



## Florida Arbovirus Surveillance Week 23: June 5-11, 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 non-viral mosquito-borne disease is also included. During the period of June 5-11, 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 Hillsborough, Nassau, Orange, Seminole, and Walton Counties. One mosquito pool tested positive for WNV this week in Bay County. In 2016, positive samples from 39 sentinel chickens and one mosquito pool have been received from nine 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, there have been no positive samples reported.

**EEEV activity:** No human cases of EEEV infection were reported this week. One horse with EEEV infection was reported this week in Palm Beach County. Two sentinel chickens tested positive for antibodies to EEEV this week in Citrus and Nassau Counties. In 2016, positive samples from 28 sentinel chickens and four horses have been received from 11 counties.

**International Travel-Associated Dengue Fever Cases:** No cases of dengue fever were reported this week in persons that had international travel. In 2016, 25 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 persons that had international travel. In 2016, four 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:** Ten cases of Zika fever were reported this week in persons that had international travel. In 2016, 147 travel-associated cases have been reported. No cases of locally acquired Zika fever have been reported.

**Advisories/Alerts:** Monroe County is currently under mosquito-borne illness advisory. Twenty counties are currently under a declared public health emergency due to the identification of travel-associated Zika infections: Alachua, Brevard, Broward, Clay, Collier, Escambia, Hillsborough, Lee, Martin, Miami-Dade, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, St. Johns, Santa Rosa, Seminole, and Volusia Counties. 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:** Four 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), and Brazil. Counties reporting cases were Broward, Duval, Hillsborough, and Pinellas.

**International Travel-Associated Dengue Fever Cases:** Twenty-five 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, Costa Rica (2), Cuba (7), Dominican Republic, El Salvador, St. Barthelemy, Haiti (3), Indonesia, Jamaica, Mexico, and Venezuela (3). Counties reporting cases were: Alachua (2), Broward (5), Clay, Hillsborough (2), Miami-Dade (7), Orange (3), Pinellas, Palm Beach, Sarasota, and Seminole (2). Two cases were reported in non-Florida residents. In 2016, 19 of the 25 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2016
<b>DENV-1</b>	7
<b>DENV-2</b>	3
<b>DENV-3</b>	4
<b>DENV-4</b>	5
	<b>19</b>

**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:** One hundred forty-seven 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: Belize (2), Bolivia (3), Brazil (5), Brazil/Bolivia/Peru, Colombia (28), Costa Rica, Curacao/Guyana, Dominican Republic (31), Ecuador, El Salvador (4), Guyana (4), Haiti (15), Honduras (8), Honduras/Guatemala, Jamaica (3), Martinique (3), Nicaragua (8), Puerto Rico (12), Suriname, and Venezuela (14). Counties reporting cases were: Alachua (4), Brevard (3), Broward (20), Clay (2), Collier (2), Escambia, Hillsborough (4), Lee (5), Martin, Miami-Dade (53), Orange (11), Osceola (6), Palm Beach (8), Pasco (2), Pinellas (4), Polk (3), St. Johns (2), Santa Rosa, Seminole (4), and Volusia (2). Six cases were reported in non-Florida residents. One Polk County case was acquired through sexual transmission. Nine of the 147 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 nine pregnant cases mentioned, Florida is monitoring a total of 38 pregnant women.

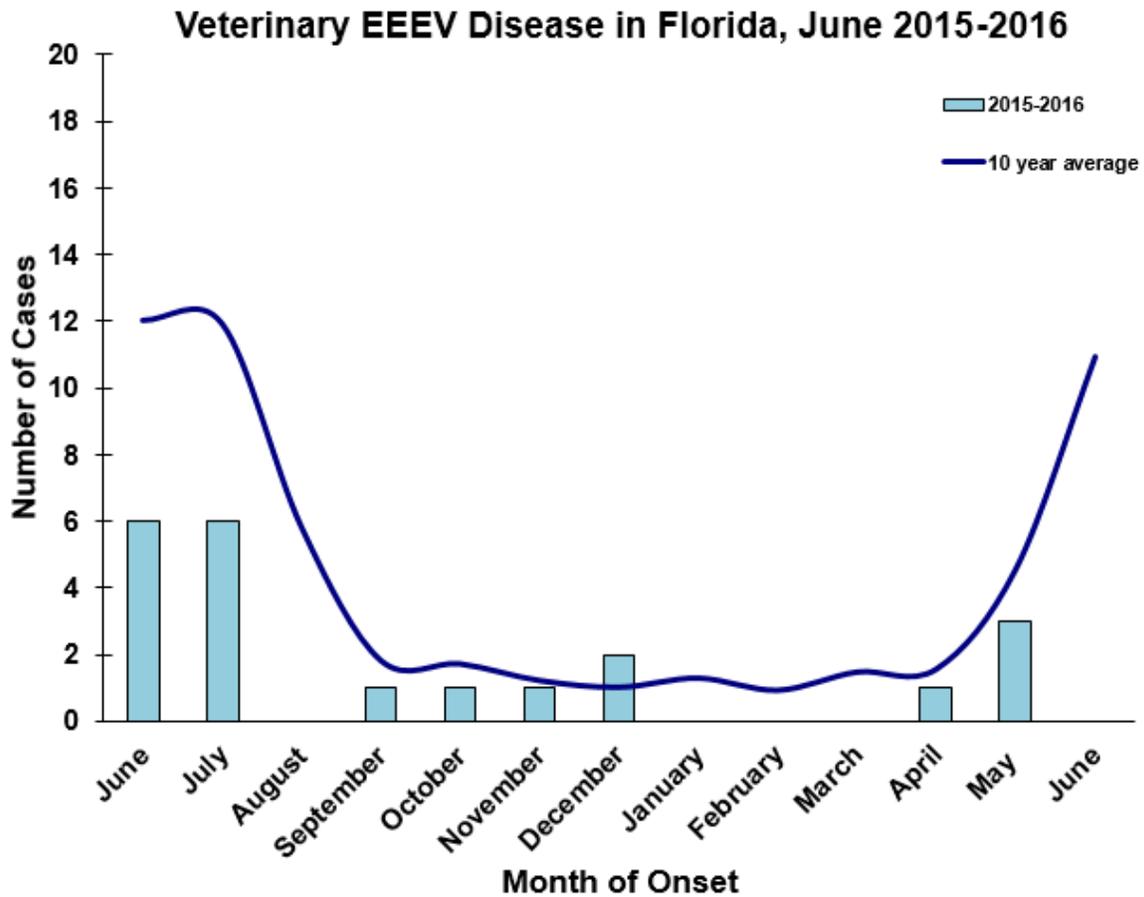
**International Travel-Associated Malaria Cases:** Twelve cases of malaria with onset in 2016 have been reported. Countries of origin were: Angola, Cameroon (2), Haiti, Kenya, Nigeria, Sierra Leone (2), Sudan, Uganda, and Venezuela (2). Counties reporting cases were: Broward (3), Flagler, Hillsborough, Miami-Dade (2), Orange (3), Palm Beach, and Sarasota Counties. Two cases were reported in non-Florida residents.

Nine cases (75%) were diagnosed with *Plasmodium falciparum*. Two cases (17%) were diagnosed with *Plasmodium vivax*. One case (8%) was diagnosed with *Plasmodium malariae*.

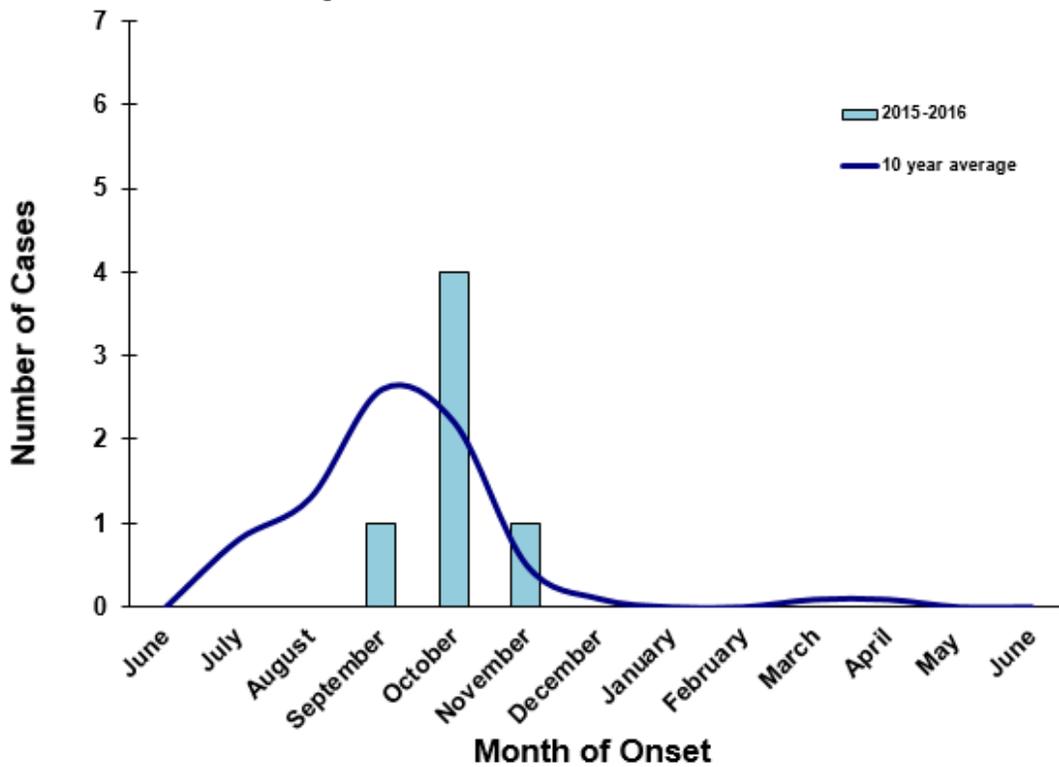
## Veterinary Cases\*

\*Veterinary cases are reported by date of onset

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



## Veterinary WNV Disease in Florida, June 2015-2016



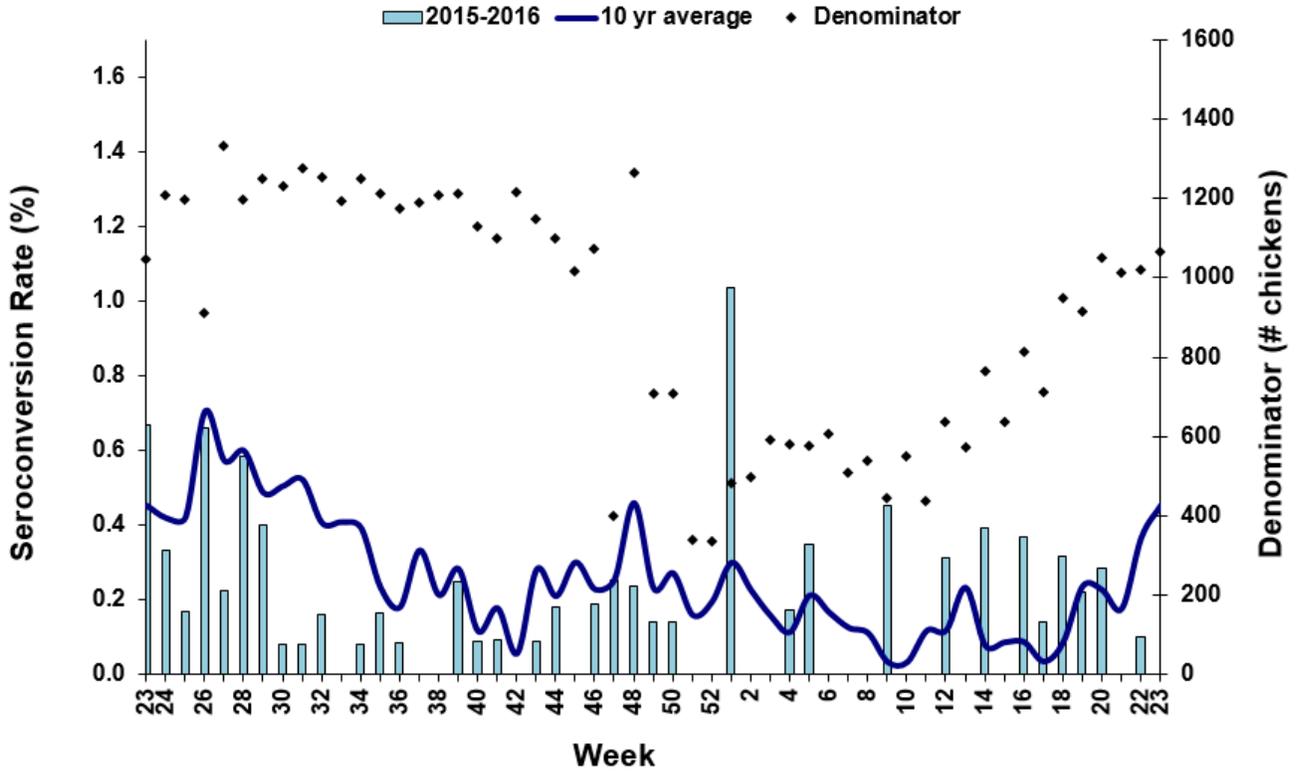
### Sentinel Chickens\*

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.

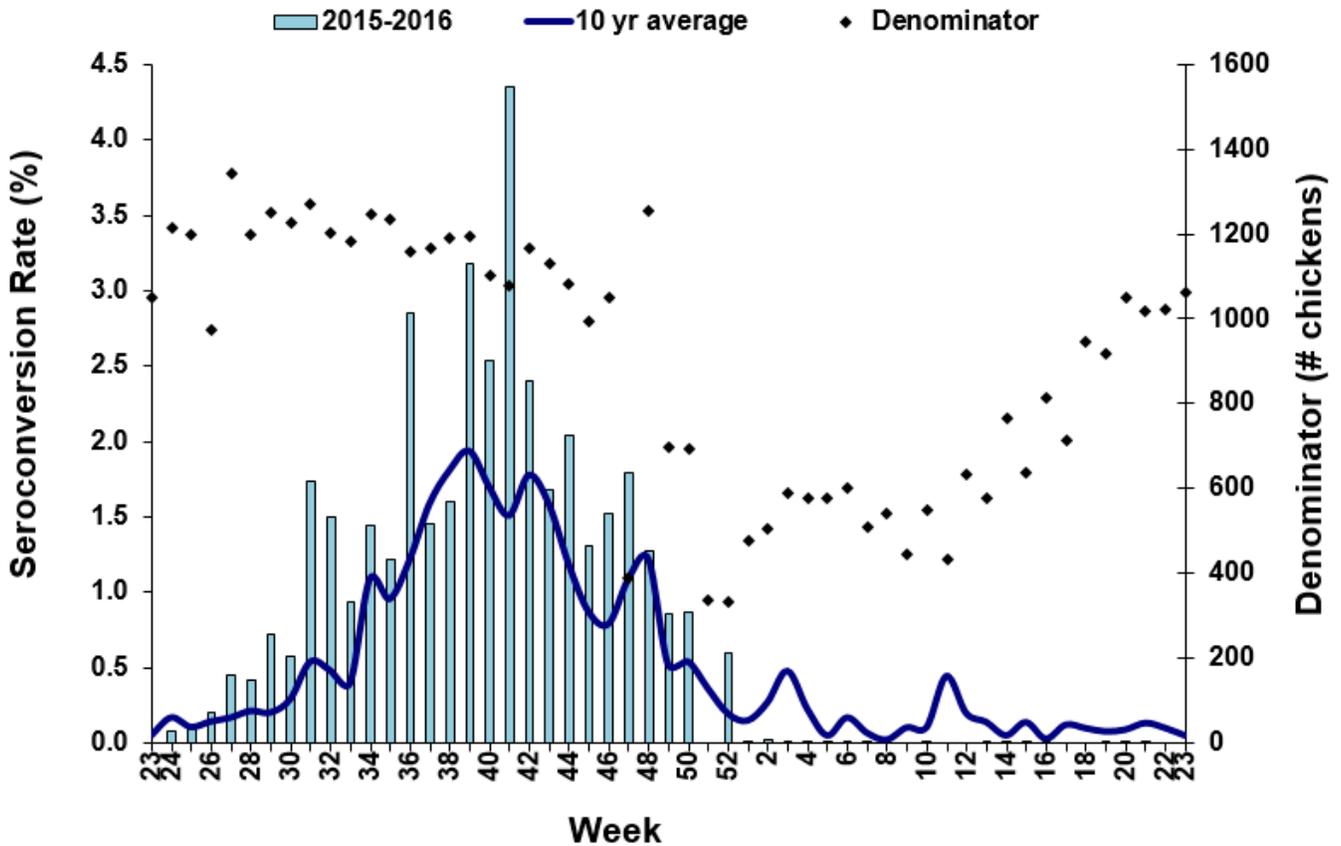
Five sentinel chickens tested positive for antibodies to WNV this week in Hillsborough, Nassau, Orange, Seminole, and Walton Counties. Two sentinel chickens tested positive for antibodies to EEEV this week in Citrus and Nassau Counties.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Citrus	05/31/16				1.41	1.41		1 EEEV	5 EEEV, 2 HJV
Hillsborough	05/24/16	1.52		1.52				1 WNV	9 WNV
Nassau	05/20/16				2.78	2.78		1 EEEV	2 EEEV, 1 WNV
	05/26/16	2.78		2.78				1 WNV	
Orange	05/17/16	0.84		0.84				1 WNV	6 WNV, 7 EEEV, 2 HJV
Seminole	05/17/16	2.13		2.13				1 WNV	4 WNV, 1 EEEV
Walton	05/25/16	0.85		0.85				1 WNV	10 EEEV, 11 WNV, 2 HJV

### Sentinel Seroconversions to EEEV in Florida, 2015-2016



### Sentinel Seroconversions to WNV in Florida, 2015-2016



## Mosquito Pools

WNV was isolated from one mosquito pool collected in Bay County.

County	Collection Date	Result	Species	County YTD
Bay	06/01/2016	WNV	<i>Cx. quinquefasciatus</i>	1 WNV

## Dead Birds

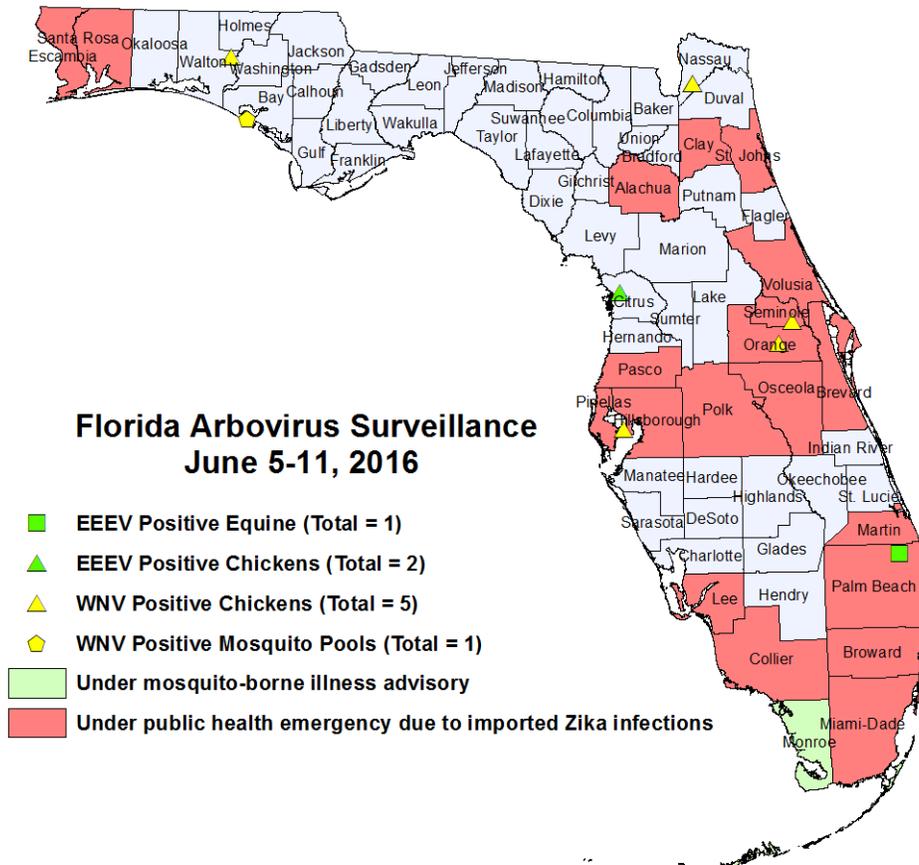
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 5 reports representing a total of 5 dead birds, including 3 raptors were received from 4 counties.

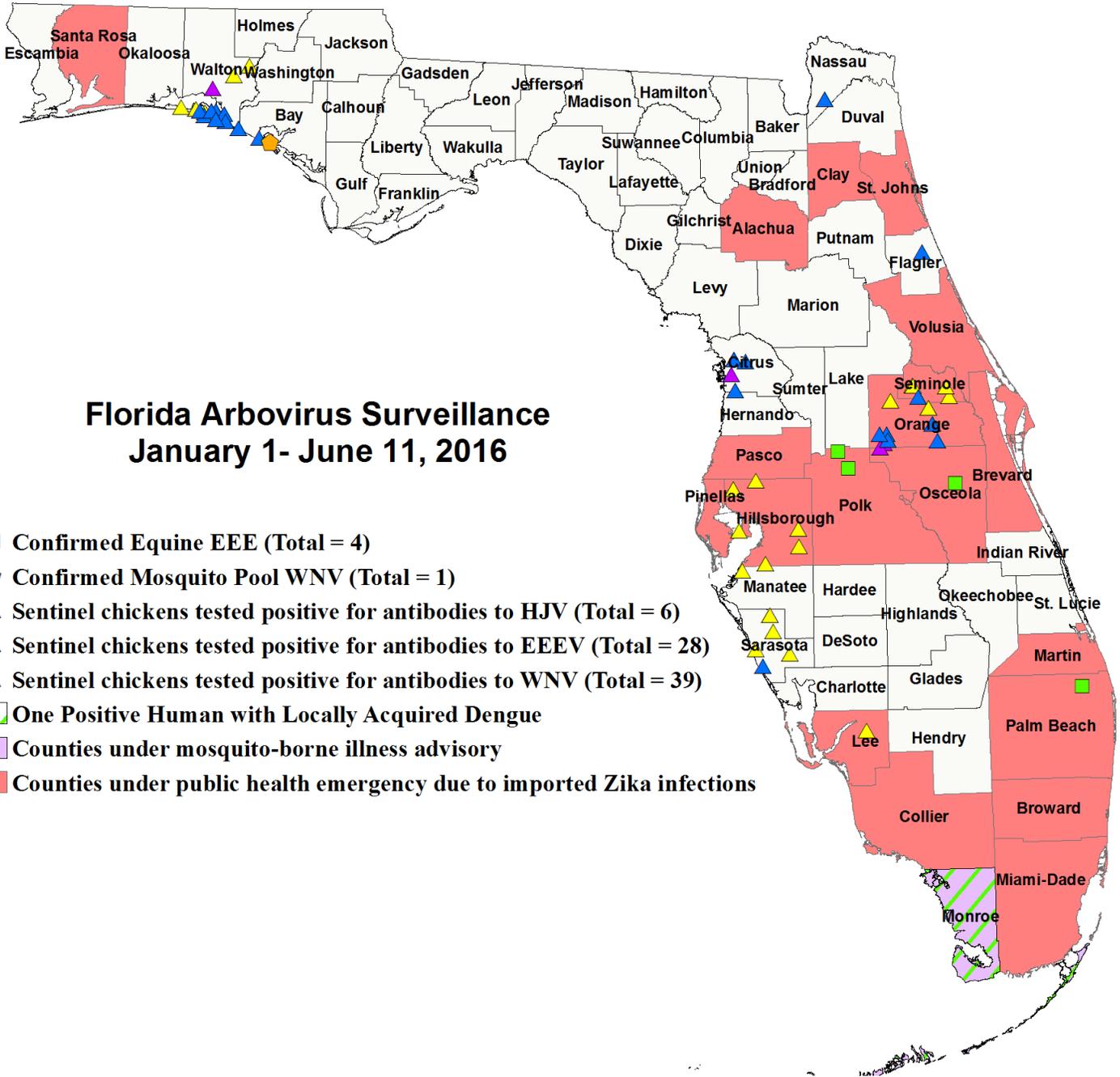
In 2016, 261 reports representing a total of 829 dead birds (55 crows, 3 jays, 49 raptors, and 7 doves) were received from 47 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to [www.myfwc.com/bird/](http://www.myfwc.com/bird/).

**2016**

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Duval	2	0	0	1	0
Flagler	1	0	0	1	0
Hillsborough	1	0	0	0	0
Volusia	1	0	0	1	0

## Maps





2016 Arbovirus Activity by County	
County	Arbovirus Activity
Bay	EEEV: 1 sentinel (4/18) WNV: 1 mosquito pool (6/1/)
Citrus	EEEV: 5 sentinels (1/4, 1/25, 2/29, 3/21, 5/31) HJV: 2 sentinels (2/1, 2/8)
Flagler	EEEV: 1 sentinel (5/2)
Hillsborough	WNV: 9 sentinels (1/5, 1/12, 3/8, 4/20, 5/11, 5/24)
Lee	WNV: 1 sentinel (1/26)
Manatee	WNV: 1 sentinel (2/17)
Monroe	Dengue: 1 human (May)
Nassau	EEEV: 2 sentinels (5/13, 5/20) WNV: 1 sentinel (5/26)

<b>Orange</b>	WNV: 6 sentinels (1/11, 1/26, 2/1, 2/8, 5/17) EEEV: 7 sentinels (1/7, 2/4, 4/4, 4/25, 5/2, 5/17) HJV: 2 sentinels (1/14, 1/21)
<b>Osceola</b>	EEEV: 1 horse (5/6)
<b>Palm Beach:</b>	EEEV: 1 horse (5/31)
<b>Polk</b>	EEEV: 2 horses (4/4, 5/10)
<b>Sarasota</b>	WNV: 6 sentinels (1/11, 1/15, 1/19, 2/1, 3/7, 4/8) EEEV: 1 sentinel (4/8)
<b>Seminole</b>	WNV: 4 sentinels (2/2, 4/4, 4/11, 5/17) EEEV: 1 sentinel (5/9)
<b>Walton</b>	EEEV: 10 sentinels (1/4, 2/2, 2/29, 3/21, 4/4, 4/19, 5/2) WNV: 11 sentinels (1/11, 1/19, 2/2, 3/7, 3/29, 5/25) HJV: 2 sentinels (1/26, 4/25)

**Acknowledgements and Data Sources**

Contributors: Andrea Bingham, PhD, MSPH, Shaiasia Itwaru-Womack, MPH, and Danielle Stanek, DVM, DOH Bureau of Epidemiology; Lea Heberlein-Larson, Lylah Seaton, and Valerie Mock, 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:** <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.