



Florida Arbovirus Surveillance Week 37: September 7– September 13, 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 September 7- 13, 2014 the following arboviral activity was recorded in Florida.

WNV activity: Four human cases of WNV illness was reported this week, one each in Duval, Escambia, Leon and Volusia Counties. Two horses with WNV infection was reported this week in Clay and Marion Counties. Nineteen sentinel chickens tested positive for antibodies to WNV this week in Alachua, Bay, Brevard, Flagler, Nassau, Hillsborough, Nassau, Polk, St. Johns and Volusia Counties. In 2014, positive samples from 79 sentinel chickens, 5 horses, 5 human cases, and 1 blood donor have been received from 23 counties.

EEEV activity: No human cases of EEE were reported this week. Four horses with EEEV infection were reported this week in Jefferson, Okaloosa, Polk, and Suwannee Counties. One sentinel chicken tested positive for antibodies to EEEV this week in Walton County. In 2014, positive samples from 152 sentinel chickens, 2 deer, and 50 horses have been received from 30 counties.

International Travel-Associated Dengue Fever Cases: One case of dengue fever was reported this week in persons that had international travel. In 2014, 52 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: Twelve cases of chikungunya fever were reported this week in persons that had international travel. In 2014, 212 travel-associated cases have been reported.

Chikungunya Fever Cases Acquired in Florida: One new case of locally acquired chikungunya fever was reported this week in St. Lucie County. In 2014, a total of nine cases of locally acquired chikungunya fever have been reported.

Advisories/Alerts: Alachua, Clay, Columbia, Duval, Leon, Levy, Lafayette, Marion, Pasco, Santa Rosa, Suwannee, Volusia and Washington Counties are currently under a mosquito-borne illness advisory. Escambia, 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: A total of five human cases of WNV illness acquired in Florida have been reported in 2014; two in Escambia County (July, August), one in Duval County

(August), and one in Leon County (August). One asymptomatic positive blood donor was reported from Santa Rosa County in July.

International Travel-Associated Dengue Fever Cases: Fifty-two 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 (3), 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), Lee, 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, 26 of the 52 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	9
DENV-2	10
DENV-3	1
DENV-4	5
DEN-1&2	1
	26

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 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 twelve 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, Antigua/Barbuda, Bequia, Cuba, Dominica/Gaudalupe, Dominican Republic (72), Guyana (6), Haiti (99), Haiti/Dominican Republic, Honduras, Martinique (2), Philippines, Puerto Rico (22), Puerto Rico/Dominican Republic, St. Lucia, and St. Thomas/St. Martin/Bahamas. Counties reporting cases were: Alachua (2), Brevard (3), Broward (37), Charlotte (2), Clay (2), Duval (3), Escambia, Flagler, Hernando, Highlands, Hillsborough (15), Indian River, Lake, Lee (6), Leon (2), Manatee (2), Miami-Dade (40), Okaloosa (2), Orange (24), Osceola (8), Palm Beach (30), Pasco (2), Pinellas (5), Polk (10), 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 nine cases of locally acquired chikungunya fever have been reported. Two cases of chikungunya fever in Miami-Dade residents with onset in June, have been reported as acquired in Miami-Dade County. Four cases of chikungunya fever in Palm Beach residents with onset in July, have been reported as acquired in Palm Beach County. Three cases of chikungunya fever in St. Lucie residents with onset in July and August have been reported as acquired in St. Lucie County.

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

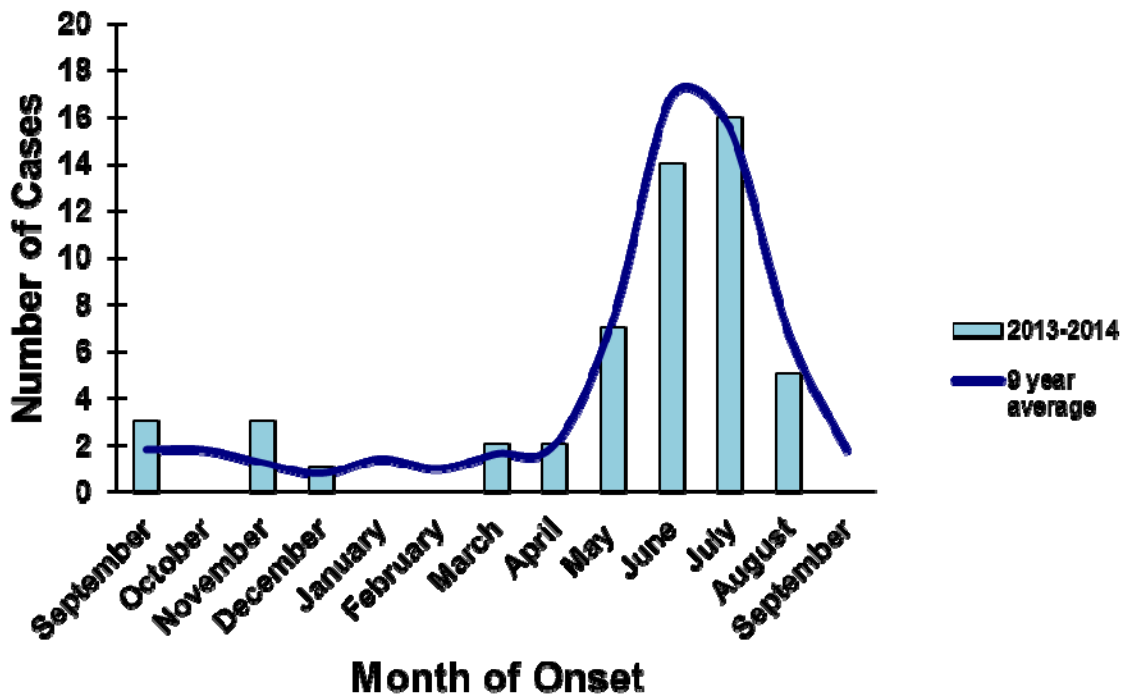
Thirty-one cases (72%) were diagnosed with *Plasmodium falciparum*. Eight cases (18%) were diagnosed with *Plasmodium vivax*. Two cases (5%) were diagnosed with *Plasmodium malariae*. Two cases (5%) were diagnosed with *Plasmodium ovale*.

Veterinary Cases*

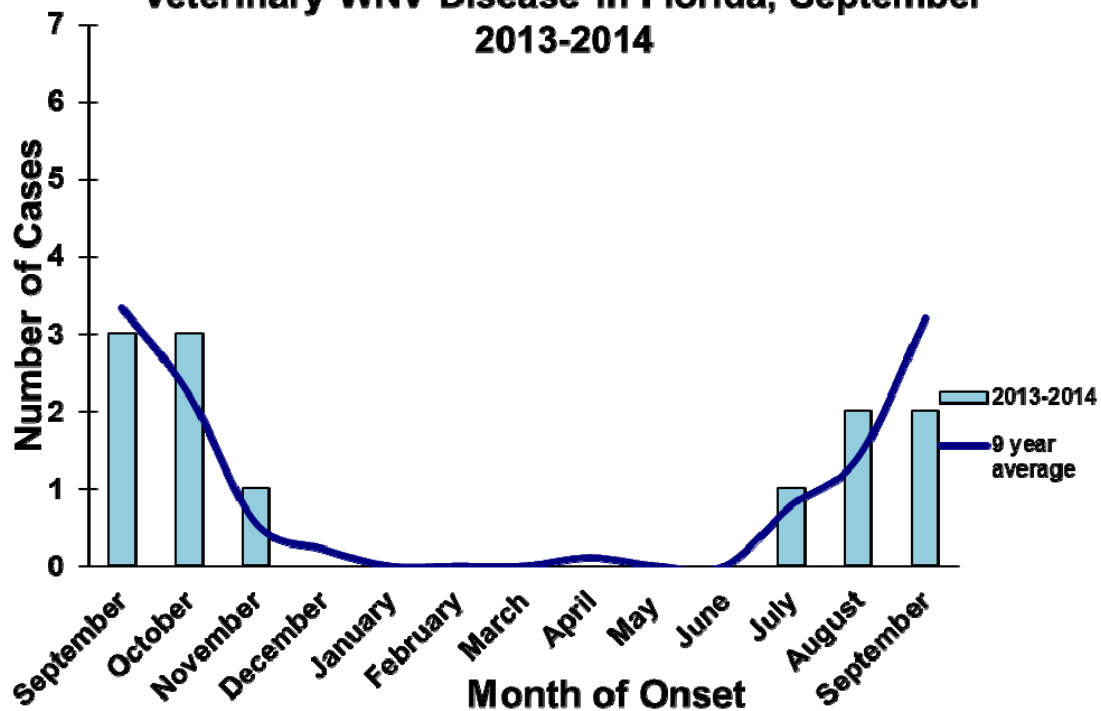
*Veterinary cases are reported by date of onset

Four horses with EEEV infection were reported this week in Jefferson, Okaloosa, Polk, and Suwannee Counties. Two horses with WNV infection was reported this week in Clay and Marion Counties.

Veterinary EEE in Florida, September 2013-2014



Veterinary WNV Disease in Florida, September 2013-2014



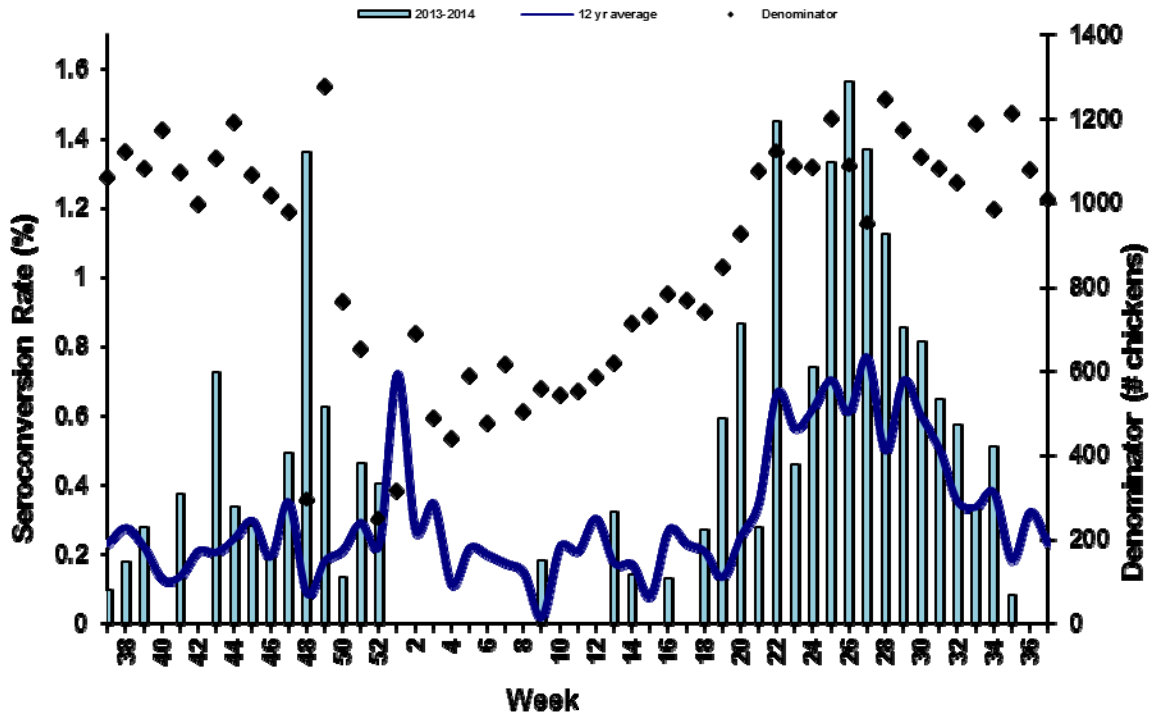
Sentinel Chickens

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.

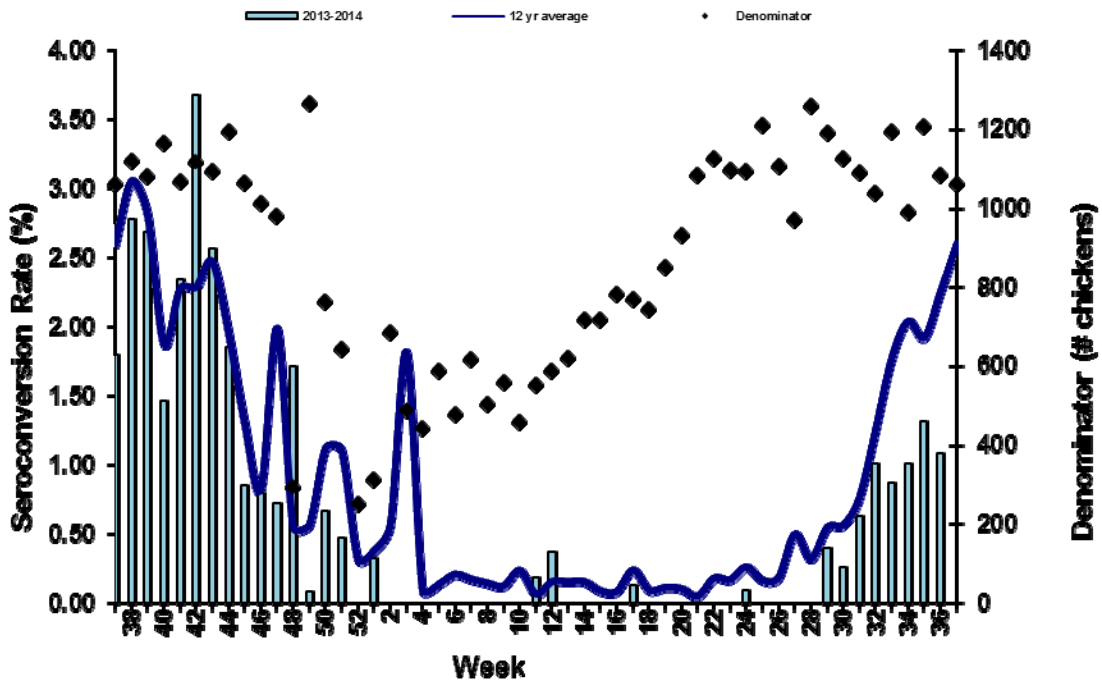
Nineteen sentinel chickens tested positive for antibodies to WNV this week in Alachua, Bay, Brevard, Flagler, Nassau, Hillsborough, Nassau, Polk, St. Johns and Volusia Counties. One sentinel chicken tested positive for antibodies to EEEV this week in Walton County. Six sentinel chickens tested positive for antibodies to SLEV this week in Duval, Hillsborough, Manatee, Nassau, and Pinellas Counties (state total of 38 positives for 2014). Twenty-three sentinel chickens tested positive for antibodies to HJV this week in Duval, Flagler, Nassau, Orange, Pinellas, Putnam, St. Johns, and Walton Counties (state total of 57 positives for 2014).

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Alachua	08/18/14	18.18		18.18				2 WNV	10 EEEV, 1 HJV, 5 WNV
Bay	09/02/14	7.69		7.69				1 WNV	6 EEEV, 1 HJV, 8 WNV
Brevard	08/15/14	1.67		1.67				1 WNV	6 WNV
Duval	08/21/14				12.00		12.00	3 HJV	
	08/25/14				12.50		12.50	3 HJV	
	09/02/14	4.17	4.17					1 SLEV	3 EEEV, 6 HJV, 1 SLEV
Flagler	08/18/14	9.09		9.09				1 WNV, 1 HJV	
	08/25/14				16.67		16.67	2 HJV	11 EEEV, 5 HJV, 2 WNV
Hillsborough	09/02/14	4.82	1.20	3.61				3 WNV, 1 SLEV	2 EEEV, 3 SLEV, 4 WNV
Manatee	09/02/14	1.35	1.35					1 SLEV	2 SLEV
Nassau	08/18/14	5.71		5.71					
	08/22/14				13.89		8.33	2 WNV, 2 EEEV, 3 HJV	
	08/29/14	5.71	2.86					1 SLEV, 1 WNV	
	09/02/14	5.88		5.88				2 WNV	13 EEEV, 4 HJV, 6 WNV, 1 SLEV
Orange	08/25/14				0.84		0.84	1 HJV	18 EEEV, 4 HJV, 2 WNV
Pinellas	08/25/14				1.79		1.79	1 HJV	
	09/02/14	3.77	3.77					2 SLEV	22 SLEV, 1 HJV
Polk	09/02/14	11.11		11.11				1 WNV	5 EEEV, 1 SLEV, 1 WNV
Putnam	08/26/14				50.00		50.00	6 HJV, 1 WNV	7 EEEV, 5 WNV, 6 HJV
St. Johns	08/25/14				7.84		7.84	4 HJV, 2 WNV	
	09/02/14	7.55		7.55				4 WNV	19 EEEV, 7 HJV, 16 WNV
Volusia	08/18/14			2.56				1 WNV	
	09/01/14			4.76				2 WNV	3 EEEV, 1 HJV, 13 WNV
Walton	08/26/14					0.97			
	08/25/14				3.88		2.91	1 EEEV, 3 HJV	34 EEEV, 14 HJV, 3 WNV

Sentinel Seroconversions to EEEV In Florida, 2013-2014



Sentinel Seroconversions to WNV In Florida, 2013-2014



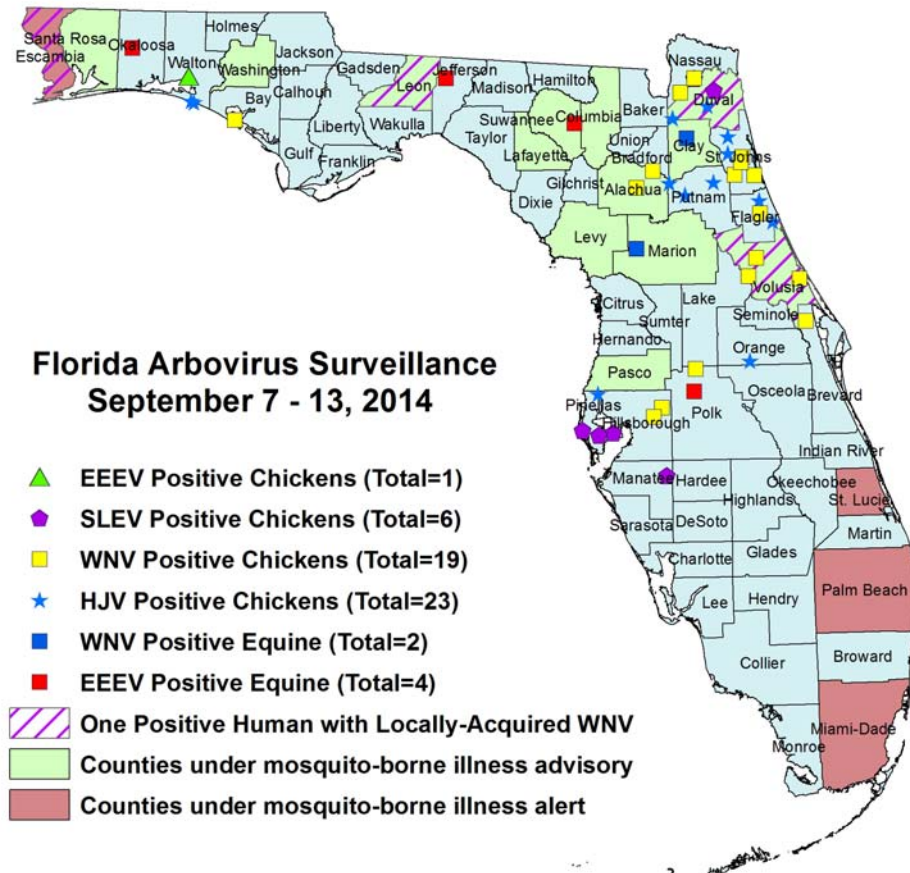
Dead Birds

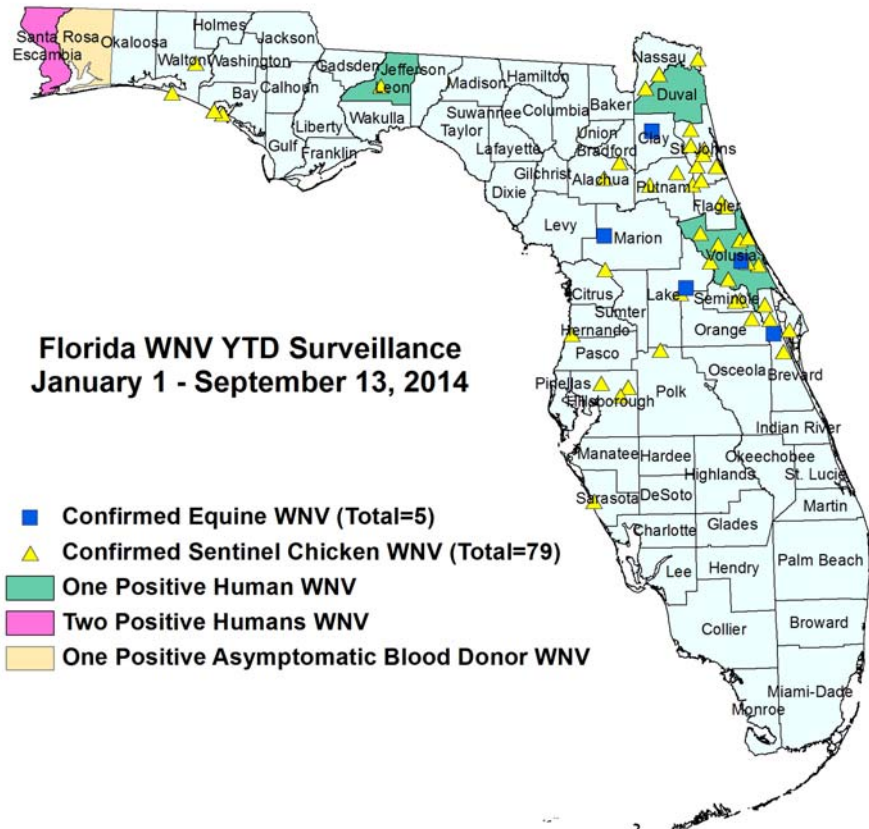
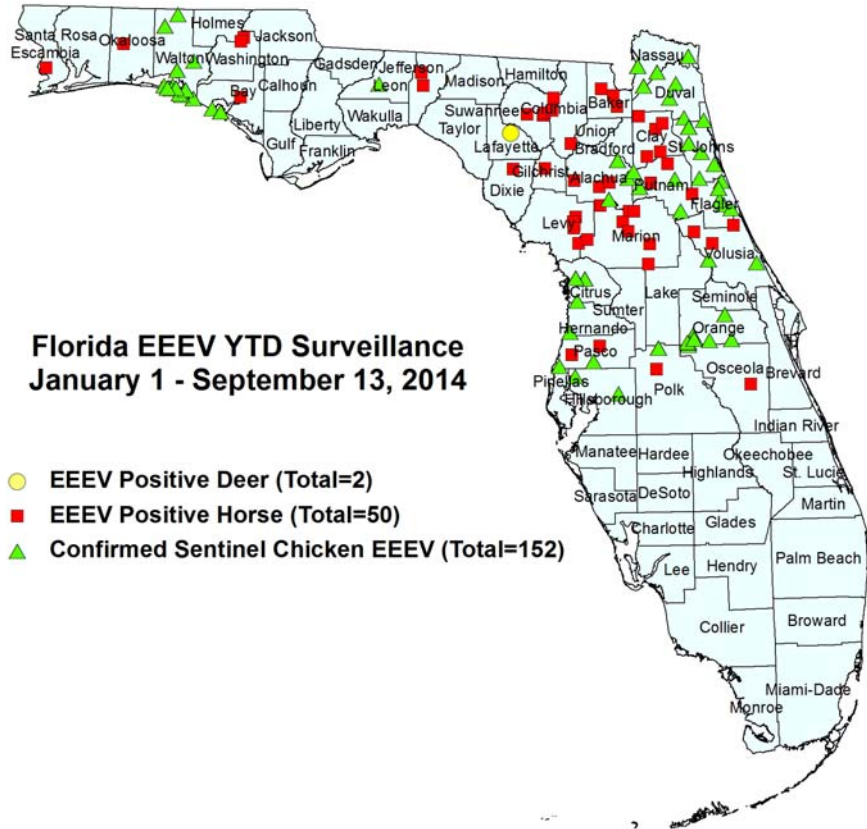
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 6 reports representing 10 dead birds including 1 crow, 1 jay, 1 dove and 1 raptor were received from 6 counties.

In 2014, 296 reports representing a total of 845 dead birds (27 crows, 6 jay, 62 raptors, and 30 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	5	0	0	0	0
Collier	1	0	1	0	0
Leon	1	0	0	0	0
Palm Beach	1	0	0	1	0
Sarasota	1	0	0	0	1
St. Johns	1	1	0	0	0

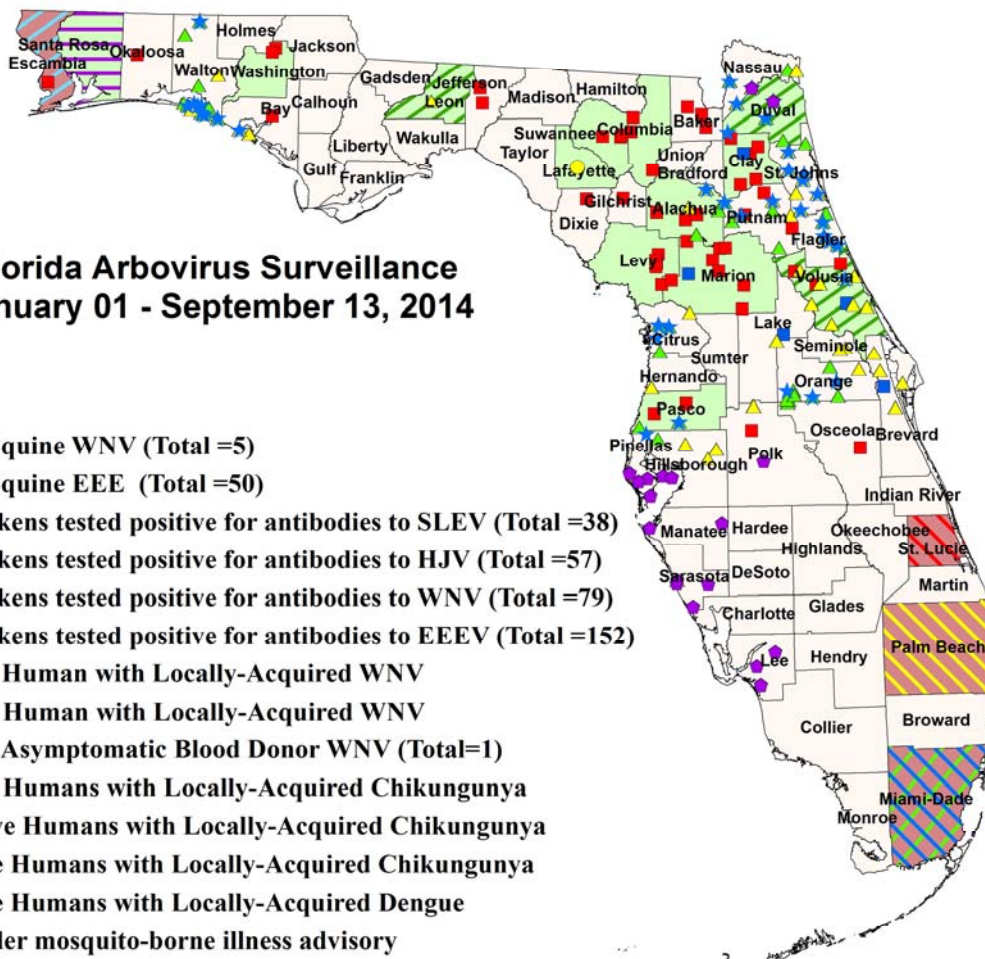
Maps





Florida Arbovirus Surveillance January 01 - September 13, 2014

- Confirmed Equine WNV (Total =5)
- Confirmed Equine EEE (Total =50)
- ◆ Sentinel chickens tested positive for antibodies to SLEV (Total =38)
- ★ Sentinel chickens tested positive for antibodies to HJV (Total =57)
- ▲ Sentinel chickens tested positive for antibodies to WNV (Total =79)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total =152)
- ▨ One Positive Human with Locally-Acquired WNV
- ▨ Two Positive Human with Locally-Acquired WNV
- ▨ One Positive Asymptomatic Blood Donor WNV (Total=1)
- ▨ Two Positive Humans with Locally-Acquired Chikungunya
- ▨ Three Positive Humans with Locally-Acquired Chikungunya
- ▨ Four Positive Humans with Locally-Acquired Chikungunya
- ▨ Four Positive Humans with Locally-Acquired Dengue
- ▨ Counties under mosquito-borne illness advisory
- ▨ Counties under mosquito-borne illness alert



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: 5 sentinels (8/12, 8/18, 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: 8 sentinels (8/19, 8/26, 9/2)
Brevard	WNV: 1 horse (8/1); 6 sentinels (7/17, 8/8, 8/15, 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) WNV: 1 horse (9/3)
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: 6 sentinel (8/18, 8/21, 8/25) WNV: 1 human (August) SLEV: 1 sentinel (9/2)
Escambia	EEEV: 1 horse (7/16) WNV: 2 humans (July, 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: 5 sentinels (7/21, 8/18, 8/25) WNV: 2 sentinels (7/14, 8/18)
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: 3 sentinels (1/7, 2/18, 9/2) WNV: 4 sentinels (3/18, 9/2)
Jefferson	EEEV: 2 horses (7/7, 8/25)
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 human (August), 1 sentinel (8/19)
Levy	EEEV: 4 horses (6/7, 6/21, 6/27, 6/28, 8/17)
Manatee	SLEV: 2 sentinels (7/29, 9/2)
Marion	EEEV: 8 horses (4/12, 5/31, 6/19, 6/26, 6/29, 7/4, 7/14, 7/30) WNV: 1 horse (9/5)
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: 4 sentinels (7/25, 8/18, 8/22) WNV: 6 sentinel (8/8, 8/18, 8/22, 8/25, 9/2) SLEV: 1 sentinel (8/29)
Okaloosa	EEEV: 1 horse (8/15)
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: 4 sentinels (1/2, 2/17, 8/25) 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: 22 sentinels (7/21, 7/25, 7/28, 8/4, 8/11, 8/18, 8/25, 9/2) HJV: 1 sentinel (8/25)
Polk	EEEV: 5 sentinels (6/23, 6/30, 7/7); 1 horse (8/3) SLEV: 1 sentinel (8/25) WNV: 1 sentinel (9/2)
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) HJV: 6 sentinels (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: 7 sentinels (7/28, 8/18, 8/25) WNV: 16 sentinels (7/21, 7/28, 8/4, 8/11, 8/18, 8/25, 9/2)
St. Lucie	Chikungunya: 3 humans (July, August)
Suwannee	EEEV: 3 horses (8/5, 8/13, 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 human (August); 1 horse (7/15); 13 sentinels (7/14, 7/21, 7/28, 8/4, 8/5, 8/12, 8/18, 9/1)
Walton	EEEV: 34 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, 8/26) HJV: 14 sentinels (3/10, 3/24, 5/12, 5/19, 6/16, 6/30, 7/15, 8/4, 8/11, 8/18, 8/25) WNV: 3 sentinels (3/10, 3/17, 6/9)
Washington	EEEV: 2 horses (7/15, 7/22)

Acknowledgements and Data Sources

Contributors: Shaiasia Itwaru-Womack, Katherine Kendrick, MPH, Danielle Stanek, DVM, and Carina Blackmore, DVM, Ph.D., DOH Bureau of Epidemiology; Lea Heberlein-Larson and Valerie Mock, DOH Bureau of Public Health Laboratories.

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.