



Florida Arbovirus Surveillance Week 4: January 19 - 25, 2014

Arbovirus surveillance in Florida includes endemic mosquito-borne viruses such as West Nile virus (WNV), Eastern equine encephalitis virus (EEEV), St. Louis encephalitis virus (SLEV), and Highlands J virus (HJV) and exotic viruses such as dengue virus (DENV) and California encephalitis group viruses (CEV). Malaria, a non-viral mosquito-borne disease is also included. During the period of January 19 - 25, 2014 the following arboviral activity was recorded in Florida.

This report contains information for 2013 and 2014.

WNV activity: No human cases of WNV illness were reported this week. No horses with WNV infection were reported this week. One sentinel chicken tested positive for antibodies to WNV this week in Walton County. In 2014, a positive sample from one sentinel chicken has been received from one county. In 2013, positive samples from six humans, 10 equines, 1 wild bird, 1 alpaca, and 311 sentinel chickens have been received from 26 counties.

EEEV activity: No human cases of EEE were reported this week. No horse with EEEV infection was reported this week. No sentinel chickens tested positive for antibodies to EEEV this week. In 2013, positive samples from two humans, five birds, 38 equines, two deer, and 191 sentinel chickens have been received from 31 counties.

DENV activity: No cases of locally acquired dengue were reported this week. In 2013, a total of 23 cases of locally acquired dengue have been reported in 21 Florida residents and two out-of-state-residents. Exposures occurred in two counties, Martin (22) or Miami-Dade (1).

SLEV activity: One sentinel chicken tested positive for antibodies to SLEV this week in Hillsborough County. In 2013, 95 positive samples have been received from nine counties.

HJV activity: One sentinel chicken tested positive for antibodies to HJV this week in Orange County. In 2014, a positive sample from one sentinel chicken has been received from one county. In 2013, 34 positive samples have been received from 11 counties.

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.

2013 and 2014 Human Case Summary*

WNV infection Acquired in Florida: Six human cases of WNV illness with onset in August (1), September (3), October (1), November (1) have been reported in 2013 in Alachua (1), Duval (3), Leon (1) and Nassau (1) Counties. One asymptomatic positive blood donor was identified in August. The donor is a resident of Florida and has outdoor exposure in multiple northeast Florida counties.

EEEV Infection Acquired in Florida: Two human cases of EEE with onset in January (1) and March (1) have been reported in 2013 in Levy (1) and Hillsborough (1) County residents.

Dengue Infection Acquired in Florida: In 2013, a total of 23 cases of locally acquired dengue have been reported.

Twenty-two cases of dengue have been reported as acquired in Martin County with onsets in June (2), July (5), August (14), and September (1) 2013. Of these 22 cases, fifteen are residents of Martin County; four are residents of St. Lucie County; one is a resident of Palm Beach County; and two are out-of-state visitors.

One case of dengue in a Miami-Dade resident with onset in August, 2013 has been reported as acquired in Miami-Dade County.

Imported Dengue: One hundred forty cases of dengue with onset in 2013 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Angola, Bangladesh (3), Barbados, Bolivia, Brazil (3), the Caribbean, Columbia (5), Costa Rica (4), Cuba (9), Dominica, Dominican Republic (13), El Salvador, Haiti (8), Honduras (5), India, Indonesia, Jamaica (5), Mexico (2), Nicaragua (3), Nigeria (2), Panama (3), Philippines (2), Puerto Rico (50), Saint Martin (3), Trinidad and Tobago, Venezuela (8), and U.S. Virgin Islands (3). Counties reporting cases were: Alachua (2), Brevard (2), Broward (11), Clay, Collier (2), Duval (4), Hillsborough (2), Indian River, Lake, Lee (3), Marion, Miami-Dade (49), Nassau, Orange (17), Osceola (6), Palm Beach (16), Pasco (2), Pinellas, Polk (3), Santa Rosa, Sarasota (4), Seminole (3), St. Johns (2), St. Lucie (2) and Volusia (3). Seventeen of the cases were reported in non-Florida residents.

Four 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: Cuba (2), Dominican Republic, and Guadeloupe. Counties reporting cases were: Alachua, Broward (2), and Osceola. One of the cases was reported in a non-Florida resident.

In 2013, 92 of the 163 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted. In 2014, one of the four cases of dengue reported in Florida has been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2013	# of cases per serotype – 2014
DENV-1	60	0
DENV-2	5	1
DENV-3	7	0
DENV-4	20	0
	92	1

Imported Malaria: Fifty-eight cases of malaria with onset in 2013 have been reported. Countries of origin were: Benin, Cameroon, Chad (3), Democratic Republic of the Congo, Equatorial Guinea, Ghana (7), Guinea (2), Guyana (7), Haiti (7), India (4), Kenya (2), Liberia (2), Mozambique, Nigeria (7), Peru, Sierra Leone (2), Solomon Islands, South Sudan, Sudan (2), Togo, Uganda (3), and an undetermined African country. Counties reporting cases were: Alachua (2), Broward (6), Duval (5), Hillsborough (9), Lake (2), Lee (2), Manatee, Miami-Dade (11), Orange (8), Osceola (2), Palm Beach (6), Pinellas, and Seminole (3). Four of the cases were reported in non-Florida residents.

Forty-five cases (77.5%) were diagnosed with *Plasmodium falciparum*, nine (15.5%) with *Plasmodium vivax*, three with *Plasmodium ovale* (5%), and one mixed *Plasmodium falciparum/Plasmodium vivax* (2%).

One case of malaria with onset in 2014 has been reported. Country of origin was: Dominican Republic. County reporting cases was: Hillsborough.

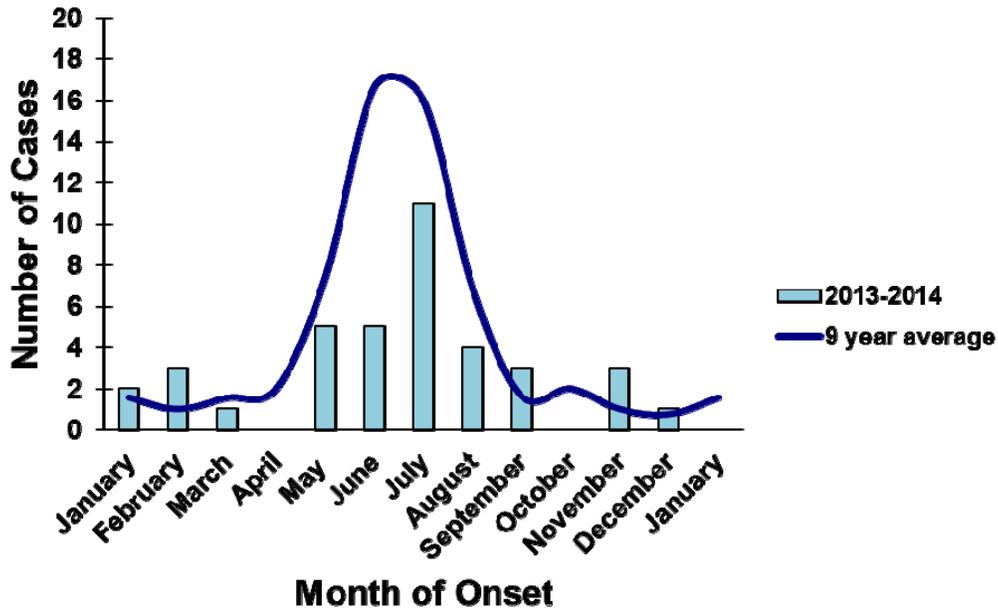
One case (100%) was diagnosed with *Plasmodium falciparum*.

Veterinary Cases*

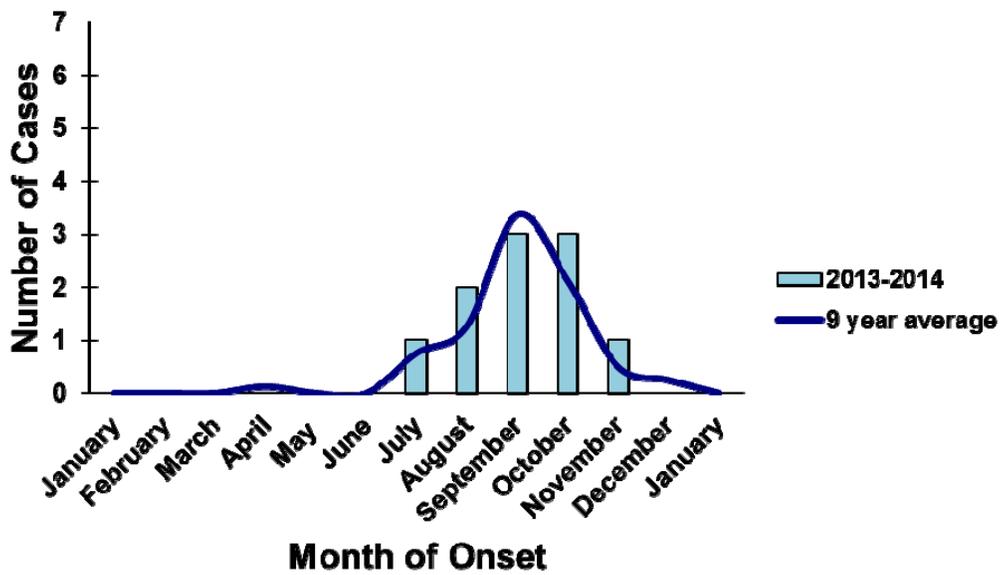
*Veterinary cases are reported by date of onset

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

Veterinary EEE in Florida, January 2013-2014



Veterinary WNV Disease in Florida, January 2013-2014



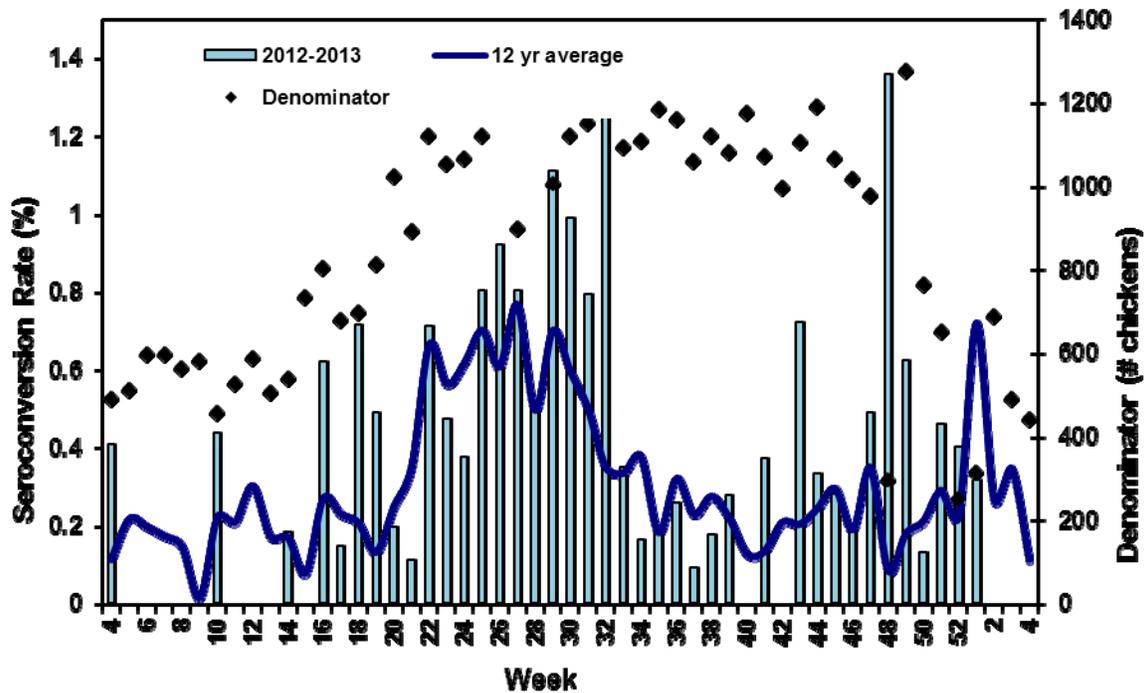
Sentinel Chickens

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.

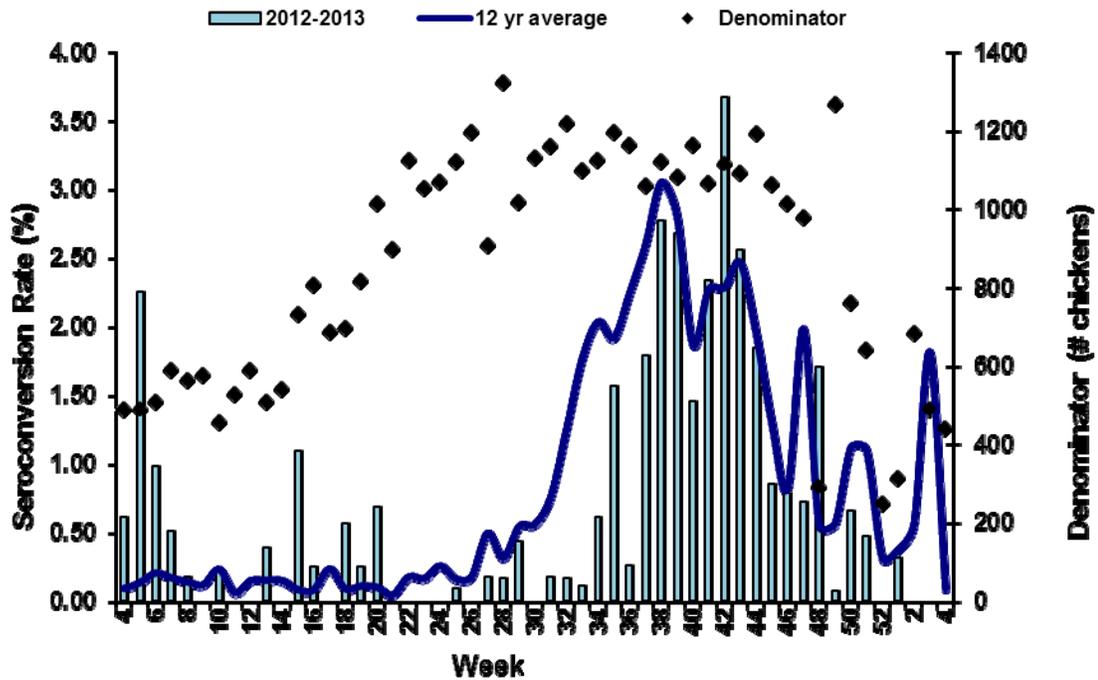
One sentinel chicken tested positive for antibodies to WNV this week in Walton County. One sentinel chicken tested positive for antibodies to SLEV this week in Hillsborough County. One sentinel chicken tested positive for antibodies to HJV this week in Orange County.

County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Collection Week	YTD
Hillsborough	12/27/2013	1.22				1 SLEV	5 WNV, 40 SLEV
Orange	1/2/2014				2.56	1 HJV	1 HJV
Walton	12/16/2013		0.96			1 WNV, 4 EEEV	64 EEEV, 75 WNV, 11 HJV

Sentinel Seroconversions to EEEV In Florida, 2013-2014



Sentinel Seroconversions to WNV In Florida, 2013-2014



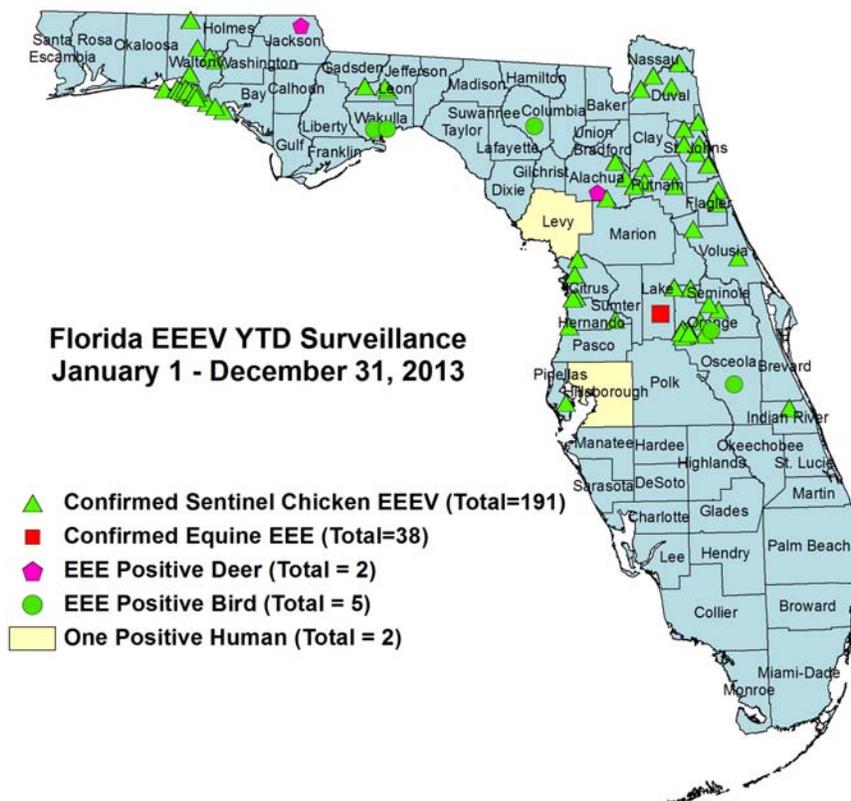
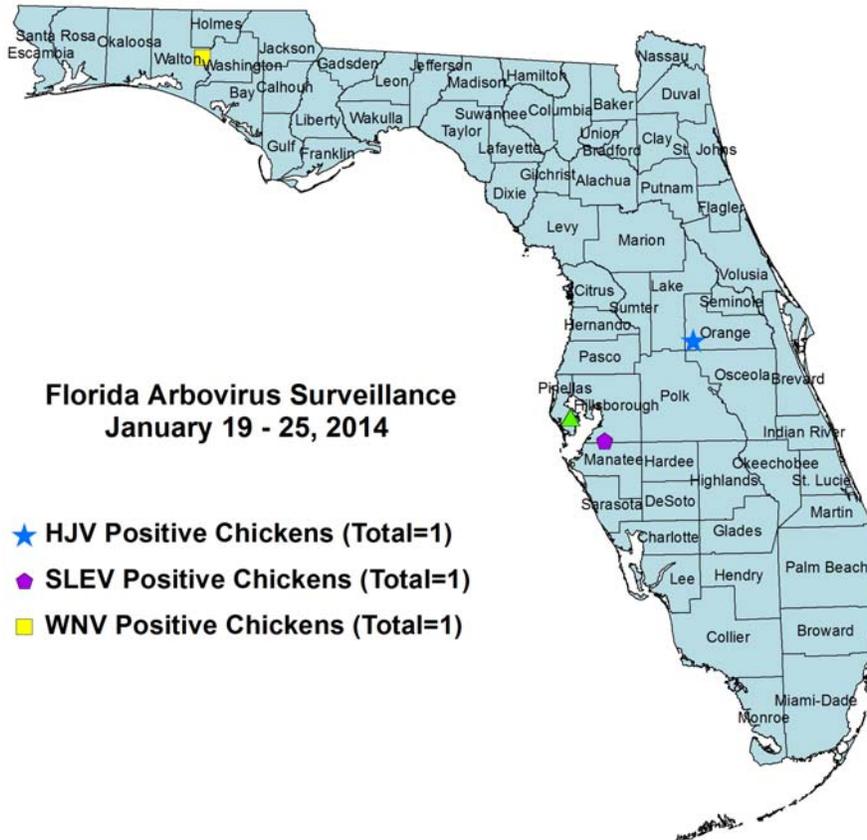
Dead Birds

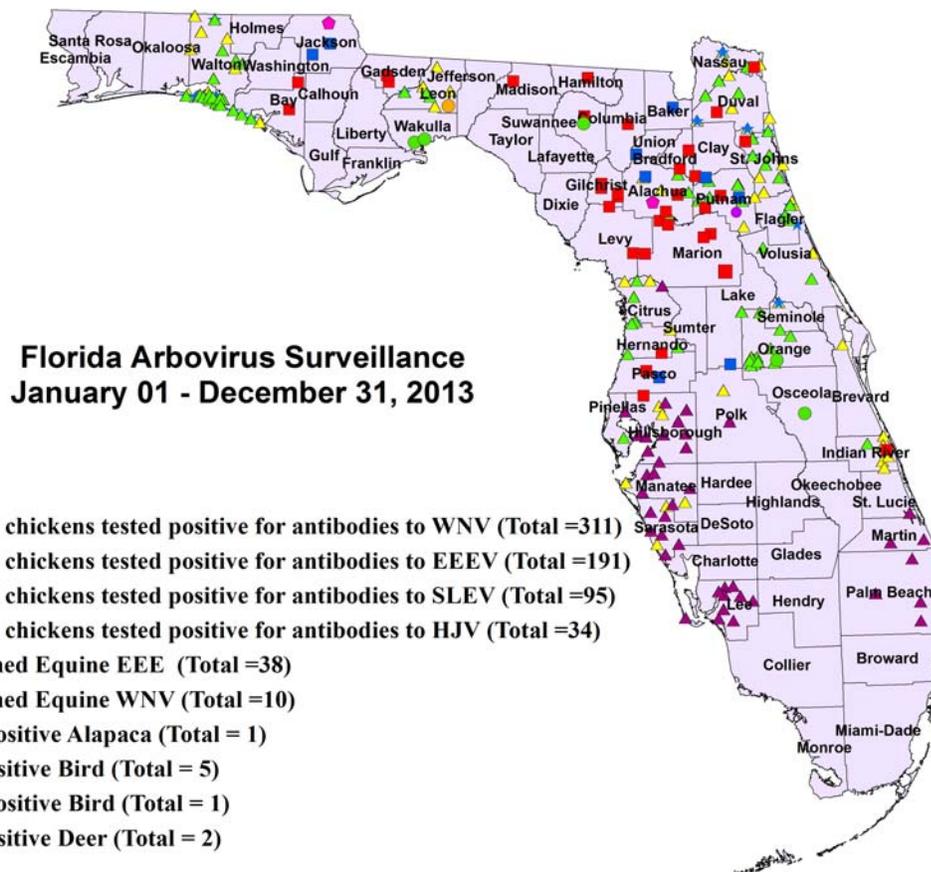
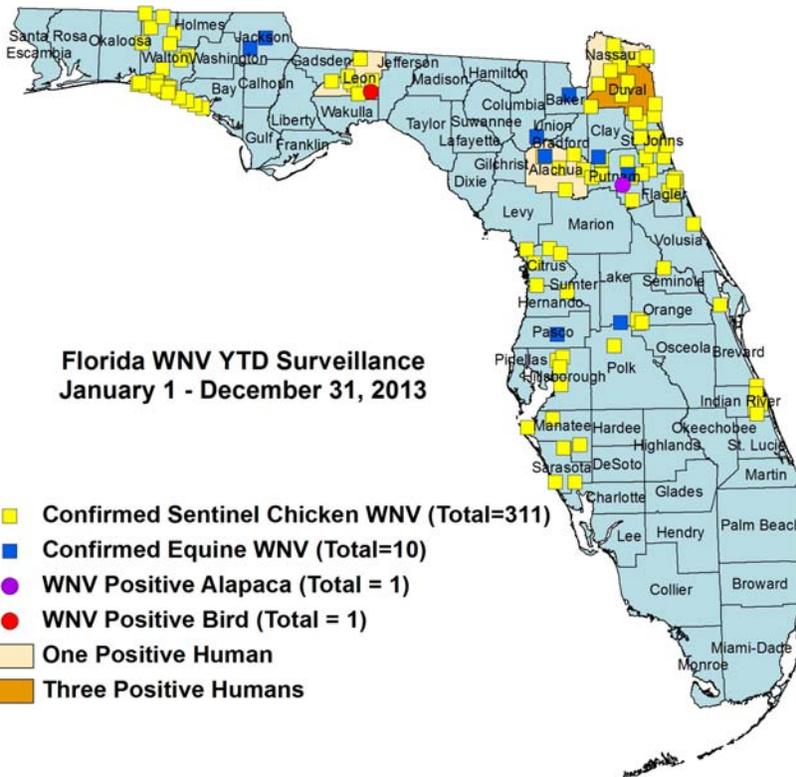
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 3 reports representing 3 dead birds, including 2 raptors were received from 2 counties.

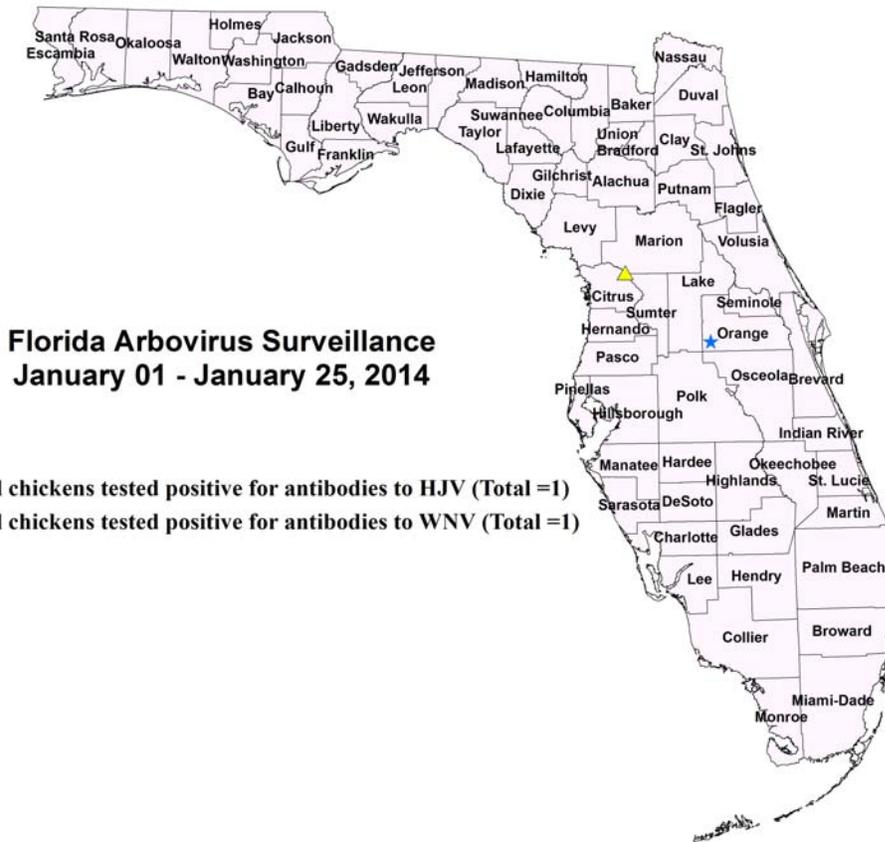
In 2014, 21 reports representing a total of 55 dead birds (0 crows, 0 jays, 8 raptor, 1 dove) were received from 12 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/

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

Maps







2014 Arbovirus Activity by County

County	Arbovirus Activity
Citrus	WNV: 1 sentinel (1/2)
Orange	HJV: 1 sentinel (1/2)

2013 Arbovirus Activity by County

County	Arbovirus Activity
Alachua	EEEV: 2 horses (2/13, 7/11) ; 1 deer (1/1); 7 sentinels (6/17, 6/24, 7/15, 8/5, 10/7, 11/4) WNV: 1 human (September); 1 horse (10/14); 16 sentinels (7/1, 8/19, 9/16, 9/24, 9/30, 10/22, 11/25)
Baker	WNV: 1 horse (7/9)
Bay	EEEV: 2 horses (8/21, 11/7); 3 sentinels (5/21, 12/2) WNV: 4 sentinels (5/7, 8/26, 11/4) HJV: 2 sentinels (5/7, 5/28)
Bradford	EEEV: 2 horses (5/27, 5/30)
Brevard	WNV: 1 sentinel (10/18)
Citrus	EEEV: 7 sentinels (4/15, 10/7, 10/21, 12/23) WNV: 14 sentinels (1/21, 1/28, 9/16, 10/21, 10/28, 11/11, 11/25, 12/9) SLEV: 1 sentinel (1/21) HJV: 2 sentinels (3/25, 4/2)
Clay	EEEV: 1 horse (7/17) WNV: 1 horse (8/7)
Columbia	EEEV: 2 horse (5/4, 5/29)

County	Arbovirus Activity
	WNV: 1 horse (9/9)
Duval	EEEV: 1 horse (11/9); 1 sentinel (8/22) WNV: 3 Humans (August, September, October), 24 sentinels (7/1, 7/15, 7/29, 8/26, 8/28, 9/3, 9/10, 9/16, 9/23, 9/30, 10/3, 10/21, 10/28, 11/4) HJV: 2 sentinels (6/17, 7/8)
Flagler	EEEV: 5 sentinels (4/22, 6/24, 7/22, 7/29) WNV: 8 sentinels (8/19, 9/23, 9/30, 10/7, 10/21, 10/28, 11/12) HJV: 5 sentinels (6/17, 7/29, 8/5, 9/3)
Gadsden	EEEV: 2 horses (9/3, 11/10)
Gilchrist	EEEV: 6 horses* (2/6, 5/29, 6/28, 6/29, 12/12)
Hamilton	EEEV: 1 horse (5/30)
Hernando	EEEV: 1 horse (6/27) ; 5 sentinels (6/10, 10/21, 10/28, 11/13, 11/19) WNV: 1 sentinel (10/21)
Hillsborough	EEEV: 1 human (March), 1 horse (7/20) WNV: 5 sentinels (10/15, 10/22, 10/29, 12/17) SLEV: 40 sentinels (9/3, 9/17, 9/25, 9/30, 10/8, 10/15, 10/18, 10/22, 11/19, 11/13, 12/20, 12/3, 12/27)
Indian River	EEEV: 1 horse (9/29), 2 sentinels (5/9, 8/15) WNV: 5 sentinels (7/10, 7/31, 10/10, 10/23, 10/31)
Jackson	EEEV: 1 deer (10/1) WNV: 2 horses (9/24, 10/25)
Lake	EEEV: 1 horse (1/30) WNV: 1 horse (9/16)
Lee	SLEV: 19 sentinels (9/2, 9/16, 9/30, 10/14, 10/21, 10/29, 11/18, 12/2, 12/3, 12/9, 12/17)
Leon	EEEV: 7 sentinels (6/3, 8/5, 8/12, 8/20, 11/5) WNV : 1 human (November); 20 sentinels (8/27, 9/17, 9/23, 10/1, 10/11, 10/21) ; 1 wild bird (10/1) HJV : 1 sentinel (10/21)
Levy	EEEV : 1 human (January) ; 3 horses (1/7, 7/21, 7/27)
Madison	EEEV : 1 horse (2/16)
Manatee	WNV: 7 sentinels (9/24, 10/1, 10/15, 10/29, 12/10, 12/17) SLEV: 7 sentinels (9/17, 9/24, 10/1, 11/5, 12/10, 12/20)
Marion	EEEV : 6 horses (7/11, 7/12, 7/18, 7/31, 8/7, 9/10)
Martin	Dengue : 15 humans (June, July, August, September) SLEV : 6 sentinels (9/20, 10/4)
Miami-Dade	Dengue : 1 human (August)
Nassau	EEEV : 1 horse (7/8) ; 12 sentinels (6/8, 6/15, 6/28, 7/1, 7/5, 7/12, 7/19, 7/26, 8/5, 8/10) WNV : 1 Human (September) ; 53 sentinels (7/19, 7/26, 8/3, 8/5, 8/16, 8/23, 8/30, 9/9, 9/13, 9/16, 9/20, 9/23, 9/30, 10/6, 10/7, 10/11, 10/14, 10/18, 10/21, 11/1, 11/12, 11/25) HJV : 3 sentinels (6/28, 7/29)
Orange	EEEV : 39 sentinels (5/2, 5/30, 6/6, 6/13, 6/20, 6/24, 6/27, 7/1, 7/3, 7/11, 7/15, 7/23, 8/12, 8/22, 8/26, 9/16, 9/23, 10/24, 10/28, 10/31, 11/18, 12/2, 12/19) ; 1 bird (1/1) WNV : 4 sentinels (11/7, 11/14, 11/21) HJV : 2 sentinels (9/5, 9/12)
Osceola	EEEV : 1 bird (12/12)
Palm Beach	SLEV : 9 sentinels (9/3, 9/16, 9/17, 9/30, 10/14, 10/28) Dengue : 1 human with exposure in Martin (August)
Pasco	EEEV : 1 horse (7/16) WNV : 1 horse (11/11)
Pinellas	SLEV : 3 sentinels (10/7, 10/14) EEEV : 1 sentinel (12/30)
Polk	WNV : 2 sentinels (10/15, 11/4) SLEV : 1 sentinel (9/9)
Putnam	EEEV : 3 horses (6/26, 8/8, 10/30) ; 11 sentinels (7/16, 7/23, 7/30, 8/6, 9/10, 9/24, 10/8) WNV : 1 horse (10/30) ; 1 alpaca (10/10) ; 34 sentinels (9/17, 9/24, 10/1, 10/8, 10/15, 10/22, 11/5)

County	Arbovirus Activity
	HJV : 1 sentinel (9/10)
Sarasota	WNV : 3 sentinels (5/3, 9/10, 11/1) SLEV : 9 sentinels (4/5, 9/20, 9/30, 10/18, 10/28, 11/22, 12/13)
Seminole	WNV : 2 sentinels (9/10, 11/19) HJV : 1 sentinel (5/7)
St. Johns	EEEV : 1 horse (3/1) ; 25 sentinels (4/8, 5/6, 5/28, 6/3, 6/10, 6/17, 6/24, 7/22, 7/29, 8/5, 8/12, 8/26, 9/3, 11/18) WNV : 31 sentinels (9/3, 9/16, 9/23, 10/7, 10/14, 10/21, 10/28, 11/4, 11/12, 11/18, 11/25) HJV : 4 sentinels (6/3, 6/17, 7/1, 9/3)
St. Lucie	Dengue : 4 humans with exposure in Martin (July, August)
Suwannee	EEEV : 1 horse (8/9), 1 bird (8/11)
Volusia	EEEV : 2 sentinels (7/15, 9/3) WNV : 2 sentinels (9/16, 12/2)
Wakulla	EEEV : 2 birds (4/8)
Walton	EEEV : 64 sentinels (1/7, 2/26, 3/25, 4/15, 4/29, 4/30, 5/6, 5/13, 5/28, 6/17, 6/24, 7/1, 7/8, 7/23, 7/30, 8/5, 8/6, 8/19, 8/26, 8/27, 9/23, 10/28, 11/4, 11/12, 11/25, 12/2, 12/9, 12/16) WNV : 75 sentinels (1/7, 1/14, 1/15, 1/23, 1/28, 2/4, 2/20, 3/11, 4/8, 4/9, 4/15, 4/29, 4/30, 5/7, 5/13, 5/14, 6/17, 7/8, 8/6, 8/19, 8/26, 9/3, 9/11, 9/16, 9/17, 9/23, 10/1, 10/15, 10/22, 10/28, 10/29, 11/4, 11/18, 12/9, 12/10, 12/16) HJV : 11 sentinels (5/13, 6/17, 7/1, 7/8, 7/29, 8/20)

*The equine listed as Gilchrist/Columbia for 5/29/13 had exposure in both counties during the 2 weeks prior to onset and is not listed in the table above.

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.