



## Florida Arbovirus Surveillance

### Week 27: July 3-9, 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 July 3-9, 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. Eight sentinel chickens tested positive for antibodies to WNV this week in Bay County. In 2016, positive samples from 47 sentinel chickens, one horse, and one mosquito pool have been received from ten counties.

**SLEV activity:** No human cases of SLEV infection were reported this week. No sentinel chickens tested positive for antibodies to SLEV this week.

**EEEV activity:** No human cases of EEEV infection were reported this week. No horses with EEEV infection were reported this week. Seven sentinel chickens tested positive for antibodies to EEEV this week in Flagler, Orange, St. Johns, and Walton Counties. In 2016, positive samples from 46 sentinel chickens and 11 horses have been received from 14 counties.

**International Travel-Associated Dengue Fever Cases:** Two cases of dengue fever were reported this week in persons that had international travel. In 2016, 31 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:** One case of chikungunya fever was reported this week in a person that had international travel. In 2016, five 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, 245 travel-associated cases have been reported. No cases of locally acquired Zika fever have been reported.

**Advisories/Alerts:** Bay, Jefferson, Monroe, Polk, and St. Johns Counties are currently under mosquito-borne illness advisory. Twenty-seven 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, Martin, Miami-Dade, Okaloosa, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, St. Johns, St. Lucie, 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:** Five 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 (2). Counties reporting cases were Broward, Duval, Hillsborough, Palm Beach, and Pinellas.

**International Travel-Associated Dengue Fever Cases:** Thirty-one 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 (3), Cuba (7), Dominican Republic (2), El Salvador, Ghana, Jamaica (2), St. Barthelemy, Singapore, Haiti (3), Indonesia, Jamaica, Mexico, and Venezuela (3). Counties reporting cases were: Alachua (2), Brevard, Broward (7), Clay, Columbia, Hillsborough (2), Miami-Dade (8), Monroe, Orange (3), Pinellas, Palm Beach, Sarasota, and Seminole (2). 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
<b>DENV-1</b>	7
<b>DENV-2</b>	3
<b>DENV-3</b>	7
<b>DENV-4</b>	5
	<b>22</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:** Two hundred forty-five 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: Barbados/Dominica, Belize (2), Bolivia (3), Brazil (5), Brazil/Bolivia/Peru, Caribbean, Colombia (28), Costa Rica, Cuba (2), Curacao/Guyana, Dominican Republic (59), Ecuador, El Salvador (4), Guatemala (2), Guyana (5), Haiti (17), Honduras (9), Honduras/Guatemala, Jamaica (25), Martinique (3), Nicaragua (11), Puerto Rico (40), St. Lucia, Suriname, Trinidad and Tobago (2), and Venezuela (18). Counties reporting cases were: Alachua (5), Brevard (4), Broward (40), Charlotte, Citrus (2), Clay (2), Collier (3), Duval (5), Escambia, Highlands, Hillsborough (6), Lake, Lee (6), Martin, Miami-Dade (74), Okaloosa, Orange (22), Osceola (12), Palm Beach (13), Pasco (4), Pinellas (6), Polk (8), St. Johns (2), St. Lucie, Santa Rosa, Seminole (9), and Volusia (2). Sixteen cases were reported in non-Florida residents. One Polk County case was acquired through sexual transmission. Twelve of the 245 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 twelve pregnant cases mentioned, Florida is monitoring a total of 43 pregnant women.

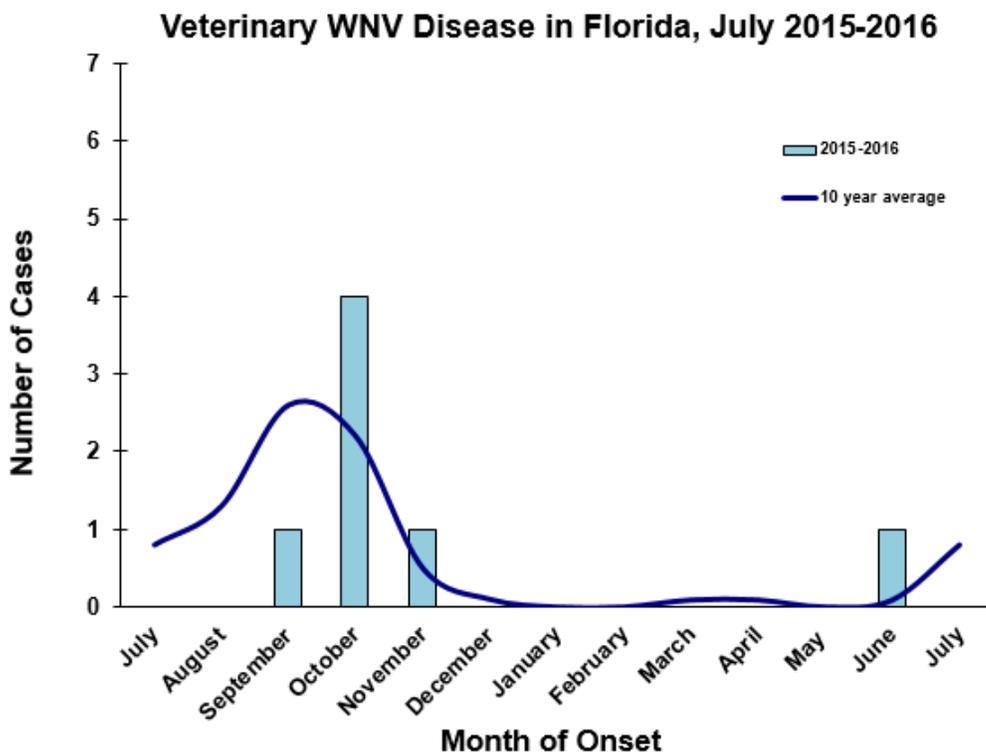
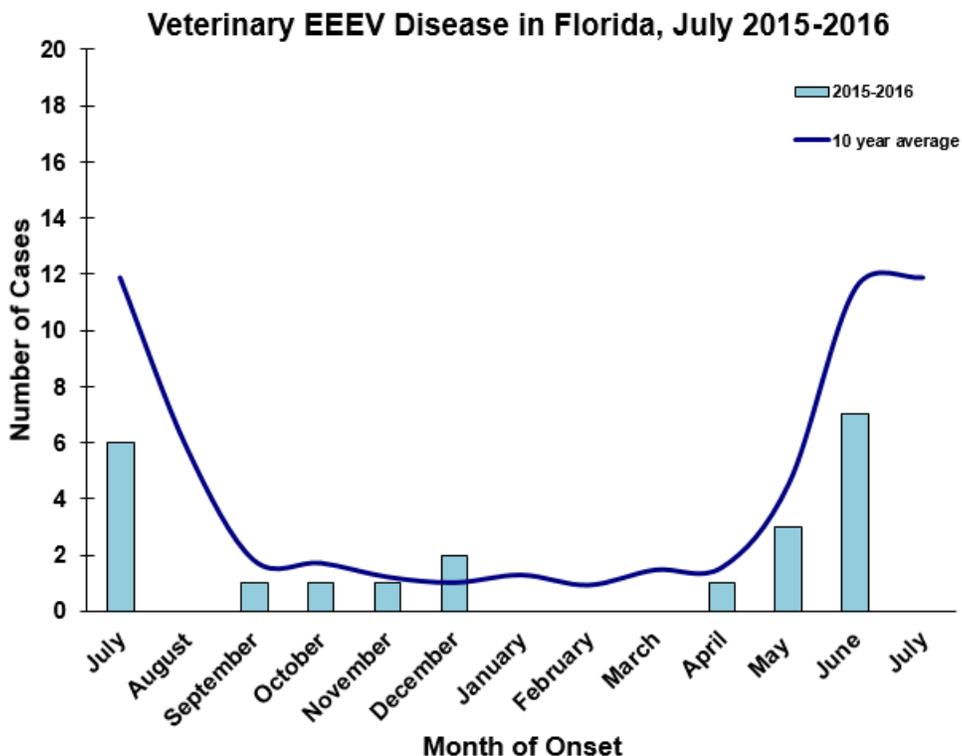
**International Travel-Associated Malaria Cases:** Twenty-six cases of malaria with onset in 2016 have been reported. Countries of origin were: Africa, Angola, Cameroon (2), Colombia, Democratic Republic of the Congo (2), Dominican Republic, Haiti (3), Honduras, India, Kenya, Nigeria (6), Sierra Leone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

Twenty cases (77%) were diagnosed with *Plasmodium falciparum*. Five cases (19%) were diagnosed with *Plasmodium vivax*. One case (4%) was diagnosed with *Plasmodium malariae*.

## Veterinary Cases\*

\*Veterinary cases are reported by date of onset

No horses with EEEV or WNV infection were reported this week.



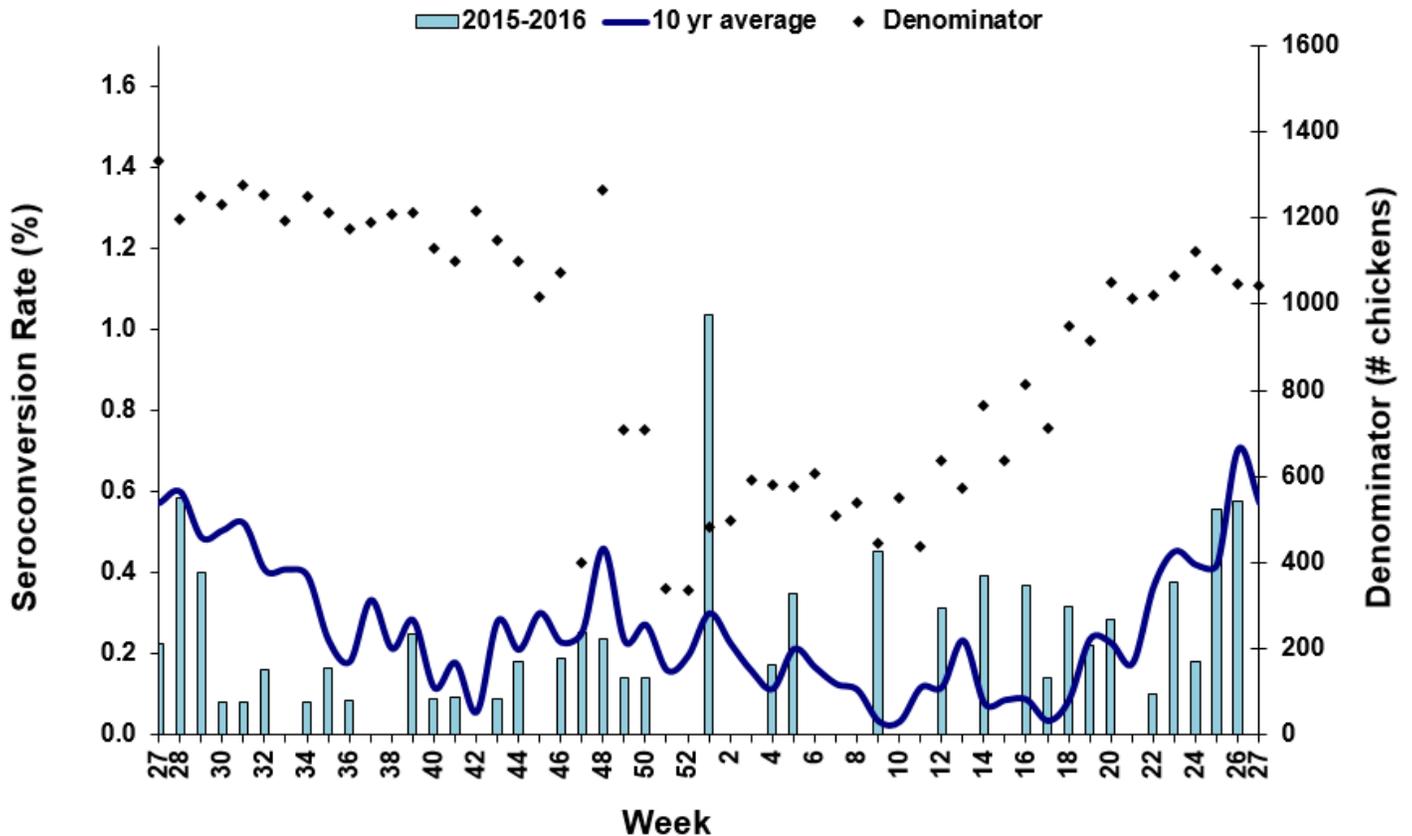
## Sentinel Chickens\*

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.

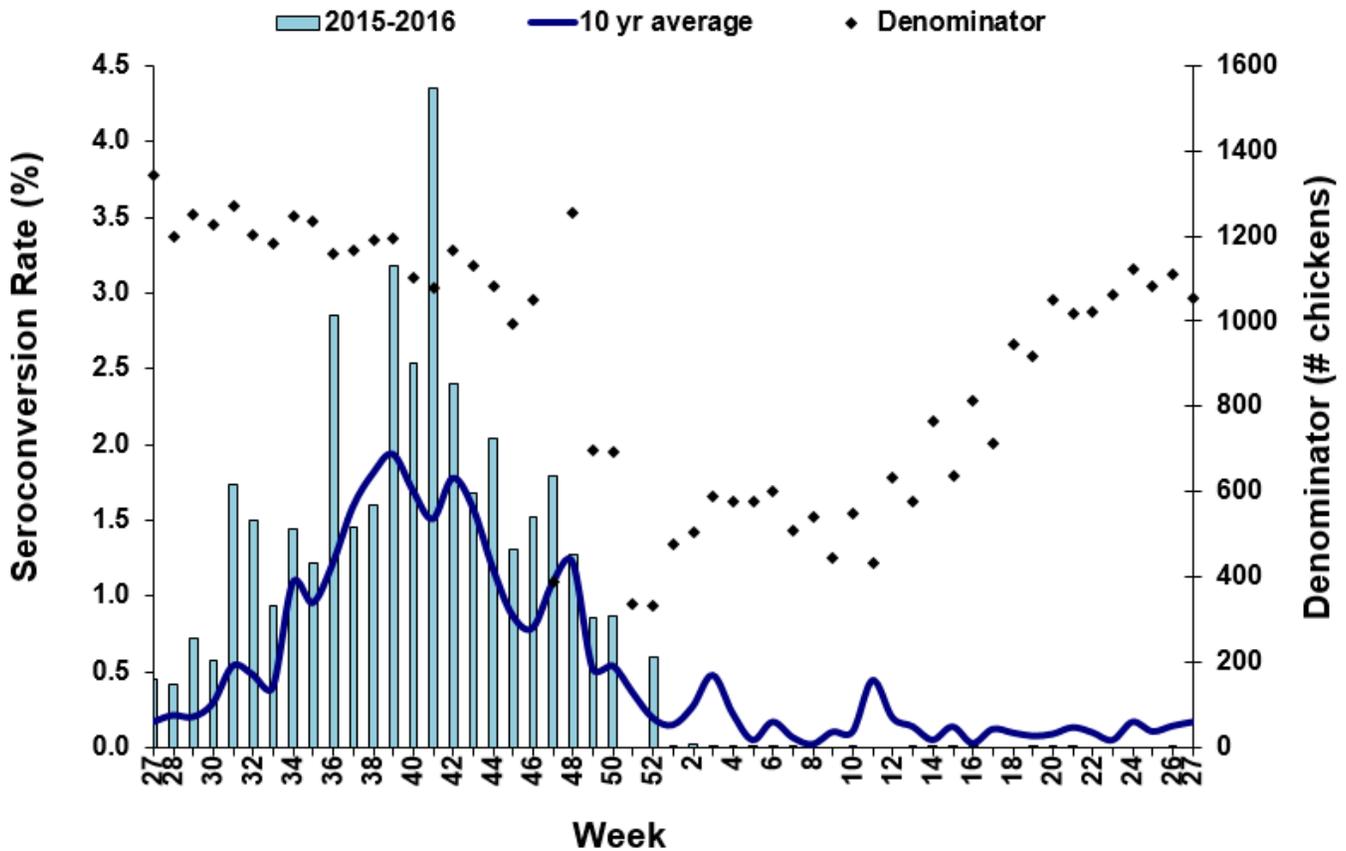
Eight sentinel chickens tested positive for antibodies to WNV this week in Bay County. Seven sentinel chickens tested positive for antibodies to EEEV this week in Flagler, Orange, St. Johns, and Walton Counties.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Bay	06/27/16	44.44		44.44				8 WNV	1 EEEV, 8 WNV
Flagler	06/27/16				8.33	8.33		1 EEEV	2 EEEV
Orange	06/27/16				0.85	0.85		1 EEEV	6 WNV, 8 EEEV, 2 HJV
St. Johns	06/27/16				1.79	1.79		1 EEEV	6 EEEV
Walton	06/22/16				4.12	4.12		4 EEEV	18 EEEV, 11 WNV,
	06/27/16				2.78	2.78		3 EEEV	2 HJV

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



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



### Mosquito Pools

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

County	Collection Date	Result	Species	County YTD

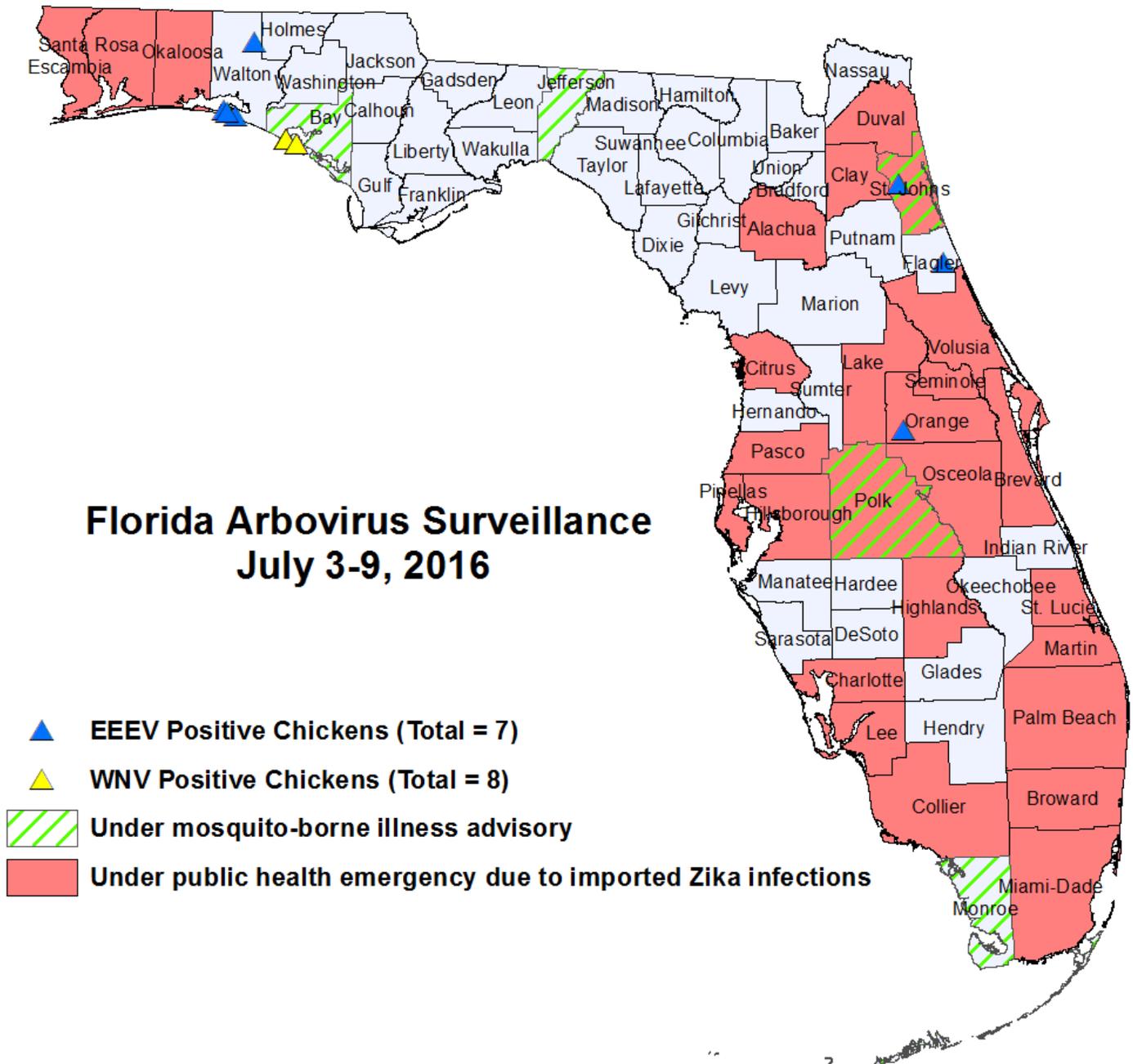
### Dead Birds

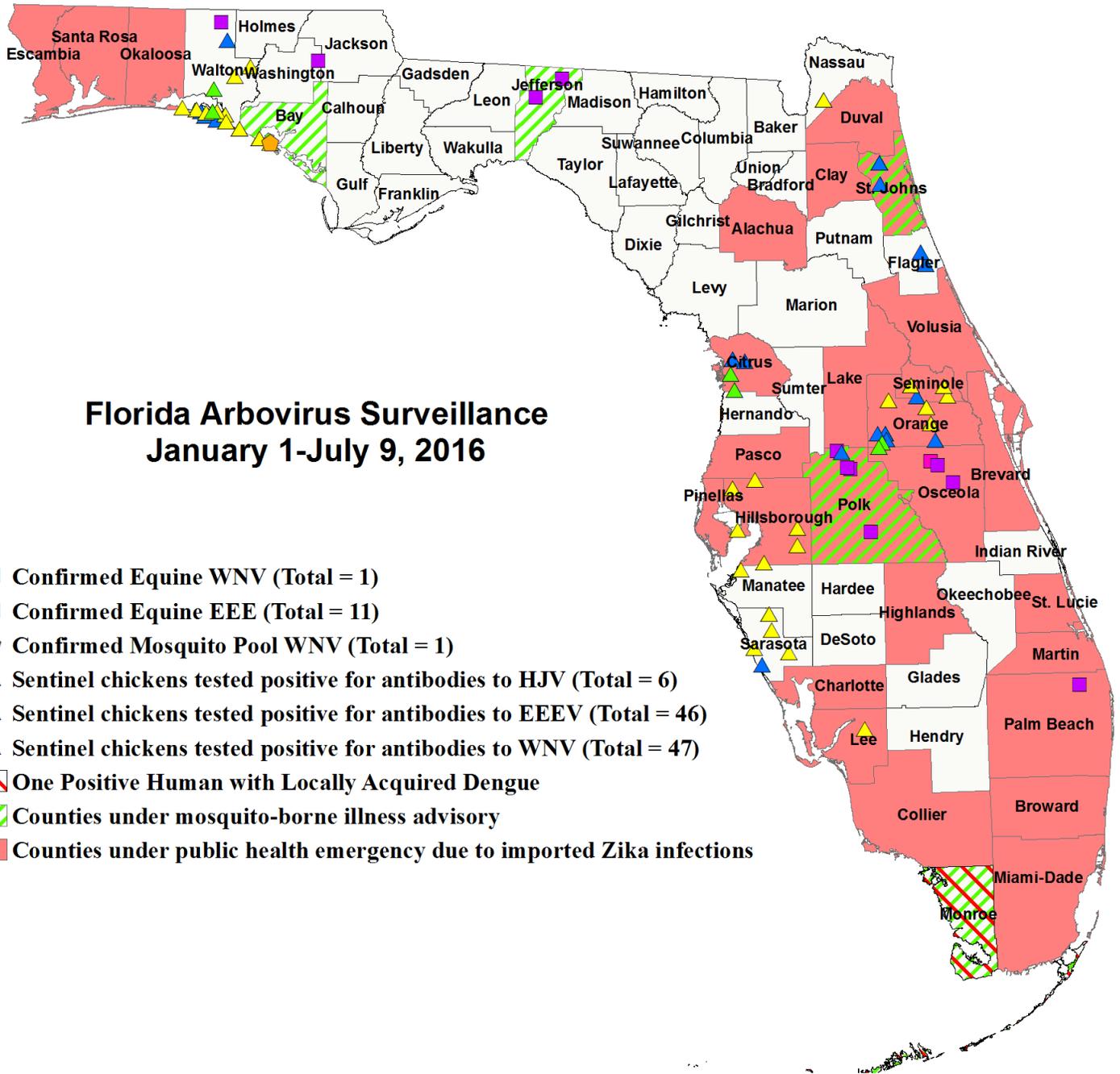
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 2 reports representing a total of 3 dead birds were received from 2 counties.

In 2016, 286 reports representing a total of 874 dead birds (57 crows, 3 jays, 56 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
Bay	2	0	0	0	0
Sarasota	1	0	0	0	0





## Florida Arbovirus Surveillance January 1-July 9, 2016

- Confirmed Equine WNV (Total = 1)
- Confirmed Equine EEE (Total = 11)
- ◆ Confirmed Mosquito Pool WNV (Total = 1)
- ▲ Sentinel chickens tested positive for antibodies to HJV (Total = 6)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total = 46)
- ▲ Sentinel chickens tested positive for antibodies to WNV (Total = 47)
- ▧ One Positive Human with Locally Acquired Dengue
- ▨ Counties under mosquito-borne illness advisory
- Counties under public health emergency due to imported Zika infections

2016 Arbovirus Activity by County	
County	Arbovirus Activity
Bay	EEEV: 1 sentinel (4/18) WNV: 1 mosquito pool (6/1); 8 sentinels (6/27)
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: 2 sentinels (5/2, 6/27)
Hillsborough	WNV: 9 sentinels (1/5, 1/12, 3/8, 4/20, 5/11, 5/24)
Jefferson	EEEV: 2 horses (6/16, 6/24)
Lee	WNV: 1 sentinel (1/26)
Manatee	WNV: 1 sentinel (2/17)
Monroe	Dengue: 1 human (May)

<b>Nassau</b>	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: 8 sentinels (1/7, 2/4, 4/4, 4/25, 5/2, 5/17, 6/27) HJV: 2 sentinels (1/14, 1/21)
<b>Osceola</b>	EEEV: 2 horses (5/6, 6/22) WNV: 1 horse (6/22)
<b>Palm Beach</b>	EEEV: 1 horse (5/31)
<b>Polk</b>	EEEV: 4 horses (4/4, 5/10, 6/19, 6/25); 1 sentinel (6/21)
<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>St. Johns</b>	EEEV: 6 sentinels (6/6, 6/13, 6/20, 6/27)
<b>Walton</b>	EEEV: 1 horse (6/17); 18 sentinels (1/4, 2/2, 2/29, 3/21, 4/4, 4/19, 5/2, 6/7, 6/20, 6/22, 6/27) WNV: 11 sentinels (1/11, 1/19, 2/2, 3/7, 3/29, 5/25) HJV: 2 sentinels (1/26, 4/25)
<b>Washington</b>	EEEV: 1 horse (6/23)

### 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.