



## Florida Arbovirus Surveillance Week 3: January 18-24, 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 January 18-24, 2015 the following arboviral activity was recorded in Florida.

[This report contains information for 2014 and 2015.](#)

**WNV activity:** No human cases of WNV were reported this week. No horses with WNV infection were reported this week. No sentinel chickens tested positive for antibodies to WNV this week. In 2015, there have been no positive samples reported. In 2014, positive samples from 338 sentinel chickens, 5 horses, 16 human cases, and 4 asymptomatic blood donors have been received from 31 counties.

**SLEV activity:** No human cases of SLEV were reported this week. No sentinel chickens tested positive for antibodies to SLEV this week. In 2015, there have been no positive samples reported. In 2014, positive samples from 2 human cases and 106 sentinel chickens have been received from 13 counties.

**EEEV activity:** No human cases of EEEV were reported this week. No horses with EEEV infection were reported this week. One sentinel chicken tested positive for antibodies to EEEV this week in Walton County. In 2015, positive samples from four sentinel chickens have been received from one county. In 2014, positive samples from 173 sentinel chickens, 2 deer, and 58 horses have been received from 32 counties.

**International Travel-Associated Dengue Fever Cases:** Two new cases of dengue fever were reported this week in persons that had international travel. In 2014, 82 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 six cases of locally acquired dengue fever have been reported.

**International Travel-Associated Chikungunya Fever Cases:** Four cases of chikungunya fever were reported this week in persons that had international travel. In 2014, 467 travel-associated cases have been reported. In 2015, 2 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 11 cases of locally acquired chikungunya fever have been reported.

**Advisories/Alerts:** No 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 January 13, 2015.

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

## 2014 Human Case Summary\*

**West Nile Virus Illnesses Acquired in Florida:** A total of sixteen human cases of WNV illness acquired in Florida have been reported in 2014; one in Alachua (August), one in Clay (October), four in Escambia (July, August, September), two in Duval (August, September), one in Leon (August), one in Marion (October), one in Pasco (August), one in Polk (September) and four in Volusia (August, September) Counties. Four asymptomatic positive blood donors were reported from Duval (September), Polk (November), Santa Rosa (July) and St. Johns (September) Counties.

**International Travel-Associated Dengue Fever Cases:** Eighty-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, Colombia, Costa Rica (5), Cuba (27), Cuba/Bahamas, Dominican Republic (7), El Salvador (2), Guadeloupe, Guatemala, Guyana, Haiti (5), Honduras (8), Jamaica (2), Mexico (3), Puerto Rico (7), Sri Lanka, Trinidad (2), and Venezuela (3). Counties reporting cases were: Alachua, Brevard (2), Broward (8), Clay, Collier, Highlands, Hillsborough (5), Lee, Manatee (2), Marion, Miami-Dade (38), Orange (4), Osceola (6), Palm Beach (6), Pinellas, Seminole (2), St. Lucie, and Volusia. Seven of the cases were reported in non-Florida residents. In 2014, 37 of the 82 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	<b># of cases per serotype – 2014</b>
<b>DENV-1</b>	14
<b>DENV-2</b>	12
<b>DENV-3</b>	3
<b>DENV-4</b>	7
<b>DEN-1&amp;2</b>	1
	<b>37</b>

**Dengue Fever Cases Acquired in Florida:** In 2014, a total of six cases of locally acquired dengue fever have been reported. Six cases of dengue in Miami-Dade residents with onset in June, August, and September have been reported as acquired in Miami-Dade County.

**International Travel-Associated Chikungunya Fever Cases:** Four hundred and sixty-seven 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 (2), Antigua/Barbuda, Barbados, Bequia, Caribbean, Colombia (7), Cuba (7), Dominica/Guadalupe, Dominican Republic (89), El Salvador (7), Grenada, Guatemala (2), Guyana (10), Haiti (109), Haiti/Dominican Republic, Honduras (2), India, Indonesia, Jamaica (70), Martinique (2), Nicaragua (3), Philippines, Puerto Rico (121), Puerto Rico/Dominican Republic (2), South America, St. Lucia (2), St. Thomas/St. Martin/Bahamas (2), St. Vincent and the Grenadines, Trinidad (2), Trinidad/Tobago (4), Venezuela (3), and Virgin Islands (9). Counties reporting cases were: Alachua (2), Brevard (4), Broward (86), Charlotte (3), Clay (2), Collier (2), Duval (10), Escambia (2), Flagler (2), Hernando (3), Highlands, Hillsborough (39), Indian River (2), Lake (6), Lee (16), Leon (2), Manatee (3), Marion (2), Miami-Dade (88), Monroe, Nassau, Okaloosa (2), Orange (58), Osceola (20), Palm Beach (46), Pasco (4), Pinellas (11), Polk (24), Santa Rosa, Sarasota (3), Seminole (9), St. Johns (3), St. Lucie (3), Volusia (5), and Walton. Thirty-five of the cases were reported in non-Florida residents.

Two 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: Jamaica and Nicaragua. Counties reporting cases were: Miami-Dade and Pinellas.

**Chikungunya Fever Cases Acquired in Florida:** In 2014, a total of eleven cases of locally acquired chikungunya fever have been reported. One case of chikungunya fever with onset in July was acquired in Broward County. Two cases of chikungunya fever with onset in June were acquired in Miami-Dade County. Four cases of chikungunya fever with onset in July were acquired in Palm Beach County. Four cases of chikungunya fever with onset in July and August were acquired in St. Lucie County.

**International Travel-Associated Malaria Cases:** Sixty-six cases of malaria with onset in 2014 have been reported. Countries of origin were: Angola (3), Caribbean, Cameroon, Dominican Republic, East Africa, Equatorial Guinea (2), Ghana (4), Ghana/Rwanda, Ghana/Senegal, Ghana/Togo, Guatemala, Guyana, Haiti, Honduras, India (9), Ivory Coast (3), Kenya (3), Liberia, Nigeria (12), Nigeria/Ethiopia, Papua New Guinea, Peru (2), Sierra Leone (5), Sudan (2), Togo, Uganda (2), Zambia, and multiple sub-Saharan African countries (3). Counties reporting cases were: Broward (9), Clay, Duval (4), Escambia, Hernando, Hillsborough (11), Lee, Leon, Miami-Dade (14), Okaloosa (2), Orange (7), Osceola (2), Palm Beach (5), Pasco, Pinellas (3), Santa Rosa, Seminole, and Volusia. Twenty of the cases were reported in non-Florida residents.

Forty-six cases (70%) were diagnosed with *Plasmodium falciparum*. Fourteen cases (21%) were diagnosed with *Plasmodium vivax*. Two cases (3%) were diagnosed with *Plasmodium malariae*. Four cases (6%) were diagnosed with *Plasmodium ovale*.

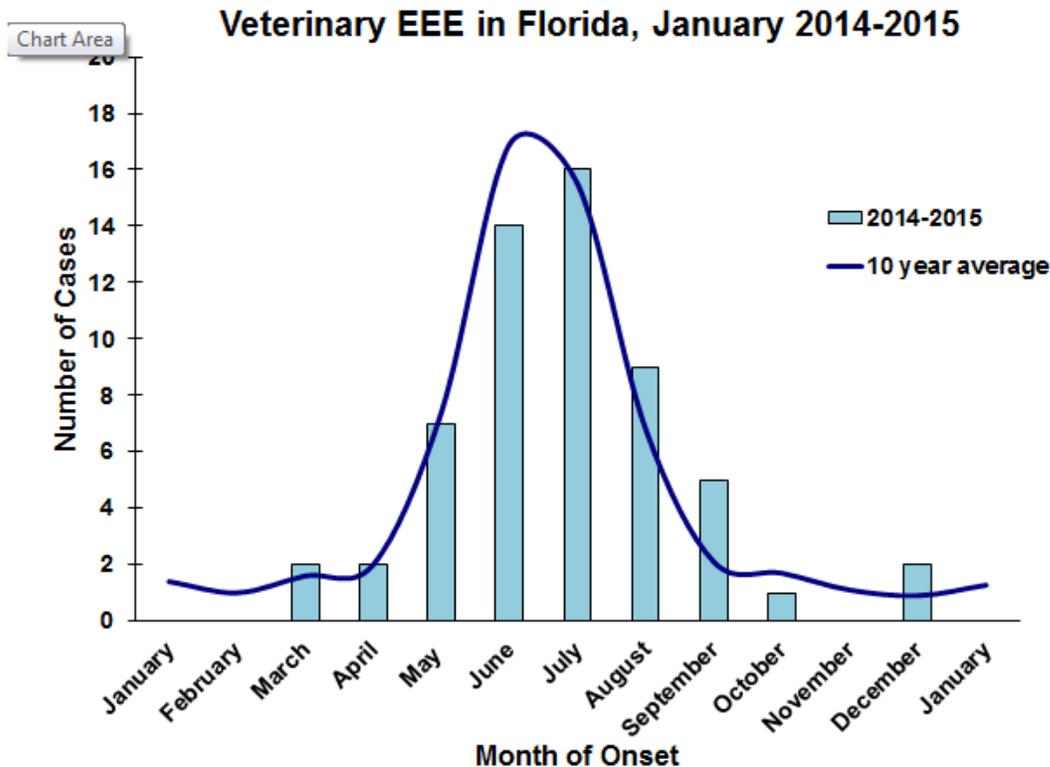
One case of malaria with onset in 2015 has been reported. Country of origin was: Cameroon. County reporting case was: Broward.

One case (100%) was diagnosed with *Plasmodium falciparum*.

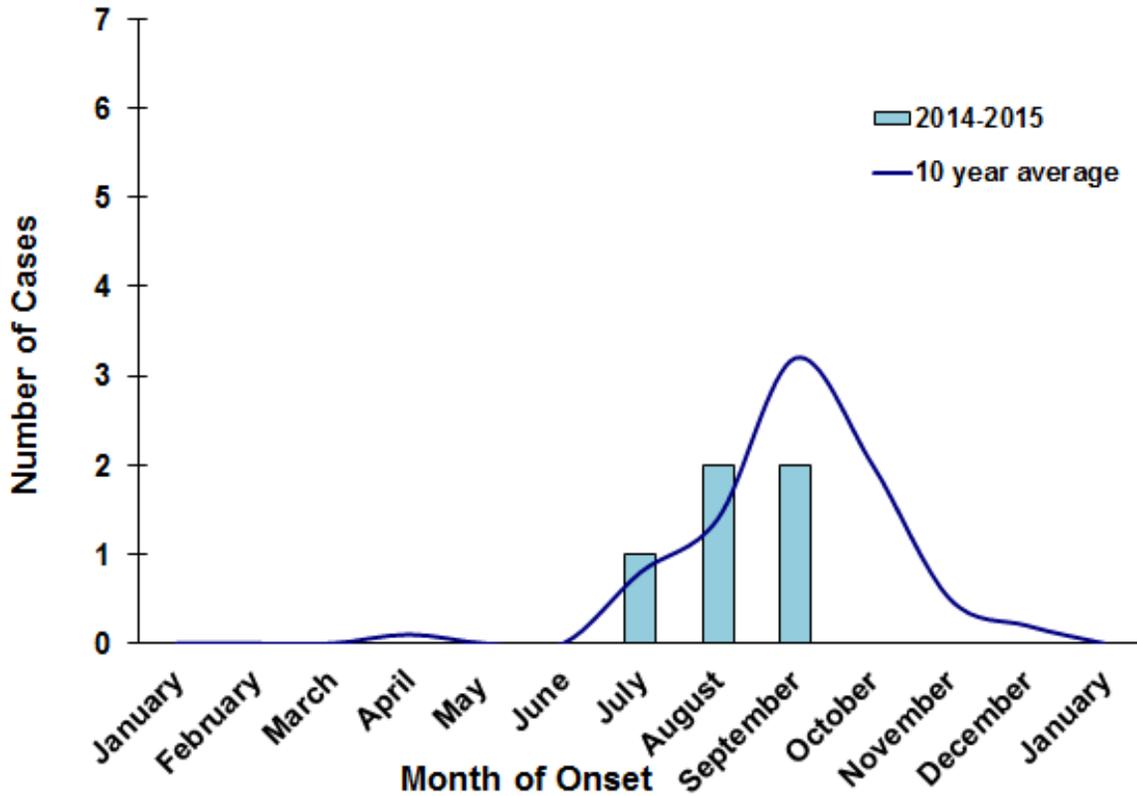
**Veterinary Cases\***

\*Veterinary cases are reported by date of onset

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



### Veterinary WNV Disease in Florida, January 2014-2015



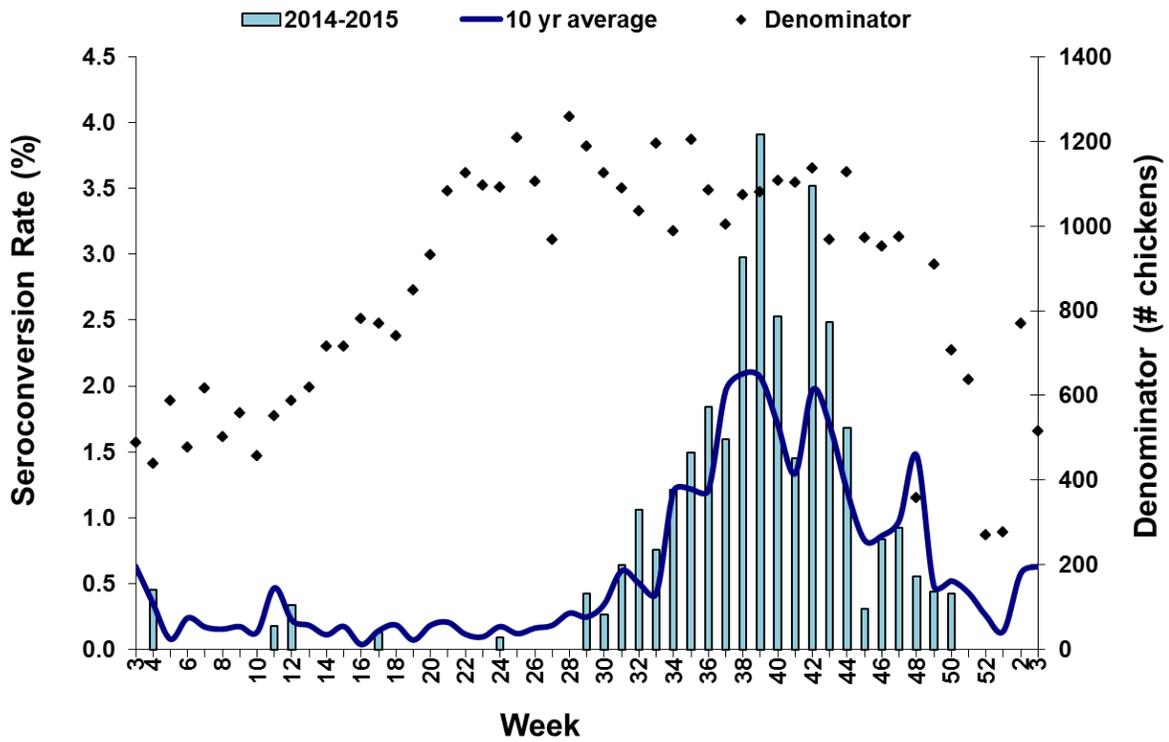
### Sentinel Chickens

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.

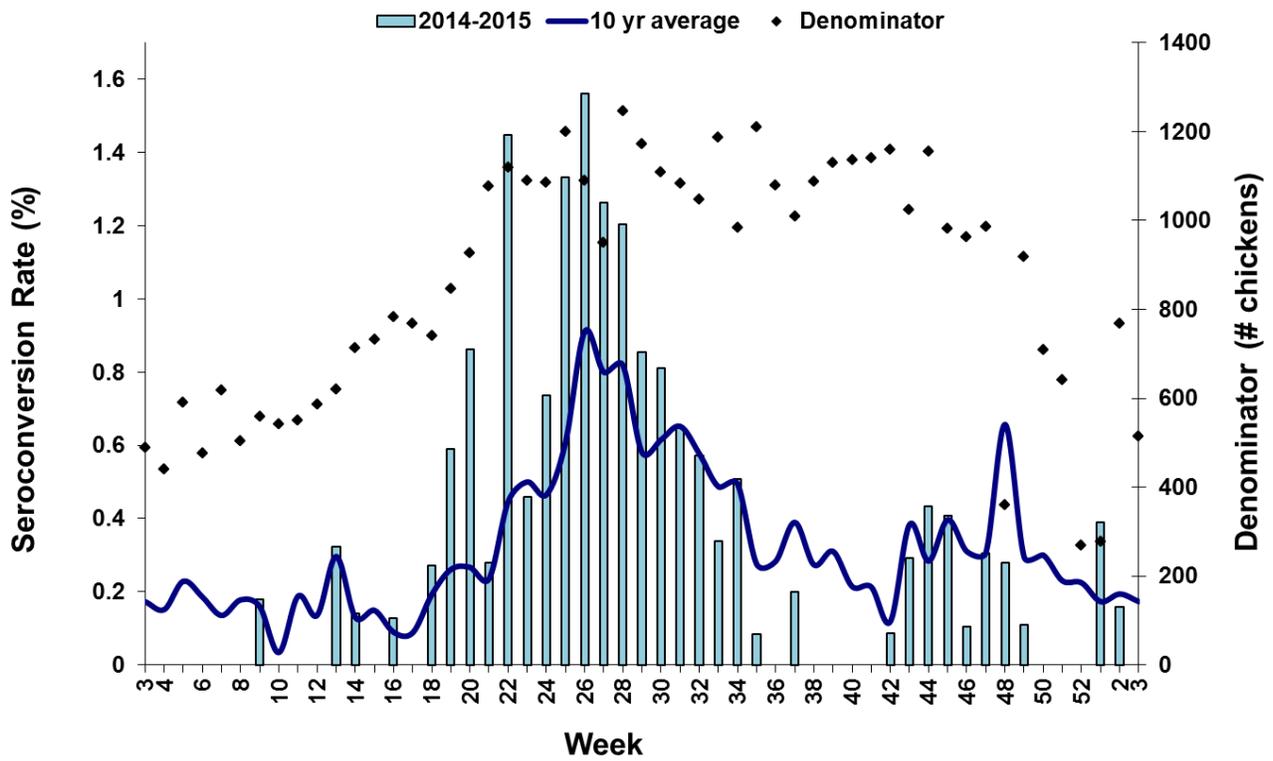
One sentinel chicken tested positive for antibodies to EEEV this week in Walton County.

County	Collection Date	Seroconversion Rates (%)						County Totals	
		Flavi	SLEV	WNV	Alpha	EEEV	HJV	Collection Week	YTD
Walton	01/13/15				0.98	0.98		1 EEEV	4 EEEV

### Sentinel Seroconversions to WNV in Florida, 2014-2015



### Sentinel Seroconversions to EEEV in Florida, 2014-2015



## Dead Birds

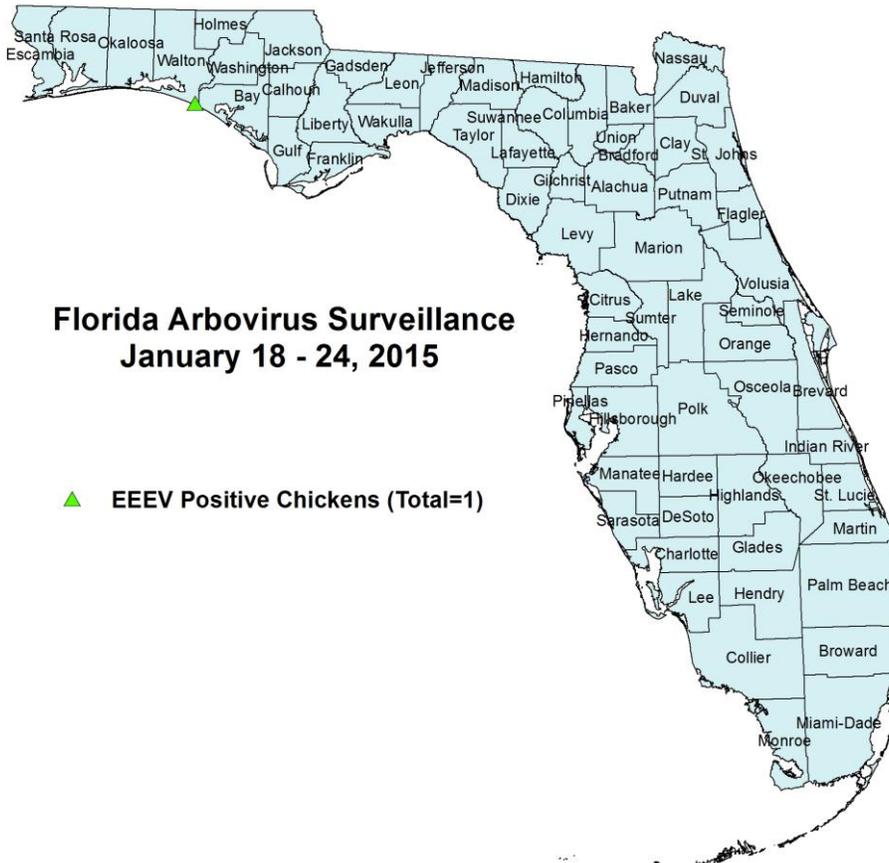
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 9 reports representing 26 dead birds including 15 crows and 2 raptors were received from 6 counties.

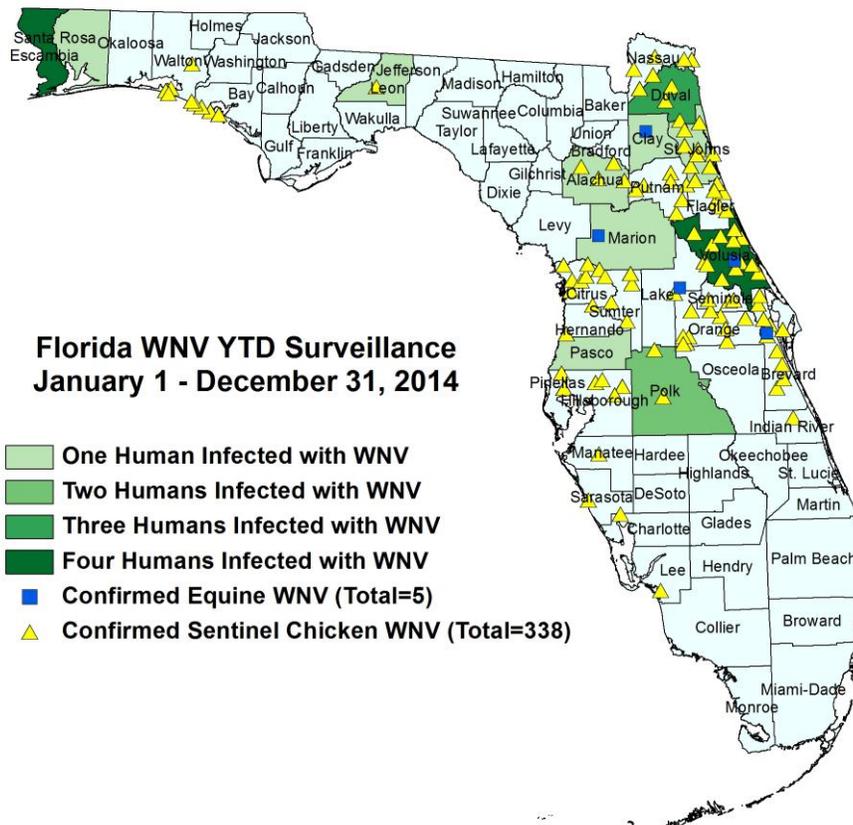
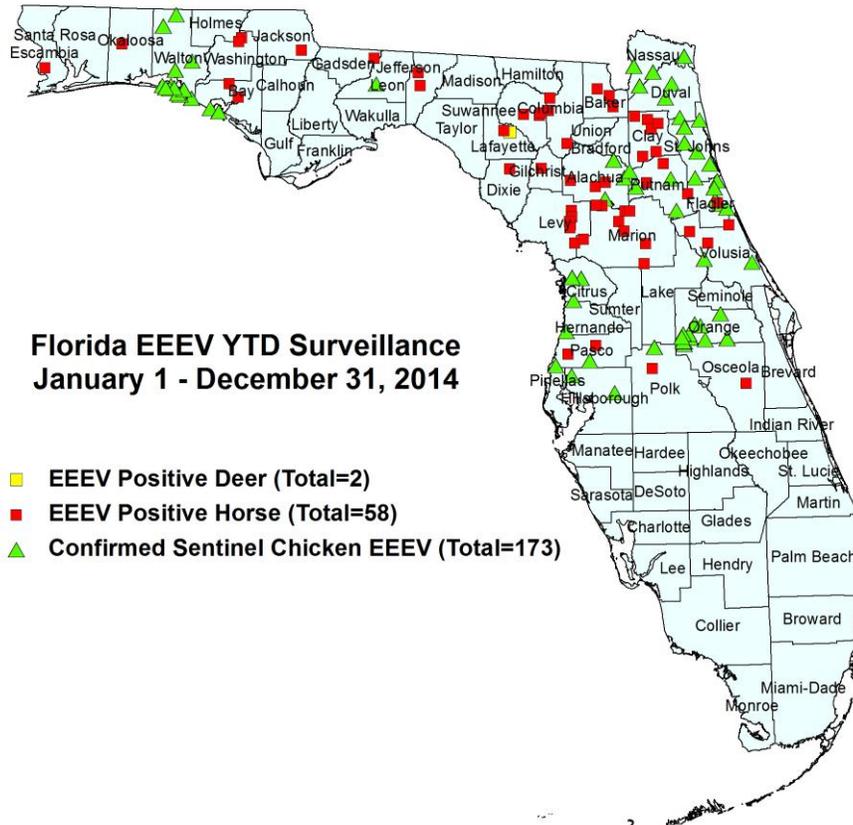
In 2015, 21 reports representing a total of 54 dead birds (16 crow, 0 jay, 4 raptors, and 0 dove) were received from 12 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to [www.myfwc.com/bird/](http://www.myfwc.com/bird/).

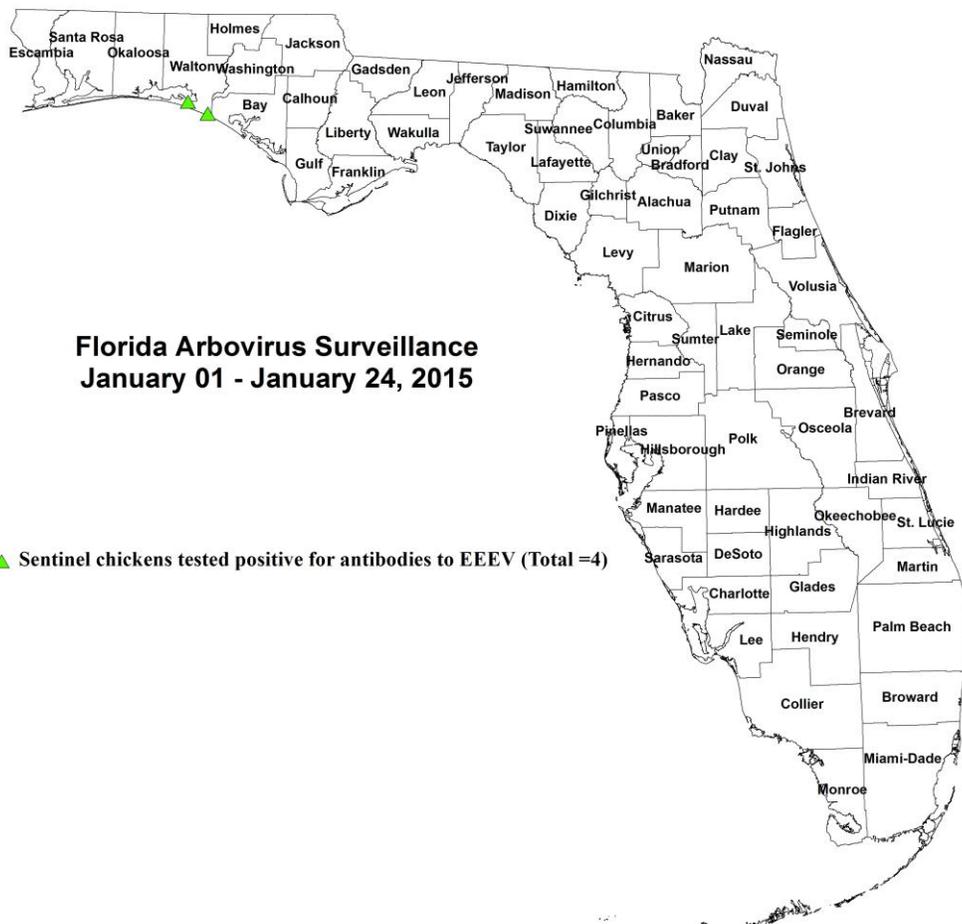
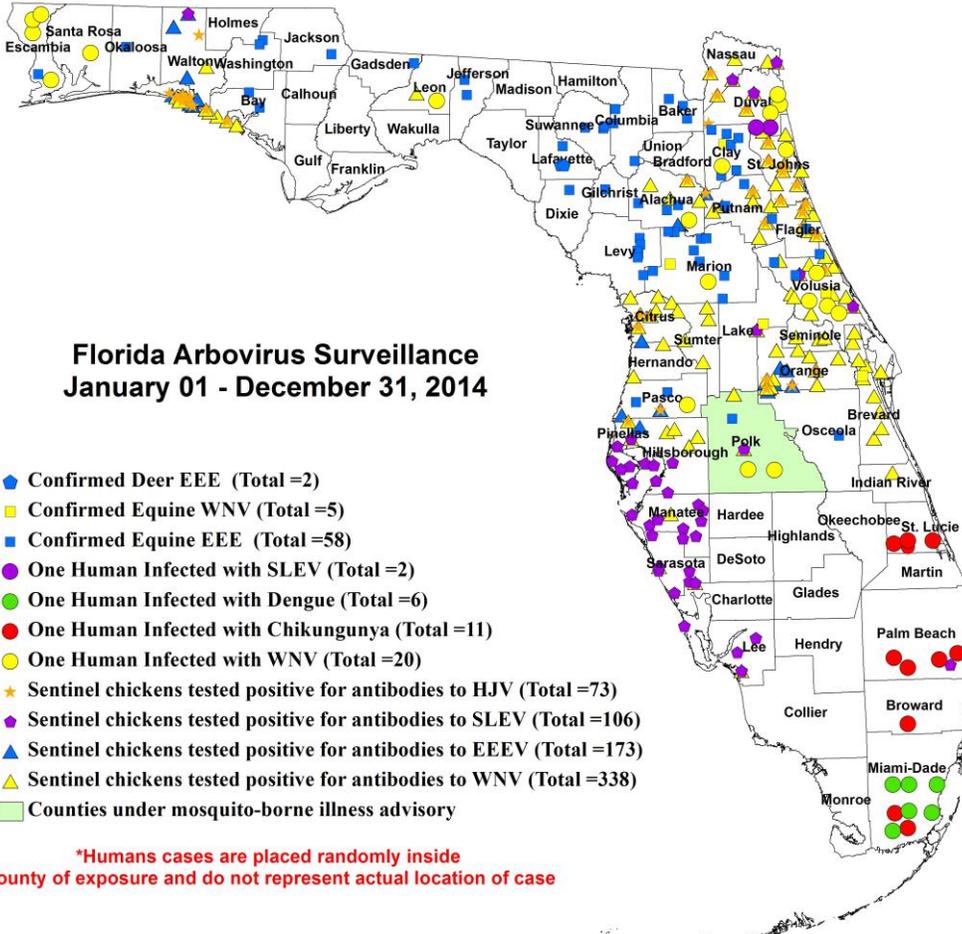
### 2015

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Brevard	3	0	0	0	0
Dade	15	15	0	0	0
Hernando	2	0	0	0	0
Hillsborough	4	0	0	1	0
Nassau	1	0	0	0	0
Palm Beach	1	0	0	1	0

## Maps







### 2015 Arbovirus Activity by County

County	Arbovirus Activity
Walton	EEEV: 4 sentinels (1/5, 1/13)

### 2014 Arbovirus Activity by County

County	Arbovirus Activity
<b>Alachua</b>	EEEV: 3 horses (6/17, 6/20, 7/4); 11 sentinels (6/9, 6/30, 7/7, 7/14, 7/21, 7/28, 10/20) HJV: 2 sentinels (8/4, 10/20) WNV: 1 human (August); 15 sentinels (8/12, 8/18, 8/25, 9/16, 9/22, 9/29, 10/13, 10/20, 11/3, 11/10)
<b>Baker</b>	EEEV: 3 horses (3/13, 7/10, 7/16)
<b>Bay</b>	EEEV: 2 horses (6/15, 9/22); 6 sentinels (4/28, 5/6, 5/13, 5/22, 5/30) HJV: 1 sentinel (2/18) WNV: 18 sentinels (8/19, 8/26, 9/2, 9/9, 9/16, 9/23, 11/21)
<b>Brevard</b>	WNV: 1 horse (8/1); 31 sentinels (7/17, 8/8, 8/15, 8/20, 8/29, 9/5, 9/11, 9/12, 9/17, 9/18, 9/19, 9/26, 10/2, 10/8, 10/9, 10/10, 10/15, 10/16, 10/22, 10/31)
<b>Broward</b>	Chikungunya: 1 human (July)
<b>Charlotte</b>	WNV: 1 sentinel (9/12) SLEV: 2 sentinels (9/26, 10/24)
<b>Citrus</b>	EEEV: 16 sentinels (3/24, 3/31, 5/12, 5/26, 6/2, 6/30, 7/7, 7/14, 7/21, 8/4, 8/11, 9/8) HJV: 9 sentinels (2/17, 2/24, 8/11, 8/18, 9/29, 10/20, 12/1) WNV: 20 sentinels (1/2, 9/2, 9/15, 9/22, 9/29, 10/13, 10/20, 10/27, 11/10, 12/8)
<b>Clay</b>	EEEV: 6 horses (5/2, 7/16, 7/19, 7/20, 8/2, 12/2) WNV: 1 human (October); 1 horse (9/3)
<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) HJV: 6 sentinels (8/18, 8/21, 8/25) WNV: 2 humans (August, September); 1 asymptomatic blood donor (September); 3 sentinels (9/15, 10/20, 10/23) SLEV: 2 humans (August); 1 sentinel (9/2)
<b>Escambia</b>	EEEV: 1 horse (7/16) WNV: 4 humans (July, August, September)
<b>Flagler</b>	EEEV: 2 horses (4/21, 10/24); 11 sentinels (4/14, 4/28, 5/5, 5/27, 6/2, 6/16, 6/23, 6/30, 7/7) HJV: 6 sentinels (7/21, 8/18, 8/25, 9/29) WNV: 17 sentinels (7/14, 8/18, 9/2, 9/8, 9/15, 9/22, 9/29, 10/6, 10/20, 10/27, 11/24)
<b>Gadsden</b>	EEEV: 1 horse (9/16)
<b>Gilchrist</b>	EEEV: 2 horses (5/18, 6/23)
<b>Hernando</b>	EEEV: 2 sentinels (6/9, 7/9) WNV: 5 sentinels (8/25, 10/6, 10/13, 10/20)
<b>Hillsborough</b>	EEEV: 2 sentinels (5/13, 7/1) SLEV: 14 sentinels (1/7, 2/18, 9/2, 9/9, 9/16, 9/30, 10/14) WNV: 13 sentinels (3/18, 9/2, 9/16, 9/30, 10/14, 10/21, 10/28, 11/18)
<b>Indian River</b>	WNV: 1 sentinel (11/19)
<b>Jackson</b>	EEEV: 1 horse (9/3)
<b>Jefferson</b>	EEEV: 2 horses (7/7, 8/25)
<b>Lafayette</b>	EEEV: 2 deer (6/24); 1 horse (9/18)
<b>Lake</b>	WNV: 1 horse (8/19)
<b>Lee</b>	SLEV: 8 sentinels (1/13, 1/14, 2/11, 3/25, 9/16, 10/27) WNV: 3 sentinels (10/27, 11/10)
<b>Leon</b>	EEEV: 1 sentinel (7/14) WNV: 1 human (August), 1 sentinel (8/19)
<b>Levy</b>	EEEV: 6 horses (6/7, 6/21, 6/27, 6/28, 8/17, 12/3)
<b>Manatee</b>	SLEV: 24 sentinels (7/29, 9/2, 9/16, 9/23, 9/30, 10/15, 10/20, 10/28, 11/4, 12/2) WNV: 1 sentinel (10/7)
<b>Marion</b>	EEEV: 9 horses (4/12, 5/31, 6/19, 6/26, 6/29, 7/4, 7/14, 7/30, 9/10) WNV: 1 human (October); 1 horse (9/5)

<b>Miami-Dade</b>	Chikungunya: 2 humans (June) Dengue: 6 humans (June, August, September)
<b>Nassau</b>	EEEV: 15 sentinels (5/27, 5/31, 6/13, 6/20, 6/23, 6/27, 7/11, 7/19, 8/22, 10/20, 11/10) HJV: 4 sentinels (7/25, 8/18, 8/22) WNV: 16 sentinels (8/8, 8/18, 8/22, 8/25, 9/2, 9/12, 9/15, 9/19, 9/27, 10/18, 10/20, 11/10) SLEV: 6 sentinels (8/29, 9/12, 10/13, 10/18, 10/25)
<b>Okaloosa</b>	EEEV: 1 horse (8/15)
<b>Orange</b>	EEEV: 30 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, 10/16, 10/20, 10/27, 10/30, 11/3, 11/6, 11/17, 11/26) HJV: 6 sentinels (1/2, 2/17, 8/25, 11/26, 12/18) WNV: 41 sentinels (8/4, 8/25, 9/2, 9/8, 9/22, 9/29, 10/9, 10/13, 10/16, 10/20, 10/27, 10/30, 11/17, 12/4) SLEV: 1 sentinel (9/15)
<b>Osceola</b>	EEEV: 1 horse (7/30)
<b>Palm Beach</b>	Chikungunya: 4 humans (July) SLEV: 1 sentinel (11/3)
<b>Pasco</b>	EEEV: 2 horses (5/31, 6/25); 4 sentinels (5/27, 6/10, 7/15) HJV: 1 sentinel (7/22) WNV: 1 human (August)
<b>Pinellas</b>	SLEV: 32 sentinels (7/21, 7/25, 7/28, 8/4, 8/11, 8/18, 8/25, 9/2, 9/8, 9/15, 10/6, 10/13) HJV: 1 sentinel (8/25) WNV: 8 sentinels (9/15, 9/22, 9/29, 10/27, 11/10, 12/8)
<b>Polk</b>	EEEV: 5 sentinels (6/23, 6/30, 7/7); 1 horse (8/3) SLEV: 2 sentinels (8/25, 10/27) WNV: 1 human (September); 1 asymptomatic blood donor (November); 2 sentinels (9/2, 9/22)
<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: 25 sentinels (8/5, 8/12, 8/26, 9/9, 9/16, 9/23, 10/14, 10/21, 10/28) HJV: 10 sentinels (8/26, 9/23, 10/14, 10/28)
<b>Sarasota</b>	SLEV: 12 sentinels (2/6, 2/14, 2/28, 7/28, 9/2, 9/22, 9/29, 10/31, 11/3) WNV: 1 sentinel (4/25)
<b>Santa Rosa</b>	WNV: 1 asymptomatic blood donor (July)
<b>Seminole</b>	WNV: 20 sentinels (7/30, 8/5, 9/15, 9/22, 9/29, 10/6, 10/13, 10/20, 10/27, 11/3, 11/24, 12/1)
<b>St. Johns</b>	EEEV: 20 sentinels (5/5, 5/12, 5/27, 6/16, 6/23, 6/30, 7/21, 7/28, 9/9) HJV: 7 sentinels (7/28, 8/18, 8/25) WNV: 1 asymptomatic blood donor (September); 49 sentinels (7/21, 7/28, 8/4, 8/11, 8/18, 8/25, 9/2, 9/8, 9/15, 9/22, 9/29, 10/6, 10/13, 10/20, 10/27, 11/3, 11/10)
<b>St. Lucie</b>	Chikungunya: 4 humans (July, August)
<b>Sumter</b>	WNV: 8 sentinels (9/8, 9/29, 10/14, 10/20, 11/18, 12/2, 12/9)
<b>Suwannee</b>	EEEV: 3 horses (8/5, 8/13, 8/15)
<b>Volusia</b>	EEEV: 3 horses (3/19, 5/19, 5/24); 3 sentinels (5/27, 6/9) HJV: 1 sentinel (8/18) WNV: 4 humans (August, September); 1 horse (7/15); 30 sentinels (7/14, 7/21, 7/28, 8/4, 8/5, 8/12, 8/18, 8/25, 9/1, 9/8, 9/15, 9/22, 9/29, 10/20, 11/10, 11/21, 12/1) SLEV: 2 sentinels (9/15)
<b>Walton</b>	EEEV: 38 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, 10/28, 11/17, 12/2) HJV: 19 sentinels (3/10, 3/24, 5/12, 5/19, 6/16, 6/30, 7/15, 8/4, 8/11, 8/18, 8/25, 9/2, 10/21, 10/28, 11/17, 12/15) WNV: 8 sentinels (3/10, 3/17, 6/9, 9/15, 9/22, 10/13, 10/27) SLEV: 1 sentinel (9/23)
<b>Washington</b>	EEEV: 2 horses (7/15, 7/22)

## Acknowledgements and Data Sources

Contributors: Andrea Bingham, PhD, MSPH, 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.