



Florida Arbovirus Surveillance Week 45: November 8-14, 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 8-14, 2015 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 Hernando County. Thirty-one sentinel chickens tested positive for antibodies to WNV this week in Citrus, Hernando, Hillsborough, Manatee, Orange, Pasco, Pinellas, Seminole, St. Johns, Sumter and Volusia Counties. In 2015, positive samples from nine humans, one blood donor, four horses, 11 mosquito pools, and 365 sentinel chickens have been received from 26 counties.

SLEV activity: No human cases of SLEV infection were reported this week. One sentinel chicken tested positive for antibodies to SLEV this week in Indian River County. In 2015, positive samples from six sentinel chickens have been received from six counties.

EEEV activity: No human cases of EEEV infection were reported this week. No horses with EEEV infection were reported this week. Three sentinel chickens tested positive for antibodies to EEEV this week in Citrus and Flagler Counties. In 2015, positive samples from 74 sentinel chickens, 20 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, 55 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: No cases of chikungunya fever were reported this week in persons that had international travel. In 2015, 68 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-eight 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 (3), 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 (4), Pinellas, Sarasota, Seminole (3), and Volusia (3). One case was reported in a non-Florida resident.

International Travel-Associated Dengue Fever Cases: Fifty-five 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 (16), Dominican Republic (3), Guatemala, Haiti (9), 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 (4), Broward (5), Lee, Miami-Dade (28), Monroe (2), Orange (2), Osceola, Palm Beach (4), St. Johns, St. Lucie (2), and Seminole. Five cases were reported in non-Florida residents. In 2015, 22 of the 55 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2015
DENV-1	6
DENV-2	6
DENV-3	5
DENV-4	4
DENV-1 and 3	1
	22

International Travel-Associated Malaria Cases: Forty-two cases of malaria with onset in 2015 have been reported. Countries of origin were: 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), Orange (3), Osceola, Pinellas (2), Palm Beach (3), Sarasota, and Volusia. Ten of the cases were reported in non-Florida residents.

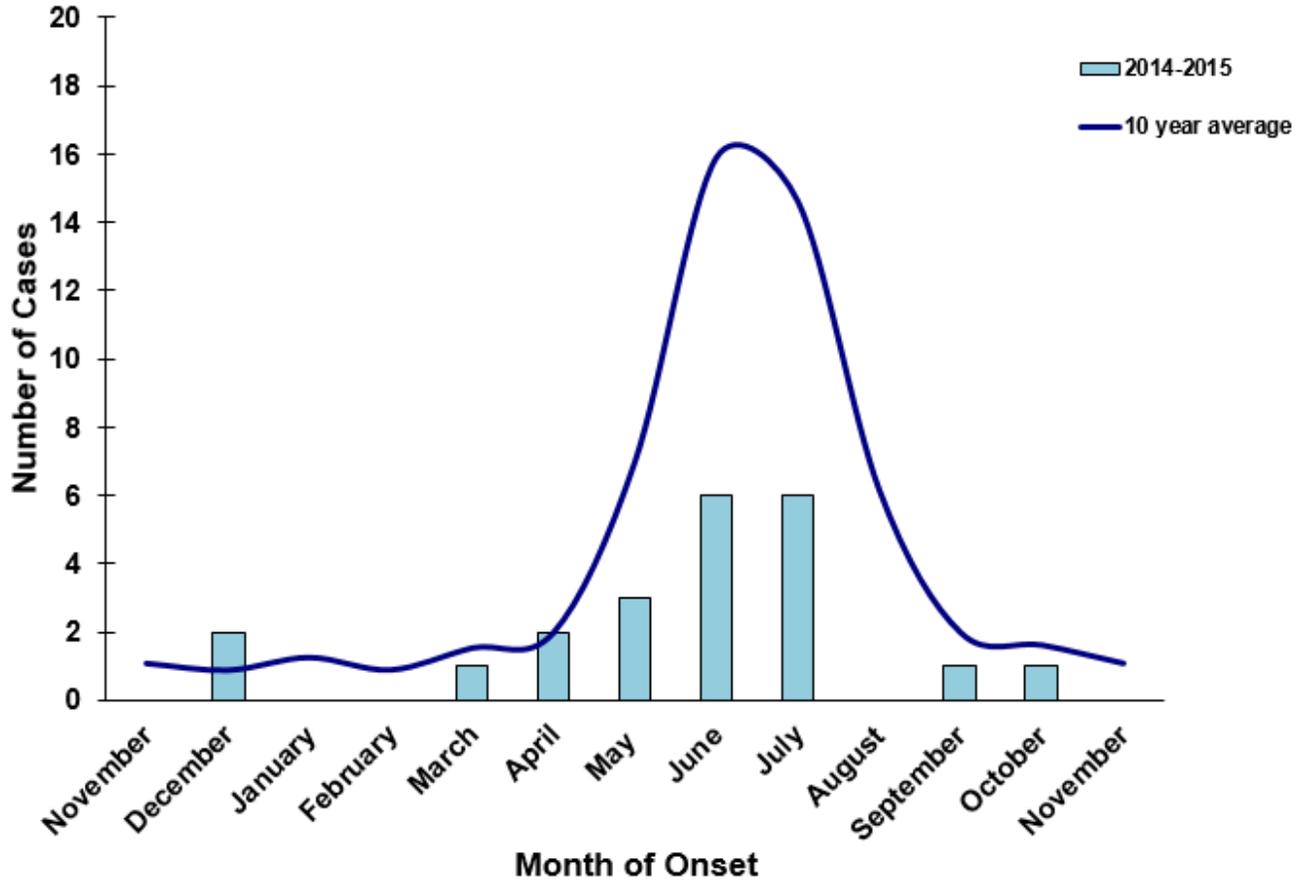
Thirty-three cases (79%) were diagnosed with *Plasmodium falciparum*. Seven cases were diagnosed with *Plasmodium vivax* (17%). One case (2%) was diagnosed with *Plasmodium malariae*. One case was diagnosed with *Plasmodium ovale* (2%).

Veterinary Cases*

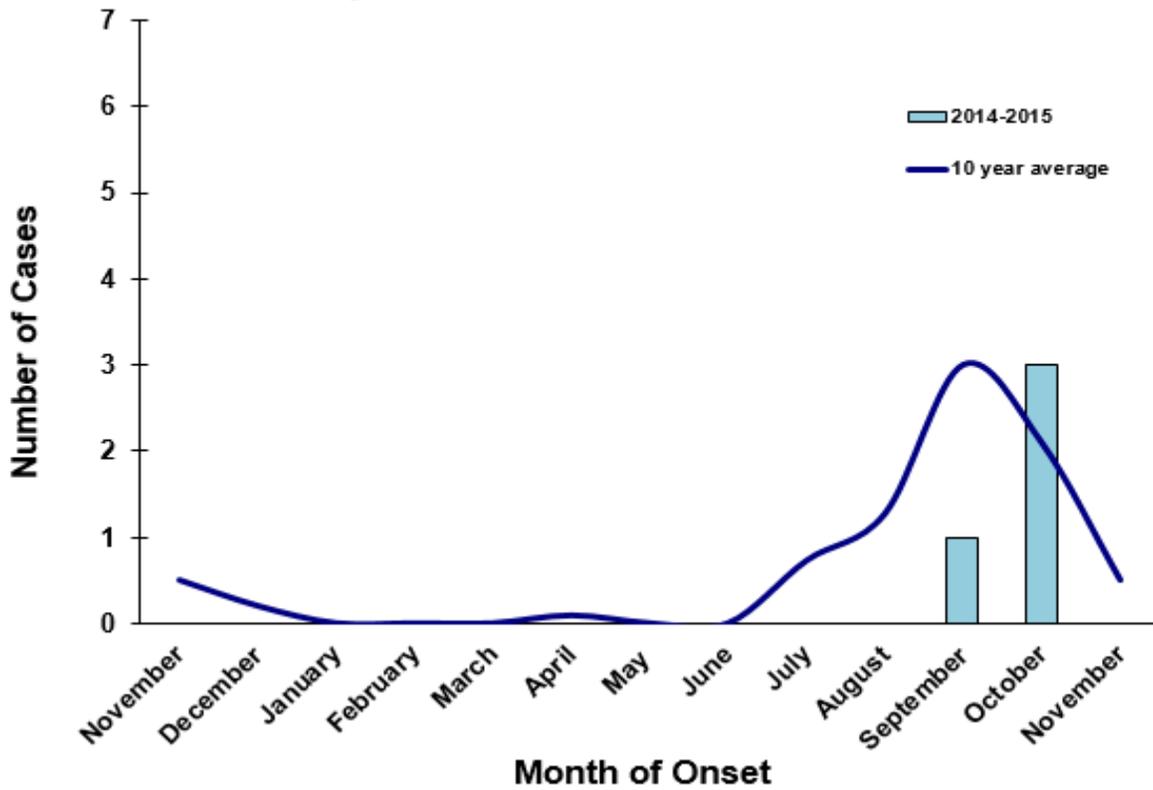
*Veterinary cases are reported by date of onset

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

Veterinary EEE in Florida, November 2014-2015



Veterinary WNV Disease in Florida, November 2014-2015



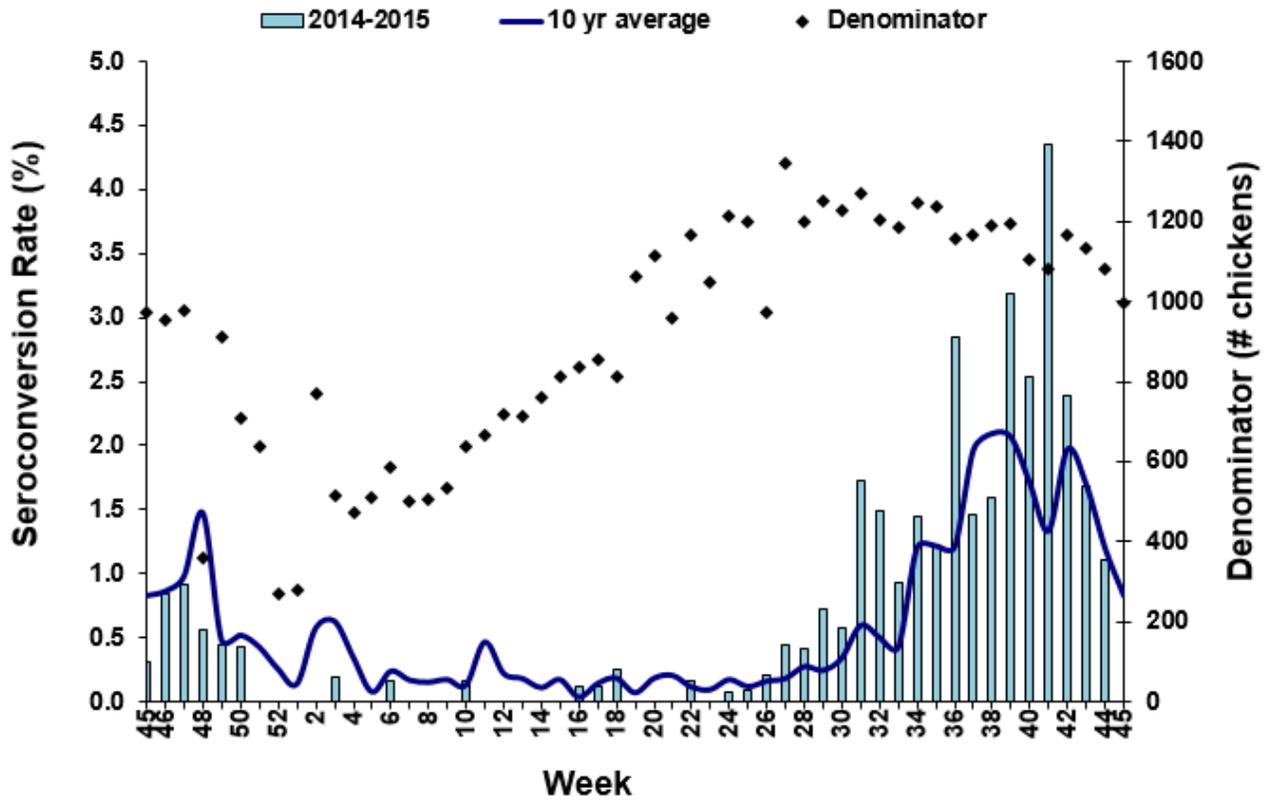
Sentinel Chickens*

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.

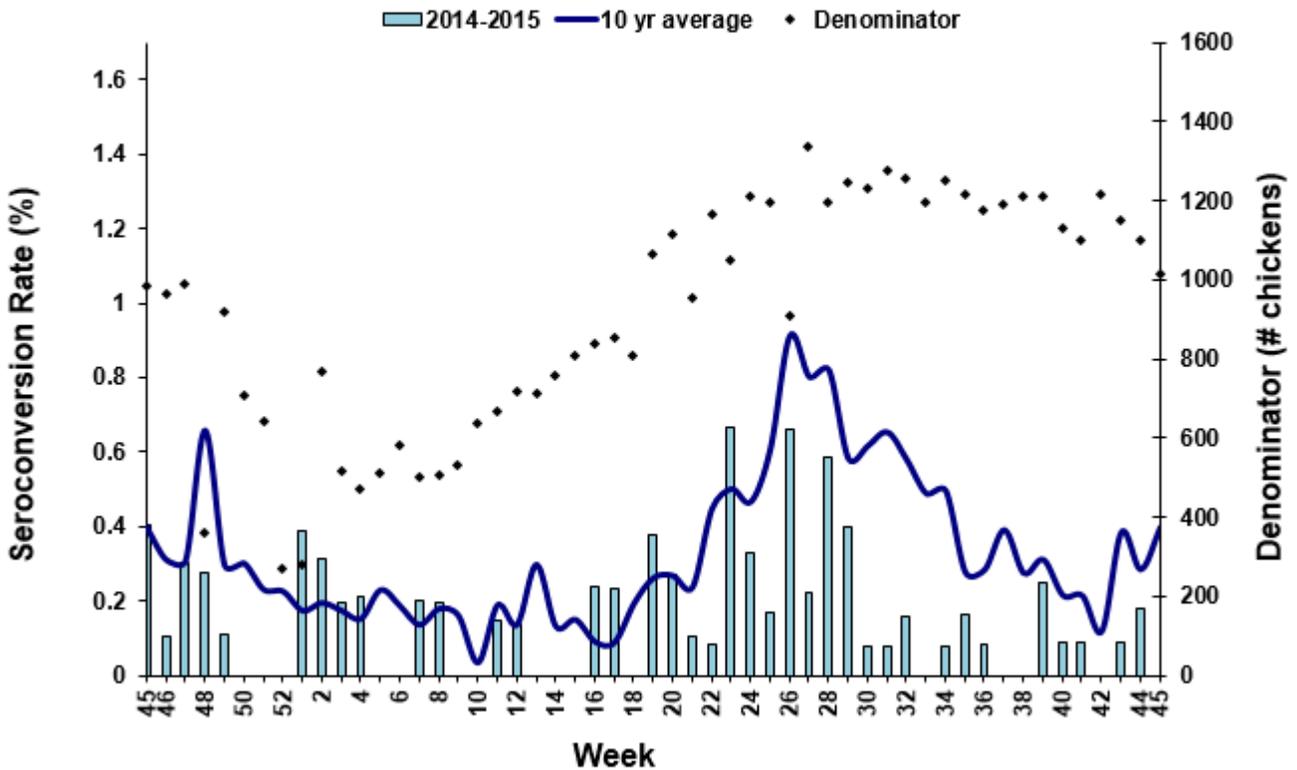
Thirty-one sentinel chickens tested positive for antibodies to WNV this week in Citrus, Hernando, Hillsborough, Manatee, Orange, Pasco, Pinellas, Seminole, St. Johns, Sumter and Volusia Counties. One sentinel chicken tested positive for antibodies to SLEV this week in Indian River. Three sentinel chickens tested positive for antibodies to EEEV this week in Citrus and Flagler Counties.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Citrus	11/02/15	1.41		1.41	2.82	2.82		2 EEEV, 1 WNV	4 EEEV, 1 HJV, 3 WNV
Flagler	10/26/15				8.33	8.33		1 EEEV	7 EEEV, 3 WNV
Hernando	10/26/15	5.26		5.26				1 WNV	13 WNV
	11/02/15	5.56		5.56				1 WNV	
Hillsborough	10/28/15	4.29		4.29				3 WNV	97 WNV, 2 EEEV
Indian River	10/28/15	2.13	2.13					1 SLEV	1 EEEV, 3 WNV
Manatee	10/27/15	3.23		3.23				2 WNV	31 WNV
	11/04/15	4.69		4.69				3 WNV	
Orange	10/26/15	1.77		1.77				2 WNV	15 EEEV, 2 HJV, 23 WNV
	11/02/15	1.74		1.74				2 WNV	
Pasco	10/27/15	14.29		14.29				5 WNV	27 WNV
Pinellas	10/26/15	1.85		1.85				1 WNV	49 WNV
Seminole	10/26/15	1.64		1.64				1 WNV	4 EEEV, 12 WNV,
	11/02/15	1.59		1.59				1 WNV	1 SLEV
St. Johns	10/26/15	5.26		5.26				3 WNV	3 EEEV, 16 WNV
	11/02/15	3.39		3.39				2 WNV	
Sumter	10/27/15	3.13		3.13				1 WNV	7 WNV
Volusia	11/02/15	4.17		4.17				2 WNV	10 WNV, 1 SLEV, 1 HJV

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

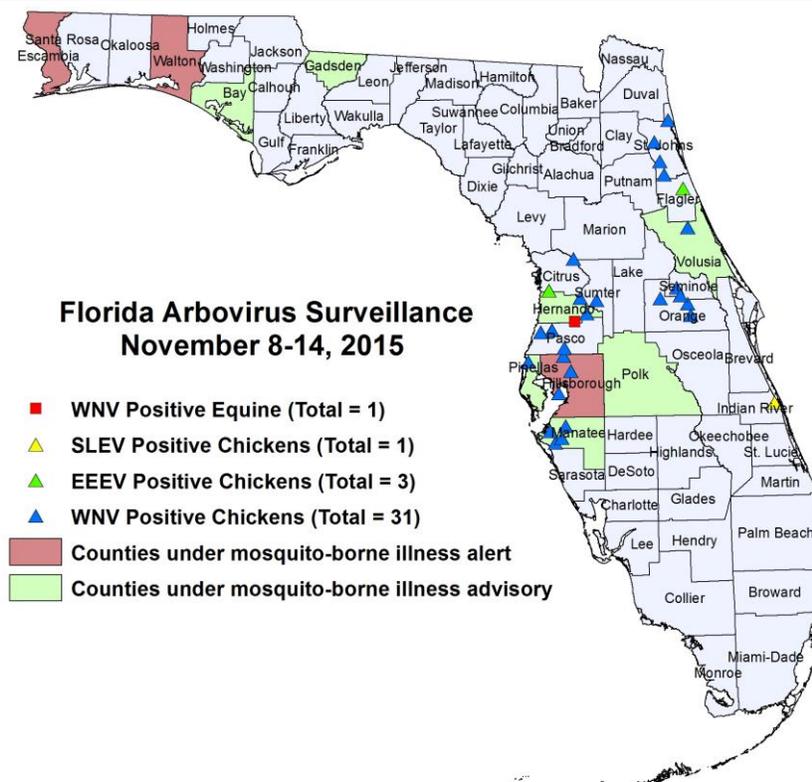
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 5 reports representing 19 dead birds were received from 5 counties.

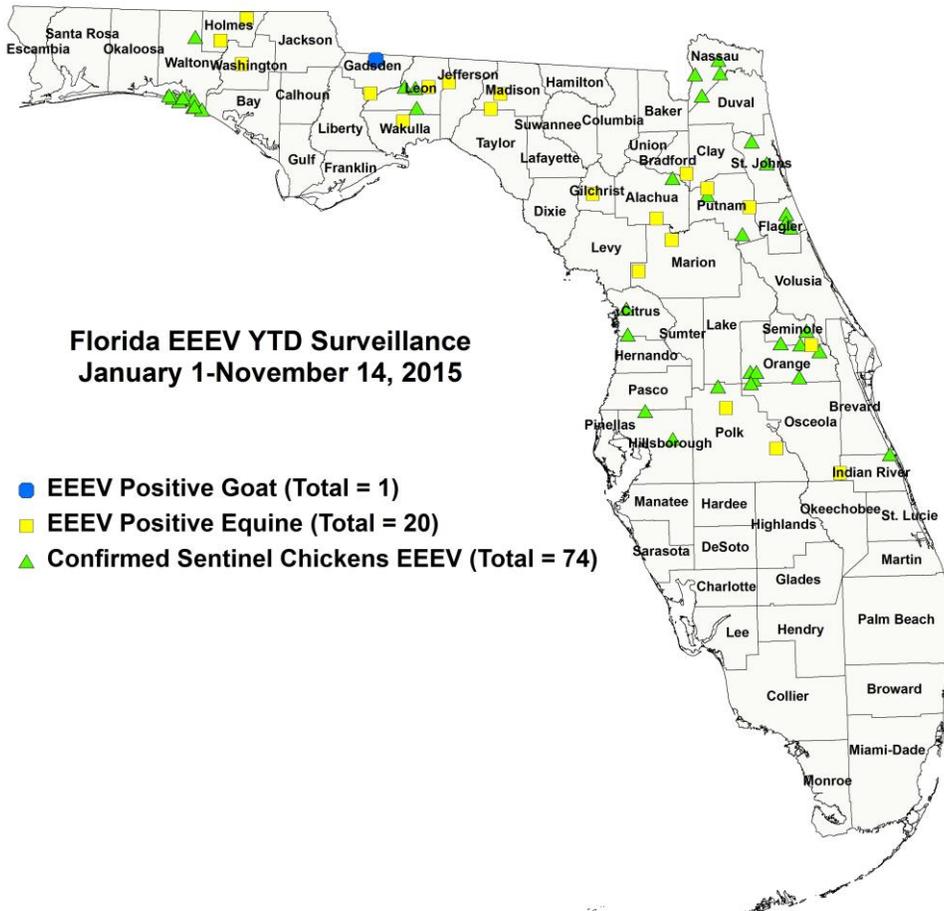
In 2015, 334 reports representing a total of 947 dead birds (44 crows, 24 jay, 83 raptors, and 31 doves) were received from 47 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/.

2015

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Alachua	1	0	0	0	0
Duval	1	0	0	0	0
Palm Beach	1	0	0	0	0
Pinellas	15	0	0	0	0
Volusia	1	0	0	0	0

Maps





Gilchrist	EEEV: 1 horse (4/18)
Hernando	WNV: 1 horse (10/30); 13 sentinels (9/8, 9/14, 10/5, 10/12, 10/19, 10/26, 11/2)
Hillsborough	WNV: 1 human (September); 1 asymptomatic blood donor (September); 97 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) EEEV: 2 sentinels (8/26, 9/1)
Holmes	EEEV: 2 horses (7/16, 9/8)
Indian River	EEEV: 1 sentinel (4/30) WNV: 3 sentinels (8/20, 9/18, 10/15)
Jefferson	EEEV: 1 horse (7/25)
Lee	SLEV: 1 sentinel (1/12) WNV: 1 horse (10/10)
Leon	EEEV: 1 horse (5/20); 3 sentinels (6/8, 7/13, 8/11) WNV: 2 sentinels (8/21, 8/28)
Madison	EEEV: 2 horses (6/24, 7/19)
Manatee	WNV: 31 sentinels (8/5, 8/25, 9/9, 9/23, 9/30, 10/7, 10/14, 10/20, 10/27, 11/4)
Marion	EEEV: 2 horses (6/14, 7/16) WNV: 1 horse (9/28)
Martin	WNV: 2 sentinels (10/9, 10/16)
Nassau	EEEV: 7 sentinels (5/29, 7/3, 7/10, 7/13, 9/28, 10/2, 10/16)
Orange	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: 23 sentinels (8/3, 8/10, 8/25, 8/31, 9/9, 9/28, 10/12, 10/19, 10/26, 11/2)
Osceola	EEEV: 1 horse (5/3)
Palm Beach	WNV: 1 sentinel (4/27)
Pasco	WNV: 1 horse (10/12); 27 sentinels (9/1, 9/22, 9/28, 10/6, 10/13, 10/20, 10/27)
Pinellas	WNV: 1 human (July); 49 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)
Polk	EEEV: 2 horses (6/30, 7/6); 2 sentinels (6/22) WNV: 3 sentinels (9/29, 10/12, 10/19)
Putnam	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)
Sarasota	SLEV: 1 sentinel (7/13) WNV: 7 sentinels (9/4, 9/11, 9/18, 10/9, 10/19)
St. Johns	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)
Seminole	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)
Sumter	WNV: 7 sentinels (1/20, 9/29, 10/13, 10/27)
Volusia	WNV: 1 human (July); 3 mosquito pools (6/2,8/18); 10 sentinels (6/15, 7/13, 9/8, 9/21, 9/28, 11/2) SLEV: 1 sentinel (8/31) HJV: 1 sentinel (9/8)
Wakulla	EEEV: 1 horse (10/9)
Walton	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); 26 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) SLEV: 1 sentinel (9/8)
Washington	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.