



## Florida Arbovirus Surveillance Week 35: August 24 –30, 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 24 - 30, 2014 the following arboviral activity was recorded in Florida.

**WNV activity:** No human cases of WNV illness were reported this week. No horses with WNV infection were reported this week. Nine sentinel chickens tested positive for antibodies to WNV this week in Bay, Leon, Orange, St. Johns and Volusia Counties. In 2014, positive samples from 44 sentinel chickens, 2 horses, and 1 blood donor have been received from 16 counties.

**EEEV activity:** No human cases of EEE were reported this week. No horses with EEEV infection were reported this week. Four sentinel chickens tested positive for antibodies to EEEV this week in Citrus, and Walton Counties. In 2014, positive samples from 147 sentinel chickens, 2 deer, and 44 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, 49 travel-associated cases have been reported.

**Dengue Fever Cases Acquired in Florida:** Three cases of locally acquired dengue fever were reported this week in Miami-Dade County. In 2014, a total of four cases of locally acquired dengue fever have been reported.

**International Travel-Associated Chikungunya Fever Cases:** Sixteen cases of chikungunya fever were reported this week in persons that had international travel. In 2014, 188 travel-associated cases have been reported.

**Chikungunya Fever Cases Acquired in Florida:** Two cases of locally acquired chikungunya fever were reported this week in St. Lucie and Miami-Dade Counties. In 2014, a total of eight cases of locally acquired chikungunya fever have been reported.

**Advisories/Alerts:** Alachua, Clay, Columbia, Levy, Lafayette, Marion, Pasco, Santa Rosa, 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\*

**International Travel-Associated Dengue Fever Cases:** Forty-nine 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 (17), Cuba/Bahamas, Dominican Republic (8), El Salvador, Guadeloupe, Haiti, Honduras (2), Mexico, Puerto Rico (4), Sri Lanka, Trinidad (2), and Venezuela (2). Counties reporting cases were: Alachua, Brevard, Broward (6), Clay, Highlands, Hillsborough (3), Manatee (2), Marion, Miami-Dade (20), 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, 24 of the 49 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 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:** One hundred and eighty-eight 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 (64), Guyana (3), Haiti (98), Martinique (2), Phillipines, Puerto Rico (17), and St. Lucia. Counties reporting cases were: Alachua (2), Brevard (3), Broward (35), Charlotte (2), Clay (2), Duval (3), Escambia, Flagler, Hernando, Highlands, Hillsborough (13), Indian River, Lake, Lee (3), Leon (2), Manatee (2), Miami-Dade (33), Okaloosa (2), Orange (20), Osceola (5), Palm Beach (31), Pasco (2), Pinellas (4), Polk (9), Santa Rosa, Sarasota, Seminole (3), St. Johns, 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 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:** Forty 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), 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 (5), Osceola (2), Palm Beach (2), Pasco, Pinellas (2), Santa Rosa, and Seminole. Seven of the cases were reported in non-Florida residents.

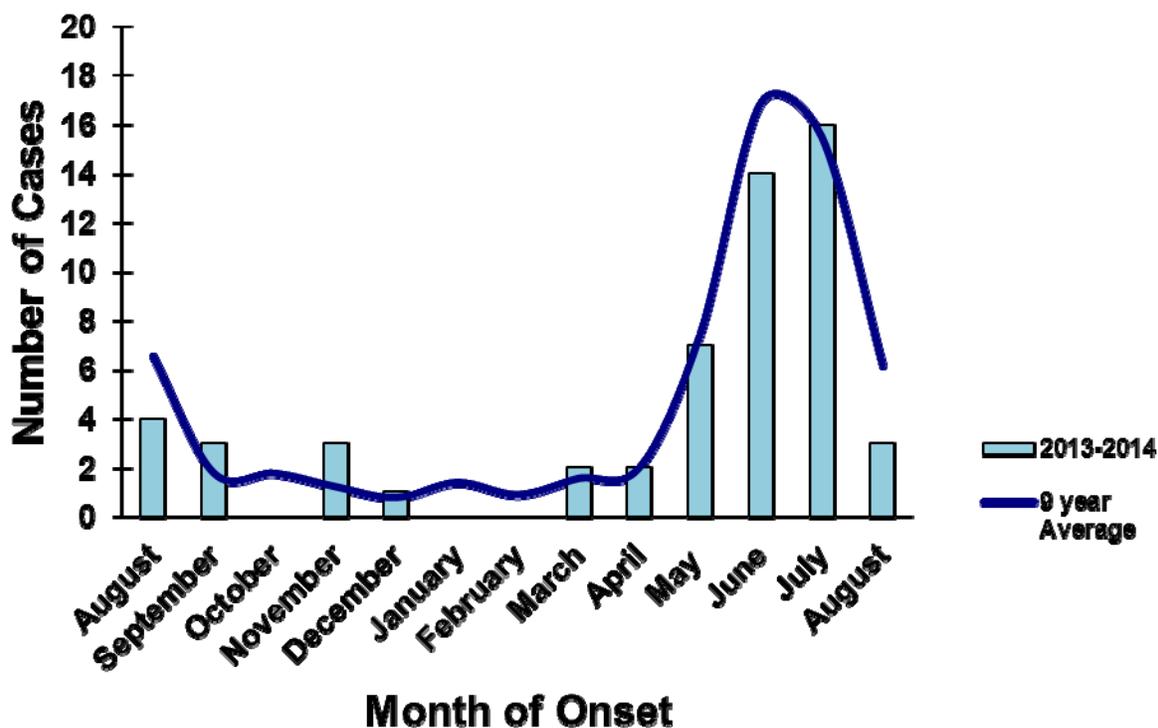
Twenty-eight cases (70%) were diagnosed with *Plasmodium falciparum*. Eight cases (20%) were diagnosed with *Plasmodium vivax*. Two case (5%) was diagnosed with *Plasmodium malariae*. Two cases (5%) were diagnosed with *Plasmodium ovale*.

## Veterinary Cases\*

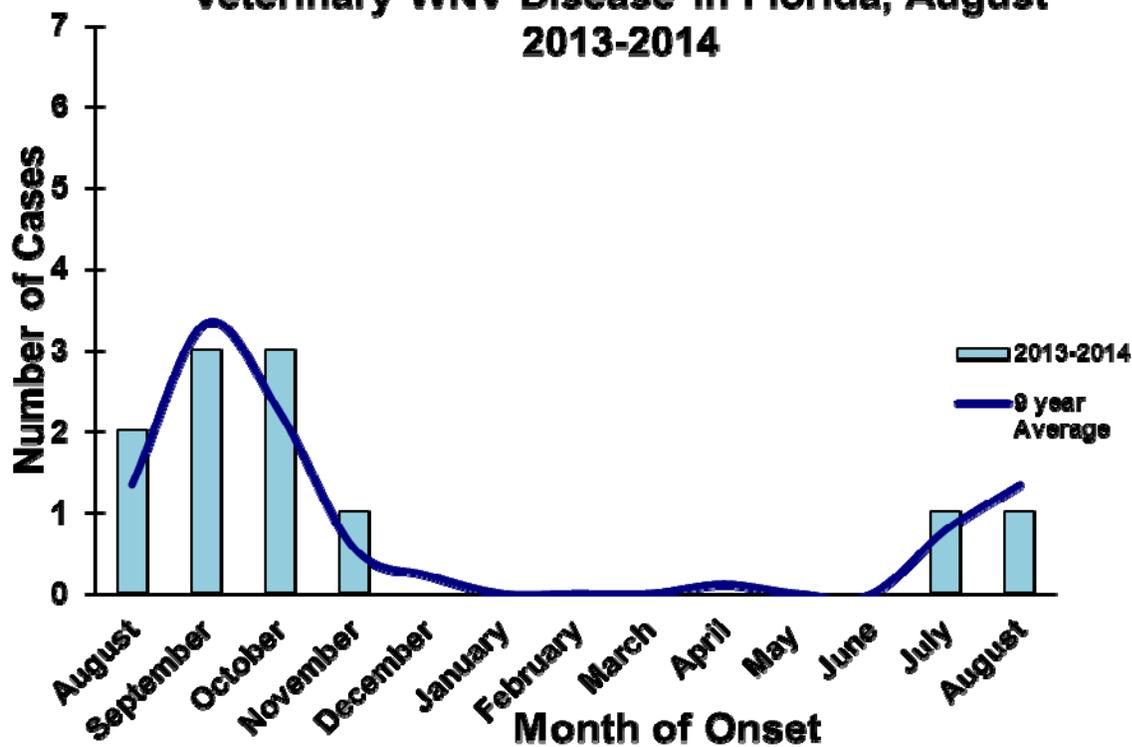
\*Veterinary cases are reported by date of onset

No horses with EEEV or WNV infection were reported this week.

### Veterinary EEE in Florida, August 2013-2014



### Veterinary WNV Disease in Florida, August 2013-2014



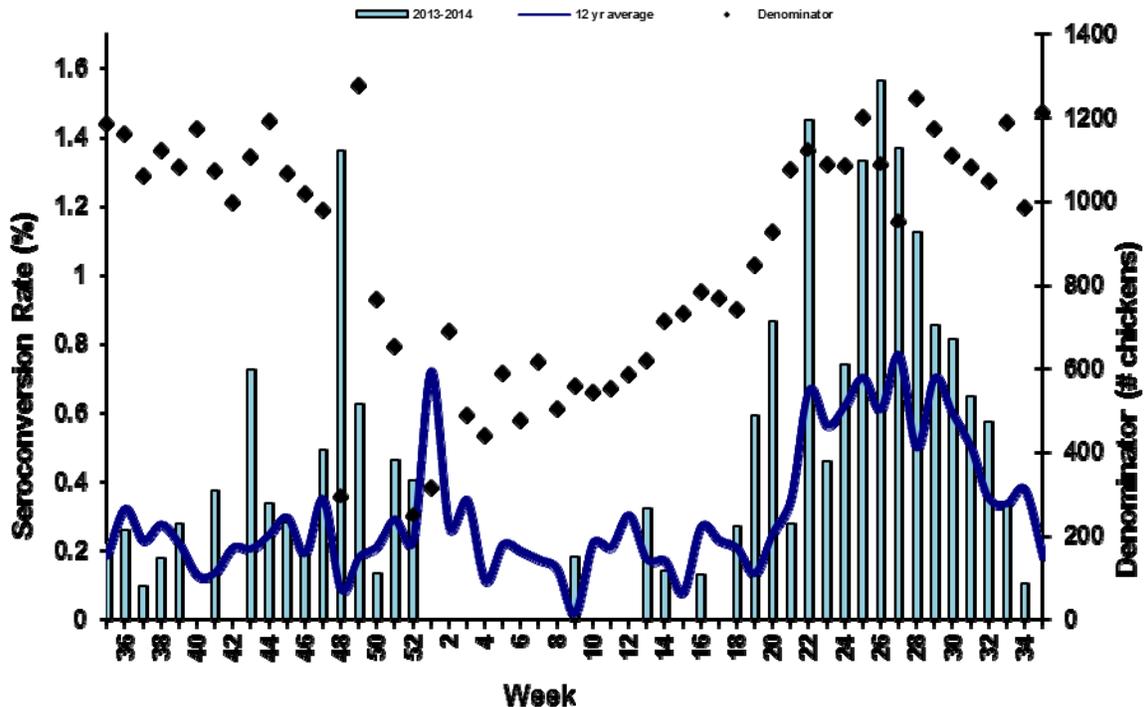
## Sentinel Chickens

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.

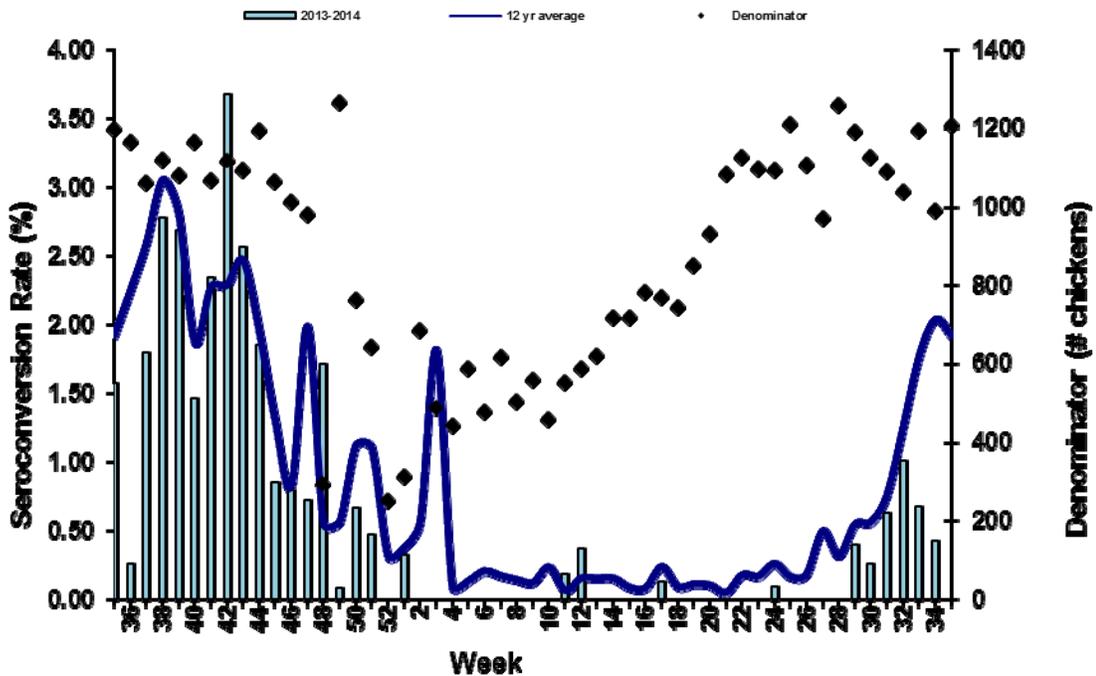
Four sentinel chickens tested positive for antibodies to EEEV this week in Citrus and Walton Counties. Nine sentinel chickens tested positive for antibodies to WN V this week in Bay, Leon, Orange, St.Johns and Volusia Counties. Four sentinel chickens tested positive for antibodies to SLEV this week in Pinellas County (state total of 27 positives for 2014). Two sentinel chickens tested positive for antibodies to HJV this week in Citrus and Walton Counties (state total of 19 positives for 2014).

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Bay	08/19/14	11.76		11.76				2 WNV	6 EEEV, 1 HJV, 2 WNV
Citrus	08/11/14				2.82	1.41	1.41	1 EEEV, 1 HJV	14 EEEV, 3 HJV, 1 WNV
Leon	08/19/14	2.38		2.38				1 WNV	1 EEEV, 1 WNV
Orange	08/04/14	1.69		1.69				2 WNV, 1 EEEV	16 EEEV, 3 HJV, 2 WNV
Pinellas	08/18/14	7.14	7.14					4 SLEV	17 SLEV
St. Johns	08/18/14	3.92		3.92				2 WNV	19 EEEV, 9 WNV, 1 HJV
Volusia	08/05/14	8.33		8.33				3 WNV	3 EEEV, 10 WNV
Walton	08/11/14						0.93		
	08/12/14				3.74	2.80		1 HJV, 3 EEEV	
	08/18/14				0.95	0.95		1 EEEV	33 EEEV, 9 HJV, 3 WNV

**Sentinel Seroconversions to EEEV In Florida, 2013-2014**



## Sentinel Seroconversions to WNV In Florida, 2013-2014



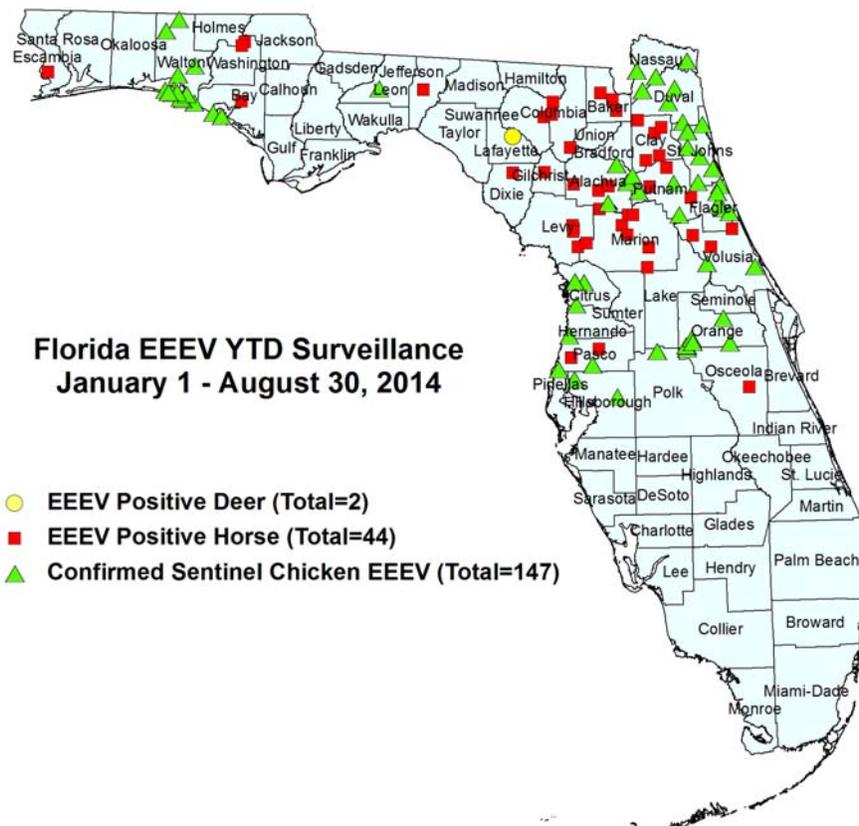
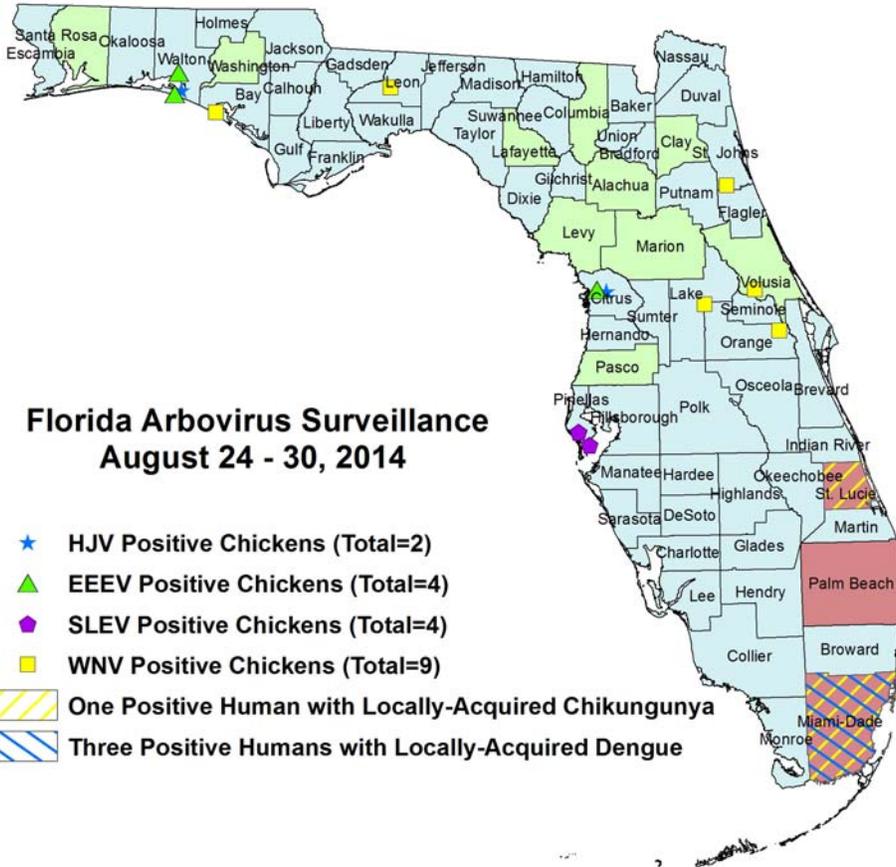
### Dead Birds

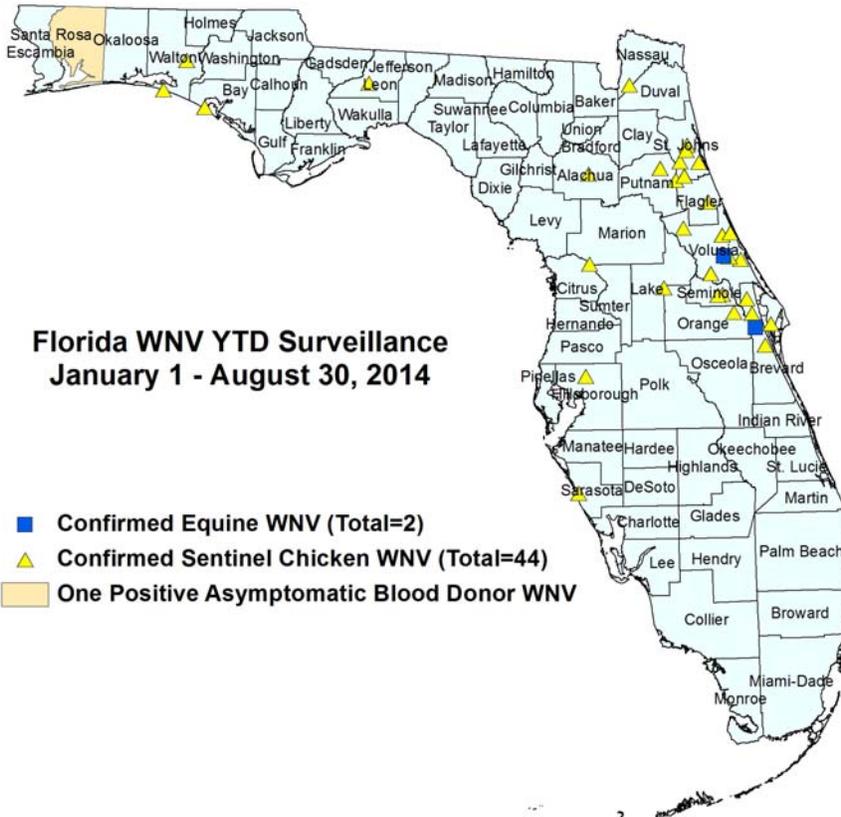
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 5 reports representing 19 dead birds, including 1 raptor were received from 5 counties.

In 2014, 294 reports representing a total of 832 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/](http://www.myfwc.com/bird/)

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Bay	1	0	0	0	0
Clay	1	0	0	0	0
Dade	15	0	0	0	0
Osceola	1	0	0	1	0
Seminole	1	0	0	0	0

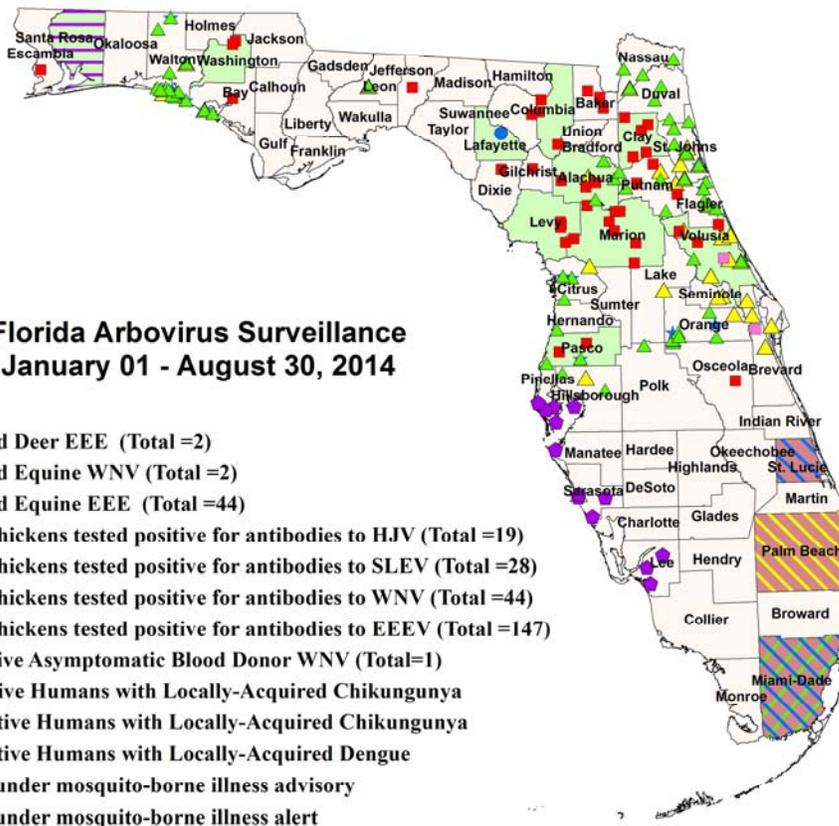
## Maps





**Florida WNV YTD Surveillance  
January 1 - August 30, 2014**

- Confirmed Equine WNV (Total=2)
- ▲ Confirmed Sentinel Chicken WNV (Total=44)
- One Positive Asymptomatic Blood Donor WNV



**Florida Arbovirus Surveillance  
January 01 - August 30, 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 =19)
- ★ Sentinel chickens tested positive for antibodies to SLEV (Total =28)
- ▲ Sentinel chickens tested positive for antibodies to WNV (Total =44)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total =147)
- One Positive Asymptomatic Blood Donor WNV (Total=1)
- ▨ Two 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
<b>Alachua</b>	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)
<b>Baker</b>	EEEV: 3 horses (3/13, 7/10, 7/16)
<b>Bay</b>	EEEV: 1 horse (6/15); 6 sentinels (4/28, 5/6, 5/13, 5/22, 5/30) HJV: 1 sentinel (2/18) WNV: 2 sentinels (8/19)
<b>Brevard</b>	WNV: 1 horse (8/1); 4 sentinels (7/17, 8/8)
<b>Citrus</b>	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: 3 sentinels (2/17, 2/24, 8/11) WNV: 1 sentinel (1/2)
<b>Clay</b>	EEEV: 5 horses (5/2, 7/16, 7/19, 7/20, 8/2)
<b>Columbia</b>	EEEV: 3 horses (6/25, 7/18, 8/1)
<b>Dixie</b>	EEEV: 1 horse (5/22)
<b>Duval</b>	EEEV: 3 sentinels (6/16, 6/19, 6/30)
<b>Escambia</b>	EEEV: 1 horse (7/16)
<b>Flagler</b>	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)
<b>Gilchrist</b>	EEEV: 2 horses (5/18, 6/23)
<b>Hernando</b>	EEEV: 2 sentinels (6/9, 7/9)
<b>Hillsborough</b>	EEEV: 2 sentinels (5/13, 7/1) SLEV: 2 sentinels (1/7, 2/18) WNV: 1 sentinel (3/18)
<b>Jefferson</b>	EEEV: 1 horse (7/7)
<b>Lafayette</b>	EEEV: 2 deer (6/24)
<b>Lee</b>	SLEV: 4 sentinels (1/13, 1/14, 2/11, 3/25)
<b>Leon</b>	EEEV: 1 sentinel (7/14) WNV: 1 sentinel (8/19)
<b>Levy</b>	EEEV: 4 horses (6/7, 6/21, 6/27, 6/28)
<b>Manatee</b>	SLEV: 1 sentinel (7/29)
<b>Marion</b>	EEEV: 8 horses (4/12, 5/31, 6/19, 6/26, 6/29, 7/4, 7/14, 7/30)
<b>Miami-Dade</b>	Chikungunya: 2 humans (June) Dengue: 4 humans (June)
<b>Nassau</b>	EEEV: 11 sentinels (5/27, 5/31, 6/13, 6/20, 6/23, 6/27, 7/11, 7/19) WNV: 1 sentinel (8/8)
<b>Orange</b>	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) WNV: 2 sentinels (8/4)
<b>Osceola</b>	EEEV: 1 horse (7/30)
<b>Palm Beach</b>	Chikungunya: 4 humans (July)
<b>Pasco</b>	EEEV: 2 horses (5/31, 6/25); 4 sentinels (5/27, 6/10, 7/15) HJV: 1 sentinel (7/22)
<b>Pinellas</b>	SLEV: 16 sentinels (7/21, 7/25, 7/28, 8/4, 8/18)
<b>Polk</b>	EEEV: 5 sentinels (6/23, 6/30, 7/7)
<b>Putnam</b>	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)
<b>Sarasota</b>	SLEV: 4 sentinels (2/6, 2/14, 2/28, 7/28) WNV: 1 sentinel (4/25)
<b>Santa Rosa</b>	WNV: 1 asymptomatic blood donor (July)
<b>Seminole</b>	WNV: 3 sentinels (7/30, 8/5)
<b>St. Johns</b>	EEEV: 19 sentinels (5/5, 5/12, 5/27, 6/16, 6/23, 6/30, 7/21, 7/28) WNV: 9 sentinels (7/21, 7/28, 8/4, 8/11, 8/18) HJV: 1 sentinel (7/28)
<b>St. Lucie</b>	Chikungunya: 2 humans (July, August)
<b>Suwannee</b>	EEEV: 1 horse (8/5)

<b>Volusia</b>	EEEV: 3 horses (3/19, 5/19, 5/24); 3 sentinels (5/27, 6/9) WNV: 1 horse (7/15); 10 sentinels (7/14, 7/21, 7/28, 8/4, 8/5, 8/12)
<b>Walton</b>	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: 9 sentinels (3/10, 3/24, 5/12, 5/19, 6/16, 6/30, 7/15, 8/4, 8/11) WNV: 3 sentinels (3/10, 3/17, 6/9)
<b>Washington</b>	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.