



## Florida Arbovirus Surveillance Week 40: October 1-7, 2017

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 October 1-7, 2017, the following arboviral activity was recorded in Florida.

**WNV activity:** No human cases of WNV infection were reported this week. One horse with WNV infection was reported this week in Collier County. Twenty-five sentinel chickens tested positive for antibodies to WNV this week in Charlotte, Hillsborough, Manatee, Pasco, Pinellas, Polk, Sarasota, and Walton counties. In 2017, positive samples from one human, one blood donor, eighty-seven sentinel chickens, three horses, one eagle, and two mosquito pools have been reported from fourteen 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 2017, positive samples from ten sentinel chickens have been reported from seven counties.

**EEEV activity:** No human cases of EEEV infection was reported this week. No horses with EEEV infection were reported this week. One sentinel chicken tested positive for antibodies to EEEV this week in Nassau County. In 2017, positive samples from one human, five horses, one deer, and thirty-five sentinel chickens have been reported from twelve counties.

**International Travel-Associated Dengue Fever Cases:** One case of dengue fever was reported this week in a person that had international travel. In 2017, ten travel-associated cases have been reported.

**Dengue Fever Cases Acquired in Florida:** No cases of locally acquired dengue fever were reported this week. In 2017, no cases of locally acquired dengue fever 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 2017, one travel-associated case has been reported.

**Chikungunya Fever Cases Acquired in Florida:** No cases of locally acquired chikungunya fever were reported this week. In 2017, no cases of locally acquired chikungunya fever have been reported.

**International Travel-Associated Zika Fever Cases:** Three cases of Zika fever were reported this week in persons that had international travel. In 2017, 148 cases have been reported.

**Zika Fever Cases Acquired in Florida:** In 2017, eleven cases of locally acquired Zika fever exposed in 2016 and tested in 2017 have been reported.

**Advisories/Alerts:** Duval, Escambia, and Santa Rosa counties are currently under a mosquito-borne illness advisory. No other counties are currently under mosquito-borne illness advisory or alert. Forty counties are currently under a declared public health emergency due to the identification of travel-associated Zika infections: Alachua, Bay, Brevard, Broward, Charlotte, Citrus, Clay, Collier, Duval, Escambia, Flagler, Franklin, Hernando, Highlands, Hillsborough, Indian River, Lake, Lee, Leon, Manatee, Marion, Martin, Miami-Dade, Monroe, Nassau, Okaloosa, Okeechobee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, St. Johns, St. Lucie, Santa Rosa, Sarasota, Seminole, Volusia, and Walton counties.

There are no areas of ongoing, active Zika transmission in Florida. On June 2<sup>nd</sup>, CDC removed the cautionary area designation for Miami-Dade County after more than 45 days since the last confirmed local case. For additional information on current CDC recommendations, please visit <https://www.cdc.gov/zika/intheus/florida-update.html>. For additional information on Zika virus cases from 2016, please visit <http://www.floridahealth.gov/diseases-and-conditions/zika-virus/index.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, Southeast Asia, 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 also a Level 2 Travel Health for Brazil related to the transmission of Yellow Fever virus. There is a Level 1 (Watch) Travel Health Notice from the CDC for Brazil, Italy, and Mexico, related to the transmission of chikungunya virus. There is also a Level 1 Travel Health Notice for Sri Lanka and Vietnam related to the transmission of dengue virus. Additional information on travel health notices can be found at the following link: <http://wwwnc.cdc.gov/travel/notices>.

**2017 Human Case Summary\***

**West Nile Virus Infection Acquired in Florida:** One human case of WNV illness acquired in Florida has been reported in 2017 in Santa Rosa County (September). One asymptomatic positive blood donor was reported from Escambia County (August).

**EEEV Infection Acquired in Florida:** One human case of eastern equine encephalitis has been reported in 2017 in Duval County (September).

**International Travel-Associated Chikungunya Fever Cases:** One case of chikungunya with onset in 2017 has been reported in an individual with travel history to a chikungunya endemic country in the two weeks prior to onset. Country of origin was Brazil. The county reporting the case was Broward.

**International Travel-Associated Dengue Fever Cases:** Ten cases of dengue with onset in 2017 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, Cuba (2), Cuba/Mexico, Guatemala, India (3), Jamaica, and Nigeria. Counties reporting cases were Broward (2), Manatee, Miami-Dade (4), Osceola, Palm Beach, and Sumter. Two cases were reported in non-Florida residents. In 2017, nine of the ten cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	<b># of cases per serotype – 2016</b>
<b>DENV-1</b>	2
<b>DENV-2</b>	7
<b>Total</b>	<b>9</b>

**International Travel-Associated Zika Fever Cases:** In 2017, one hundred forty-eight 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 (2), Barbados/Virgin Islands, Bolivia, Cayman Islands/St. Martin, Colombia, Costa Rica, Cuba (52), Curacao (3), Dominican Republic (7), Dominican Republic/Haiti (2), Ecuador (3), El Salvador, Guatemala (2), Haiti (31), Honduras (6), Jamaica (6), Mexico (5), Panama, Philippines, Puerto Rico (3), Saint Kitts and Nevis, Trinidad and Tobago, Venezuela (11), and multiple countries/regions (3). Counties reporting cases were: Broward (23), Collier (5), Duval, Flagler, Franklin, Hillsborough (8), Indian River (2), Marion, Miami-Dade (72), Monroe, Orange (14), Palm Beach (7), Pinellas (2), Polk (2), Seminole (4), St. Johns (2), Volusia, and Walton. Sixteen cases were reported in non-Florida residents. One Hillsborough County and one Pinellas County case were acquired through sexual transmission. Florida is monitoring a total of 103 pregnant women in 2017.

**Zika Virus Infections Acquired in Florida:** In 2017, eleven locally acquired Zika virus infection cases with exposure in 2016 and testing in 2017 have been reported by Miami-Dade County. In addition, thirty-two

individuals reported travel in 2016 to both Miami-Dade and countries with areas of active Zika virus transmission and exposure location could not definitively be determined.

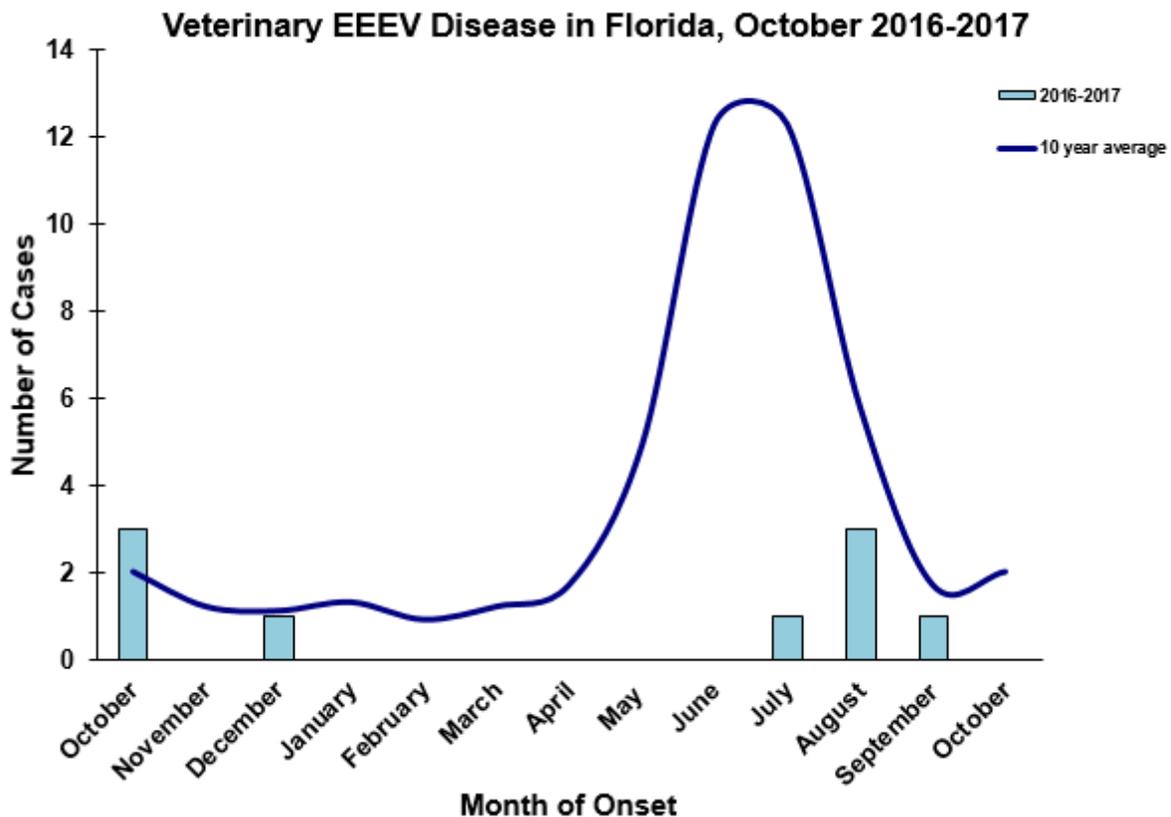
**International Travel-Associated Malaria Cases:** Fifty-four cases of malaria with onset in 2017 have been reported. Countries of origin were Africa, Brazil (2), Cameroon (3), Central African Republic, Ethiopia/Malawi, Ghana (5), Ghana/Liberia, Guatemala, Guyana, Haiti (5), India (4), Indonesia, Kenya (2), Kenya/South Africa/Tanzania, Liberia, Mozambique, Mozambique/South Africa, Niger, Nigeria (9), Sierra Leone (2), South Africa, Togo, Uganda (5), and Venezuela (3). Counties reporting cases were Alachua, Brevard (2), Broward (5), Collier, Clay, Desoto, Duval (3), Escambia (2), Hillsborough (4), Lee (4), Leon (6), Marion, Miami-Dade (8), Monroe, Okaloosa, Orange (2), Osceola (3), Palm Beach (3), Polk, Santa Rosa, Seminole, St. Lucie, and Volusia. Ten cases were reported in non-Florida residents.

Thirty-eight cases (70%) were diagnosed with *Plasmodium falciparum*. Thirteen cases (24%) were diagnosed with *Plasmodium vivax*. Two cases (4%) were diagnosed with *Plasmodium malariae*. One case (2%) was diagnosed with both *Plasmodium malariae* and *Plasmodium ovale*.

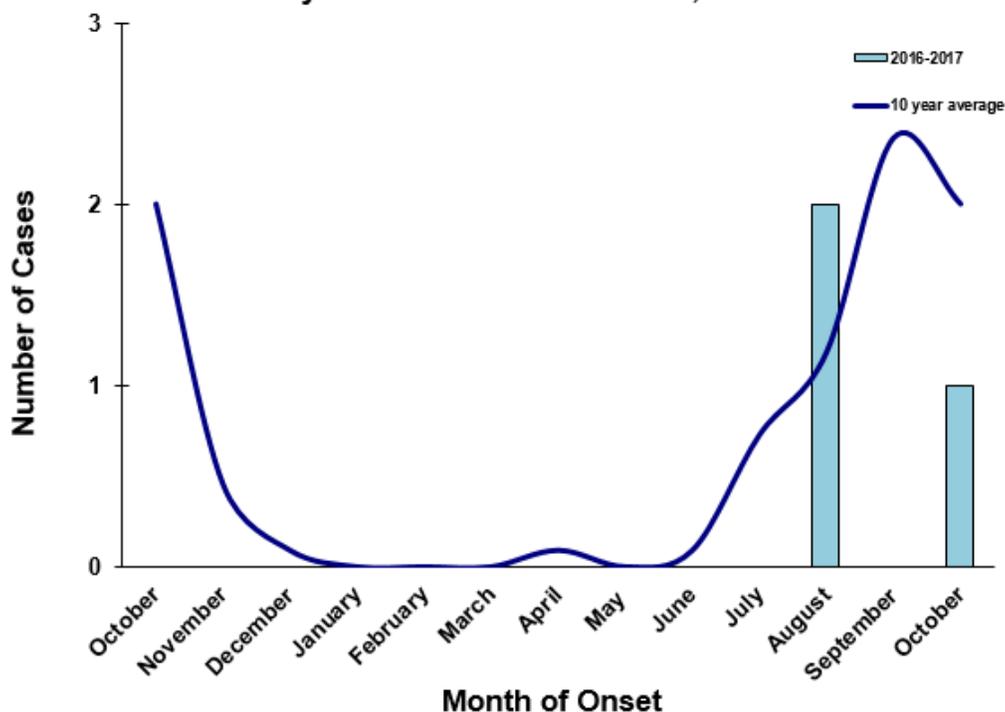
### Veterinary Cases\*

\*Veterinary cases are reported by date of onset

One horse with WNV infection was reported this week in Collier County.



### Veterinary WNV Disease in Florida, October 2016-2017



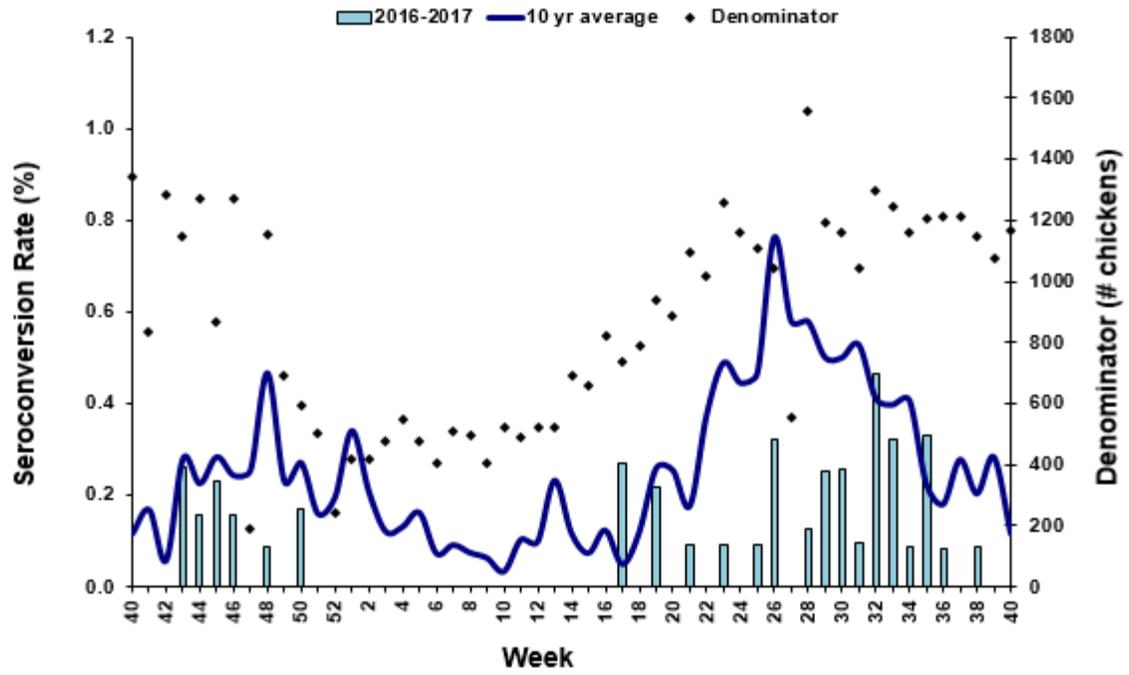
### Sentinel Chickens\*

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.

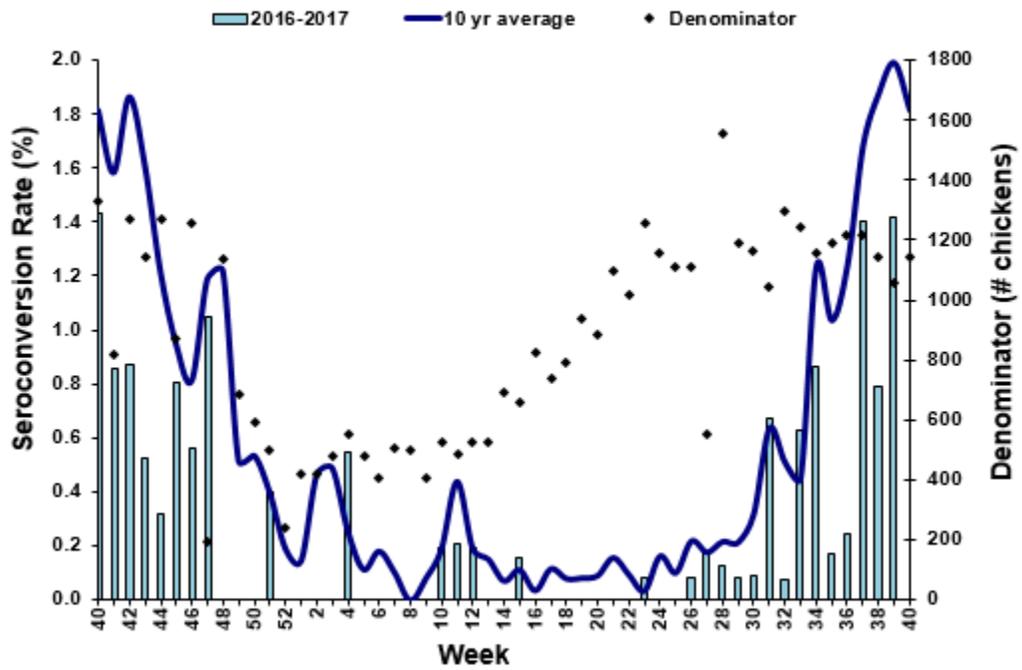
Twenty-five sentinel chickens tested positive for antibodies to WNV this week in Charlotte, Hillsborough, Manatee, Pasco, Pinellas, Polk, Sarasota, and Walton counties. One sentinel chicken tested positive for antibodies to EEEV this week in Nassau County.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Charlotte	9/22/17	23.53		23.53				4 WNV	5 WNV
Hillsborough	9/26/17	11.32		11.32				6 WNV	18 WNV, 2 SLEV
Manatee	9/21/17	5.56		5.56				4 WNV	17 WNV
Nassau	9/21/17				2.78	2.78		1 EEEV	2 EEEV
Pasco	9/27/17	3.70		3.70				2 WNV	4 WNV
Pinellas	9/25/17	5.56		5.56				3 WNV	8 WNV
Polk	9/25/17	11.76		11.76				3 WNV	3 WNV
Sarasota	9/22/17	1.06		1.06				1 WNV, 1 SLEV 2 WNV	17 WNV, 3 SLEV
	9/25/17	3.45		3.45					
Walton	9/25/17	0.76		0.76				1 WNV	13 WNV, 21 EEEV, 1 SLEV, 2 HJV

### Sentinel Seroconversions to EEEV in Florida, 2016-2017



### Sentinel Seroconversions to WNV in Florida, 2016-2017



## Mosquito Pools

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

County	Collection Week	Result	Species	County YTD

## Dead Birds

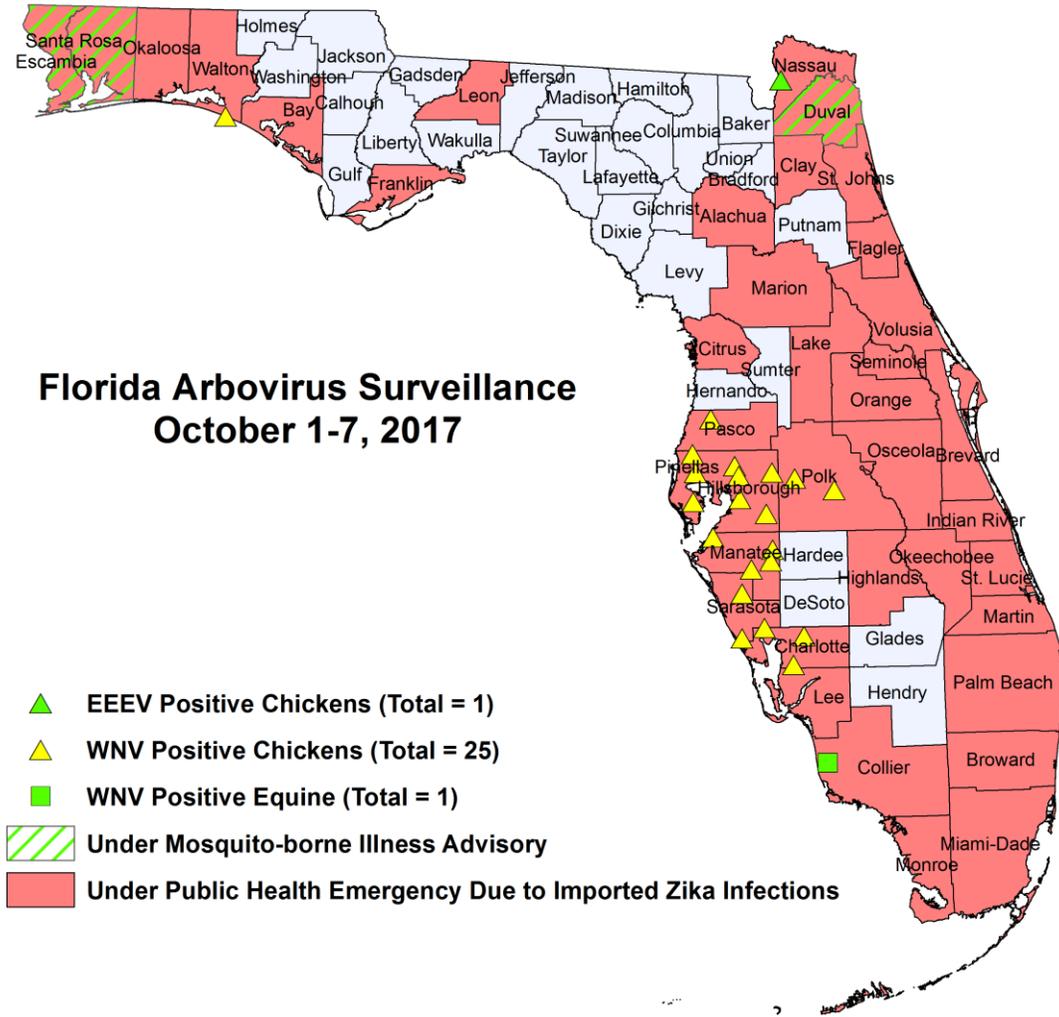
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 12 reports representing a total of 63 dead birds, including 16 raptors, were received from 10 counties.

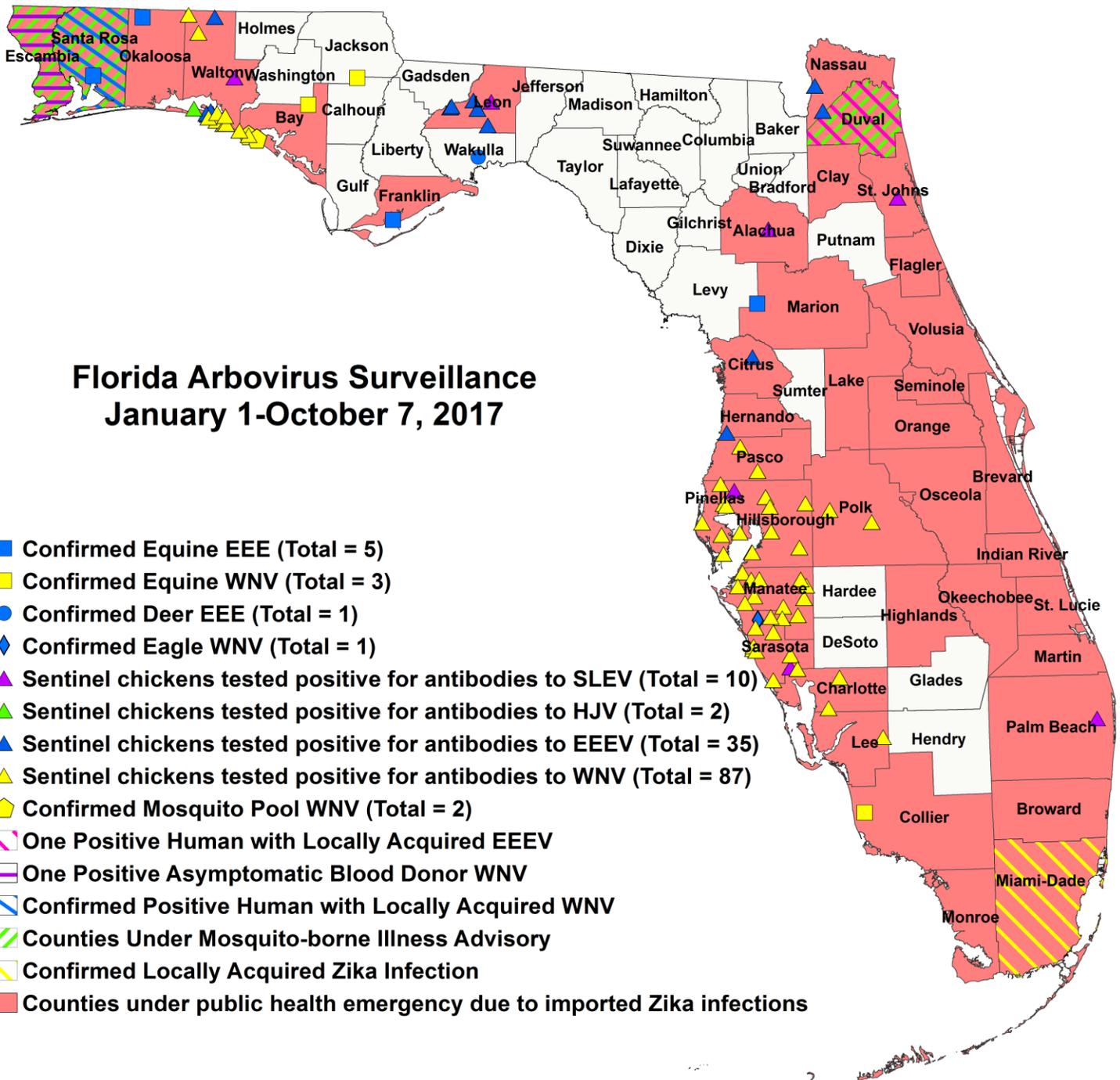
In 2017, 417 reports representing a total of 1062 dead birds (32 crows, 23 jays, 118 raptors, and 39 doves) were received from 56 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to [www.myfwc.com/bird/](http://www.myfwc.com/bird/).

### 2017

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Alachua	3	0	0	0	0
Brevard	2	0	0	0	0
Collier	4	0	0	0	0
Franklin	30	0	0	15	0
Hillsborough	2	0	0	0	0
Orange	10	0	0	0	0
Palm Beach	3	0	0	0	0
Pinellas	5	0	0	0	0
Sarasota	3	0	0	0	0
St. Johns	1	0	0	1	0

# Maps





## Florida Arbovirus Surveillance January 1-October 7, 2017

- Confirmed Equine EEE (Total = 5)
- Confirmed Equine WNV (Total = 3)
- Confirmed Deer EEE (Total = 1)
- ◆ Confirmed Eagle WNV (Total = 1)
- ▲ Sentinel chickens tested positive for antibodies to SLEV (Total = 10)
- ▲ Sentinel chickens tested positive for antibodies to HJV (Total = 2)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total = 35)
- ▲ Sentinel chickens tested positive for antibodies to WNV (Total = 87)
- ◆ Confirmed Mosquito Pool WNV (Total = 2)
- One Positive Human with Locally Acquired EEEV
- One Positive Asymptomatic Blood Donor WNV
- Confirmed Positive Human with Locally Acquired WNV
- Counties Under Mosquito-borne Illness Advisory
- Confirmed Locally Acquired Zika Infection
- Counties under public health emergency due to imported Zika infections

2017 Arbovirus Activity by County	
County	Arbovirus Activity
Alachua	SLEV: 1 sentinel (5/30)
Bay	WNV: 1 horse (8/28), 2 mosquito pools (7/26, 8/3), 1 sentinel (8/28)
Charlotte	WNV: 5 sentinel (8/4, 9/22)
Citrus	EEEV: 1 sentinel (8/8)
Collier	WNV: 1 horse (9/22)
Duval	EEEV: 1 human (September)
Escambia	WNV: 1 asymptomatic blood donor (August)
Franklin	EEEV: 1 horse (7/17)
Hernando	EEEV: 1 sentinel (5/22)

<b>Hillsborough</b>	WNV: 18 sentinels (1/24, 7/26, 8/1, 8/15, 8/23, 9/6, 9/13, 9/26) SLEV: 2 sentinel (6/28, 8/1)
<b>Jackson</b>	WNV: 1 horse (8/30) EEEV: 1 horse (8/30)
<b>Lee</b>	WNV: 1 sentinel (8/21)
<b>Leon</b>	EEEV: 10 sentinels (7/17, 8/7, 8/14, 8/28, 9/5) SLEV: 1 sentinel (8/22)
<b>Levy</b>	EEEV: 1 horse (9/20)
<b>Manatee</b>	WNV: 17 sentinels (6/27, 7/5, 7/11, 7/18, 7/30, 8/22, 8/31, 9/13, 9/21)
<b>Nassau</b>	EEEV: 2 sentinel (7/20, 9/21)
<b>Okaloosa</b>	EEEV: 1 horse (8/7)
<b>Palm Beach</b>	SLEV: 1 sentinel (7/10)
<b>Pasco</b>	WNV: 4 sentinel (8/1, 8/22, 9/27)
<b>Pinellas</b>	WNV: 8 sentinel (8/14, 8/21, 9/5, 9/13, 9/25)
<b>Polk</b>	WNV: 3 sentinel (9/18, 9/25)
<b>Santa Rosa</b>	WNV: 1 human (September) EEEV: 1 horse (8/27)
<b>Sarasota</b>	WNV: 1 eagle (June), 17 sentinels (1/23, 8/7, 8/18, 9/5, 9/8, 9/12, 9/22, 9/25) SLEV: 3 sentinels (1/20, 8/7, 9/18)
<b>St. Johns</b>	SLEV: 1 sentinel (6/26)
<b>Wakulla</b>	EEEV: 1 deer (7/24)
<b>Walton</b>	WNV: 13 sentinels (3/7, 3/14, 3/20, 4/13, 6/5, 7/10, 7/31, 8/21, 9/12, 9/20) EEEV: 21 sentinels (4/24, 6/5, 6/19, 6/26, 7/10, 7/17, 7/24, 7/26, 7/31, 8/7, 8/9, 8/14, 8/21, 8/28, 8/29) SLEV: 1 sentinel (6/21) HJV: 2 sentinels (8/21)

### Acknowledgements and Data Sources

Contributors: Andrea Morrison, PhD, MSPH, Dana Giandomenico, MPH, and Danielle Stanek, DVM, DOH Bureau of Epidemiology; Lea Heberlein-Larson, Maribel Castaneda, 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/dybid/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.