



Florida Arbovirus Surveillance Week 34: August 17 – 23, 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 17 - 23, 2014 the following arboviral activity was recorded in Florida.

WNV activity: No human cases of WNV illness were reported this week. One horse with WNV infection was reported this week in Brevard County. Eleven sentinel chickens tested positive for antibodies to WNV this week in Alachua, Brevard, Nassau, Putnam, St. Johns and Volusia Counties. In 2014, positive samples from 35 sentinel chickens, 2 horses, and 1 blood donor have been received from 13 counties.

EEEV activity: No human cases of EEE were reported this week. Five horses with EEEV infection were reported this week in Clay, Columbia, Marion, Osceola, and Suwannee Counties. Four sentinel chickens tested positive for antibodies to EEEV this week in Orange, Putnam, and Walton Counties. In 2014, positive samples from 143 sentinel chickens, 2 deer, and 44 horses have been received from 29 counties.

International Travel-Associated Dengue Fever Cases: No cases of dengue fever were reported this week in persons that had international travel. In 2014, 47 travel-associated cases have been reported.

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

International Travel-Associated Chikungunya Fever Cases: Three cases of chikungunya fever were reported this week in persons that had international travel. In 2014, 172 travel-associated cases have been reported.

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

Advisories/Alerts: Alachua, Clay, Columbia, Levy, Lafayette, Marion, Miami-Dade, Pasco, St. Lucie, Santa Rosa, Volusia and Washington Counties are currently under a mosquito-borne illness advisory. Palm Beach County is 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*

International Travel-Associated Dengue Fever Cases: Forty-seven 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: Bolivia, Brazil (2), Caribbean, Columbia, Costa Rica (2), Cuba (17), Cuba/Bahamas, Dominican Republic (8), Guadeloupe, Haiti, Honduras (2), Mexico, Puerto Rico (4), Sri Lanka, Trinidad (2), and Venezuela (2). Counties reporting cases were: Alachua, Brevard, Broward (5), Clay, Highlands, Hillsborough (3), Manatee (2), Marion, Miami-Dade (20), Orange (3), Osceola (4), Pinellas, Seminole, St. Lucie (2), and Volusia. Five of the cases were reported in non-Florida residents. In 2014, 24 of the 47 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	9
DENV-3	1
DENV-4	5
DEN-1&2	1
	24

Dengue Fever Cases Acquired in Florida: In 2014, a total of one case of locally acquired dengue fever has been reported. One case of dengue in a Miami-Dade resident with onset in June, 2014 has been reported as acquired in Miami-Dade County.

International Travel-Associated Chikungunya Fever Cases: One hundred and seventy-two 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: Caribbean, Dominica, Dominican Republic (57), Guyana (2), Haiti (95), Martinique (2), Phillipines, and Puerto Rico (13). Counties reporting cases were: Alachua (2), Brevard (3), Broward (31), Charlotte (2), Clay (2), Duval (3), Escambia, Flagler, Hernando, Hillsborough (13), Indian River, Lake, Lee (3), Leon (2), Manatee (2), Miami-Dade (31), Okaloosa (2), Orange (18), Osceola (5), Palm Beach (28), Pasco (2), Pinellas (3), Polk (7), Santa Rosa, Sarasota, Seminole (3), St. Lucie (2), and Volusia. Fourteen of the cases were reported in non-Florida residents.

Chikungunya Fever Cases Acquired in Florida: In 2014, a total of six cases of locally acquired chikungunya fever have been reported. One case of chikungunya fever in a Miami-Dade resident with onset in June, 2014 has 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. One case of chikungunya fever in a St. Lucie resident with onset in July, 2014 has been reported as acquired in St. Lucie County.

International Travel-Associated Malaria Cases: Thirty-eight cases of malaria with onset in 2014 have been reported. Countries of origin were: Angola (3), Cameroon, Dominican Republic, Equatorial New Guinea (2), Ghana, Ghana/Rwanda, Guatemala, Guyana, Haiti, Honduras, India (4), Ivory Coast (2), Kenya (2), Nigeria (4), Nigeria/Ethiopia, 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), and Santa Rosa. Seven of the cases were reported in non-Florida residents.

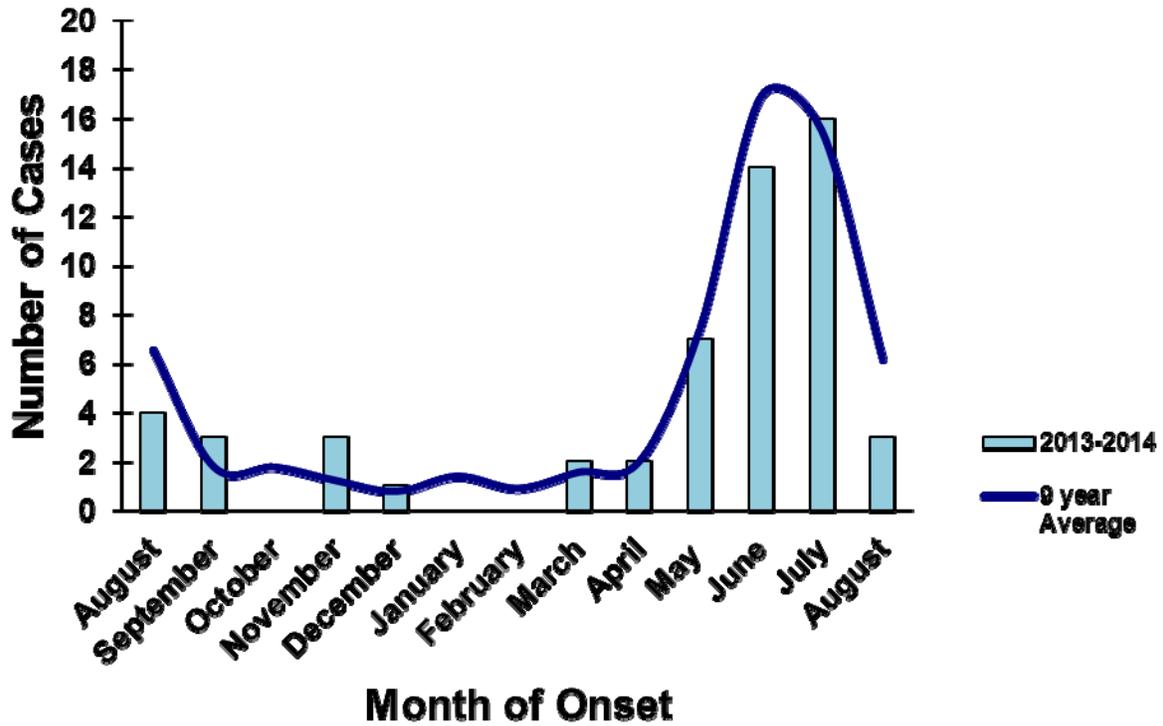
Twenty-six cases (68%) were diagnosed with *Plasmodium falciparum*. Eight cases (21%) were diagnosed with *Plasmodium vivax*. Two case (5%) was diagnosed with *Plasmodium malariae*. Two cases (5%) were diagnosed with *Plasmodium ovale*.

Veterinary Cases*

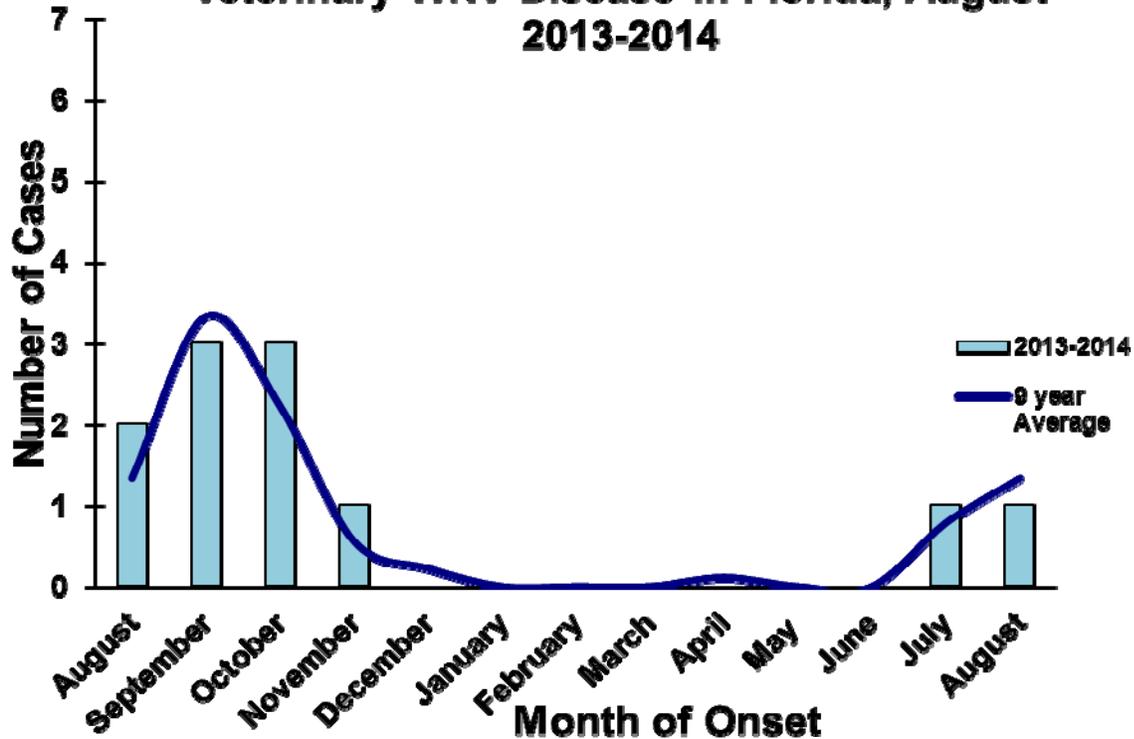
*Veterinary cases are reported by date of onset

Five horses with EEEV infection were reported this week in Clay, Columbia, Marion, Osceola, and Suwannee Counties. One horse with WNV infection was reported this week in Brevard County.

Veterinary EEE in Florida, August 2013-2014



Veterinary WNV Disease in Florida, August 2013-2014



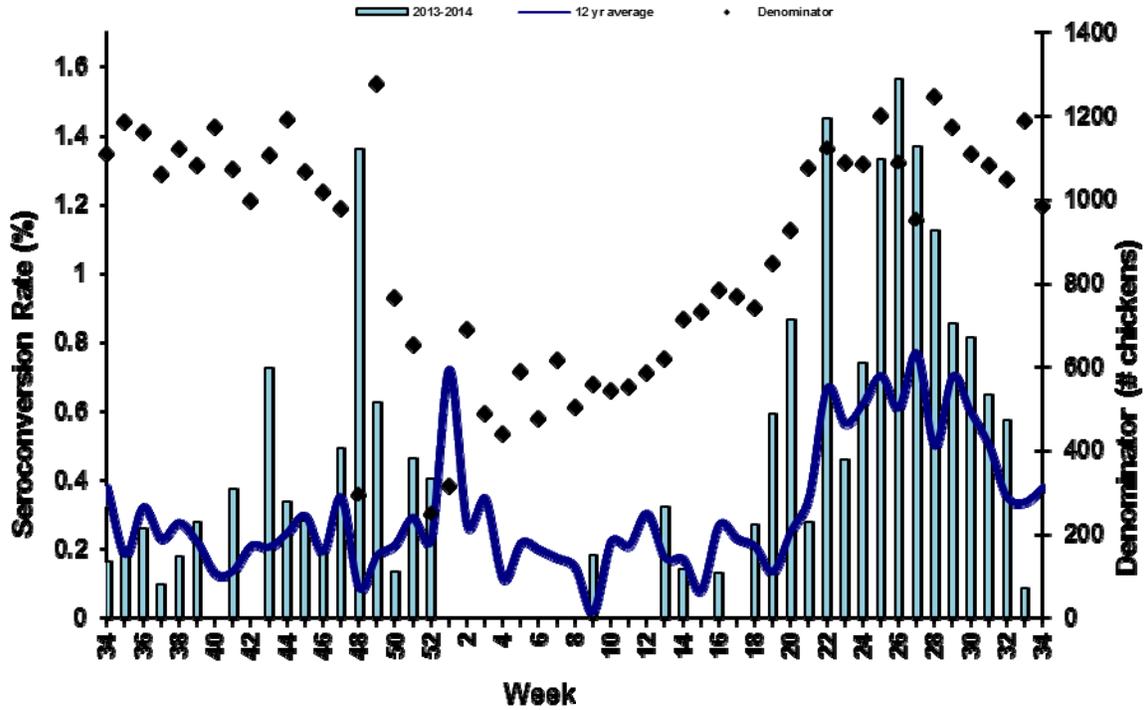
Sentinel Chickens

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.

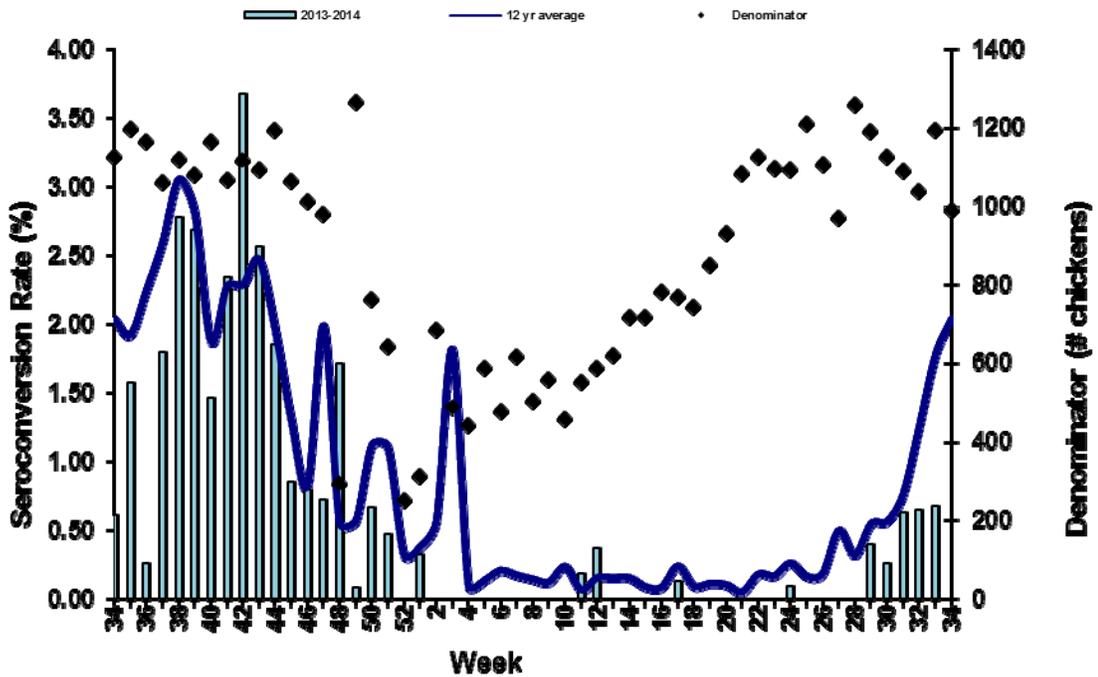
Four sentinel chickens tested positive for antibodies to EEEV this week in Orange, Putman and Walton Counties. Eleven sentinel chickens tested positive for antibodies to WNV this week in Alachua, Brevard, Nassau, Putnam, St.Johns and Volusia Counties. One sentinel chicken tested positive for antibodies to SLEV this week in Pinellas County. One sentinel chicken tested positive for antibodies to HJV this week in Walton County.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Alachua	08/12/14	6.25		6.25				1 WNV	10 EEEV, 1 WNV
Brevard	08/08/14	3.33		3.33				2 WNV	4 WNV
Nassau	08/08/14	3.03		3.03				1 WNV	11 EEEV, 1 WNV
Orange	08/07/14				0.85	0.85		1 EEEV	16 EEEV, 3 HJV
Pinellas	08/11/14	1.89	1.89					1 SLEV	12 SLEV
Putnam	08/05/14				10.00	10.00		1 EEEV, 1 WNV	
	08/12/14	25.00		25.00				3 WNV	7 EEEV, 4 WNV
St. Johns	07/21/14	1.92		1.92				1 WNV, 2 EEEV	
	08/11/14	3.77		3.77				2 WNV	19 EEEV, 7 WNV, 1 HJV
Volusia	08/12/14	2.70		2.70				1 WNV	3 EEEV, 8 WNV
Walton	08/04/14				3.60	2.70	0.90	1 EEEV, 1 HJV	
	08/11/14				0.93	0.93		1 EEEV	30 EEEV, 7 HJV, 3 WNV

Sentinel Seroconversions to EEEV In Florida, 2013-2014



Sentinel Seroconversions to WNV In Florida, 2013-2014



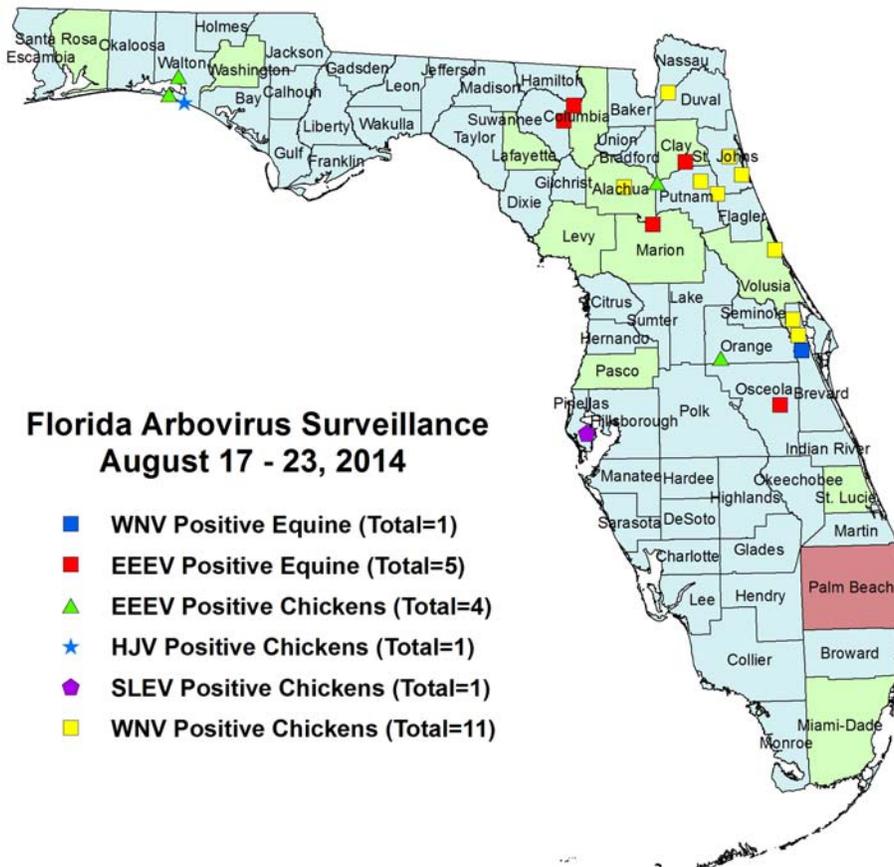
Dead Birds

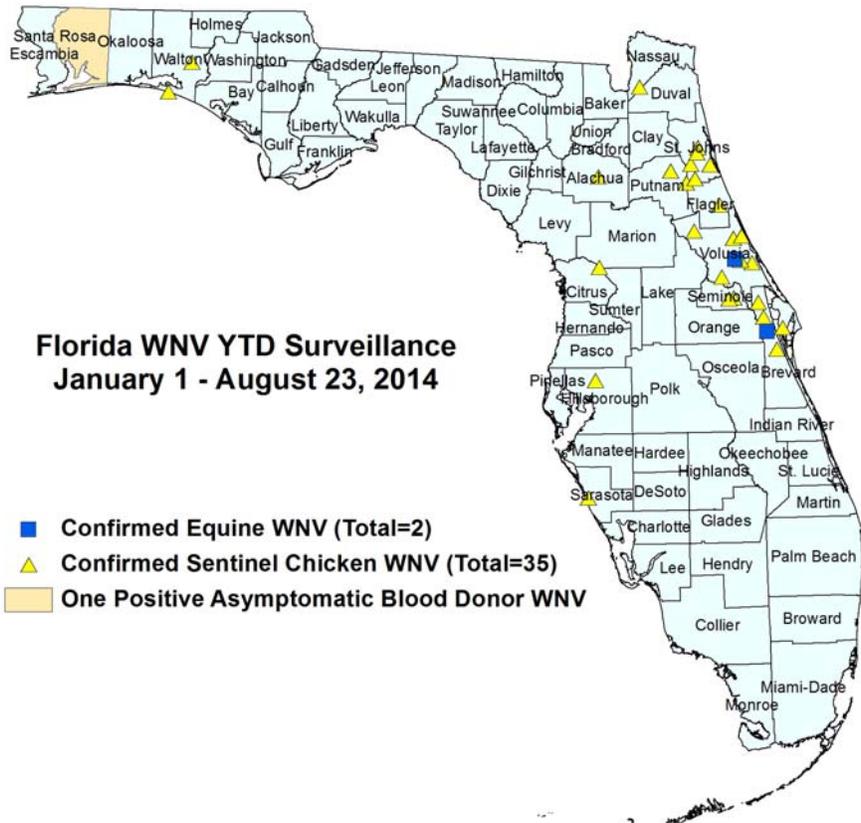
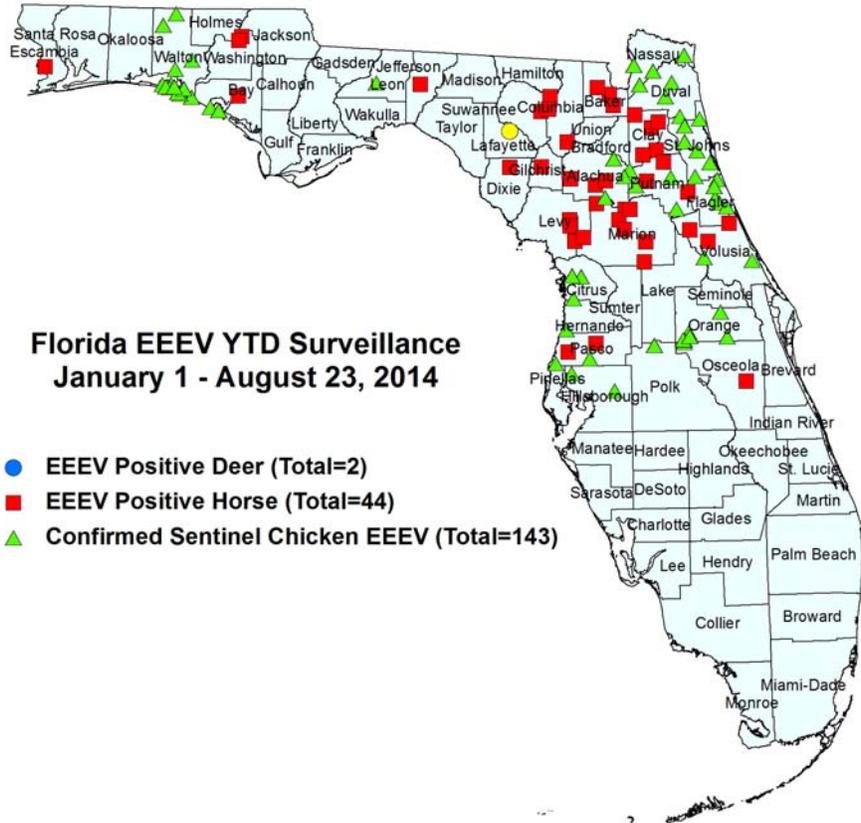
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 10 reports representing 21 dead birds, including 2 jays, 3 raptors and 1 dove were received from 6 counties.

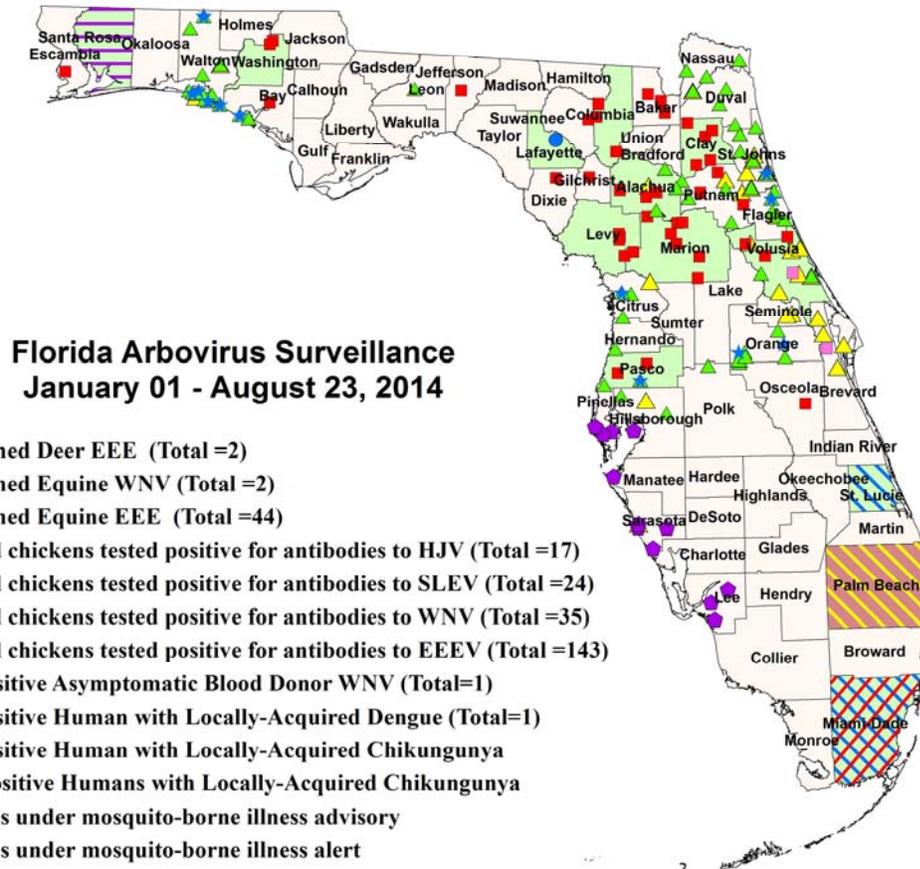
In 2014, 289 reports representing a total of 813 dead birds (26 crows, 5 jay, 60 raptors, and 29 doves) were received from 44 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Bay	3	0	0	0	0
Broward	12	0	0	0	0
Escambia	2	0	2	0	0
Hillsborough	2	0	0	1	1
Pinellas	1	0	0	1	0
Volusia	1	0	0	1	0

Maps







**Florida Arbovirus Surveillance
January 01 - August 23, 2014**

- Confirmed Deer EEE (Total =2)
- Confirmed Equine WNV (Total =2)
- Confirmed Equine EEE (Total =44)
- ★ Sentinel chickens tested positive for antibodies to HJV (Total =17)
- ★ Sentinel chickens tested positive for antibodies to SLEV (Total =24)
- ▲ Sentinel chickens tested positive for antibodies to WNV (Total =35)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total =143)
- ▬ One Positive Asymptomatic Blood Donor WNV (Total=1)
- ▨ One Positive Human with Locally-Acquired Dengue (Total=1)
- ▨ One Positive Human with Locally-Acquired Chikungunya
- ▨ Four Positive Humans with Locally-Acquired Chikungunya
- 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) WNV: 1 sentinel (8/12)
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)
Brevard	WNV: 1 horse (8/1); 4 sentinels (7/17, 8/8)
Citrus	EEEV: 13 sentinels (3/24, 3/31, 5/12, 5/26, 6/2, 6/30, 7/7, 7/14, 7/21, 8/4) HJV: 2 sentinels (2/17, 2/24) 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)
Escambia	EEEV: 1 horse (7/16)
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) WNV: 1 sentinel (7/14) HJV: 1 sentinel (7/21)
Gilchrist	EEEV: 2 horses (5/18, 6/23)
Hernando	EEEV: 2 sentinels (6/9, 7/9)
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)
Lee	SLEV: 4 sentinels (1/13, 1/14, 2/11, 3/25)
Leon	EEEV: 1 sentinel (7/14)
Levy	EEEV: 4 horses (6/7, 6/21, 6/27, 6/28)
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: 1 human (June) Dengue: 1 human (June)
Nassau	EEEV: 11 sentinels (5/27, 5/31, 6/13, 6/20, 6/23, 6/27, 7/11, 7/19) WNV: 1 sentinel (8/8)
Orange	EEEV: 16 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) HJV: 3 sentinels (1/2, 2/17)
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: 12 sentinels (7/21, 7/25, 7/28, 8/4)
Polk	EEEV: 5 sentinels (6/23, 6/30, 7/7)
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: 4 sentinels (8/5, 8/12)
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) WNV: 7 sentinels (7/21, 7/28, 8/4, 8/11) HJV: 1 sentinel (7/28)
St. Lucie	Chikungunya: 1 human (July)
Suwannee	EEEV: 1 horse (8/5)
Volusia	EEEV: 3 horses (3/19, 5/19, 5/24); 3 sentinels (5/27, 6/9) WNV: 1 horse (7/15); 8 sentinels (7/14, 7/21, 7/28, 8/4, 8/12)
Walton	EEEV: 30 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) HJV: 7 sentinels (3/10, 3/24, 5/12, 5/19, 6/16, 6/30, 7/15) WNV: 3 sentinels (3/10, 3/17, 6/9)
Washington	EEEV: 2 horses (7/15, 7/22)

Acknowledgements and Data Sources

Contributors: Stephanie Moody-Geissler, MPH, Shaiasia Itwaru-Womack, 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.