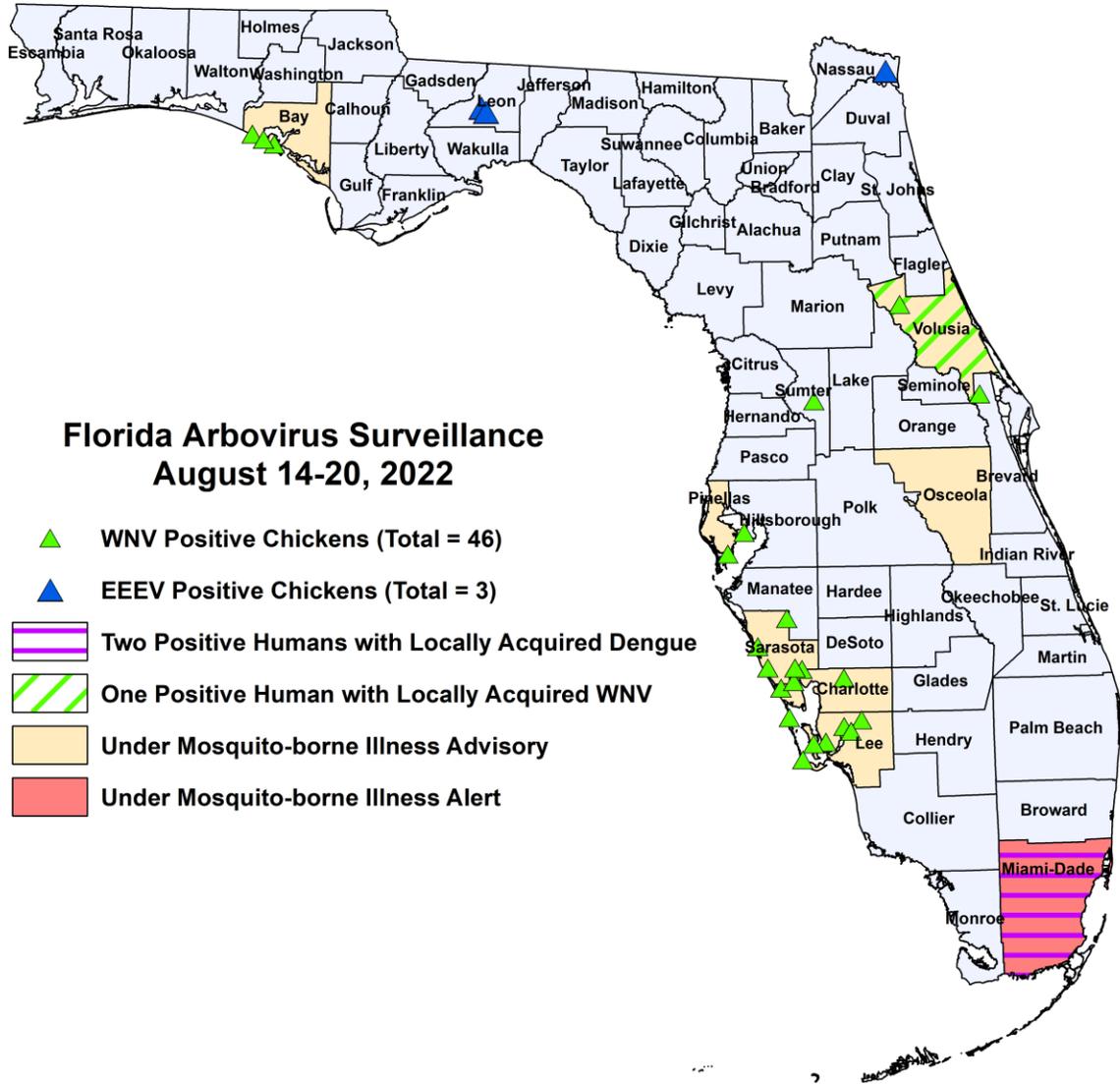
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 17 reports representing a total of 31 dead birds, including 7 doves, were received from 12 counties.

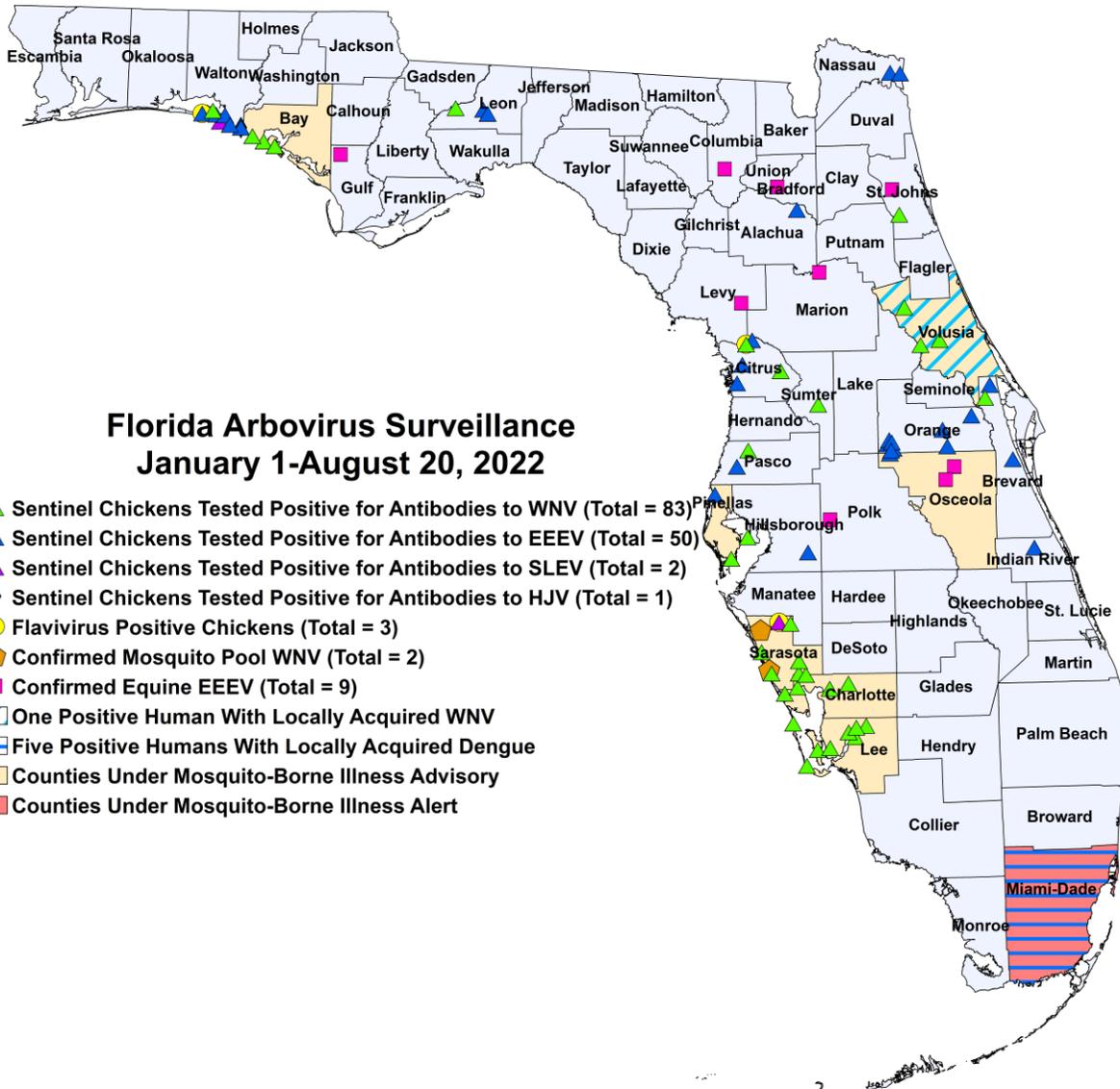
In 2022, 1111 reports representing a total of 2983 dead birds (108 crows, 33 jays, 174 raptors, 135 doves) were received from 54 of Florida’s 67 counties.

2022

County	Total Dead Birds	Crows	Jays	Raptors	Doves
Alachua	1	0	0	0	0
Brevard	1	0	0	0	0
Broward	1	0	0	0	0
Duval	1	0	0	0	0
Flagler	8	0	0	0	0
Hernando	3	0	0	0	0
Hillsborough	1	0	0	0	0
Lee	1	0	0	0	1
Manatee	1	0	0	0	0
Orange	1	0	0	0	0
Pinellas	10	0	0	0	6
Walton	2	0	0	0	0

Maps





2022 Arbovirus Activity by County

County	Humans	Equines	Sentinel Chickens	Other
Alachua			1 EEEV (5/31)	
Bay			16 WNV (3/21, 7/5, 7/18, 7/25, 8/1, 8/8)	
Bradford		1 EEEV (6/22)		
Brevard			1 WNV (8/5) 2 EEEV (4/7, 7/1)	
Charlotte			11 WNV (7/1, 7/15, 7/29, 8/5)	
Citrus			4 WNV (1/4, 1/11) 11 EEEV (1/11, 1/18, 4/19, 5/17, 5/23, 6/1, 6/14, 6/21, 6/28, 7/6) 1 Flavivirus (1/25)	
Columbia		1 EEEV (5/9)		
Gulf		1 EEEV (7/25)		
Hillsborough			2 WNV (8/10) 1 EEEV (3/23)	
Indian River			1 EEEV (4/28)	

County	Humans	Equines	Sentinel Chickens	Other
Lee			19 WNV (6/27, 7/5, 7/11, 7/25, 8/8, 8/9)	
Leon			1 WNV (7/27) 3 EEEV (7/27, 8/1)	
Levy		1 EEEV (6/16)		
Marion		1 EEEV (7/7)		
Miami-Dade	5 dengue (June, July (4))			
Nassau			2 EEEV (7/29, 8/6)	
Orange			14 EEEV (1/3, 3/28, 4/11, 4/25, 5/16, 5/31, 6/6, 6/20, 6/27, 7/5, 7/11, 7/25, 8/1)	
Osceola		2 EEEV (5/24, 5/26)		
Pasco			1 WNV (7/25) 1 EEEV (4/11)	
Pinellas			6 WNV (7/25, 8/1, 8/8) 1 EEEV (3/7)	
Polk		1 EEEV (6/19)		
Sarasota			12 WNV (7/15, 7/22, 8/2, 8/5) 1 SLEV (7/26) 1 Flavivirus (6/7)	2 WNV mosquito pool (Cx. quinquefasciatus [7/20, 7/27])
St. Johns		1 EEEV (7/5)	1 WNV (7/25)	
Sumter			1 WNV (8/8)	
Volusia	1 WNV (July)		4 WNV (7/11, 7/25, 8/8) 2 EEEV (2/21, 6/27)	
Walton			4 WNV (7/25, 8/8) 11 EEEV (4/4, 5/9, 6/13, 6/20, 6/27, 7/5, 7/11, 7/25, 8/1) 1 HJV (6/20) 1 SLEV (3/21) 1 Flavivirus (3/21)	

*Three chickens in 2022 have tested positive for flavivirus antibodies and require additional specialized testing to distinguish between WNV and SLEV antibodies. Testing is currently delayed due to supply chain issues. The final determination of these birds will be updated as more information becomes available. In Florida, both WNV and SLEV have similar disease vectors and epidemiology. Seroconversion rates for flavivirus are included in the table.

Acknowledgements and Data Sources

Contributors: Andrea Morrison, PhD, MSPH, Rebecca Zimler, PhD, MPH, and Danielle Stanek, DVM, DOH Bureau of Epidemiology; Lea Heberlein-Larson, DrPH; Alexis LaCrue, PhD, MS; Maribel Castaneda, and Amanda Davis, BS; 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: 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.