Florida Arbovirus Surveillance
Week 32: August 7-13, 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 7-13, 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. Seven sentinel chickens tested positive for antibodies to WNV this week in Bay, Charlotte, Leon, and Pinellas counties. One mosquito pool tested positive for WNV this week in Sarasota County. In 2022, positive samples from 37 sentinel chickens and two mosquito pools have been reported from 11 counties.

SLEV activity: No human cases of SLEV infection were reported this week. One sentinel chicken tested positive for antibodies to SLEV this week in Sarasota County. 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. Four sentinel chickens tested positive for antibodies to EEEV this week in Leon, Nassau, Orange, and Walton counties. In 2022, positive samples from 47 sentinel chickens and nine horses have been reported from 20 counties.

International Travel-Associated Dengue: Thirty-five cases of dengue were reported this week in persons that had international travel. In 2022, 172 travel-associated dengue cases have been reported.

Dengue Cases Acquired in Florida: One case of locally acquired dengue was reported this week in Miami-Dade County. In 2022, three 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, Pinellas, 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
São Tomé and Príncipe	Colombia	Afghanistan	Ghana
	Dominican Republic	Bangladesh	Kenya
	El Salvador	India	Nigeria
	Guatemala	Laos	
	Honduras	Malaysia	
	Nicaragua	Myanmar (Burma)	
	Panama	Pakistan Philippines Singapore	
	Peru	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: wwwn.cdc.gov/arbonet/maps/ADB_Diseases_Map/index.html.

2022 Human Case Summary

International Travel-Associated Dengue Cases: One hundred and seventy-two 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 (10), Collier, Duval (4), Escambia, Hendry, Hillsborough (16), Lee (5), Manatee (2), Miami-Dade (106), Monroe (2), Orange (5), Osceola, Palm Beach (6), Pinellas (4), Polk (3), Sarasota, St. Johns, and St. Lucie (2). Four cases were reported in non-Florida residents. In 2022, 155 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	22	37	63	14	14	150
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	**34**	**41**	**65**	**15**	**17**	**172**

Dengue Cases Acquired in Florida: In 2022, three cases of locally acquired dengue have been reported in Miami-Dade County, with onset in June and July (2).

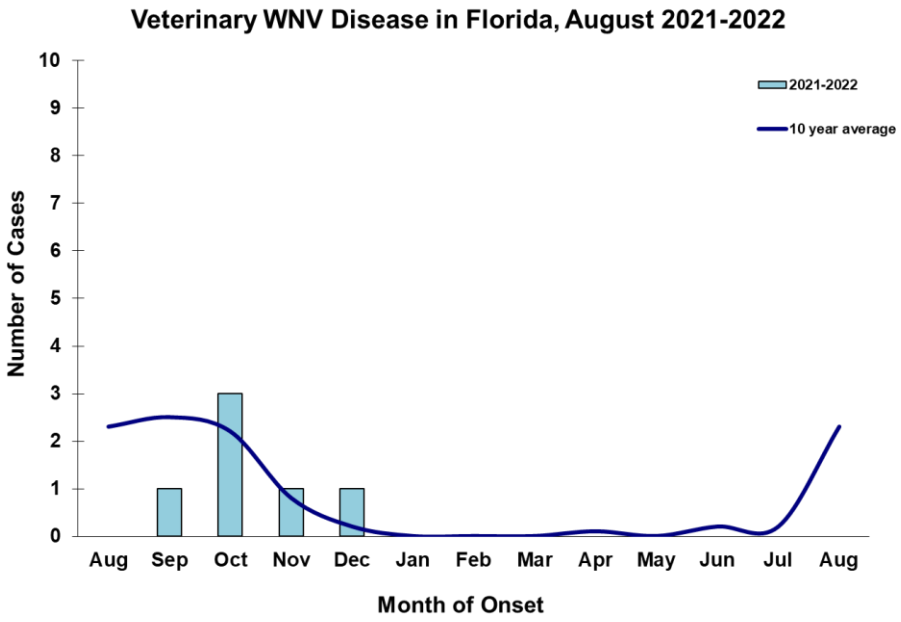
International Travel-Associated Malaria Cases: Thirty-two cases of malaria with onset in 2022 have been reported. Countries of origin were: Brazil (3), Cameroon, Central African Republic, Côte D'Ivoire, Ethiopia, Equatorial Guinea, Ghana, Guinea, India, Kenya, Nicaragua (3), Nigeria (10), Sierra Leone (2), Sudan, Uganda (2), Venezuela and Zambia. Counties reporting cases were: Brevard, Broward (6), 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.

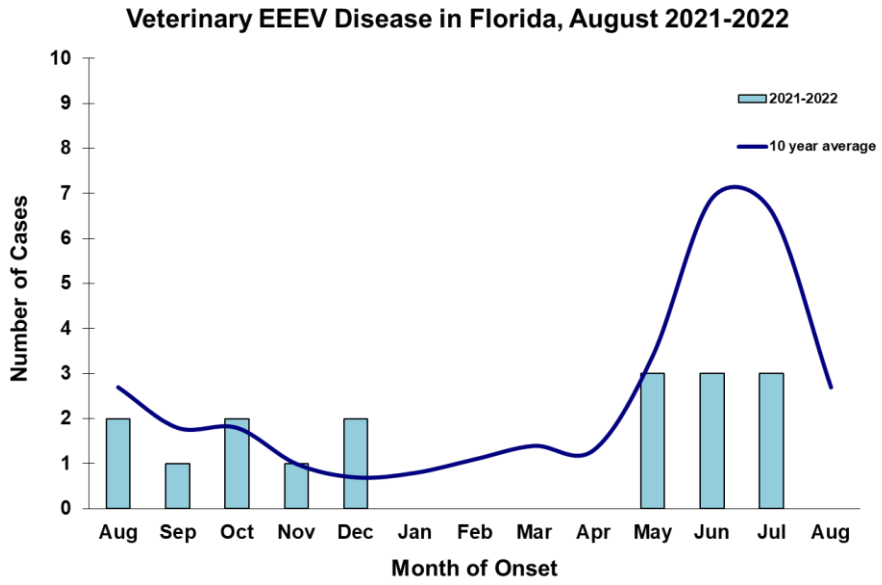
Nineteen cases (60%) were diagnosed with *Plasmodium falciparum.* Ten cases (31%) were diagnosed with *Plasmodium vivax*. Three cases (9%) were diagnosed with *Plasmodium malariae.*

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.



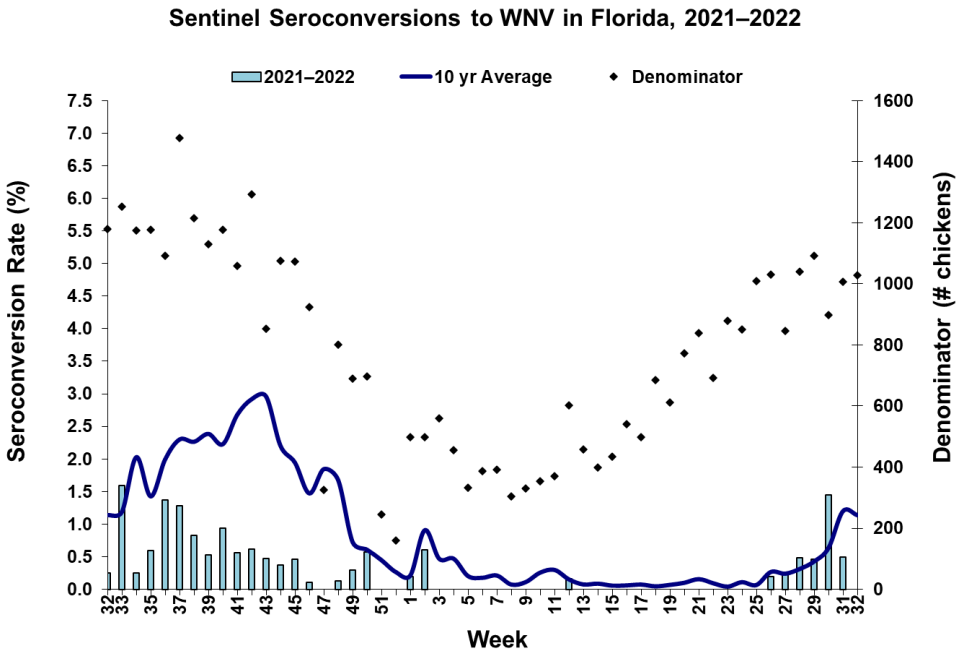


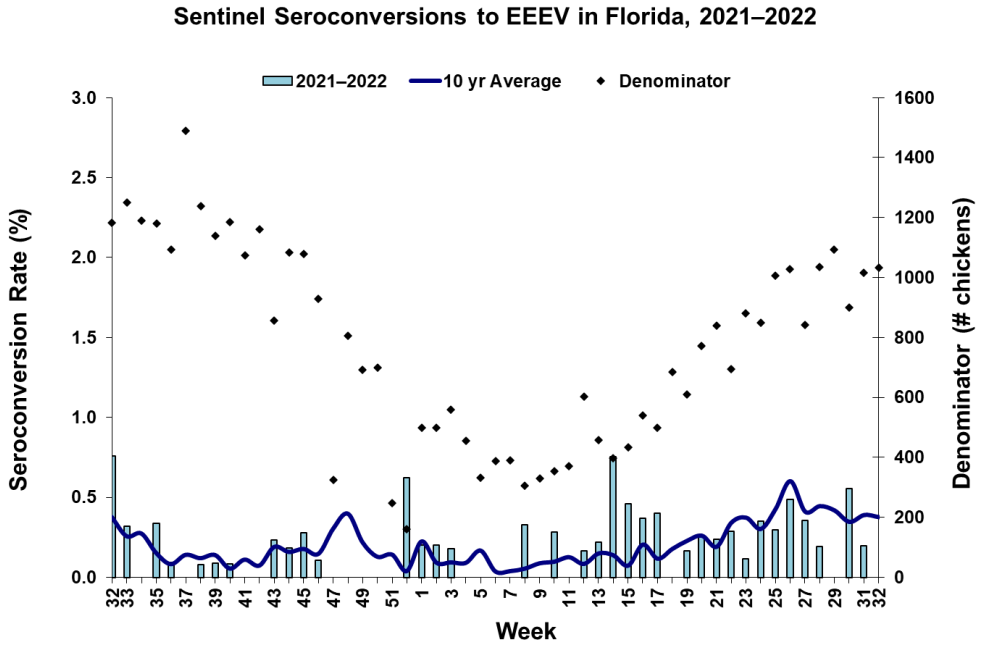
Sentinel Chickens

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.

Seven sentinel chickens tested positive for antibodies to WNV this week in Bay, Charlotte, Leon, and Pinellas counties. One sentinel chicken tested positive for antibodies to SLEV this week in Sarasota County. Four sentinel chickens tested positive for antibodies to EEEV this week in Leon, Nassau, Orange, and Walton counties.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Bay	8/1/2022	15.38		15.38				2 WNV	9 WNV
Charlotte	7/29/2022	5.26		5.26				1 WNV	3 WNV
Leon	7/27/2022	5.56		5.56	5.56	5.56		1 WNV, 1 EEEV	1 WNV, 1 EEEV
Nassau	7/29/2022				2.78	2.78		1 EEEV	1 EEEV
Orange	8/1/2022				0.93	0.93		1 EEEV	14 EEEV
Pinellas	8/1/2022	9.38		9.38				3 WNV	4 WNV, 1 EEEV
Sarasota	7/26/2022	1.54	1.54					1 SLEV	4 WNV, 1 SLEV, 1 Flavivirus
Walton	8/1/2022				1.16	1.16		1 EEEV	1 WNV, 11 EEEV, 1 SLEV, 1 HJV, 1 Flavivirus





Mosquito Pools

One mosquito pool tested positive for WNV this week in Sarasota County.

County	Collection Date	Result	Species	County YTD
Sarasota	7/27/2022	1 WNV	*Culex quinquefasciatus*	2 WNV

Dead Birds

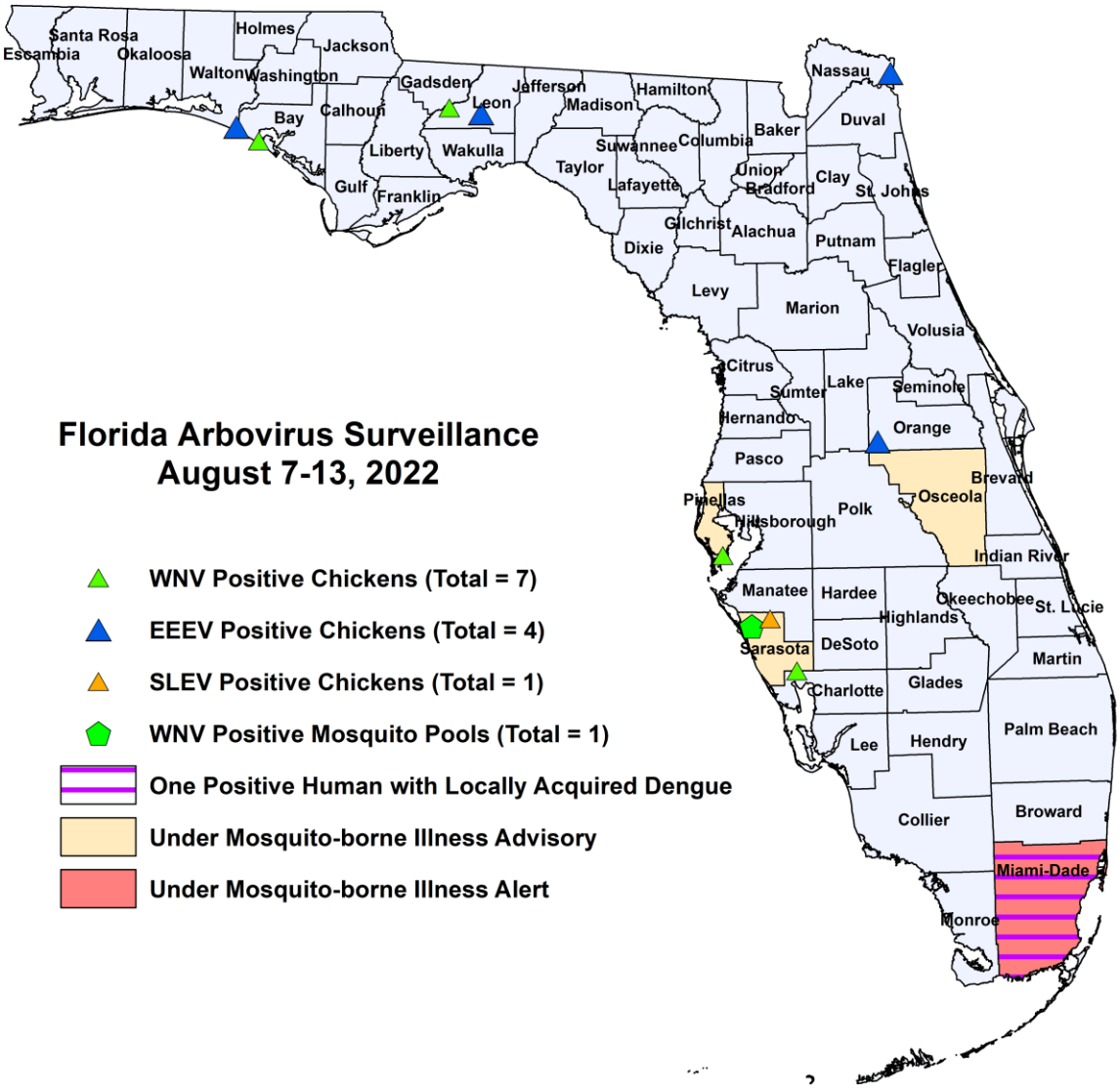
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 27 reports representing a total of 80 dead birds, including 4 crows, 3 raptors and 34 doves, were received from 13 counties.

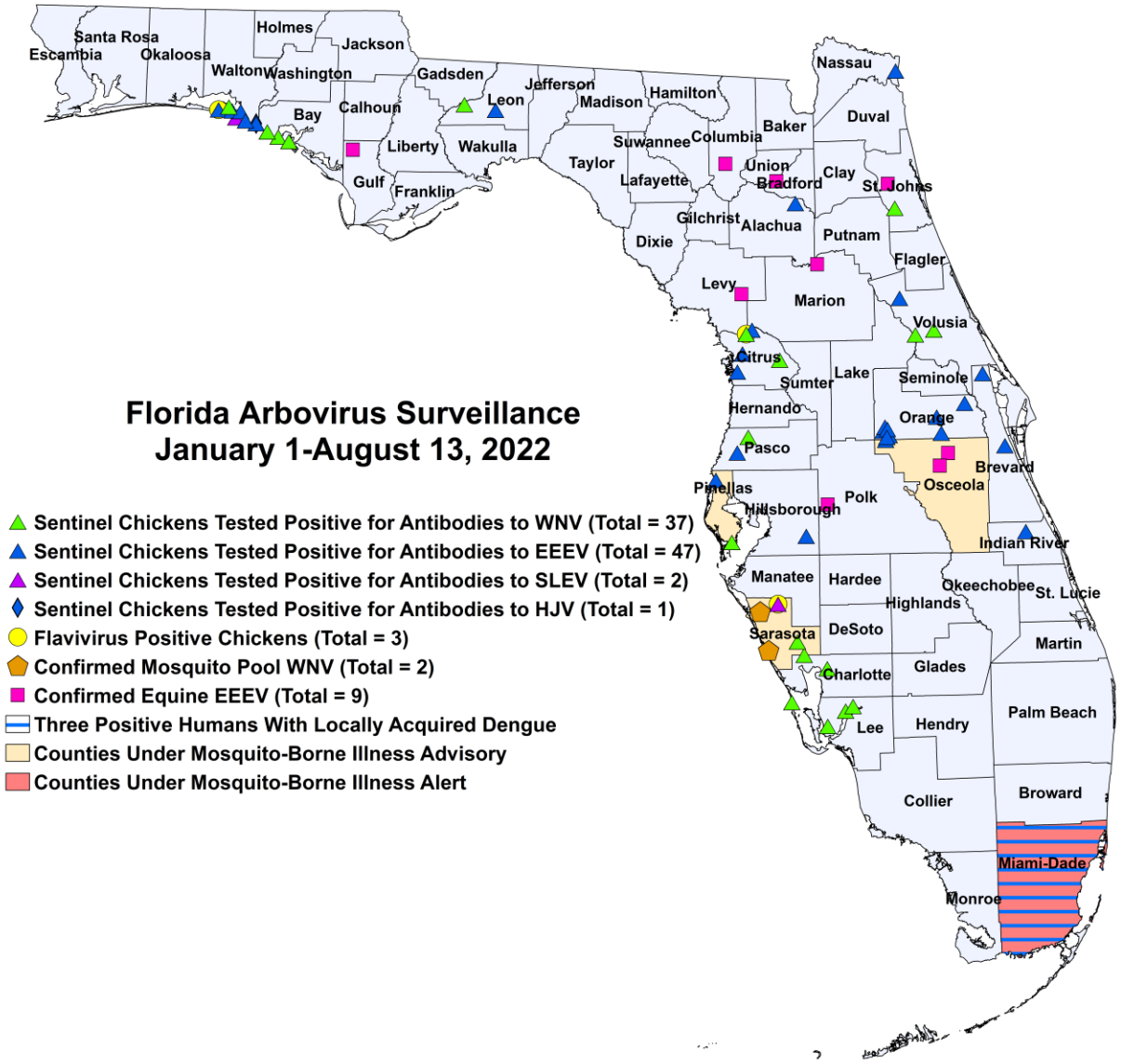
In 2022, 1094 reports representing a total of 2952 dead birds (108 crows, 33 jays, 174 raptors, 128 doves) were received from 54 of Florida's 67 counties.

2022

County	Total Dead Birds	Crows	Jays	Raptors	Doves
Alachua	19	0	0	0	0
Bay	2	0	0	0	0
Broward	5	0	0	0	2
Citrus	3	0	0	0	0
Collier	20	0	0	0	20
Escambia	1	0	0	1	0
Hillsborough	2	0	0	1	0
Manatee	1	0	0	1	0
Monroe	12	0	0	0	12
Orange	2	0	0	0	0
Palm Beach	2	0	0	0	0
Pinellas	7	0	0	0	0
Sarasota	4	4	0	0	0

Maps


Florida Arbovirus Surveillance
August 7-13, 2022
WNV Positive Chickens (Total = 7)
EEEV Positive Chickens (Total = 4)
SLEV Positive Chickens (Total = 1)
WNV Positive Mosquito Pools (Total = 1)
One Positive Human with Locally Acquired Dengue
Under Mosquito-borne Illness Advisory
Under Mosquito-borne Illness Alert
Santa Rosa
Escambia
Okaloosa
Holmes
Jackson
Walton
Washington
Bay
Calhoun
Gadsden
Leon
Jefferson
Madison
Hamilton
Liberty
Wakulla
Taylor
Suwannee
Columbia
Baker
Nassau
Duval
Gulf
Franklin
Lafayette
Union
Bradford
Clay
St. Johns
Gilchrist
Alachua
Putnam
Dixie
Flagler
Levy
Marion
Volusia
Citrus
Sumter
Lake
Seminole
Hernando
Orange
Pasco
Brevard
Pinellas
Hillsborough
Polk
Osceola
Indian River
Manatee
Hardee
Okeechobee
St. Lucie
Highlands
Sarasota
DeSoto
Martin
Charlotte
Glades
Lee
Hendry
Palm Beach
Collier
Broward
Miami-Dade
Monroe



2022 Arbovirus Activity by County

County	Humans	Equines	Sentinel Chickens	Other
Alachua			1 EEEV (5/31)	
Bay			9 WNV (3/21, 7/5, 7/18, 7/25, 8/1)	
Bradford		1 EEEV (6/22)		
Brevard			2 EEEV (4/7, 7/1)	
Charlotte			3 WNV (7/1, 7/15, 7/29)	
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)	
Leon			1 WNV (7/27) 1 EEEV (7/27)	

County	Humans	Equines	Sentinel Chickens	Other
Levy		1 EEEV (6/16)		
Marion		1 EEEV (7/7)		
Miami-Dade	3 dengue (June, July (2))			
Nassau			1 EEEV (7/29)	
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			4 WNV (7/25, 8/1) 1 EEEV (3/7)	
Polk		1 EEEV (6/19)		
Sarasota			4 WNV (7/15, 7/22) 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)	
Volusia			3 WNV (7/11, 7/25) 2 EEEV (2/21, 6/27)	
Walton			1 WNV (7/25) 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.