



Florida Arbovirus Surveillance Week 50: December 10-16, 2023

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 December 10-16, 2023, 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. Nine sentinel chickens tested positive for antibodies to WNV this week in Alachua, Citrus, Palm Beach, Pinellas, St. Johns, and Walton Counties. No mosquito pools tested positive for WNV this week. In 2023, positive samples from nine humans, three asymptomatic blood donors, 258 sentinel chickens, one pheasant, and two horses have been reported from 22 counties.

SLEV activity: No human cases of SLEV infection were reported this week. Two sentinel chickens tested positive for antibodies to SLEV this week in Indian River County. In 2023, eight sentinel chickens have been reported from seven counties.

EEEV activity: No human cases of EEEV infection were reported this week. One horse with EEEV infection was reported this week in Lake County. Four sentinel chickens tested positive for antibodies to EEEV this week in Nassau and Orange counties. In 2023, positive samples from 154 sentinel chickens, 16 horses, one sparrow, one laughing gull, and two humans have been reported from 23 counties.

International Travel-Associated Dengue: Nineteen cases of dengue were reported this week in persons that had international travel. In 2023, 537 travel-associated dengue cases have been reported.

Dengue Cases Acquired in Florida: Five cases of locally acquired dengue were reported this week. In 2023, positive samples from 172 humans and one mosquito pool have been reported from five counties.

International Travel-Associated Chikungunya Fever Cases: No cases of chikungunya fever were reported this week in persons that had international travel. In 2023, two cases of travel-associated chikungunya fever have been reported.

Chikungunya Fever Cases Acquired in Florida: No cases of locally acquired chikungunya fever were reported this week. In 2023, 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 2023, 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 2023, no cases of locally acquired Zika fever have been reported.

Malaria Cases Acquired in Florida: No cases of locally acquired malaria were reported this week. In 2023, seven cases of locally acquired malaria have been reported.

Advisories/Alerts: Bay, Nassau, Okaloosa, Orange, Palm Beach, Polk, and Walton counties are currently under a mosquito-borne illness advisory. Broward, Escambia, Hardee, and Miami-Dade counties are currently under a mosquito-borne illness alert. 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			Chikungunya	Yellow Fever
Africa and the Middle East	Americas	Asia and the Pacific Islands	Africa	Africa
Burkina Faso	Colombia	Bangladesh	Burkina Faso	Nigeria
Chad	Costa Rica	Cambodia		
Côte d'Ivoire	Dominican Republic	Laos		
Ethiopia	French Guiana	Malaysia		
Mali	Guadeloupe	Pakistan		
Sudan	Guatemala	Philippines		
	Jamaica	Sri Lanka		
	Martinique	Taiwan		
	Nicaragua	Thailand		
	Panama	Vietnam		
	Peru			
	Saint Barthelemy			
	Saint Martin			

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: <https://www.cdc.gov/fight-the-bite/at-risk/index.html>.

2023 Human Case Summary

Eastern Equine Encephalitis Acquired in Florida: In 2023, two cases of EEEV acquired in Florida have been reported in St. Johns (June) and Suwannee (July) counties.

West Nile Virus Illnesses Acquired in Florida: In 2023, nine cases of WNV illness acquired in Florida have been reported in 2023 from Brevard (October), Escambia (July (2) and August (3)), Okaloosa (September), Sarasota (September), and Wakulla (October) counties. Three asymptomatic positive blood donors have been reported in Bay (August), Hillsborough (August), and Walton (September) counties.

2023 International Travel-Associated Chikungunya cases: Two cases with onset in 2023 have been reported in individuals with travel history to a chikungunya-endemic area in the two weeks prior to onset. Counties reporting cases were: Broward and Lee. Countries of origin were: Brazil and India.

2023 International Travel-Associated Dengue Cases: Five hundred and thirty-seven cases with onset in 2023 have been reported in individuals with travel history to a dengue-endemic area in the two weeks prior to onset. Counties reporting cases were: Alachua (3), Bay, Brevard, Broward (50), Charlotte, Collier (6), Duval (6), Escambia, Hendry (2), Hernando, Highlands, Hillsborough (31), Indian River (2), Lee (14), Leon, Manatee (2), Marion, Miami-Dade (316), Monroe (5), Nassau, Okaloosa, Orange (16), Osceola (7), Palm Beach (29), Pasco (4), Pinellas (4), Polk (8), Sarasota (3), Seminole (3), St. Johns (3), St. Lucie (8), and Volusia (5). Twenty-nine cases were reported in non-Florida residents. Seven 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 2023, 441 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-2	DENV-2/ DENV-3	DENV-3/ DENV-4	Unknown	Total
Argentina								1	1
Bahamas			3						3
Bangladesh		1	1						2
Bolivia		5							5

Brazil	9							5	14
Central America			2					1	3
Colombia	1		1			1		1	4
Costa Rica	1		4					2	7
Cuba	1	1	253	14		1	2	37	309
Cuba/Curacao			1						1
Dominican Republic		1	41			1	1	5	49
Dominican Republic/Haiti								1	1
Ecuador								1	1
El Salvador	1								1
Guatemala	3	2	3					3	11
Guyana			4					4	8
Haiti			9					4	13
Honduras	1		4	2					7
India	1	2	4		1			2	10
Indonesia		1							1
Jamaica		21						4	25
Maldives	1								1
Mexico		1	12					10	23
Nicaragua		1	2	6				4	13
Panama	1							1	2
Peru	6	3	1					1	11
Philippines	1								1
Puerto Rico	3	2						1	6
Saint Barthelemy								1	1
South America		1							1
Turks and Caicos			1						1
Venezuela				1					1
Total	30	42	346	23	1	3	3	89	537

2023 Dengue Cases Acquired in Florida: In 2023, 172 cases of locally acquired dengue have been reported in Broward (4), Hardee (12), Miami-Dade (154), Palm Beach, and Polk counties with onsets in January, March, June (3), July (10), August (19), September (49), October (69), and November (20). Three cases were reported in non-Florida residents. One hundred and forty-six cases have been serotyped by PCR. Please see the table below for a breakdown of cases by county and serotype.

County of Exposure	DENV-1	DENV-2	DENV-3	Unknown	Total
Broward		3	1		4
Hardee	4			8	12
Miami-Dade	1	7	132	14	154
Palm Beach		1			1
Polk			1		1
Total	5	11	134	22	172

2023 International Travel-Associated Malaria Cases: Seventy-one cases of malaria with onset in 2023 have been reported in individuals with a travel history to a malaria-endemic area. Counties reporting cases were: Brevard, Broward (9), Collier, Duval (2), Hillsborough (9), Jackson, Lake (2), Lee (3), Leon (3), Manatee, Miami-Dade (11), Okaloosa, Orange (5), Osceola (2), Palm Beach, Pasco (2), Pinellas (4), Polk (3), Sarasota (3), Seminole (2), St. Lucie (2), Volusia (2), and Walton. Fifteen cases were reported in non-Florida residents. Please see the table below for a breakdown of cases by country of origin and *Plasmodium* species.

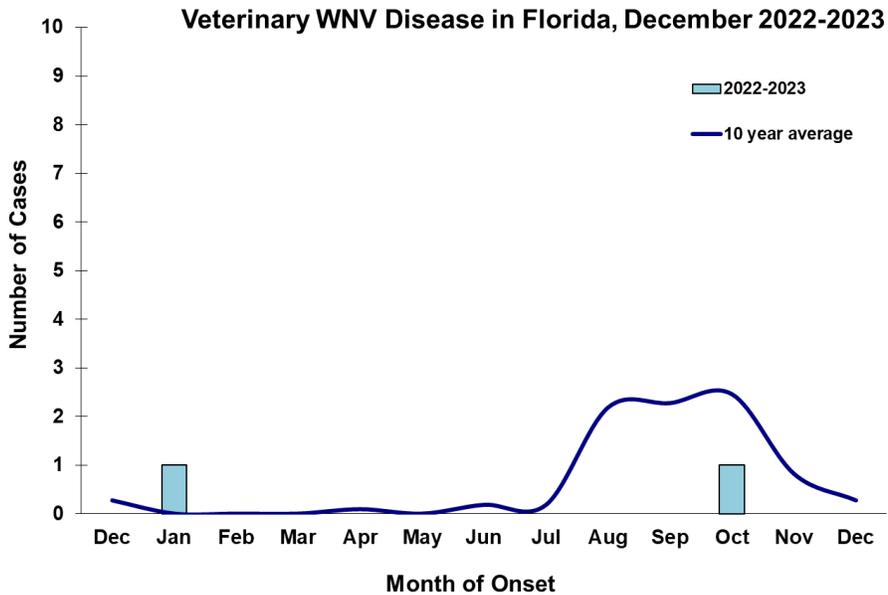
Country of Exposure	<i>Plasmodium falciparum</i>	<i>Plasmodium vivax</i>	<i>Plasmodium malariae</i>	<i>Plasmodium ovale</i>	Total
Angola			1		1
Burkina Faso	1				1
Burundi	1				1
Cameroon	4				4
Côte D'Ivoire	2				2
Democratic Republic of the Congo	2				2
Equatorial Guinea	1				1

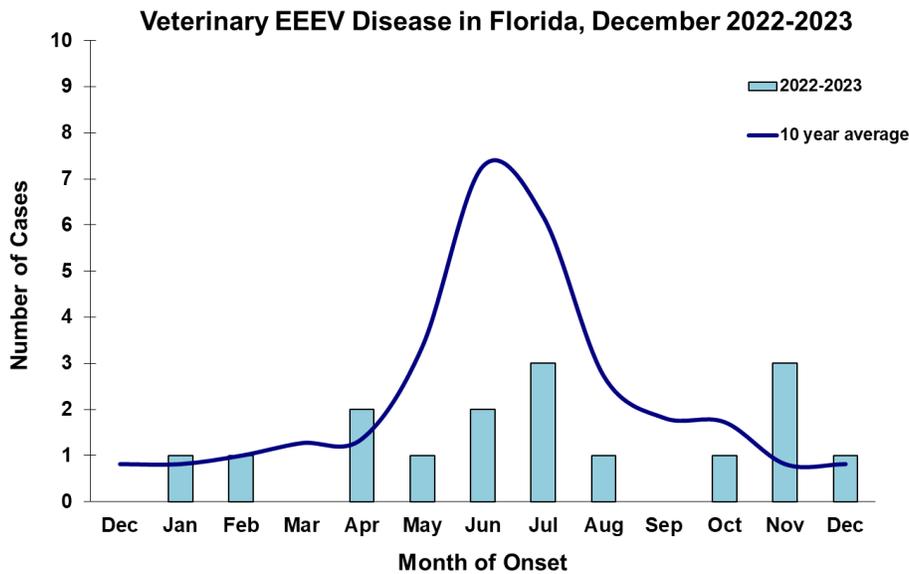
Ghana	5				5
Guinea	2				2
Haiti	1				1
Honduras		1			1
India	1	1			2
Kenya	1		1		2
Liberia	1				1
Mexico		1			1
Mozambique	1			1	2
Nicaragua		3			3
Nigeria	18				18
Pakistan		1			1
Sierra Leone	2		1		3
Sudan		1			1
Tanzania	1				1
Uganda	7				7
Venezuela		1			1
Multiple countries		7			7
Total	51	16	3	1	71

2023 Malaria Cases Acquired in Florida: In 2023, seven cases of locally acquired malaria have been reported in Sarasota County, with onsets in May, June (5), and July. The *Plasmodium* species reported were *Plasmodium vivax*.

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 Lake County.





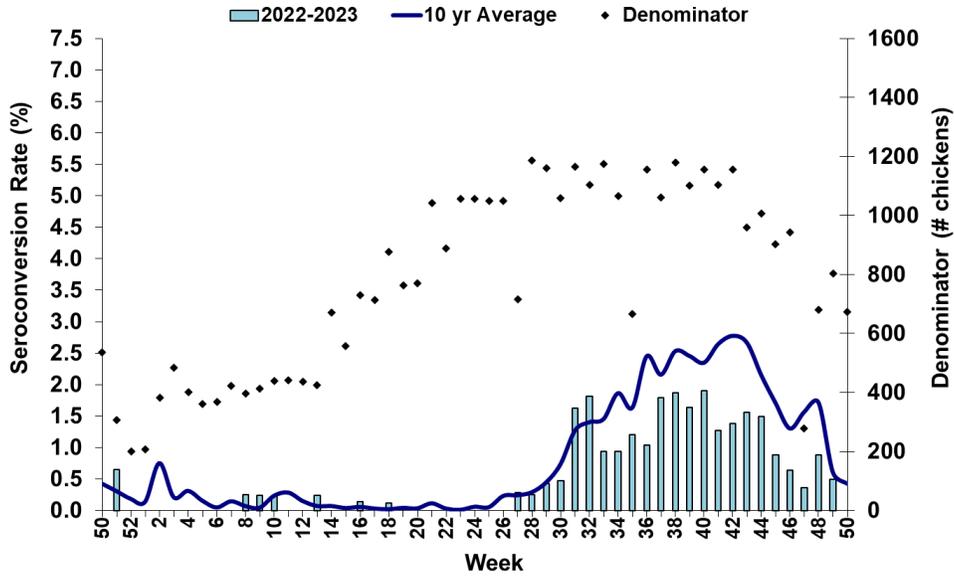
Sentinel Chickens

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.

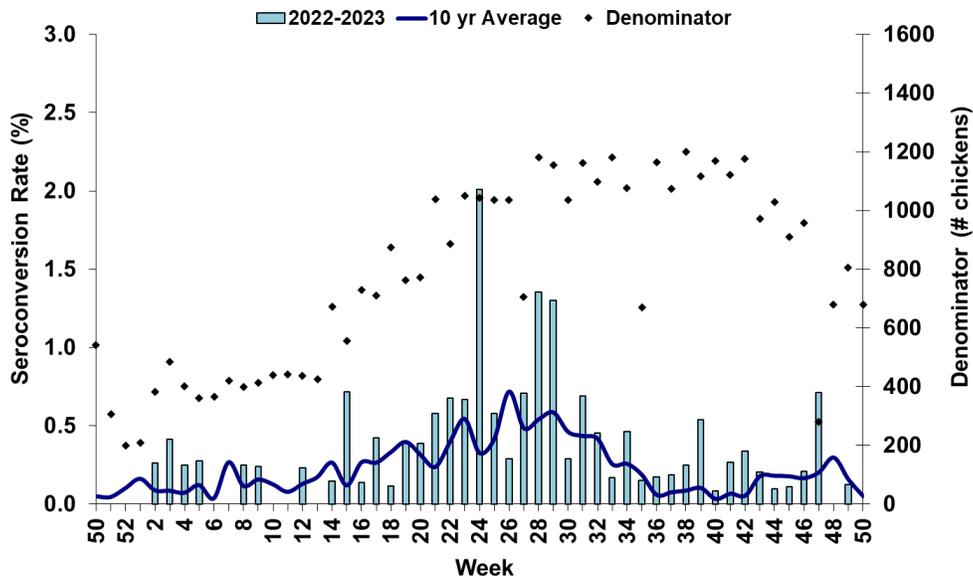
Nine sentinel chickens tested positive for antibodies to WNV this week in Alachua, Citrus, Palm Beach, Pinellas, St. Johns, and Walton Counties. Two sentinel chickens tested positive for antibodies to SLEV this week in Indian River County. Four sentinel chickens tested positive for antibodies to EEEV this week in Nassau and Orange counties.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Alachua	11/14/2023	12.50		12.50				2 WNV	8 EEEV, 4 WNV
Citrus	12/4/2023	1.54		1.54				1 WNV	3 EEEV, 3 WNV
Indian River	11/30/2023	4.17		4.17				2 SLEV	2 SLEV
Nassau	10/20/2023				8.00	8.00		2 EEEV	10 EEEV, 55 WNV, 1 SLEV
	11/17/2023				4.17	4.17		1 EEEV	
Orange	12/4/2023				0.90	0.90		1 EEEV	4 WNV, 22 EEEV, 1 HJV
Palm Beach	11/14/2023	3.13		3.13				1 WNV	11 WNV
Pinellas	12/4/2023	1.79		1.79				1 WNV	1 WNV
St. Johns	11/6/2023	3.23		3.23				1 WNV	5 EEEV, 58 WNV, 1 SLEV
Walton	11/14/2023	2.78		2.78				1 WNV	62 WNV, 38 EEEV, 6 HJV, 1 SLEV
	12/4/2023	4.17		4.17				2 WNV	

Sentinel Seroconversions to WNV in Florida, 2022–2023



Sentinel Seroconversions to EEEV in Florida, 2022–2023



Mosquito Pools

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

County	Collection Date	Result	Species	County YTD
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Dead Birds

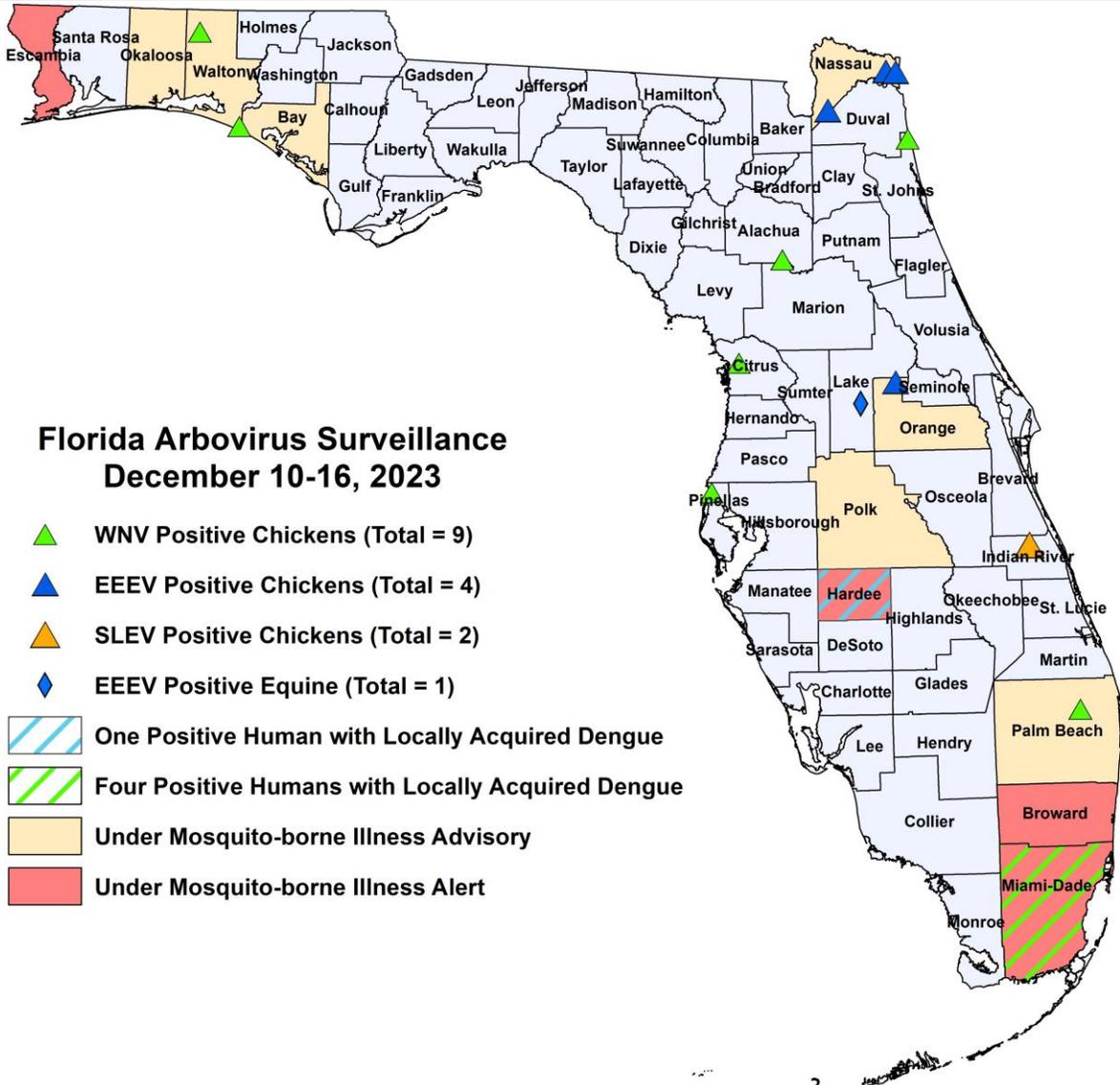
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 15 reports representing a total of 30 dead birds, including one Jay and four raptors, were received from 9 counties.

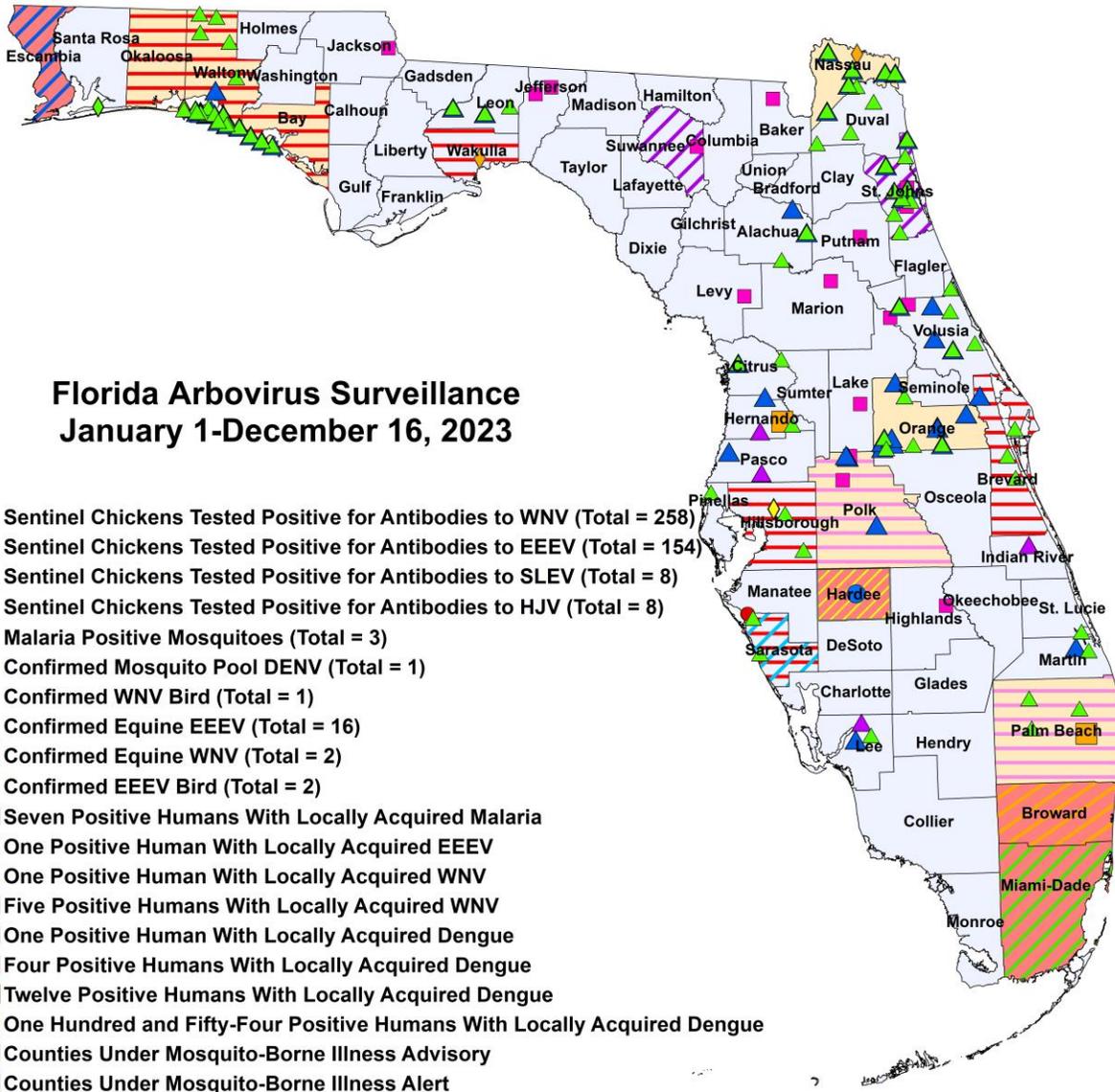
In 2023, 999 reports representing a total of 2666 dead birds (55 crows, 53 jays, 157 raptors, 177 doves) were received from 54 of Florida's 67 counties.

2023

County	Total Dead Birds	Crows	Jays	Raptors	Doves
Baker	1	0	0	1	0
Bay	1	0	0	1	0
Brevard	4	0	0	0	0
Broward	1	0	0	0	0
Duval	18	0	0	0	0
Okaloosa	2	0	1	1	0
Orange	1	0	0	1	0
Palm Beach	1	0	0	0	0
Sarasota	1	0	0	0	0

Maps





Florida Arbovirus Surveillance January 1-December 16, 2023

- ▲ Sentinel Chickens Tested Positive for Antibodies to WNV (Total = 258)
- ▲ Sentinel Chickens Tested Positive for Antibodies to EEEV (Total = 154)
- ▲ Sentinel Chickens Tested Positive for Antibodies to SLEV (Total = 8)
- ◆ Sentinel Chickens Tested Positive for Antibodies to HJV (Total = 8)
- Malaria Positive Mosquitoes (Total = 3)
- Confirmed Mosquito Pool DENV (Total = 1)
- ◆ Confirmed WNV Bird (Total = 1)
- Confirmed Equine EEEV (Total = 16)
- Confirmed Equine WNV (Total = 2)
- ◆ Confirmed EEEV Bird (Total = 2)
- ▨ Seven Positive Humans With Locally Acquired Malaria
- ▨ One Positive Human With Locally Acquired EEEV
- ▨ One Positive Human With Locally Acquired WNV
- ▨ Five Positive Humans With Locally Acquired WNV
- ▨ One Positive Human With Locally Acquired Dengue
- ▨ Four Positive Humans With Locally Acquired Dengue
- ▨ Twelve Positive Humans With Locally Acquired Dengue
- ▨ One Hundred and Fifty-Four Positive Humans With Locally Acquired Dengue
- Counties Under Mosquito-Borne Illness Advisory
- Counties Under Mosquito-Borne Illness Alert

2023 Mosquito-Borne Disease Activity by County

County	Humans	Equines	Sentinel Chickens	Other
Alachua			8 EEEV (6/19, 7/17, 8/1, 8/9, 8/23, 10/19) 4 WNV (10/9, 11/14)	
Baker		1 EEEV (5/5)		
Bay	1 WNV asymptomatic blood donor (August)		6 EEEV (5/15, 5/22, 5/30, 6/12) 14 WNV (7/17, 7/31, 8/21, 8/24, 9/11, 9/18, 10/2, 10/16)	
Brevard	1 WNV (October)		1 EEEV (3/24) 4 WNV (8/3, 10/5, 10/19)	
Broward	4 dengue (July (2), August, September)			
Citrus			3 EEEV (4/24, 11/6, 11/14) 3 WNV (10/16, 12/4)	
Duval			12 WNV (7/17, 9/11, 9/18, 9/25, 10/2, 10/9)	
Escambia	5 WNV (July (2), August (3))			

County	Humans	Equines	Sentinel Chickens	Other
Hardee	12 dengue (July, September, October (6), November (4))			1 dengue 1 mosquito (<i>Ae. aegypti</i> 11/20)
Hernando		1 WNV (1/6)	1 SLEV (10/16) 1 WNV (11/20)	
Hillsborough	1 WNV asymptomatic blood donor (August)		4 WNV (2/28, 3/7, 5/2, 11/6) 1 HJV (7/18)	
Indian River			2 SLEV (11/30)	
Jackson		1 EEEV (7/28)		
Jefferson		2 EEEV (6/22, 6/30)		
Lake		2 EEEV (1/29, 12/11)		
Lee			1 EEEV (1/9) 1 SLEV (10/9) 1 WNV (10/16)	
Leon			8 EEEV (7/6, 8/1, 8/7, 8/22, 9/19, 10/2, 10/31) 5 WNV (8/7, 8/15, 9/19, 10/2)	
Levy		1 EEEV (10/8)		
Marion		1 EEEV (11/21)		
Martin			1 EEEV (8/4) 2 WNV (10/6, 10/13)	
Miami-Dade	154 dengue (January, March, June (3), July (6), August (18), September (46), October (63), November (16))			
Nassau			48 EEEV (6/2, 6/16, 6/23, 7/7, 7/15, 7/21, 8/11, 8/18, 8/31, 9/8, 9/15, 9/22, 9/29, 10/14, 10/20, 10/27, 11/17) 55 WNV (8/4, 8/11, 8/18, 8/31, 9/8, 9/22, 9/29, 10/7, 10/14, 10/20, 10/27, 11/3, 11/10)	1 EEEV sparrow (6/24)
Okaloosa	1 WNV (September)			
Orange			4 WNV (2/20, 7/10, 8/28, 10/2) 22 EEEV (1/17, 2/20, 2/27, 4/10, 4/24, 5/1, 5/15, 5/30, 6/5, 7/10, 7/17, 8/1, 10/2, 11/19, 11/20, 12/4) 1 HJV (5/8)	
Palm Beach	1 dengue (September)	1 WNV (10/4)	11 WNV (4/18, 9/1, 9/18, 9/25, 10/9, 10/16, 10/23, 11/14)	
Pasco			1 EEEV (4/24) 1 SLEV (11/6)	
Pinellas			1 WNV (12/4)	
Polk	1 dengue (July)	2 EEEV (4/7, 4/10)	4 EEEV (5/22, 5/26, 7/24, 10/23)	
Putnam		1 EEEV (7/31)		
Santa Rosa				1 WNV pheasant (8/29)
Sarasota	7 malaria (May, June (5), July) 1 WNV (September)		2 WNV (9/15, 10/17)	3 <i>Plasmodium vivax</i> mosquitoes (<i>Anopheles crucians</i> [6/1, 6/2, 6/5])
Seminole			2 WNV (9/11, 9/26)	

County	Humans	Equines	Sentinel Chickens	Other
St. Johns	1 EEE (June)	2 EEEV (2/2, 7/6)	5 EEEV (6/12, 6/26, 7/31, 8/21) 58 WNV (7/5, 7/10, 7/17 7/31, 8/7, 8/14, 8/21, 8/28, 9/5, 9/11, 9/18, 9/25, 10/2, 10/9, 10/16, 10/23, 10/30, 11/6) 1 SLEV (10/30)	
Suwanee	1 EEE (July)	1 EEEV (8/21)		
Volusia			8 EEEV (1/17, 1/23, 1/30, 4/10, 4/17, 6/12, 7/17) 12 WNV (7/3,8/14, 9/5, 9/11, 9/25, 10/2, 10/30, 11/6, 11/13) 1 SLEV (9/25)	
Wakulla	1 WNV (October)			1 EEEV laughing gull (8/1)
Walton	1 WNV asymptomatic blood donor (September)		62 WNV (3/27, 7/24, 7/31, 8/7, 8/8, 8/14, 8/15, 8/21, 8/22, 8/28, 8/30, 9/11, 9/12, 9/18, 9/25, 10/2, 10/3, 10/9, 10/16, 10/23, 10/30, 10/31, 11/6, 11/14, 11/27, 11/28, 12/4) 38 EEEV (4/3, 4/10, 5/8, 5/30, 6/5, 6/12, 6/19, 6/26, 6/28, 7/3, 7/11, 7/17, 7/24, 8/8, 8/14, 9/26) 6 HJV (5/8, 5/22, 6/12, 8/21) 1 SLEV (7/31)	

Acknowledgements and Data Sources

Contributors: Andrea Morrison, PhD, MSPH, Rebecca Zimler, PhD, MPH, and Danielle Stanek, DVM, DOH Bureau of Epidemiology; Lea Heberlein, 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.