



## Florida Arbovirus Surveillance Week 46: November 15-21, 2015

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 November 15-21, 2015 the following arboviral activity was recorded in Florida.

**WNV activity:** No human cases of WNV infection were reported this week. Two horses with WNV infection were reported this week in Hernando and Pasco Counties. Twenty sentinel chickens tested positive for antibodies to WNV this week in Bay, Flagler, Hernando, Hillsborough, Orange, Pasco, Pinellas, Volusia, and Walton Counties. In 2015, positive samples from nine humans, one blood donor, six horses, 11 mosquito pools, and 385 sentinel chickens have been received from 26 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 Polk and Sarasota Counties. In 2015, positive samples from eight sentinel chickens have been received 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 Holmes County. No sentinel chickens tested positive for antibodies to EEEV this week. In 2015, positive samples from 74 sentinel chickens, 21 horses, and one goat have been received from 23 counties.

**International Travel-Associated Dengue Fever Cases:** Four cases of dengue fever were reported this week in persons that had international travel. In 2015, 59 travel-associated cases have been reported.

**Dengue Fever Cases Acquired in Florida:** No cases of locally acquired dengue fever were reported this week. In 2015, no cases of locally acquired dengue fever have 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 2015, 69 travel-associated cases have been reported.

**Chikungunya Fever Cases Acquired in Florida:** No cases of locally acquired chikungunya fever were reported this week. In 2015, no cases of locally acquired chikungunya fever have been reported.

**Advisories/Alerts:** Bay, Gadsden, Hernando, Manatee, Pinellas, Polk, and Volusia Counties are currently under mosquito-borne illness advisory. Escambia, Hillsborough, and Walton Counties are currently under mosquito-borne illness alert. No other counties are currently under mosquito-borne illness advisory or alert. A CDC Health Alert Network (HAN) health advisory was issued in December 2013 for the Caribbean region announcing the first locally acquired cases of chikungunya fever in the Americas. There is a Level 1 (Watch) Travel Health Notice from the CDC for multiple countries in the Caribbean, Mexico, Central and South America, the Pacific Islands, and Senegal, related to the transmission of chikungunya. There are also similar CDC Travel Health Notices for dengue transmission in Brazil and Malaysia. Additional information on travel health notices can be found at the following link: <http://wwwnc.cdc.gov/travel/notices>.

## 2015 Human Case Summary\*

**West Nile Virus Illnesses Acquired in Florida:** A total of nine human cases of WNV illness acquired in Florida have been reported in 2015; four in Escambia County (July, August, and September), one in Hillsborough County (September), one in Pinellas County (July), one in Volusia County (July), and two in Walton County (June). One asymptomatic positive blood donor was reported from Hillsborough County (September).

**International Travel-Associated Chikungunya Fever Cases:** Sixty-nine cases of chikungunya with onset in 2015 have been reported in individuals with travel history to a chikungunya endemic country or area experiencing an outbreak in the two weeks prior to onset. Countries of origin were: Bolivia, Colombia (13), Ecuador, El Salvador (3), Guatemala (4), Haiti (2), Honduras (6), India (2), Jamaica (3), Mexico (10), Nicaragua (18), Puerto Rico (3), Trinidad and Tobago, Venezuela, and Virgin Islands. Counties reporting cases were: Brevard (2), Broward (9), Collier (2), Duval (2), Escambia, Hardee, Hillsborough (3), Lake, Lee (2), Levy, Martin, Miami-Dade (26), Monroe, Orange (3), Osceola, Palm Beach (5), Pinellas, Sarasota, Seminole (3), and Volusia (3). One case was reported in a non-Florida resident.

**International Travel-Associated Dengue Fever Cases:** Fifty-nine cases of dengue with onset in 2015 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Bangladesh, Brazil (5), Colombia, Costa Rica, Cuba (17), Dominican Republic (3), Guatemala, Haiti (9), Hawaii (3), Honduras, India, Jamaica, Mexico (2), Nicaragua (2), Philippines (3), Puerto Rico, Thailand, Venezuela (5), and Vietnam. Counties reporting cases were: Clay (2), Collier, Hernando, Hillsborough (5), Broward (5), Lee, Miami-Dade (28), Monroe (2), Orange (2), Osceola, Palm Beach (4), Pinellas (3), St. Johns, St. Lucie (2), and Seminole. Five cases were reported in non-Florida residents. In 2015, 25 of the 59 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	<b># of cases per serotype – 2015</b>
<b>DENV-1</b>	8
<b>DENV-2</b>	7
<b>DENV-3</b>	5
<b>DENV-4</b>	4
<b>DENV-1 and 3</b>	1
	<b>25</b>

**International Travel-Associated Malaria Cases:** Forty-three cases of malaria with onset in 2015 have been reported. Countries of origin were: Afghanistan, Angola, Cameroon (4), Democratic Republic of the Congo/Uganda, Dominican Republic (2), Eritrea, Gabon, Ghana (7), Guatemala (2), Haiti (4), India (4), Malawi, Niger, Nigeria (8), South Sudan, Sudan (2), Tanzania, and Uganda. Counties reporting cases were: Broward (9), Charlotte, Collier, Duval, Escambia, Hillsborough (2), Lake, Lee (2), Manatee, Monroe, Miami-Dade (11), Okaloosa, Orange (3), Osceola, Pinellas (2), Palm Beach (3), Sarasota, and Volusia. Ten of the cases were reported in non-Florida residents.

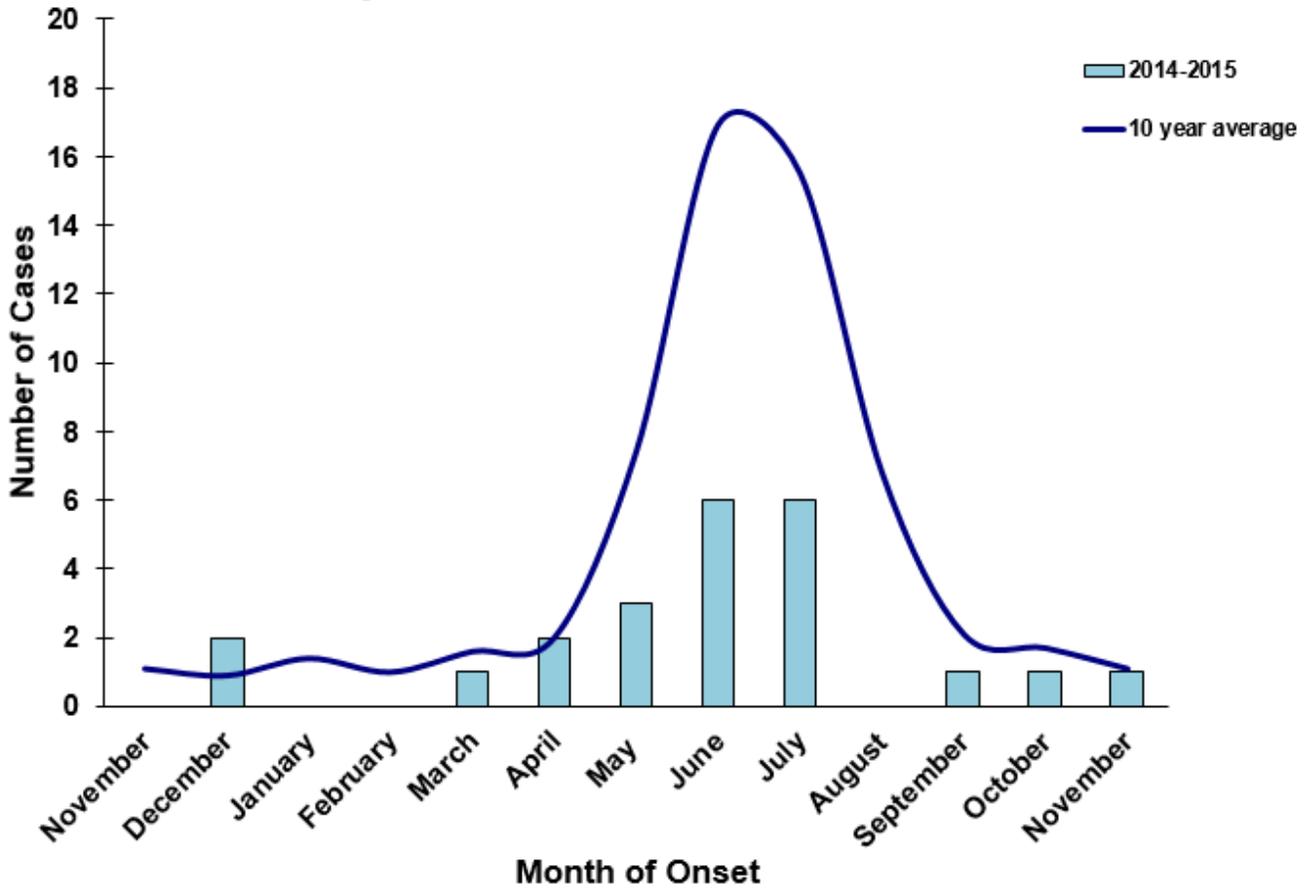
Thirty-three cases (77%) were diagnosed with *Plasmodium falciparum*. Eight cases were diagnosed with *Plasmodium vivax* (19%). One case (2%) was diagnosed with *Plasmodium malariae*. One case was diagnosed with *Plasmodium ovale* (2%).

## Veterinary Cases\*

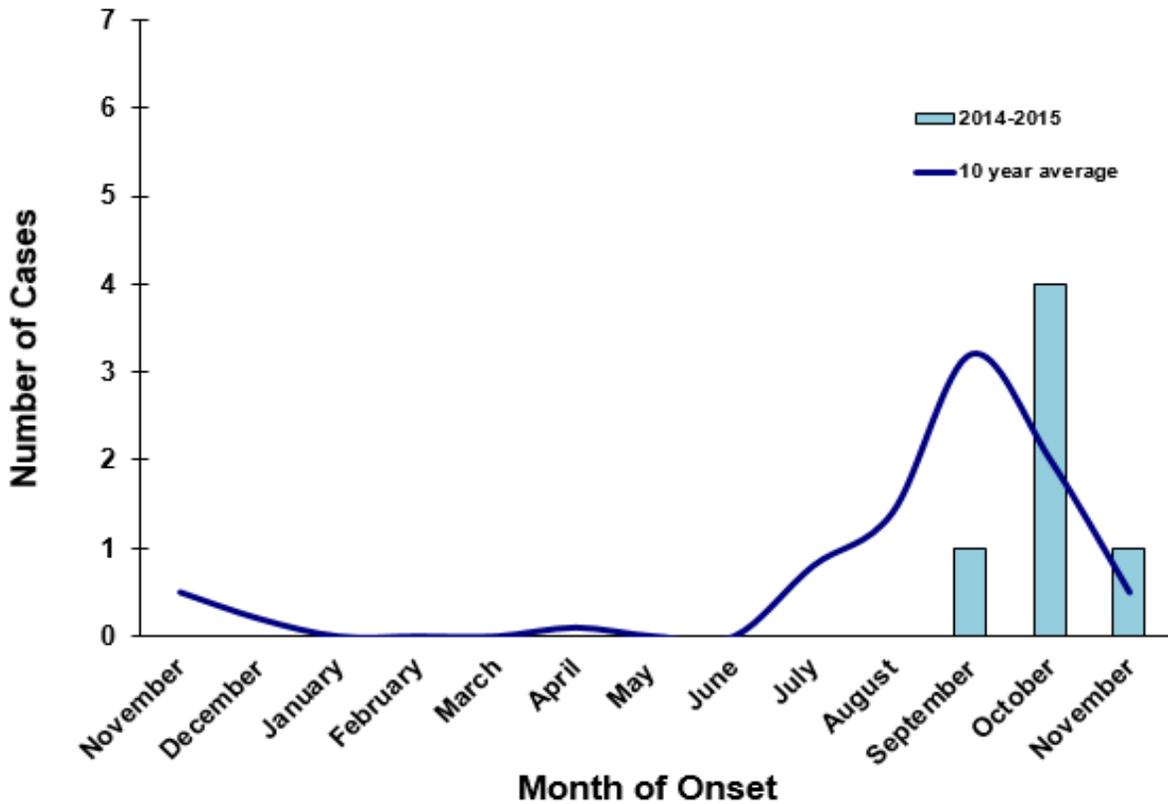
\*Veterinary cases are reported by date of onset

Two horses with WNV infection were reported this week in Hernando and Pasco Counties. One horse with EEEV infection was reported this week in Holmes County.

### Veterinary EEE in Florida, November 2014-2015



### Veterinary WNV Disease in Florida, November 2014-2015



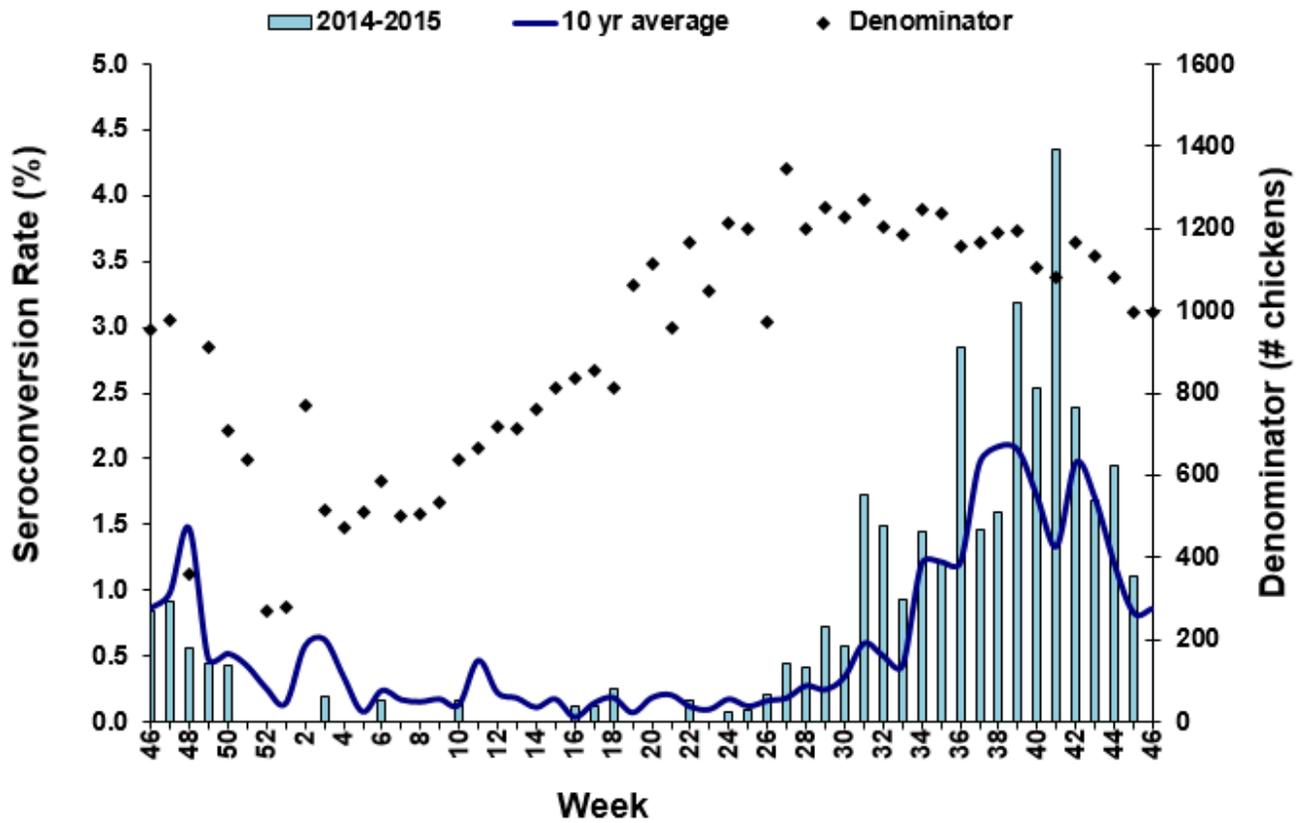
## Sentinel Chickens\*

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.

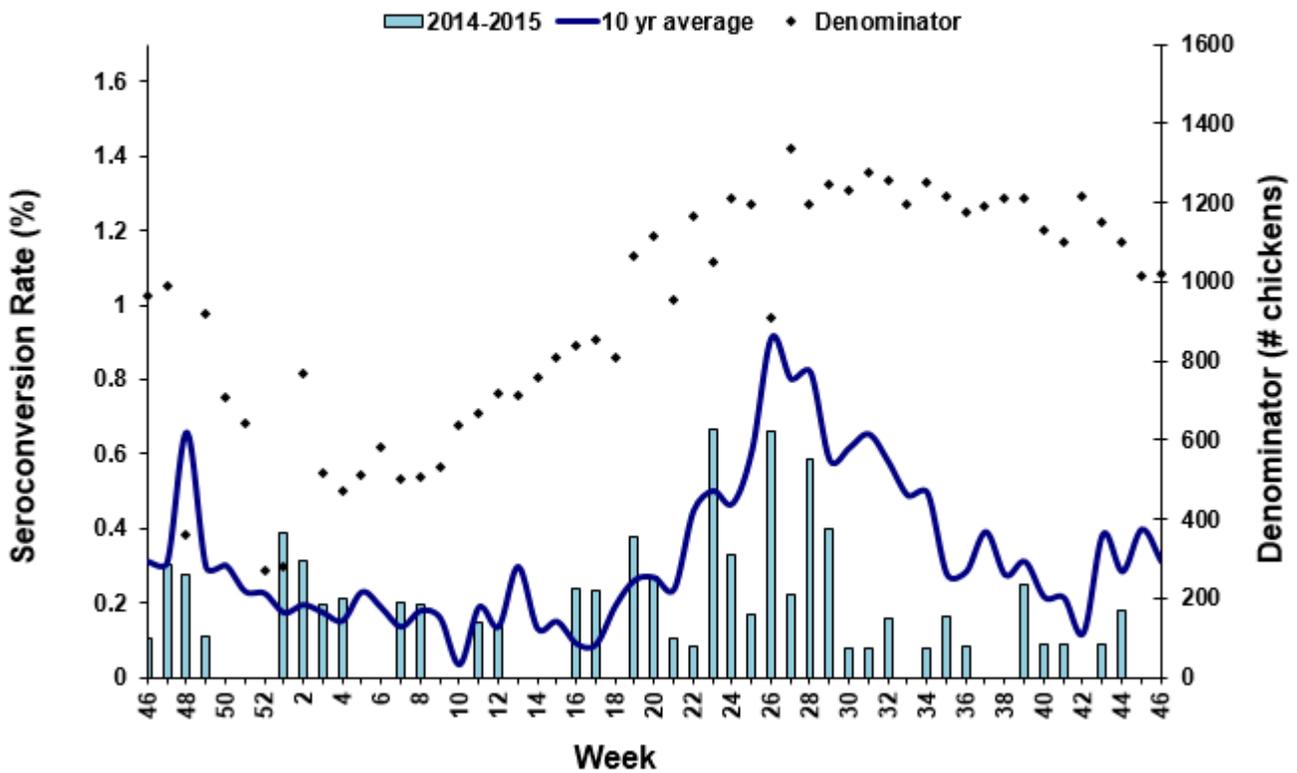
Twenty sentinel chickens tested positive for antibodies to WNV this week in Bay, Flagler, Hernando, Hillsborough, Orange, Pasco, Pinellas, Volusia, and Walton Counties. Two sentinel chickens tested positive for antibodies to SLEV this week in Polk and Sarasota Counties.

County	Collection Date	Seroconversion Rates (%)					County Totals		
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Bay	11/09/15	5.56		5.56				1 WNV	12 WNV
Flagler	11/09/15	8.33		8.33				1 WNV	7 EEEV, 4 WNV
Hernando	11/09/15	4.76		4.76				1 WNV	14 WNV
Hillsborough	11/04/15	5.80		5.80				4 WNV	104 WNV, 2 EEEV
	11/09/15	4.17		4.17				3 WNV	
Orange	11/02/15	2.61		2.61				3 WNV	15 EEEV, 2 HJV, 26 WNV
	11/09/15	1.79		1.79				2 WNV	
Pasco	11/04/15	2.27		2.27				1 WNV	28 WNV
Pinellas	11/02/15	3.77		3.77				2 WNV	52 WNV
	11/09/15	1.82		1.82				1 WNV	
Polk	11/09/15	10.00	10.00					1 SLEV	2 EEEV, 3 WNV, 1 SLEV
Sarasota	11/06/15	1.39	1.39					1 SLEV	2 SLEV, 7 WNV
Volusia	11/02/15	6.25		6.25				3 WNV	12 WNV, 1 SLEV, 1 HJV
	11/09/15	2.22		2.22				1 WNV	
Walton	11/09/15	1.10		1.10				1 WNV	20 EEEV, 5 HJV, 27 WNV, 1 SLEV

### Sentinel Seroconversions to WNV in Florida, 2014-2015



### Sentinel Seroconversions to EEEV in Florida, 2014-2015



## Mosquito Pools

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

County	Collection Date	Result	Species	County YTD

## Dead Birds

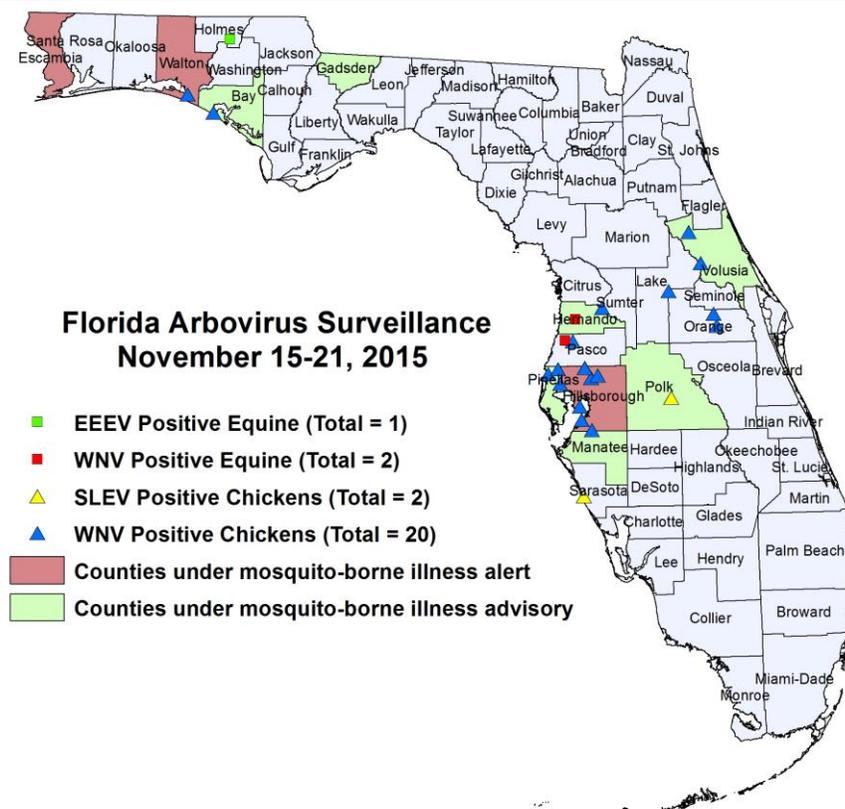
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 5 reports representing 18 dead birds including 1 raptor were received from 5 counties.

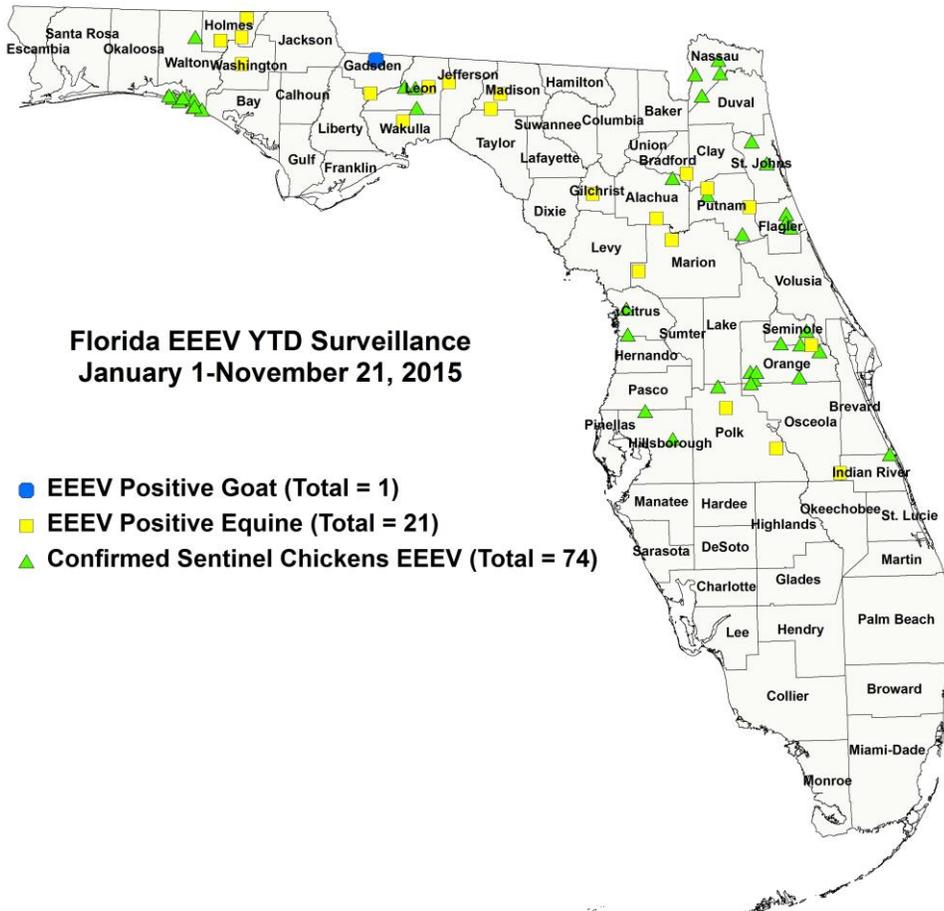
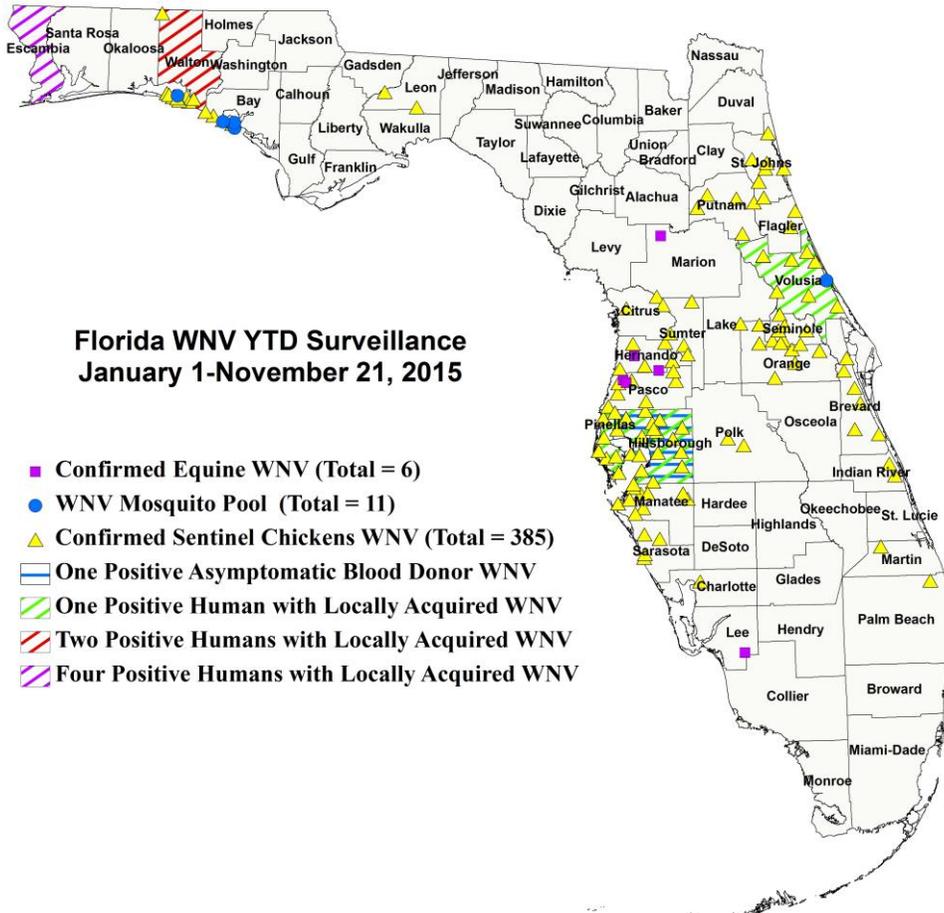
In 2015, 339 reports representing a total of 965 dead birds (44 crows, 24 jay, 84 raptors, and 31 doves) were received from 47 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to [www.myfwc.com/bird/](http://www.myfwc.com/bird/).

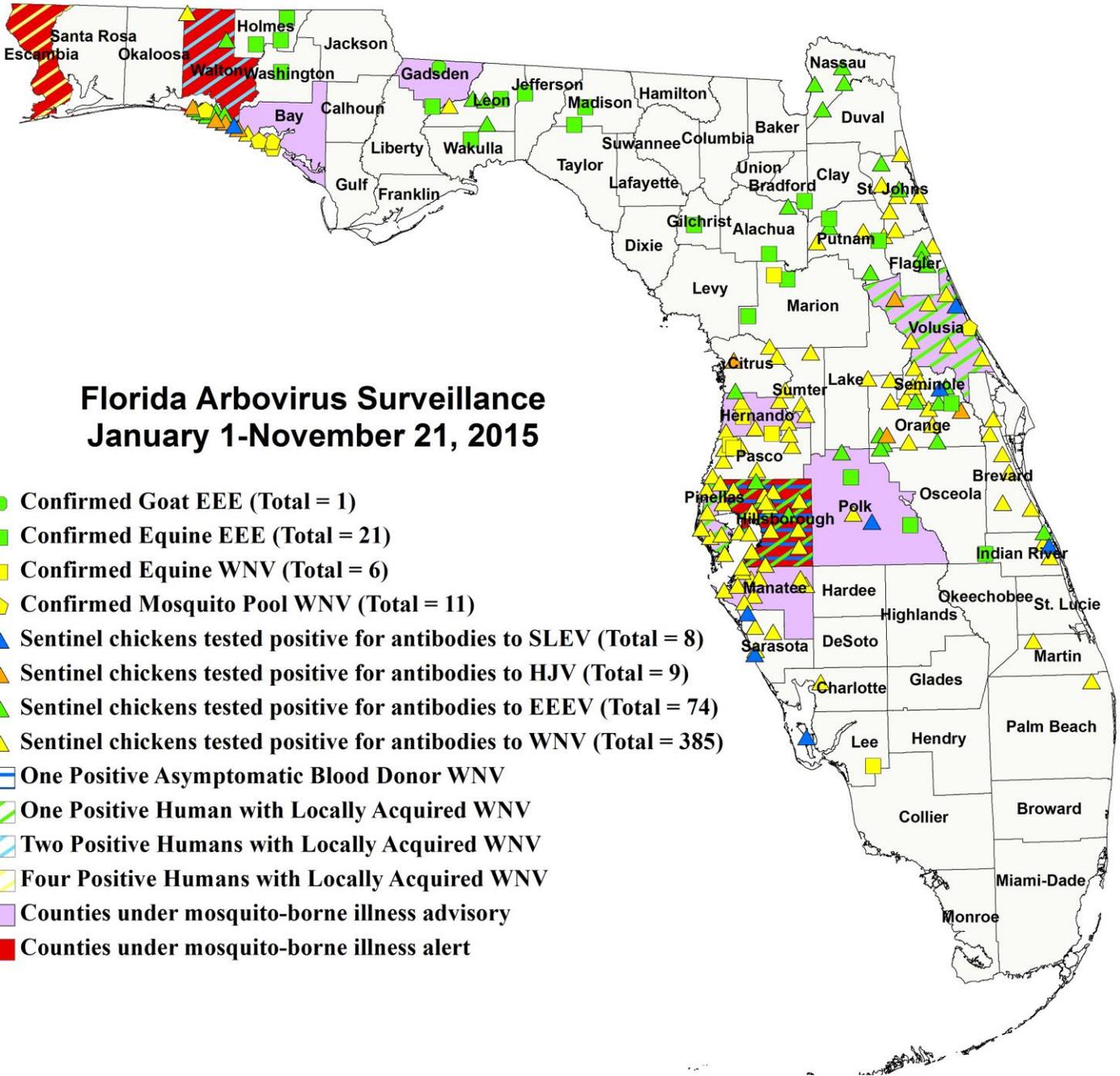
**2015**

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Brevard	1	0	0	1	0
Escambia	3	0	0	0	0
Lee	7	0	0	0	0
Marion	6	0	0	0	0
Sarasota	1	0	0	0	0

## Maps







## Florida Arbovirus Surveillance January 1-November 21, 2015

- Confirmed Goat EEE (Total = 1)
- Confirmed Equine EEE (Total = 21)
- Confirmed Equine WNV (Total = 6)
- ⬠ Confirmed Mosquito Pool WNV (Total = 11)
- ▲ Sentinel chickens tested positive for antibodies to SLEV (Total = 8)
- ▲ Sentinel chickens tested positive for antibodies to HJV (Total = 9)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total = 74)
- ▲ Sentinel chickens tested positive for antibodies to WNV (Total = 385)
- ▭ One Positive Asymptomatic Blood Donor WNV
- ▭ One Positive Human with Locally Acquired WNV
- ▭ Two Positive Humans with Locally Acquired WNV
- ▭ Four Positive Humans with Locally Acquired WNV
- ▭ Counties under mosquito-borne illness advisory
- ▭ Counties under mosquito-borne illness alert

### 2015 Arbovirus Activity by County

County	Arbovirus Activity
Alachua	EEEV: 1 horse (6/16); 3 sentinels (7/13, 9/28)
Bay	WNV: 7 mosquito pools (7/29, 8/12); 12 sentinels (7/27, 8/4, 8/11, 8/14, 8/25, 9/1, 10/12, 11/9)
Brevard	WNV: 8 sentinels (6/24, 8/21, 8/26, 9/10, 9/23, 9/24, 10/14)
Bradford	EEEV: 1 horse (4/23)
Charlotte	WNV: 1 sentinel (8/21)
Citrus	EEEV: 4 sentinels (5/12, 11/2) HJV: 1 sentinel (7/6) WNV: 3 sentinels (9/14, 10/19, 11/2)
Escambia	WNV: 4 humans (July, August, September)
Flagler	EEEV: 7 sentinels (4/27, 6/1, 6/29, 7/20, 8/10, 10/26) WNV: 4 sentinels (7/20, 9/8, 9/14, 11/9)
Gadsden	EEEV: 1 goat (6/16); 1 horse (6/21)

<b>Gilchrist</b>	EEEV: 1 horse (4/18)
<b>Hernando</b>	WNV: 2 horses (10/30, 11/7); 14 sentinels (9/8, 9/14, 10/5, 10/12, 10/19, 10/26, 11/2, 11/9)
<b>Hillsborough</b>	WNV: 1 human (September); 1 asymptomatic blood donor (September); 104 sentinels (3/10, 4/22, 5/5, 6/2, 7/7, 7/14, 7/21, 7/28, 8/4, 8/12, 8/18, 8/26, 9/1, 9/8, 9/15, 9/22, 9/29, 10/6, 10/14, 10/20, 10/28, 11/4, 11/9) EEEV: 2 sentinels (8/26, 9/1)
<b>Holmes</b>	EEEV: 3 horses (7/16, 9/8, 11/8)
<b>Indian River</b>	EEEV: 1 sentinel (4/30) WNV: 3 sentinels (8/20, 9/18, 10/15)
<b>Jefferson</b>	EEEV: 1 horse (7/25)
<b>Lee</b>	SLEV: 1 sentinel (1/12) WNV: 1 horse (10/10)
<b>Leon</b>	EEEV: 1 horse (5/20); 3 sentinels (6/8, 7/13, 8/11) WNV: 2 sentinels (8/21, 8/28)
<b>Madison</b>	EEEV: 2 horses (6/24, 7/19)
<b>Manatee</b>	WNV: 31 sentinels (8/5, 8/25, 9/9, 9/23, 9/30, 10/7, 10/14, 10/20, 10/27, 11/4)
<b>Marion</b>	EEEV: 2 horses (6/14, 7/16) WNV: 1 horse (9/28)
<b>Martin</b>	WNV: 2 sentinels (10/9, 10/16)
<b>Nassau</b>	EEEV: 7 sentinels (5/29, 7/3, 7/10, 7/13, 9/28, 10/2, 10/16)
<b>Orange</b>	EEEV: 1 horse (5/30); 15 sentinels (1/20, 1/29, 2/16, 2/23, 3/16, 4/20, 4/23, 5/18, 6/11, 6/29, 7/8, 7/13, 7/30) HJV: 2 sentinels (5/15, 8/25) WNV: 26 sentinels (8/3, 8/10, 8/25, 8/31, 9/9, 9/28, 10/12, 10/19, 10/26, 11/2, 11/9)
<b>Osceola</b>	EEEV: 1 horse (5/3)
<b>Palm Beach</b>	WNV: 1 sentinel (4/27)
<b>Pasco</b>	WNV: 2 horses (10/12, 10/26); 28 sentinels (9/1, 9/22, 9/28, 10/6, 10/13, 10/20, 10/27, 11/4)
<b>Pinellas</b>	WNV: 1 human (July); 52 sentinels (6/29, 7/6, 7/20, 7/27, 8/3, 8/10, 8/17, 8/24, 8/31, 9/8, 9/14, 9/21, 9/14, 9/28, 10/5, 10/19, 10/26, 11/2, 11/9)
<b>Polk</b>	EEEV: 2 horses (6/30, 7/6); 2 sentinels (6/22) WNV: 3 sentinels (9/29, 10/12, 10/19) SLEV: 1 sentinel (11/9)
<b>Putnam</b>	EEEV: 2 horses (3/16, 6/30); 2 sentinels (7/21, 10/6) WNV: 9 sentinels (7/21, 9/15, 9/22, 10/6, 10/20)
<b>Sarasota</b>	SLEV: 2 sentinels (7/13, 11/6) WNV: 7 sentinels (9/4, 9/11, 9/18, 10/9, 10/19)
<b>St. Johns</b>	EEEV: 3 sentinels (6/8, 6/15, 7/6) WNV: 16 sentinels (7/27, 9/8, 9/14, 9/21, 9/28, 10/19, 10/26, 11/2)
<b>Seminole</b>	EEEV: 4 sentinels (6/8, 6/29, 7/20, 8/31) WNV: 12 sentinels (8/10, 8/31, 9/8, 9/21, 9/28, 10/12, 10/26, 11/2) SLEV: 1 sentinel (9/8)
<b>Sumter</b>	WNV: 7 sentinels (1/20, 9/29, 10/13, 10/27)
<b>Volusia</b>	WNV: 1 human (July); 3 mosquito pools (6/2,8/18); 12 sentinels (6/15, 7/13, 9/8, 9/21, 9/28, 11/2, 11/9) SLEV: 1 sentinel (8/31) HJV: 1 sentinel (9/8)
<b>Wakulla</b>	EEEV: 1 horse (10/9)
<b>Walton</b>	EEEV: 20 sentinels (1/5, 1/13, 3/23, 5/11, 5/18, 6/8, 6/15, 6/29, 7/14, 7/20, 8/4) HJV: 5 sentinels (1/13, 5/18, 6/8, 9/8) WNV: 2 humans (June); 1 mosquito pool (7/27); 27 sentinels (2/9, 6/1, 6/29, 7/6, 7/20, 8/3, 8/10, 9/8, 9/14, 9/21, 10/5, 10/13, 10/19, 11/9) SLEV: 1 sentinel (9/8)
<b>Washington</b>	EEEV: 1 horse (7/3)

## Acknowledgements and Data Sources

Contributors: Andrea Bingham, PhD, MSPH, Shaiasia Itwaru-Womack, MPH, Katherine Kendrick, 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.