



Florida Arbovirus Surveillance Week 31: July 31-August 6, 2016

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) and California encephalitis group viruses (CEV). Malaria, a parasitic mosquito-borne disease is also included. During the period of July 31-August 6, 2016 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. Five sentinel chickens tested positive for antibodies to WNV this week in Bay, Hillsborough, Leon, and Polk Counties. In 2016, positive samples from 57 sentinel chickens, one horse, and two mosquito pools have been received from 12 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 2016, one positive sample from sentinel chickens has been received from one county.

EEEV activity: No human cases of EEEV infection were reported this week. Two horses with EEEV infection was reported this week in Jackson and Jefferson Counties. Nine sentinel chickens tested positive for antibodies to EEEV this week in Alachua, Flagler, Leon, Nassau, Polk, and Walton Counties. In 2016, positive samples from 60 sentinel chickens and 18 horses have been received from 18 counties.

International Travel-Associated Dengue Fever Cases: Three new cases of dengue fever were reported this week in persons that had international travel. In 2016, 36 travel-associated cases have been reported.

Dengue Fever Cases Acquired in Florida: No cases of locally acquired dengue fever were reported this week. In 2016, one case of locally acquired dengue fever has been reported.

International Travel-Associated Chikungunya Fever Cases: No cases of chikungunya fever were reported this week. In 2016, six travel-associated cases have been reported.

Chikungunya Fever Cases Acquired in Florida: No cases of locally acquired chikungunya fever were reported this week. In 2016, no cases of locally acquired chikungunya fever have been reported.

International Travel-Associated Zika Fever Cases: Twenty-four cases of Zika fever were reported this week in persons that had international travel. In 2016, 381 travel-associated cases have been reported.

Zika Fever Cases: Three cases of Zika fever were reported this week in persons that had no international travel. In 2016, 17 local cases have been reported.

Advisories/Alerts: Bay, Jefferson, Monroe, Polk, Osceola, St. Johns, and Washington Counties are currently under mosquito-borne illness advisory. Thirty counties are currently under a declared public health emergency due to the identification of travel-associated Zika infections: Alachua, Brevard, Broward, Charlotte, Citrus, Clay, Collier, Duval, Escambia, Highlands, Hillsborough, Lake, Lee, Leon, Manatee, Martin, Miami-Dade, Okaloosa, Okeechobee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, St. Johns, St. Lucie, Santa Rosa, Seminole, and Volusia Counties.

At this time, the Department of Health believes active transmissions of the Zika virus is occurring in one small area in Miami-Dade County, just north of downtown. The exact location is within the boundaries of the following area: NW 5th Avenue to the west, US 1 to the east, NW/NE 38th Street to the north and NW/NE 20th Street to

the south. This area is about one square mile and a map of the area along with public health recommendations can be seen at: <http://www.floridahealth.gov/newsroom/2016/08/080116-zika-update.html>

There is a Level 2 (Alert) Travel Health Notice from the CDC for multiple countries in the Caribbean, Central and South America, Mexico, Cape Verde, and Pacific Islands related to Zika virus transmission and an association with poor pregnancy outcomes. Pregnant women should consider postponing travel to these areas. There is a Level 1 (Watch) Travel Health Notice from the CDC for multiple countries in the Caribbean, Central and South America, and Mexico, related to the transmission of chikungunya virus. Additional information on travel health notices can be found at the following link: <http://wwwnc.cdc.gov/travel/notices>.

2016 Human Case Summary*

International Travel-Associated Chikungunya Fever Cases: Six cases of chikungunya with onset in 2016 have been reported in individuals with travel history to a chikungunya endemic country in the two weeks prior to onset. Countries of origin were Bahamas/Mexico, Bolivia (2), Brazil (2), and Jamaica. Counties reporting cases were Broward, Duval, Hillsborough, Palm Beach (2), and Pinellas.

International Travel-Associated Dengue Fever Cases: Thirty-six cases of dengue with onset in 2016 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Brazil (3), Colombia (2), Costa Rica (4), Cuba (7), Dominican Republic (2), El Salvador, Ghana, Haiti (3), Honduras, Indonesia, Jamaica (2), Mexico, Puerto Rico, St. Barthelemy, Singapore, , Jamaica, Venezuela (3). Counties reporting cases were: Alachua (2), Brevard, Broward (7), Clay, Columbia, Hillsborough (2), Manatee, Miami-Dade (8), Monroe, Orange (4), Pinellas (2), Palm Beach (2), Sarasota, and Seminole (3). Two cases were reported in non-Florida residents. In 2016, 22 of the 31 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2016
DENV-1	8
DENV-2	4
DENV-3	8
DENV-4	5
	25

Dengue Fever Cases Acquired in Florida: In 2016, one case of locally acquired dengue fever has been reported in Monroe County, with onset in May. This case was reported in a non-Florida resident.

International Travel-Associated Zika Fever Cases: Three hundred eighty-one cases of Zika fever have been reported in individuals with travel history to a country or area experiencing Zika virus activity. Countries of origin were: Anguilla, Barbados/Dominica (2), Belize (2), Bolivia (3), Brazil (5), Brazil/Bolivia/Peru, Brazil/Caribbean, Caribbean, Colombia (31), Costa Rica, Cuba (2), Curacao/Guyana, Dominica, Dominican Republic (84), Dominican Republic/Puerto Rico, Ecuador, El Salvador (4), Grenada (2), Guadeloupe, Guatemala (3), Guyana (5), Haiti (21), Honduras (15), Honduras/Guatemala, Jamaica (44), Jamaica/Panama, Martinique (3), Mexico (2), Nicaragua (30), Puerto Rico (78), St. Lucia, Suriname, Trinidad, Trinidad and Tobago (6), and Venezuela (23). Counties reporting cases were: Alachua (5), Brevard (10), Broward (55), Charlotte, Citrus (2), Clay (3), Collier (4), Duval (6), Escambia (2), Highlands, Hillsborough (12), Lake, Lee (6), Manatee (2), Martin, Miami-Dade (106), Okaloosa (2), Okeechobee, Orange (45), Osceola (18), Palm Beach (20), Pasco (6), Pinellas (7), Polk (13), St. Johns (3), St. Lucie (3), Santa Rosa, Seminole (15), and Volusia (5). Twenty cases were reported in non-Florida residents. One Polk County case was acquired through sexual transmission. Twenty-five of the 381 cases involve pregnant women whose counties of residence are not included in the individual county totals to protect privacy. Florida has been monitoring pregnant women with evidence of Zika virus infection regardless of symptoms since January. Including the twenty-five pregnant cases mentioned, Florida is monitoring a total of 56 pregnant women.

Zika Virus Infections Acquired in Florida: In 2016, seventeen locally acquired Zika virus infections have been reported in Miami-Dade (12), Broward (2), and Palm Beach (1) Counties; eleven symptomatic infections and 6 asymptomatic infections. Most infections (8 symptomatic and all six asymptomatic cases) were linked to a single focal area in Miami-Dade.

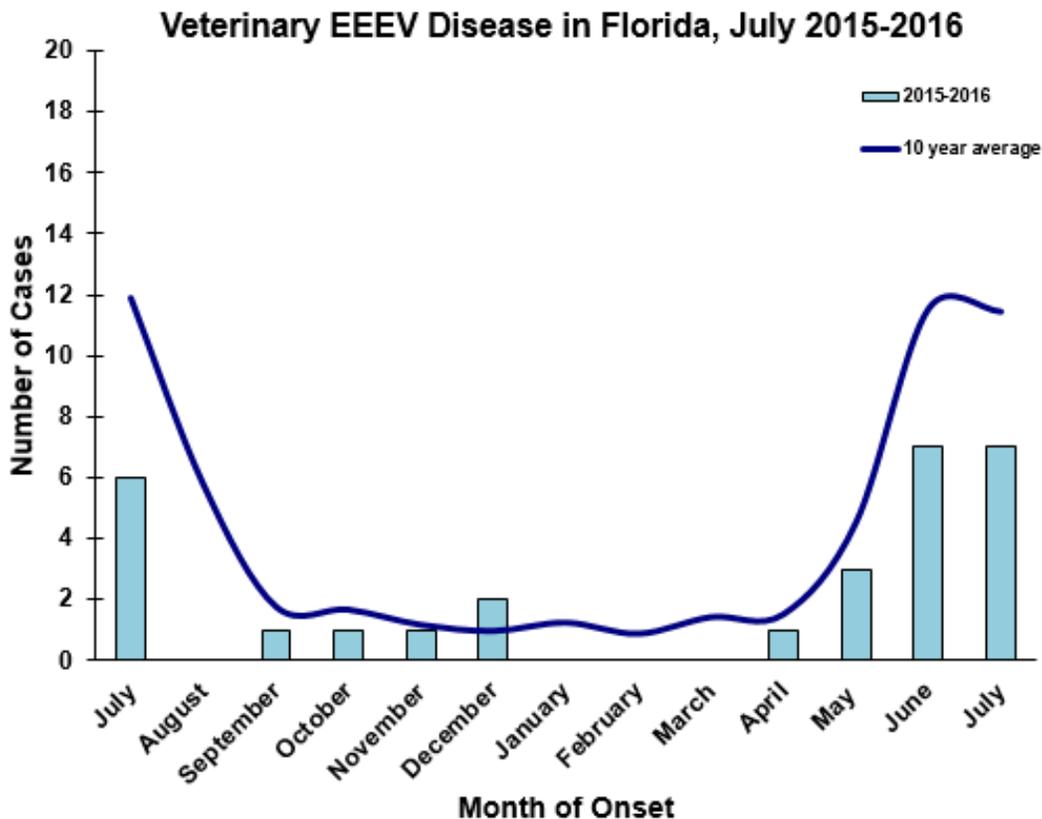
International Travel-Associated Malaria Cases: Thirty-one cases of malaria with onset in 2016 have been reported. Countries of origin were: Africa (2), Angola, Benin, Cameroon (2), Colombia, Democratic Republic of the Congo (2), Dominican Republic, Haiti (3), Honduras, India, Kenya, Nigeria (7), Sierra Leone (2), South Africa, Sudan, Uganda (2), and Venezuela (2). Counties reporting cases were: Alachua, Brevard, Broward (5), Duval (2), Flagler, Gadsden, Hernando, Hillsborough (3), Leon, Miami-Dade (6), Orange (4), Palm Beach, St. Lucie (2), Sarasota Counties, and Volusia. Three cases were reported in non-Florida residents.

Twenty-five cases (81%) were diagnosed with *Plasmodium falciparum*. Five cases (16%) were diagnosed with *Plasmodium vivax*. One case (3%) was diagnosed with *Plasmodium malariae*.

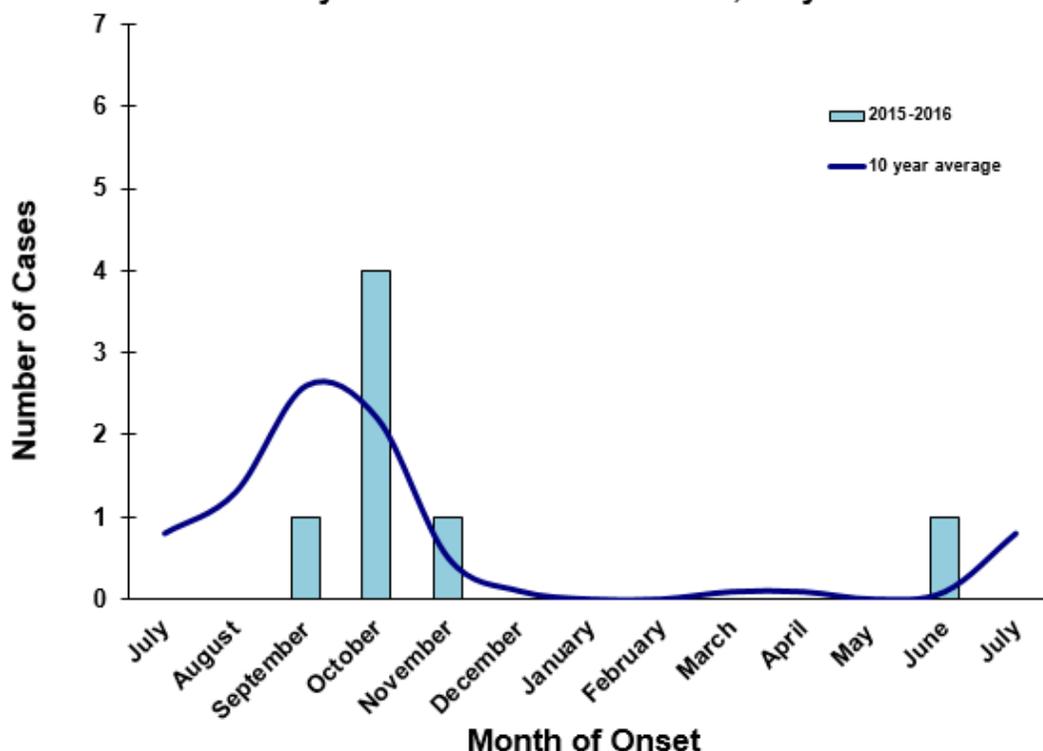
Veterinary Cases*

*Veterinary cases are reported by date of onset

Two horses with EEEV infection was reported this week in Jackson, Jefferson Counties.



Veterinary WNV Disease in Florida, July 2015-2016



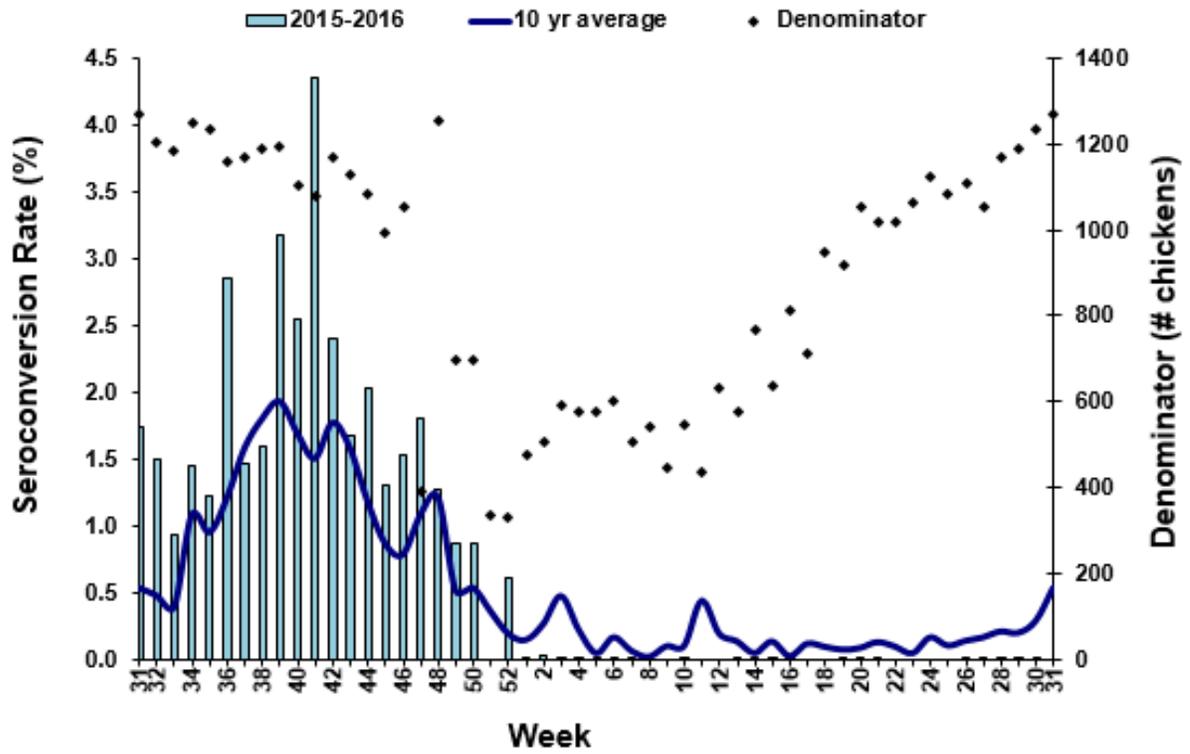
Sentinel Chickens*

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.

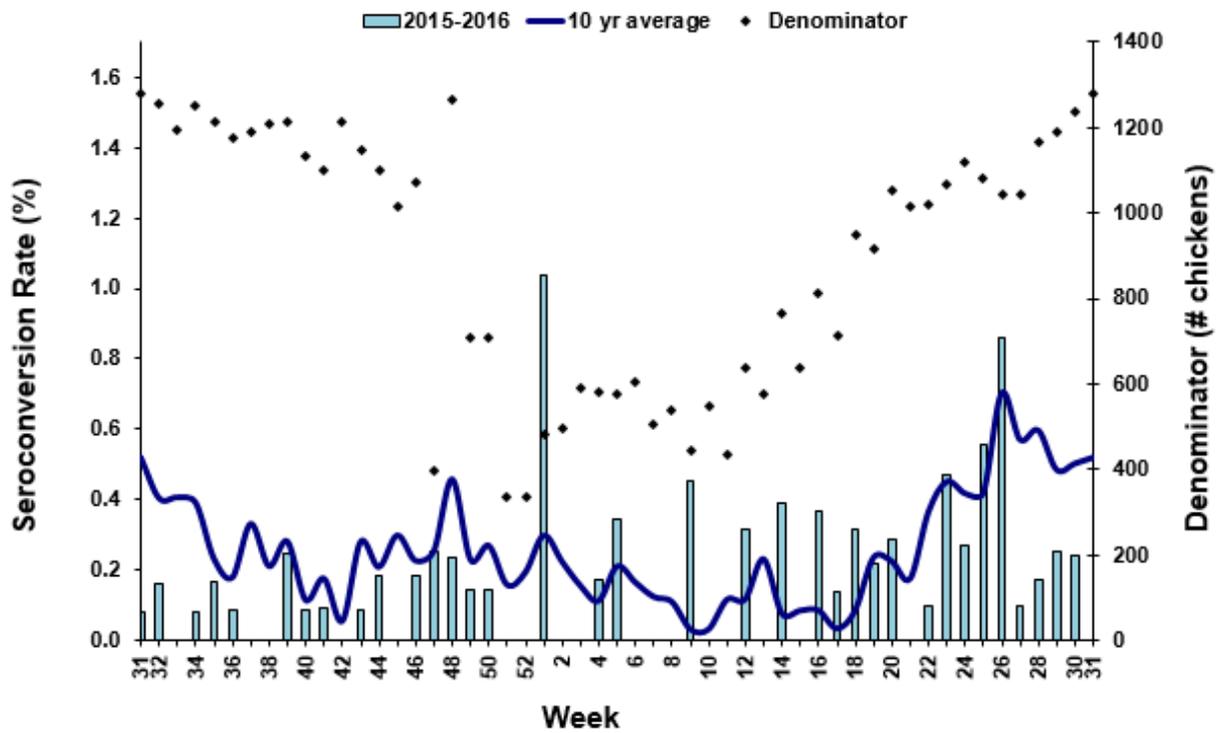
Five sentinel chickens tested positive for antibodies to WNV this week in Bay, Hillsborough, Leon, and Polk Counties. Nine sentinel chickens tested positive for antibodies to EEEV this week in Alachua, Flagler, Leon, Nassau, Polk, and Walton Counties.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Alachua	7/18/16				4.17	4.17		1 EEEV	1 EEEV
Bay	7/25/16	11.76		11.76				2 WNV	1 EEEV, 14 WNV
Flagler	7/18/2016				8.33	8.33		1 EEEV	4 EEEV
Hillsborough	7/12/16	1.28		1.28				1 WNV	10 WNV
Leon	7/18/2016				4.26	4.26		2 EEEV	
	7/25/16	2.08		2.08				1 WNV	3 EEEV, 1 WNV
Nassau	6/30/16				2.78	2.78		1 EEEV	3 EEEV, 1 WNV
Polk	7/18/16	5.56		5.56				1 WNV	
	7/25/2016				11.11	11.11		2 EEEV	3 EEEV, 1 WNV
Walton	7/13/16				0.96	0.96		1 EEEV	
	7/25/2016				0.87	0.87		1 EEEV	21 EEEV, 11 WNV, 2 HJV

Sentinel Seroconversions to WNV in Florida, 2015-2016



Sentinel Seroconversions to EEEV in Florida, 2015-2016



Mosquito Pools

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

County	Collection Date	Result	Species	County YTD

Dead Birds

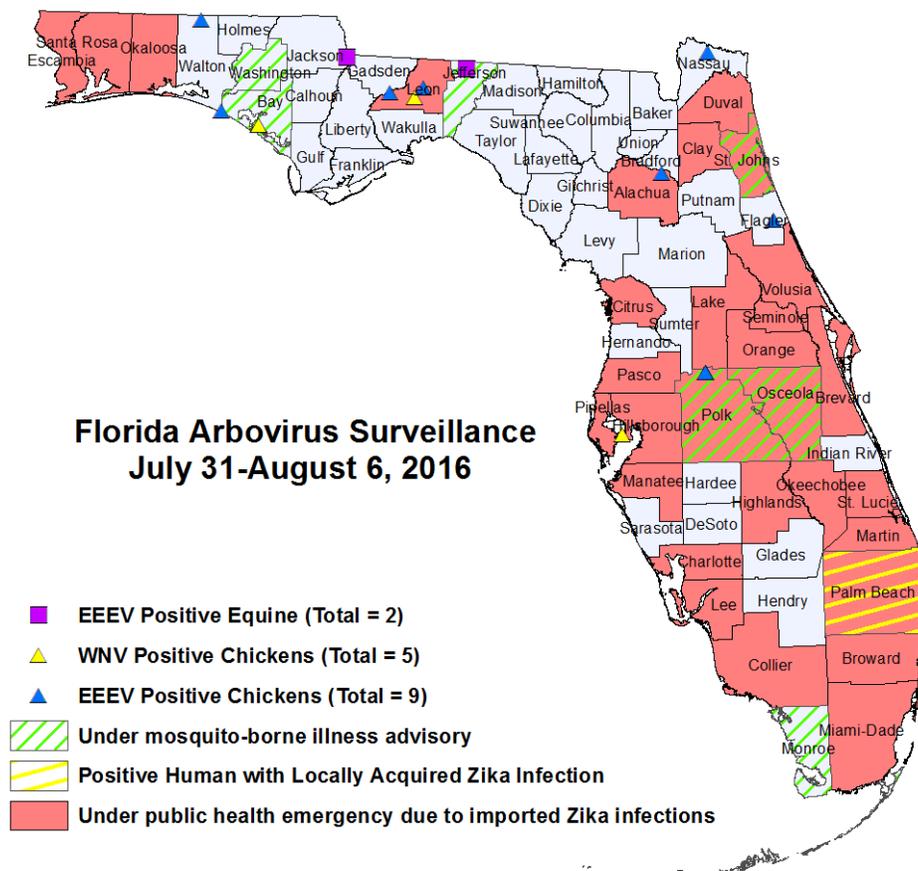
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 5 reports representing a total of 15 dead birds, including 1 raptor were received from 4 counties.

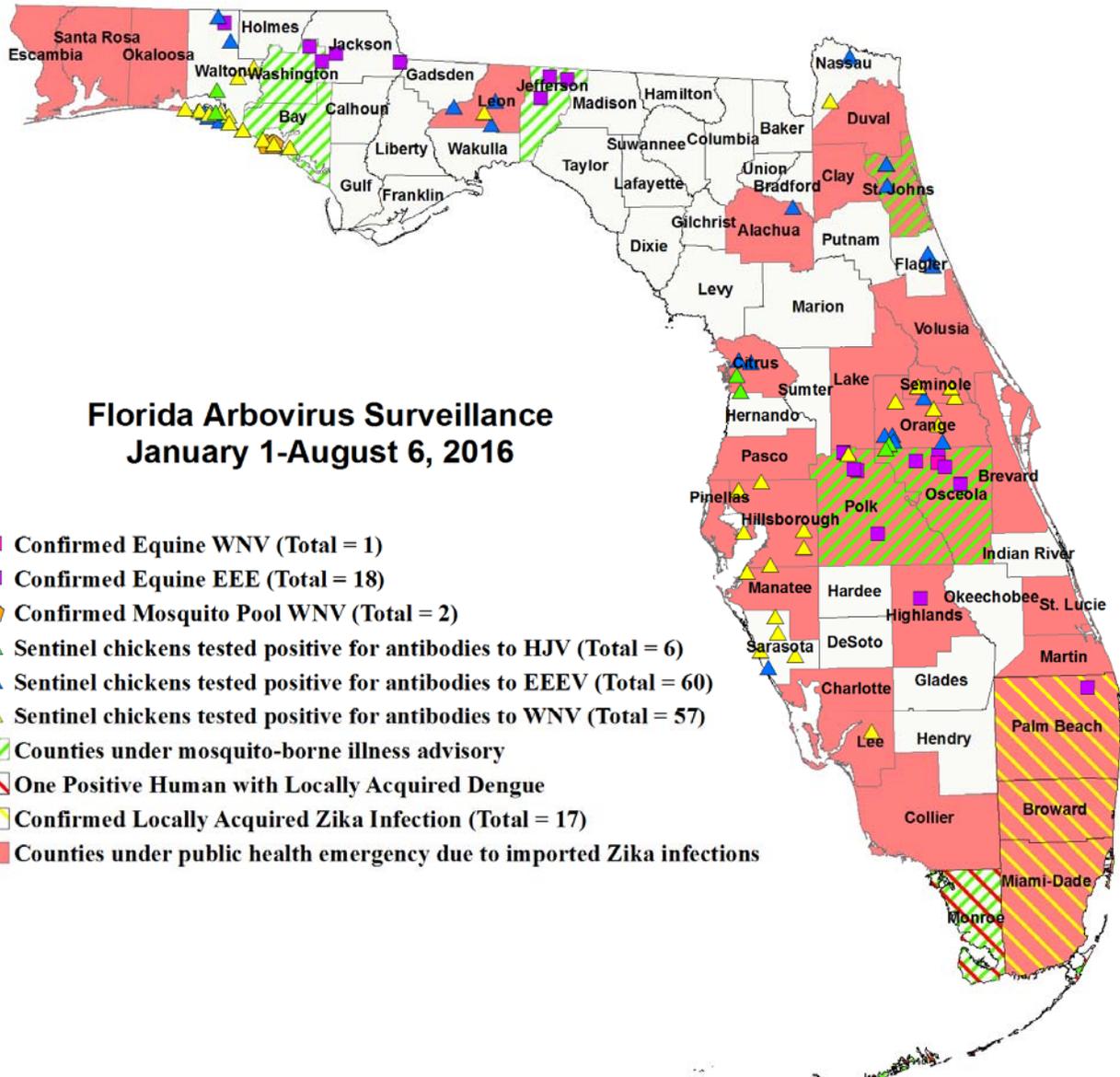
In 2016, 305 reports representing a total of 996 dead birds (57 crows, 3 jays, 62 raptors, and 10 doves) were received from 47 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/.

2016

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Broward	1	0	0	1	0
Franklin	16	0	0	0	0
Palm Beach	4	0	0	0	0
Walton	15	0	0	0	0

Maps





**Florida Arbovirus Surveillance
January 1-August 6, 2016**

- Confirmed Equine WNV (Total = 1)
- Confirmed Equine EEE (Total = 18)
- ◆ Confirmed Mosquito Pool WNV (Total = 2)
- ▲ Sentinel chickens tested positive for antibodies to HJV (Total = 6)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total = 60)
- ▲ Sentinel chickens tested positive for antibodies to WNV (Total = 57)
- ▨ Counties under mosquito-borne illness advisory
- ▨ One Positive Human with Locally Acquired Dengue
- ▨ Confirmed Locally Acquired Zika Infection (Total = 17)
- Counties under public health emergency due to imported Zika infections

2016 Arbovirus Activity by County	
County	Arbovirus Activity
Alachua	EEEV: 1 sentinel (7/18)
Bay	EEEV: 1 sentinel (4/18) WNV: 2 mosquito pool (6/1, 7/6); 14 sentinels (6/27, 7/5, 7/18, 7/25)
Broward	ZIKV: 2 humans (July)
Citrus	EEEV: 6 sentinels (1/4, 1/25, 2/29, 3/21, 5/31, 6/14) HJV: 2 sentinels (2/1, 2/8)
Flagler	EEEV: 4 sentinels (5/2, 6/27, 7/18)
Hillsborough	WNV: 10 sentinels (1/5, 1/12, 3/8, 4/20, 5/11, 5/24, 7/12)
Highlands	EEEV: 1 horse (7/18)
Jackson	EEEV: 2 horses (7/6, 7/16)
Jefferson	EEEV: 3 horses (6/16, 6/24, 7/24)
Lee	WNV: 1 sentinel (1/26) SLEV: 1 sentinel (7/12)
Leon	EEEV: 3 sentinels (7/11, 7/18) WNV: 1 sentinel (7/25)

Manatee	WNV: 1 sentinel (2/17)
Miami-Dade	ZIKV: 14 humans (July)
Monroe	Dengue: 1 human (May)
Nassau	EEEV: 3 sentinels (5/13, 5/20, 6/30) WNV: 1 sentinel (5/26)
Orange	WNV: 7 sentinels (1/11, 1/26, 2/1, 2/8, 5/17, 6/27) EEEV: 9 sentinels (1/7, 2/4, 4/4, 4/25, 5/2, 5/17, 6/27) HJV: 2 sentinels (1/14, 1/21)
Osceola	EEEV: 4 horses (5/6, 6/22, 7/10, 7/15) WNV: 1 horse (6/22)
Palm Beach	EEEV: 1 horse (5/31) ZIKV: 1 human (July)
Polk	EEEV: 4 horses (4/4, 5/10, 6/19, 6/25); 3 sentinels (6/21, 7/25) WNV: 1 sentinel (7/18)
Sarasota	WNV: 6 sentinels (1/11, 1/15, 1/19, 2/1, 3/7, 4/8) EEEV: 1 sentinel (4/8)
Seminole	WNV: 4 sentinels (2/2, 4/4, 4/11, 5/17) EEEV: 1 sentinel (5/9)
St. Johns	EEEV: 7 sentinels (6/6, 6/13, 6/20, 6/27)
Walton	EEEV: 1 horse (6/17); 21 sentinels (1/4, 2/2, 2/29, 3/21, 4/4, 4/19, 5/2, 6/7, 6/20, 6/22, 6/27, 7/5, 7/13, 7/25) WNV: 11 sentinels (1/11, 1/19, 2/2, 3/7, 3/29, 5/25) HJV: 2 sentinels (1/26, 4/25)
Washington	EEEV: 2 horses (6/23, 7/9)

Acknowledgements and Data Sources

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For more surveillance information, please see the DOH website at: <http://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: <http://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: <http://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.