



Florida Arbovirus Surveillance Week 31: July 31-August 6, 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 July 31-August 6, 2022, 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. Fourteen sentinel chickens tested positive for antibodies to WNV this week in Bay, Lee, Pasco, Pinellas, Sarasota, St. Johns, Volusia, and Walton counties. No mosquito pools tested positive for WNV this week. In 2022, positive samples from 30 sentinel chickens and one mosquito pool have been reported from 10 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, one positive sample has been reported from one county.

Flavivirus (WNV or SLEV)* activity: One sentinel chicken tested positive for antibodies to a flavivirus this week in Sarasota County. 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. One horse with EEEV infection was reported this week in Gulf County. Three sentinel chickens tested positive for antibodies to EEEV this week in Orange and Walton counties. In 2022, positive samples from 43 sentinel chickens and nine horses have been reported from 18 counties.

International Travel-Associated Dengue: Thirty-seven cases of dengue were reported this week in persons that had international travel. In 2022, 137 travel-associated dengue cases have been reported.

Dengue Cases Acquired in Florida: No cases of locally acquired dengue were reported this week. In 2022, two 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. Osceola and Sarasota 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
Kenya	Argentina	Bangladesh	Ghana
Reunion	Belize	India	Kenya
	Colombia	Pakistan	Nigeria
	Dominican Republic	Sri Lanka	
	El Salvador	Timor-Leste (East Timor)	
	French Guiana		
	Peru		

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/arbonet/maps/ADB_Diseases_Map/index.html.

2022 Human Case Summary

International Travel-Associated Dengue Cases: One hundred and thirty-seven 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 (9), Collier, Duval (4), Escambia, Hendry, Hillsborough (13), Lee (4), Manatee (2), Miami-Dade (81), Monroe (2), Orange (4), Osceola, Palm Beach (3), Pinellas (3), Polk (3), Sarasota, St. Johns, and St. Lucie (2). Four cases were reported in non-Florida residents. In 2022, 124 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					5
Caribbean			1			1
Colombia	2					2
Costa Rica	1				1	2
Cuba	20	32	40	13	11	116
Dominican Republic		1				1
El Salvador	1					1
Honduras				1	1	2
India		1				1
Mexico	1	2				3
Panama	1					1
Puerto Rico	1					1
Sri Lanka			1			1
Total	32	36	42	14	13	137

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

International Travel-Associated Malaria Cases: Thirty cases of malaria with onset in 2022 have been reported. Countries of origin were: Brazil (3), Cameroon, Central African Republic, Ethiopia, Equatorial Guinea, Ghana, India, Kenya, Nicaragua (3), Nigeria (10), Sierra Leone (2), Sudan, Uganda (2), Venezuela and Zambia. Counties reporting cases were: Brevard, Broward (4), 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.

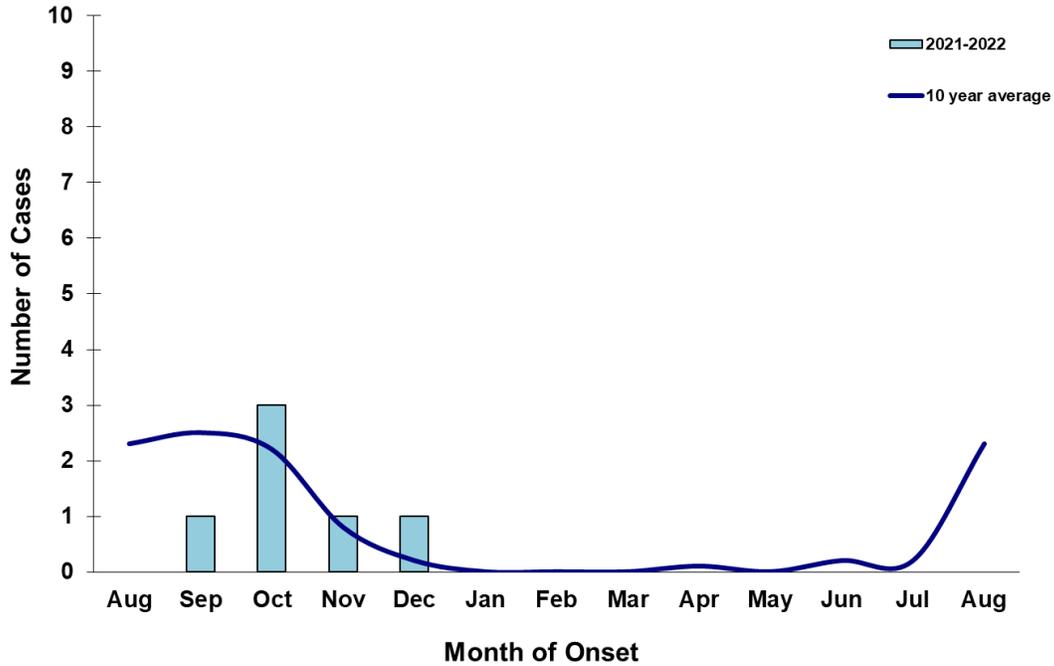
Seventeen cases (57%) were diagnosed with *Plasmodium falciparum*. Ten cases (33%) were diagnosed with *Plasmodium vivax*. Three cases (10%) were diagnosed with *Plasmodium malariae*.

Veterinary Cases**

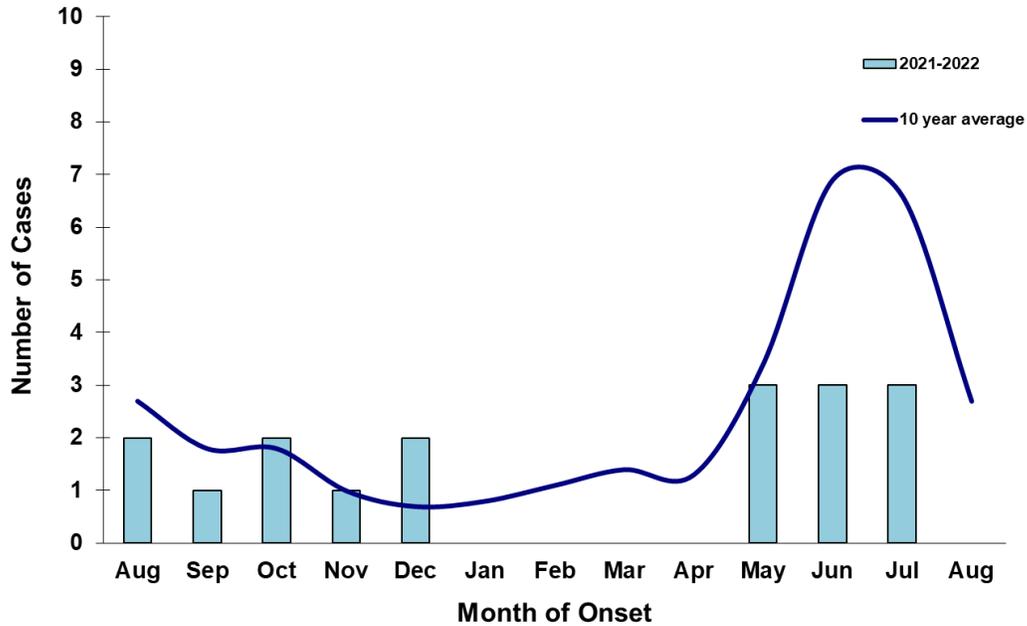
**Veterinary cases are reported by date of onset. Only mammalian veterinary cases are included in the graphs.

One horse with EEEV infection was reported this week in Gulf County.

Veterinary WNV Disease in Florida, August 2021-2022



Veterinary EEEV Disease in Florida, August 2021-2022



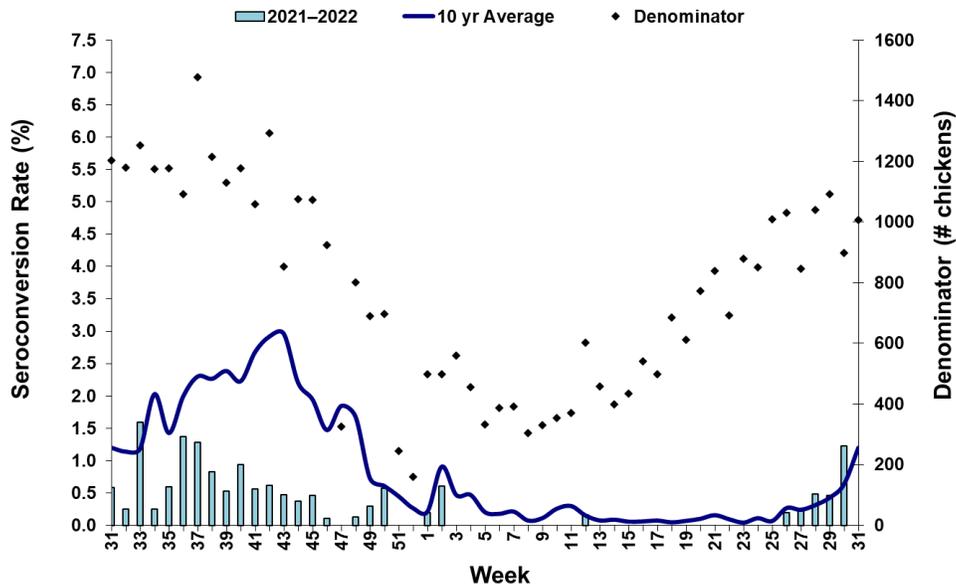
Sentinel Chickens

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.

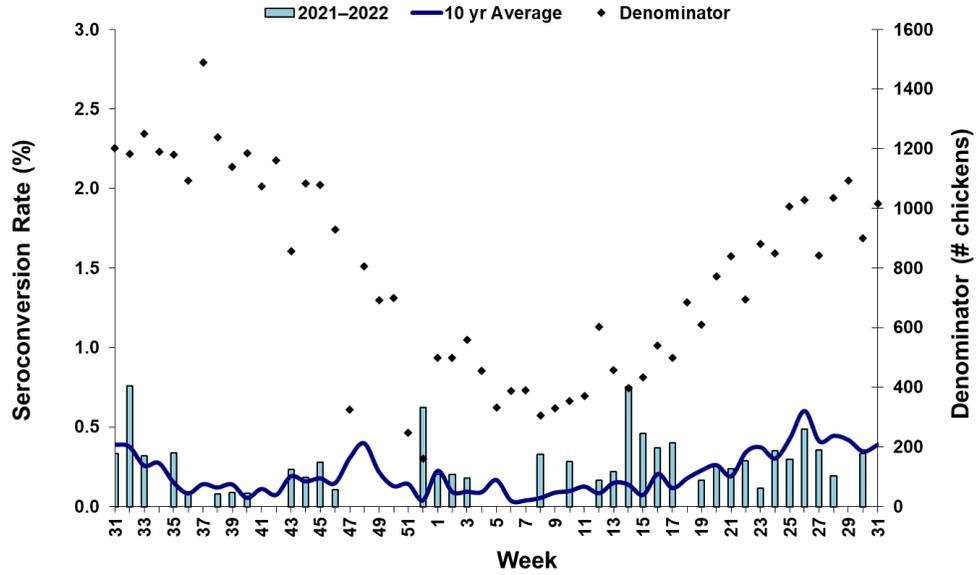
Fourteen sentinel chickens tested positive for antibodies to WNV this week in Bay, Lee, Pasco, Pinellas, Sarasota, St. Johns, Volusia, and Walton counties. Three sentinel chickens tested positive for antibodies to EEEV this week in Orange and Walton counties. One sentinel chicken tested positive for antibodies to a flavivirus this week in Sarasota County.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Bay	7/25/2022	20.00		20.00				3 WNV	7 WNV
Lee	7/25/2022	3.09		3.09				3 WNV	6 WNV
Orange	7/25/2022				1.82	1.82		2 EEEV	13 EEEV
Pasco	7/25/2022	1.85		1.85				1 WNV	1 WNV, 1 EEEV
Pinellas	7/25/2022	3.23		3.23				1 WNV	1 WNV, 1 EEEV
Sarasota	6/7/2022	1.52						1 Flavivirus	5 WNV, 1 Flavivirus
	7/22/2022	2.22		2.22				3 WNV	
St. Johns	7/25/2022	2.22		2.22				1 WNV	1 WNV
Volusia	7/25/2022	2.22		2.22				1 WNV	3 WNV, 2 EEEV
Walton	7/25/2022	2.22		2.22	2.22	2.22		1 WNV, 1 EEEV	1 WNV, 10 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

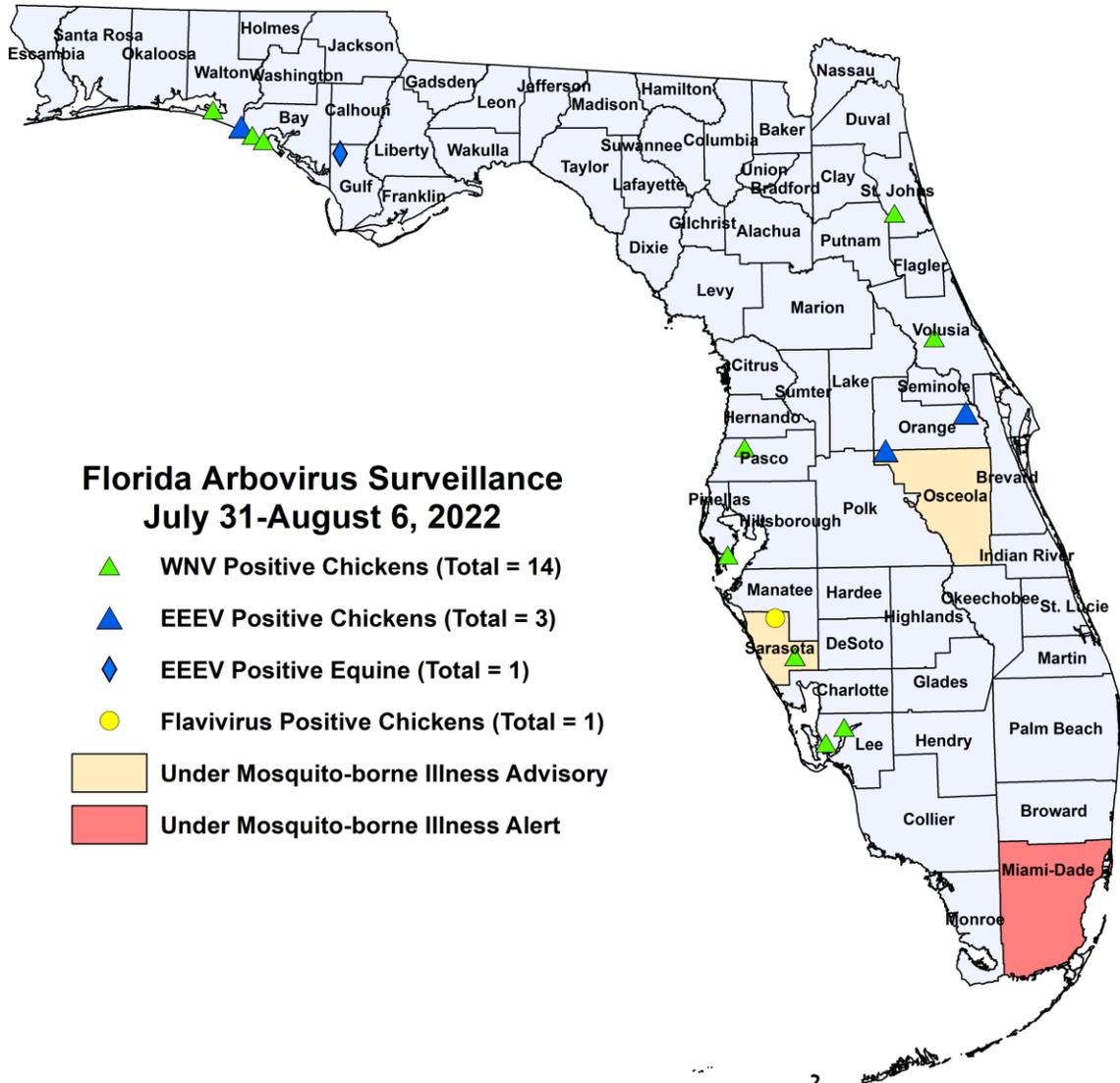
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 22 reports representing a total of 39 dead birds, including 1 crow, 4 raptors and 5 doves, were received from 13 counties.

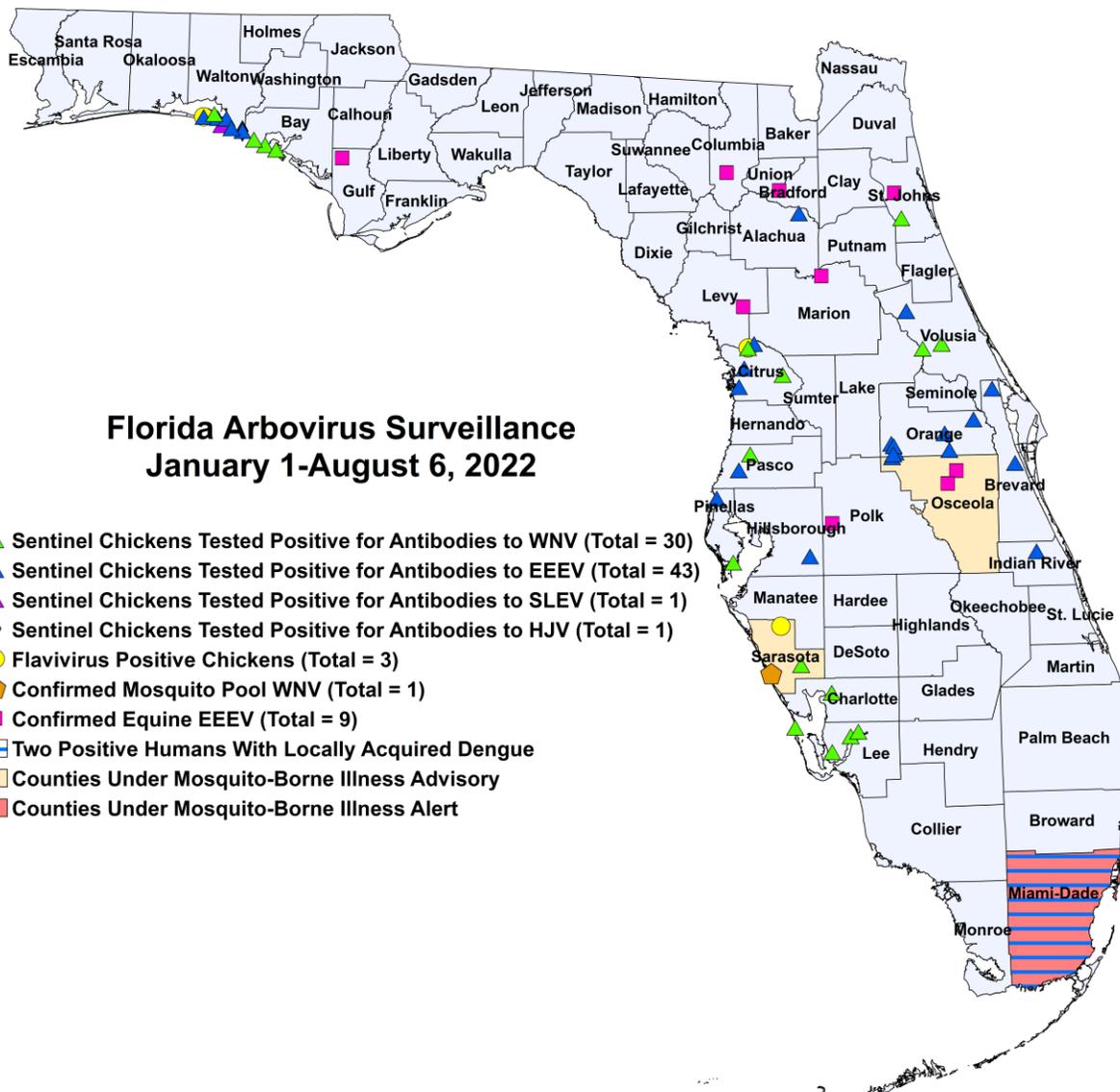
In 2022, 1067 reports representing a total of 2872 dead birds (104 crows, 33 jays, 171 raptors, 94 doves) were received from 54 of Florida's 67 counties.

2022

County	Total Dead Birds	Crows	Jays	Raptors	Doves
Alachua	1	0	0	1	0
Broward	4	0	0	0	4
Citrus	3	0	0	0	0
Hillsborough	8	0	0	1	0
Martin	1	0	0	0	0
Miami-Dade	2	0	0	0	0
Okaloosa	1	0	0	0	0
Osceola	6	0	0	0	0
Pinellas	5	0	0	1	0
Sarasota	2	1	0	0	0
Seminole	4	0	0	1	0
St. Johns	1	0	0	0	0
St. Lucie	1	0	0	0	1

Maps





2022 Arbovirus Activity by County

County	Humans	Equines	Sentinel Chickens	Other
Alachua			1 EEEV (5/31)	
Bay			7 WNV (3/21, 7/5, 7/18, 7/25)	
Bradford		1 EEEV (6/22)		
Brevard			2 EEEV (4/7, 7/1)	
Charlotte			2 WNV (7/1, 7/15)	
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			1 EEEV (3/23)	
Indian River			1 EEEV (4/28)	
Lee			6 WNV (6/27, 7/5, 7/11, 7/25)	
Levy		1 EEEV (6/16)		
Marion		1 EEEV (7/7)		

County	Humans	Equines	Sentinel Chickens	Other
Miami-Dade	2 dengue (June, July)			
Orange			13 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)	
Osceola		2 EEEV (5/24, 5/26)		
Pasco			1 WNV (7/25) 1 EEEV (4/11)	
Pinellas			1 WNV (7/25) 1 EEEV (3/7)	
Polk		1 EEEV (6/19)		
Sarasota			5 WNV (7/15, 7/22) 1 Flavivirus (6/7)	1 WNV mosquito pool (Cx. quinquefasciatus [7/20])
St. Johns		1 EEEV (7/5)	1 WNV (7/25)	
Volusia			3 WNV (7/11, 7/25) 2 EEEV (2/21, 6/27)	
Walton			1 WNV (7/25) 10 EEEV (4/4, 5/9, 6/13, 6/20, 6/27, 7/5, 7/11, 7/25) 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.