



Florida Arbovirus Surveillance Week 36: August 31 – September 6, 2014

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 August 31- September 6, 2014 the following arboviral activity was recorded in Florida.

WNV activity: One human case of WNV illness was reported this week in Escambia County. One horse with WNV infection was reported this week in Lake County. Sixteen sentinel chickens tested positive for antibodies to WNV this week in Alachua, Bay, Brevard, Hernando, Nassau, Putnam, and St. Johns Counties. In 2014, positive samples from 60 sentinel chickens, 3 horses, and 1 blood donor have been received from 19 counties.

EEEV activity: No human cases of EEE were reported this week. Two horses with EEEV infection were reported this week in Levy and Suwannee Counties. Four sentinel chickens tested positive for antibodies to EEEV this week in Nassau and Orange Counties. In 2014, positive samples from 151 sentinel chickens, 2 deer, and 46 horses have been received from 29 counties.

International Travel-Associated Dengue Fever Cases: Two cases of dengue fever were reported this week in persons that had international travel. In 2014, 51 travel-associated cases have been reported.

Dengue Fever Cases Acquired in Florida: No new cases of locally acquired dengue fever were reported this week. In 2014, a total of four cases of locally acquired dengue fever have been reported.

International Travel-Associated Chikungunya Fever Cases: Thirteen cases of chikungunya fever were reported this week in persons that had international travel. In 2014, 201 travel-associated cases have been reported.

Chikungunya Fever Cases Acquired in Florida: No new cases of locally acquired chikungunya fever were reported this week. In 2014, a total of eight cases of locally acquired chikungunya fever have been reported.

Advisories/Alerts: Alachua, Clay, Columbia, Escambia, Levy, Lafayette, Marion, Pasco, Santa Rosa, Suwannee, Volusia and Washington Counties are currently under a mosquito-borne illness advisory. Miami-Dade, Palm Beach and St. Lucie Counties are currently under a 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 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 related to the continued transmission of chikungunya which was updated August 11, 2014.

<http://wwwnc.cdc.gov/travel/notices/watch/chikungunya-caribbean>

2014 Human Case Summary*

West Nile Virus Illnesses Acquired in Florida: One human case of WNV illness with onset in August has been reported in 2014 from Escambia County. One asymptomatic positive blood donor has been reported from Santa Rosa County in July.

International Travel-Associated Dengue Fever Cases: Fifty-one cases of dengue with onset in 2014 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, Bolivia, Brazil (2), Caribbean, Columbia, Costa Rica (2), Cuba (18), Cuba/Bahamas, Dominican Republic (8), El Salvador, Guadeloupe, Haiti, Honduras (3), Mexico, Puerto Rico (4), Sri Lanka, Trinidad (2), and Venezuela (2). Counties reporting cases were: Alachua, Brevard, Broward (6), Clay, Collier, Highlands, Hillsborough (3), Manatee (2), Marion, Miami-Dade (21), Orange (3), Osceola (4), Palm Beach, Pinellas, Seminole, St. Lucie (2), and Volusia. Five of the cases were reported in non-Florida residents. In 2014, 25 of the 51 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2014
DENV-1	8
DENV-2	10
DENV-3	1
DENV-4	5
DEN-1&2	1
	25

Dengue Fever Cases Acquired in Florida: In 2014, a total of four cases of locally acquired dengue fever have been reported. Four cases of dengue in a Miami-Dade residents with onset in June, 2014 have been reported as acquired in Miami-Dade County.

International Travel-Associated Chikungunya Fever Cases: Two hundred and one cases of chikungunya with onset in 2014 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: Antigua, Bequia, Caribbean, Dominica, Dominican Republic (68), Guyana (3), Haiti (100), Honduras, Martinique (2), Phillipines, Puerto Rico (20), St. Lucia, and St. Thomas/St. Martin/Bahamas. Counties reporting cases were: Alachua (2), Brevard (3), Broward (36), Charlotte (2), Clay (2), Duval (3), Escambia, Flagler, Hernando, Highlands, Hillsborough (14), Indian River, Lake, Lee (4), Leon (2), Manatee (2), Miami-Dade (36), Okaloosa (2), Orange (23), Osceola (6), Palm Beach (32), Pasco (2), Pinellas (4), Polk (9), Santa Rosa, Sarasota (2), Seminole (4), St. Johns, St. Lucie (2), and Volusia. Fifteen of the cases were reported in non-Florida residents.

Chikungunya Fever Cases Acquired in Florida: In 2014, a total of eight cases of locally acquired chikungunya fever have been reported. Two cases of chikungunya fever in Miami-Dade residents with onset in June, 2014 have been reported as acquired in Miami-Dade County. Four cases of chikungunya fever in Palm Beach residents with onset in July, 2014 have been reported as acquired in Palm Beach County. Two cases of chikungunya fever in St. Lucie residents with onset in July and August, 2014 have been reported as acquired in St. Lucie County.

International Travel-Associated Malaria Cases: Thirty-nine cases of malaria with onset in 2014 have been reported. Countries of origin were: Angola (3), Cameroon, Dominican Republic, Equatorial Guinea (2), Ghana, Ghana/Rwanda, Ghana/Togo, Guatemala, Guyana, Haiti, Honduras, India (4), Ivory Coast (2), Kenya (2), Nigeria (5), Peru, Sierra Leone (5), Sudan, Uganda (2), and multiple sub-Saharan African countries (3). Counties reporting cases were: Broward (6), Duval, Escambia, Hernando, Hillsborough (8), Leon, Miami-Dade (7), Okaloosa, Orange (4), Osceola (2), Palm Beach (2), Pasco, Pinellas (2), Santa Rosa, and Seminole. Eight of the cases were reported in non-Florida residents.

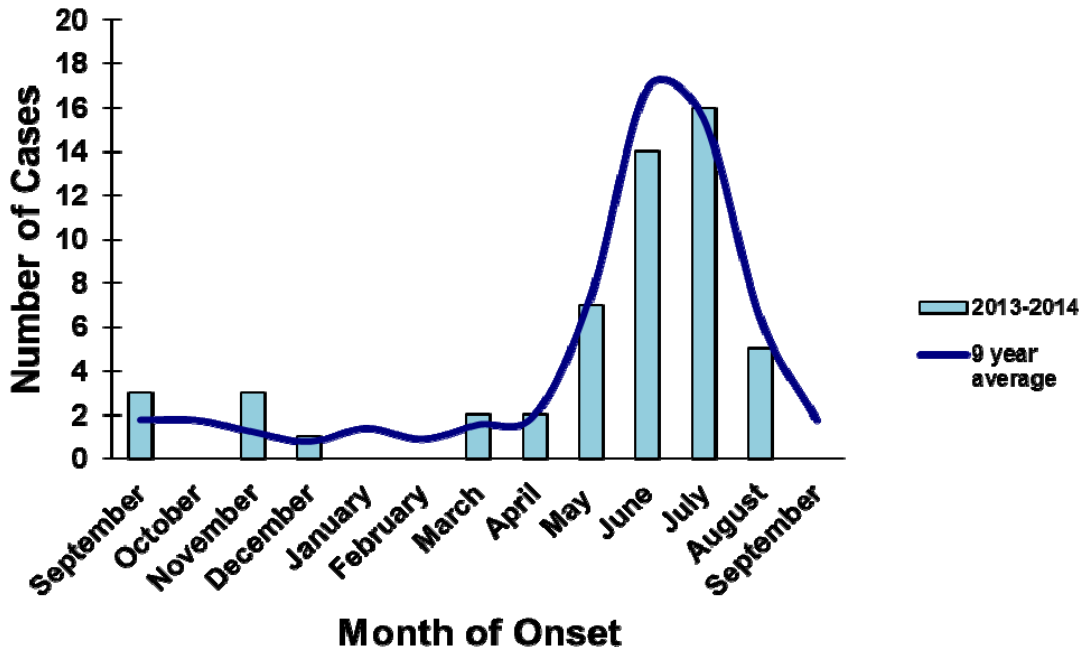
Twenty-seven cases (69%) were diagnosed with *Plasmodium falciparum*. Eight cases (21%) were diagnosed with *Plasmodium vivax*. Two case (5%) was diagnosed with *Plasmodium malariae*. Two cases (5%) were diagnosed with *Plasmodium ovale*.

Veterinary Cases*

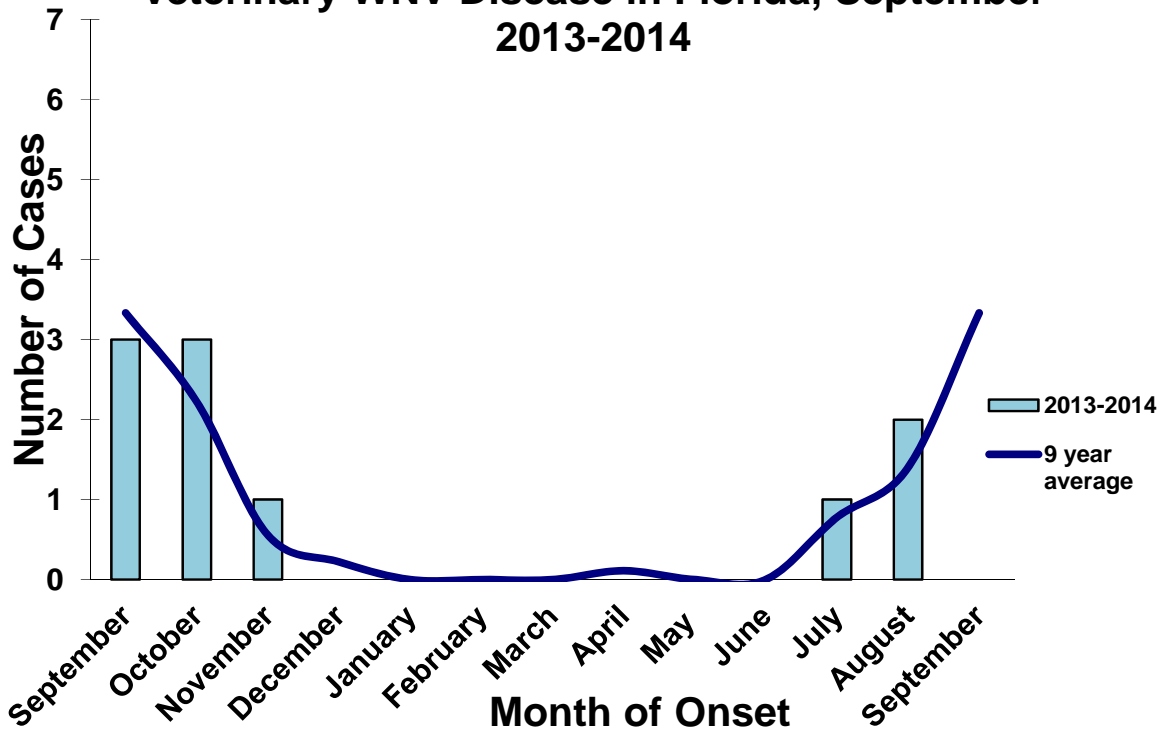
*Veterinary cases are reported by date of onset

Two horses with EEEV infection were reported this week in Levy and Suwannee Counties. One horse with WNV infection was reported this week in Lake County.

Veterinary EEE in Florida, September 2013-2014



Veterinary WNV Disease in Florida, September 2013-2014



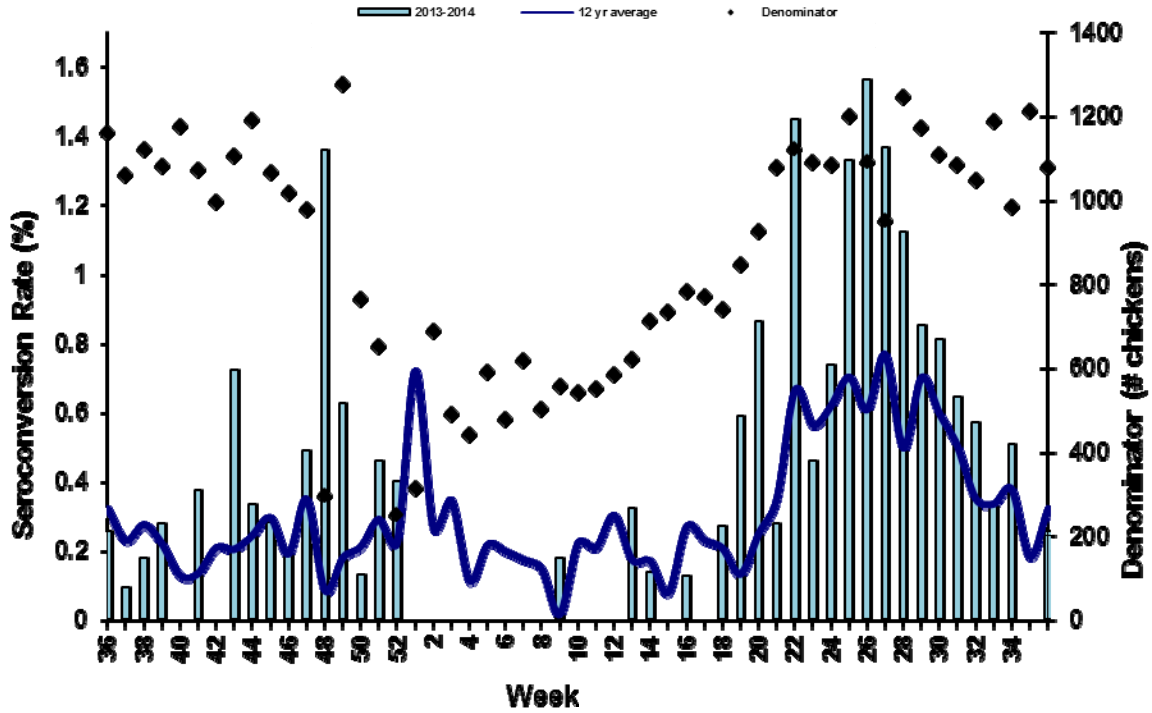
Sentinel Chickens

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.

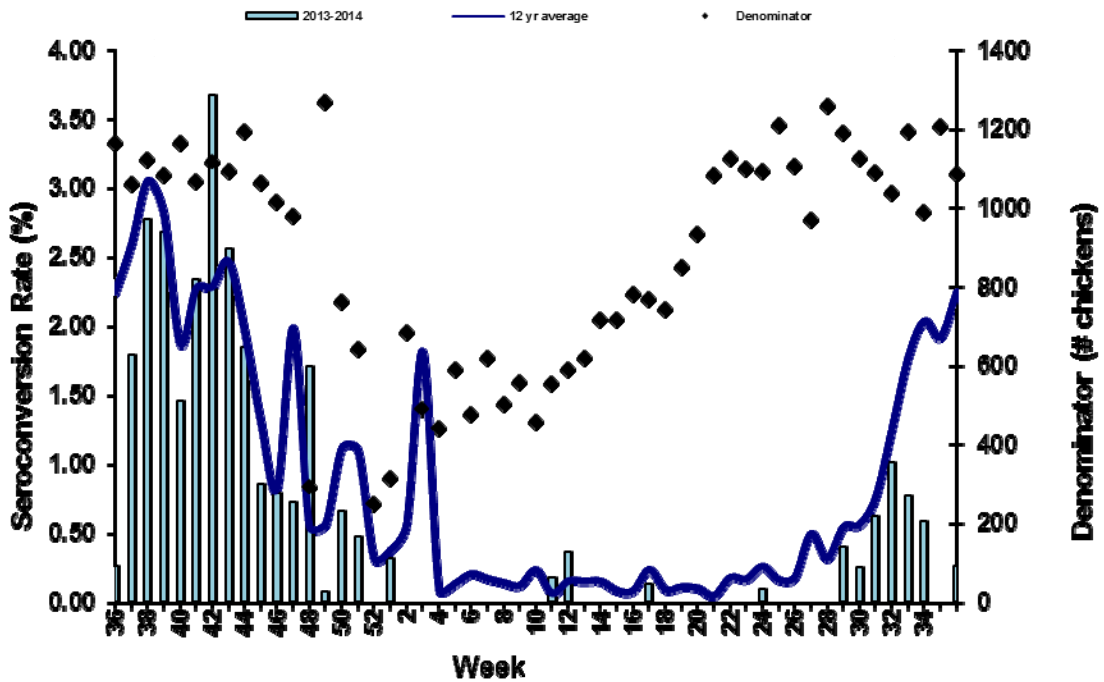
Four sentinel chickens tested positive for antibodies to EEEV this week in Nassau and Orange Counties. Sixteen sentinel chickens tested positive for antibodies to WNV this week in Alachua, Bay, Brevard, Hernando, Nassau, Putnam, and St. Johns Counties. Four sentinel chickens tested positive for antibodies to SLEV this week in Pinellas and Polk Counties (state total of 32 positives for 2014). Fifteen sentinel chickens tested positive for antibodies to HJV this week in Alachua, Citrus, Duval, Flagler, Nassau, St. Johns, Volusia, and Walton Counties (state total of 34 positives for 2014).

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Alachua	08/04/14				7.14		7.14	1 HJ	
	08/25/14	13.33		13.33				2 WN	10 EEEV, 1 HJV, 3 WNV
Bay	08/26/14	38.46		38.46				5 WN	6 EEEV, 1 HJV, 7 WNV
Brevard	08/20/14	1.72		1.72				1 WN	5 WNV
Citrus	08/18/14				4.23		4.23	3 HJ	14 EEEV, 6 HJV, 1 WNV
Duval	08/18/14				4.00		4.00	1 HJ	3 EEEV, 1 HJV
Flagler	07/21/14				18.18		18.18	2 HJ	
	08/18/14				9.09		9.09	1 HJ	11 EEEV, 3 HJV, 1 WNV
Hernando	08/25/14	10.53		10.53				2 WN	2 EEEV, 2 WNV
Nassau	07/25/14				3.03		3.03	1 HJ	
	08/18/14				5.56		5.56	2 HJ	
	08/22/14	2.86		2.86	5.56	5.56		2 EEE 1 WN	
	08/25/14	2.86		2.86				1 WN	13 EEEV, 3 HJV, 3 WNV
Orange	08/18/14				1.75	1.75		2 EEE	18 EEEV, 3 HJV, 2 WNV
Pinellas	08/25/14	5.66	5.66					3 SLE	19 SLEV
Polk	08/25/14	10.00	10.00					1 SLE	5 EEEV, 1 SLEV
Putnam	08/26/14	9.09		9.09				1 WN	7 EEEV, 5 WNV
St. Johns	08/11/14	5.66		5.66				3 WN	
	08/18/14				3.92		3.92	2 HJ, 2 WN	
	08/25/14	4.08		4.08				2 WN	19 EEEV, 3 HJV, 12 WNV
Volusia	08/18/14				2.50		2.50	1 HJ	3 EEEV, 1 HJV, 10 WNV
Walton	08/18/14				2.86		1.90	2 HJ, 1 EEE	33 EEEV, 11 HJV, 3 WNV

Sentinel Seroconversions to EEEV In Florida, 2013-2014



Sentinel Seroconversions to WNV In Florida, 2013-2014



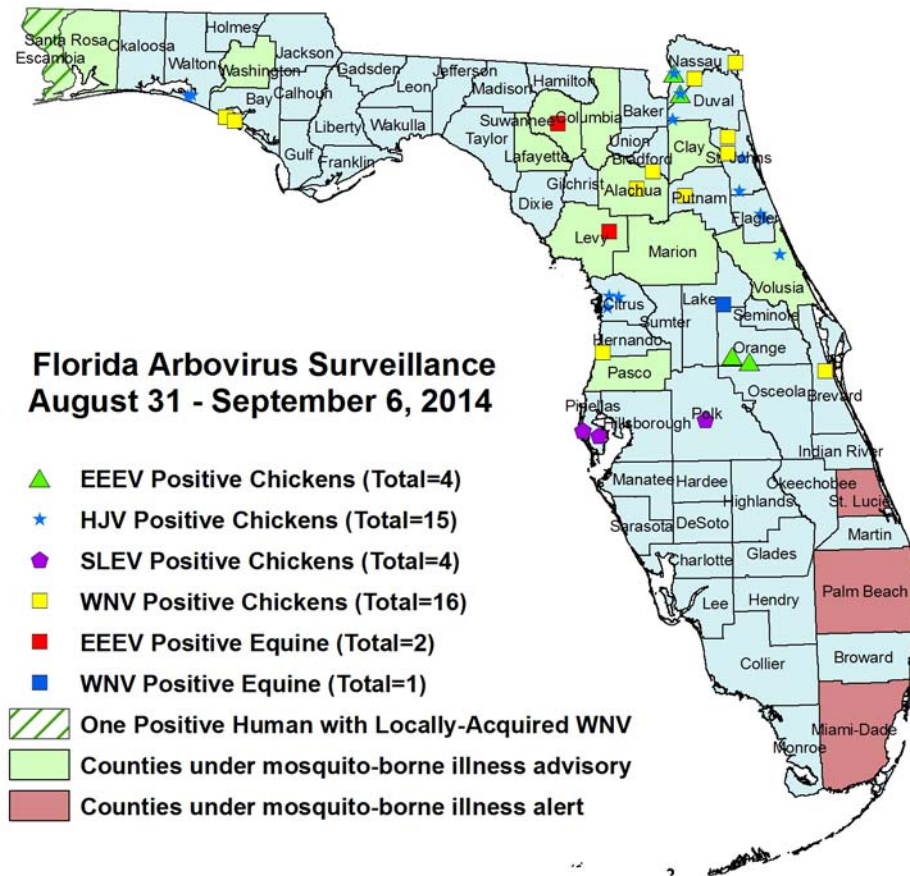
Dead Birds

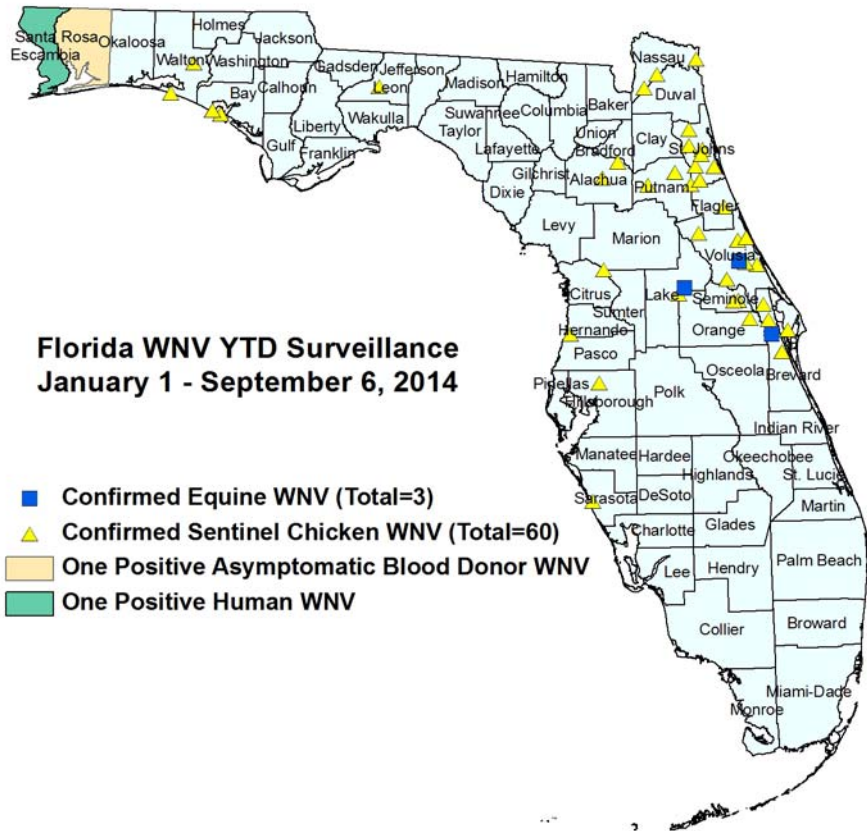
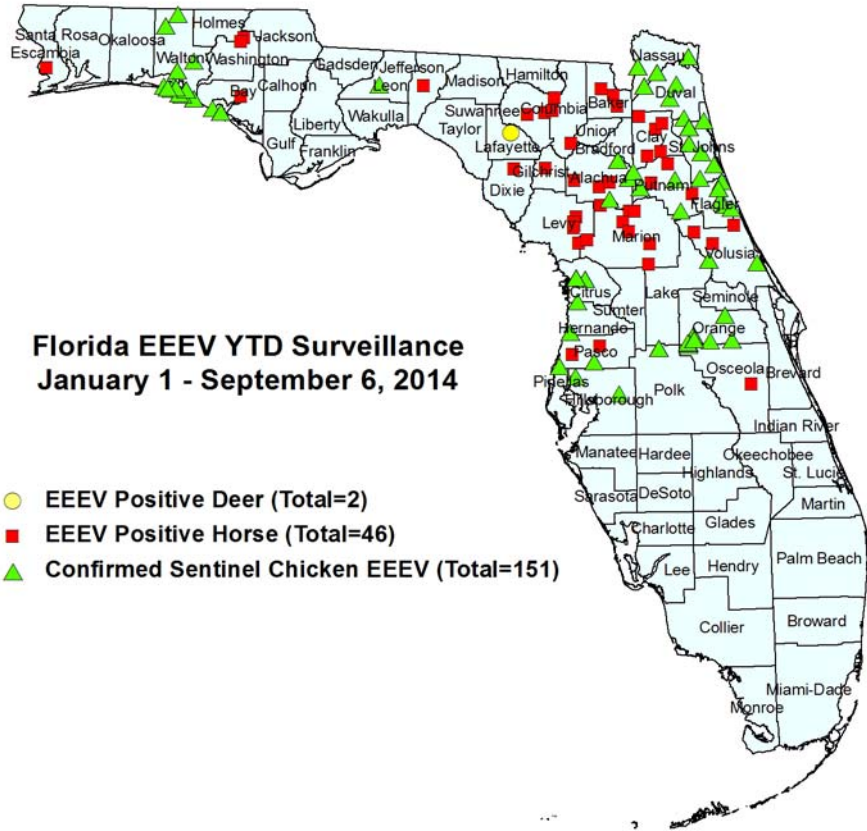
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 2 reports representing 3 dead birds were received from 2 counties.

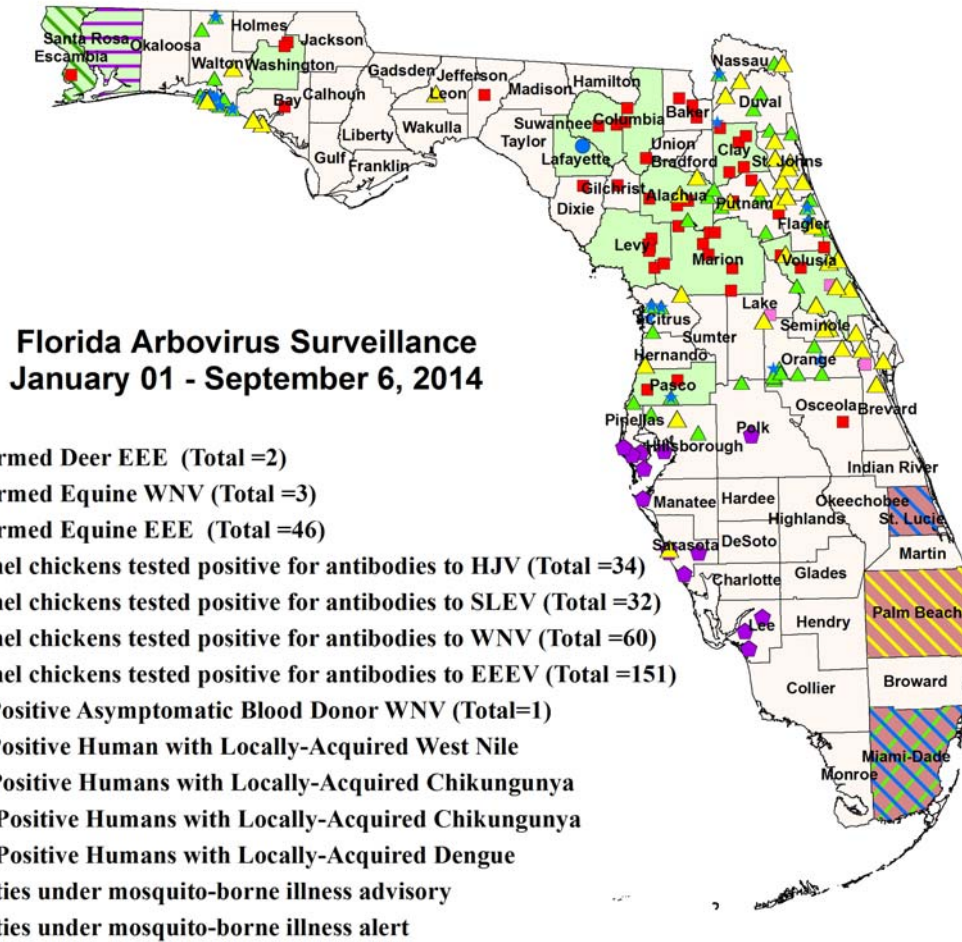
In 2014, 296 reports representing a total of 835 dead birds (26 crows, 5 jay, 61 raptors, and 29 doves) were received from 44 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Bay	2	0	0	0	0
Hillsborough	1	0	0	0	0

Maps







2014 Arbovirus Activity by County

County	Arbovirus Activity
Alachua	EEEV: 3 horses (6/17, 6/20, 7/4); 10 sentinels (6/9, 6/30, 7/7, 7/14, 7/21, 7/28) HJV: 1 sentinel (8/4) WNV: 3 sentinels (8/12, 8/25)
Baker	EEEV: 3 horses (3/13, 7/10, 7/16)
Bay	EEEV: 1 horse (6/15); 6 sentinels (4/28, 5/6, 5/13, 5/22, 5/30) HJV: 1 sentinel (2/18) WNV: 7 sentinels (8/19, 8/26)
Brevard	WNV: 1 horse (8/1); 5 sentinels (7/17, 8/8, 8/20)
Citrus	EEEV: 14 sentinels (3/24, 3/31, 5/12, 5/26, 6/2, 6/30, 7/7, 7/14, 7/21, 8/4, 8/11) HJV: 6 sentinels (2/17, 2/24, 8/11, 8/18) WNV: 1 sentinel (1/2)
Clay	EEEV: 5 horses (5/2, 7/16, 7/19, 7/20, 8/2)
Columbia	EEEV: 3 horses (6/25, 7/18, 8/1)
Dixie	EEEV: 1 horse (5/22)
Duval	EEEV: 3 sentinels (6/16, 6/19, 6/30) HJV: 1 sentinel (8/18)
Escambia	EEEV: 1 horse (7/16) WNV: 1 human (August)
Flagler	EEEV: 1 horse (4/21); 11 sentinels (4/14, 4/28, 5/5, 5/27, 6/2, 6/16, 6/23, 6/30, 7/7) HJV: 3 sentinels (7/21, 8/18) WNV: 1 sentinel (7/14)

Gilchrist	EEEV: 2 horses (5/18, 6/23)
Hernando	EEEV: 2 sentinels (6/9, 7/9) WNV: 2 sentinels (8/25)
Hillsborough	EEEV: 2 sentinels (5/13, 7/1) SLEV: 2 sentinels (1/7, 2/18) WNV: 1 sentinel (3/18)
Jefferson	EEEV: 1 horse (7/7)
Lafayette	EEEV: 2 deer (6/24)
Lake	WNV: 1 horse (8/19)
Lee	SLEV: 4 sentinels (1/13, 1/14, 2/11, 3/25)
Leon	EEEV: 1 sentinel (7/14) WNV: 1 sentinel (8/19)
Levy	EEEV: 4 horses (6/7, 6/21, 6/27, 6/28, 8/17)
Manatee	SLEV: 1 sentinel (7/29)
Marion	EEEV: 8 horses (4/12, 5/31, 6/19, 6/26, 6/29, 7/4, 7/14, 7/30)
Miami-Dade	Chikungunya: 2 humans (June) Dengue: 4 humans (June)
Nassau	EEEV: 13 sentinels (5/27, 5/31, 6/13, 6/20, 6/23, 6/27, 7/11, 7/19, 8/22) HJV: 3 sentinels (7/25, 8/18) WNV: 3 sentinel (8/8, 8/22, 8/25)
Orange	EEEV: 18 sentinels (5/29, 6/5, 6/16, 6/19, 6/23, 6/25, 6/26, 7/7, 7/10, 7/21, 7/31, 8/7, 8/18) HJV: 3 sentinels (1/2, 2/17) WNV: 2 sentinels (8/4)
Osceola	EEEV: 1 horse (7/30)
Palm Beach	Chikungunya: 4 humans (July)
Pasco	EEEV: 2 horses (5/31, 6/25); 4 sentinels (5/27, 6/10, 7/15) HJV: 1 sentinel (7/22)
Pinellas	SLEV: 19 sentinels (7/21, 7/25, 7/28, 8/4, 8/18, 8/25)
Polk	EEEV: 5 sentinels (6/23, 6/30, 7/7) SLEV: 1 sentinel (8/25)
Putnam	EEEV: 2 horses (6/17, 7/28); 7 sentinels (5/27, 6/17, 6/24, 7/8, 7/15, 7/22, 8/5) WNV: 5 sentinels (8/5, 8/12, 8/26)
Sarasota	SLEV: 4 sentinels (2/6, 2/14, 2/28, 7/28) WNV: 1 sentinel (4/25)
Santa Rosa	WNV: 1 asymptomatic blood donor (July)
Seminole	WNV: 3 sentinels (7/30, 8/5)
St. Johns	EEEV: 19 sentinels (5/5, 5/12, 5/27, 6/16, 6/23, 6/30, 7/21, 7/28) HJV: 3 sentinels (7/28, 8/18) WNV: 12 sentinels (7/21, 7/28, 8/4, 8/11, 8/18, 8/25)
St. Lucie	Chikungunya: 2 humans (July, August)
Suwannee	EEEV: 2 horses (8/5, 8/15)
Volusia	EEEV: 3 horses (3/19, 5/19, 5/24); 3 sentinels (5/27, 6/9) HJV: 1 sentinel (8/18) WNV: 1 horse (7/15); 10 sentinels (7/14, 7/21, 7/28, 8/4, 8/5, 8/12)
Walton	EEEV: 33 sentinels (2/24, 5/12, 5/19, 5/27, 6/3, 6/9, 6/16, 6/23, 6/30, 7/7, 7/14, 7/15, 7/21, 7/28, 8/4, 8/11, 8/12, 8/18) HJV: 11 sentinels (3/10, 3/24, 5/12, 5/19, 6/16, 6/30, 7/15, 8/4, 8/11, 8/18) WNV: 3 sentinels (3/10, 3/17, 6/9)
Washington	EEEV: 2 horses (7/15, 7/22)

Acknowledgements and Data Sources

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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, 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.