



Florida Arbovirus Surveillance Week 51: December 15-21, 2013

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 December 15-21, 2013 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. Five sentinel chickens tested positive for antibodies to WNV in Citrus, Manatee, St. Johns, and Walton Counties this week. In 2013, positive samples from five humans, 10 equines, 1 wild bird, 1 alpaca, and 306 sentinel chickens have been received from 26 counties.

EEEV activity: No human cases of EEE were reported this week. No horses with EEEV infection were reported this week. Six sentinel chickens tested positive for antibodies to EEEV this week in Orange and Walton Counties. In 2013, positive samples from two humans, four birds, 37 equines, two deer, and 184 sentinel chickens have been received from 29 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: Six sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Lee and Manatee Counties. In 2013, 83 positive samples have been received from nine counties.

HJV activity: No sentinel chickens tested positive for antibodies to HJV this week. In 2013, 34 positive samples have been received from 11 counties.

Advisories/Alerts: Alachua, Bradford, Gilchrist, Hillsborough, Levy, Marion, Miami-Dade, Nassau, Putnam Counties are currently under a mosquito-borne illness advisory. Duval County is currently under a mosquito-borne illness alert. No other counties are currently under mosquito-borne illness advisory or alert.

2013 Human Case Summary*

WNV infection Acquired in Florida: Five human cases of WNV illness with onset in August (1), September (3) and October (1) have been reported in 2013 in Alachua (1), Duval (3) 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 nineteen 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 (2), Barbados, Bolivia, Brazil (3), the Caribbean, Columbia (5), Costa Rica (4), Cuba (5), Dominica, Dominican Republic (12), Haiti (7), Honduras (4), India, Indonesia, Jamaica (5), Mexico (2), Nicaragua (3), Nigeria (2), Panama (2), Philippines (2), Puerto Rico (46), Saint Martin (2), Trinidad and Tobago, Venezuela (4), and U.S. Virgin Islands. Counties reporting cases were: Alachua (2), Brevard (2), Broward (10), Clay, Collier, Duval (4), Hillsborough, Indian River, Lake, Lee (2), Marion, Miami-Dade (44), Nassau, Orange (17), Osceola (5), Palm Beach (10), Pasco, Pinellas, Polk (3), Santa Rosa, Sarasota (2), Seminole (3), St. Johns, St. Lucie and Volusia (3). Twelve of the cases were reported in non-Florida residents.

In 2013, 83 of the 142 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	# of cases per serotype – 2013
DENV-1	57
DENV-2	3
DENV-3	5
DENV-4	18
	83

Imported Malaria: Fifty-two 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 (5), Guinea (2), Guyana (6), Haiti (6), India (4), Kenya (2), Liberia, Mozambique, Nigeria (6), 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 (3), Duval (5), Hillsborough (8), Lake (2), Lee (2), Manatee, Miami-Dade (10), Orange (8), Osceola (2), Palm Beach (5), Pinellas, and Seminole (3). Three of the cases were reported in non-Florida residents.

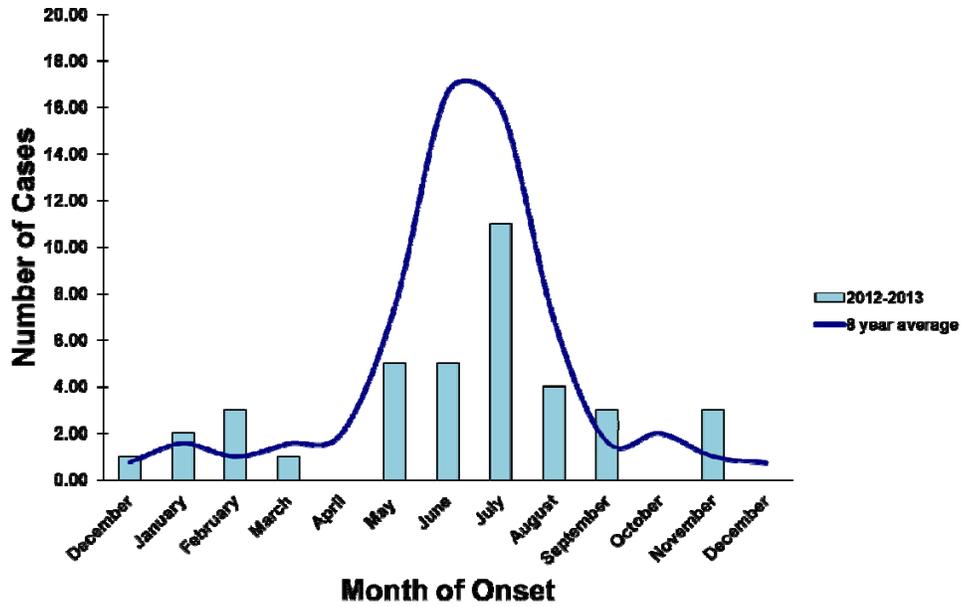
Forty cases (77%) were diagnosed with *Plasmodium falciparum*, eight (15%) with *Plasmodium vivax*, three with *Plasmodium ovale* (6%), and one mixed *Plasmodium falciparum/ Plasmodium vivax* (2%).

Veterinary Cases*

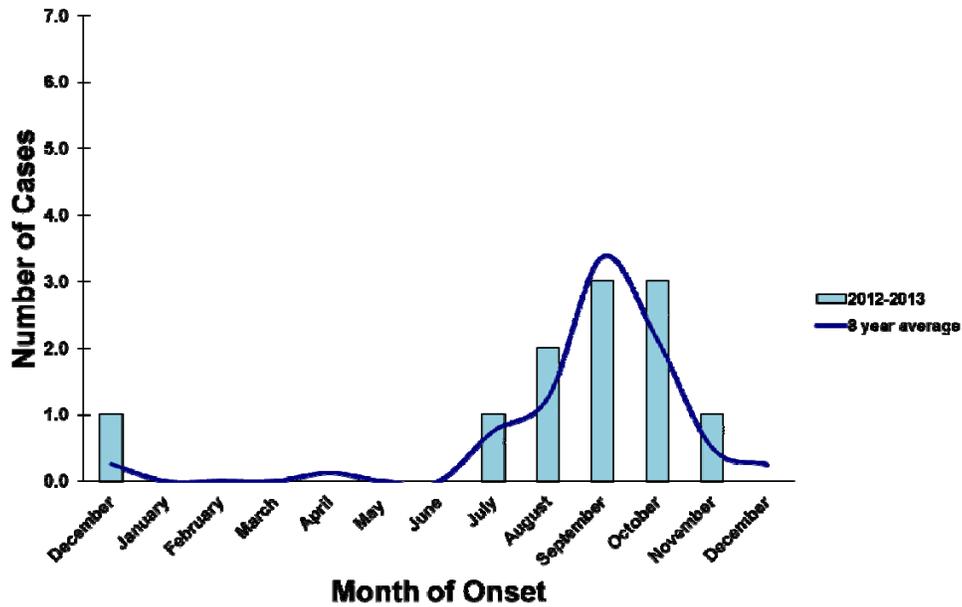
*Veterinary cases are reported by date of onset

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

Veterinary EEE in Florida, November 2012-2013



Veterinary WNV Disease in Florida, November 2012-2013



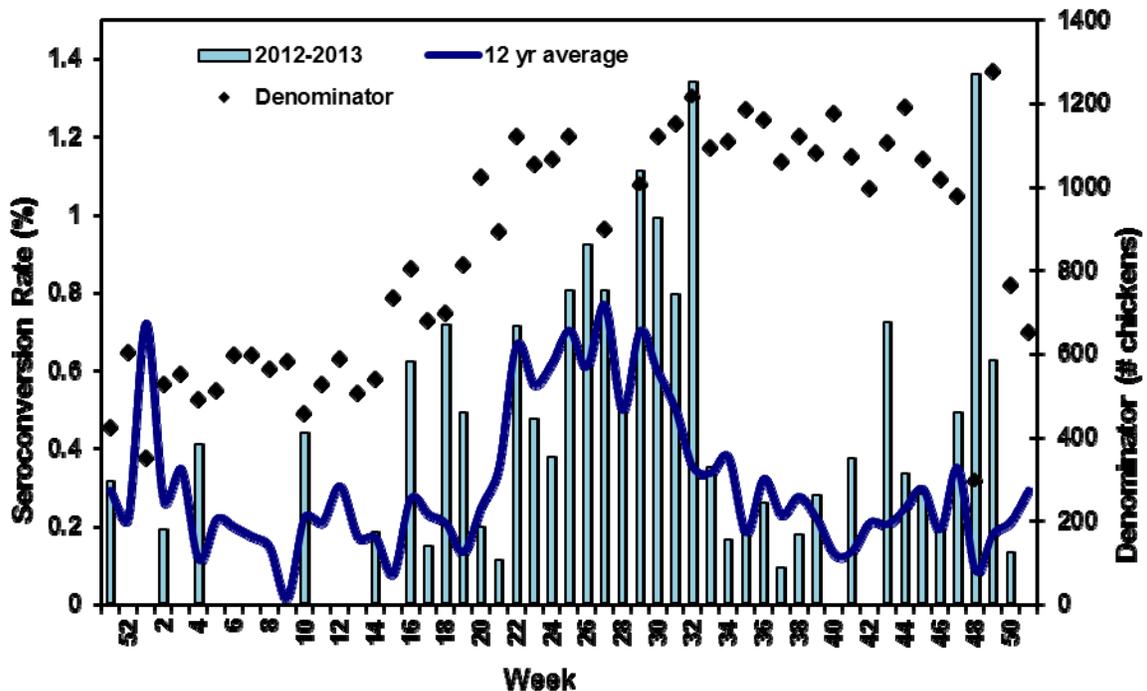
Sentinel Chickens

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.

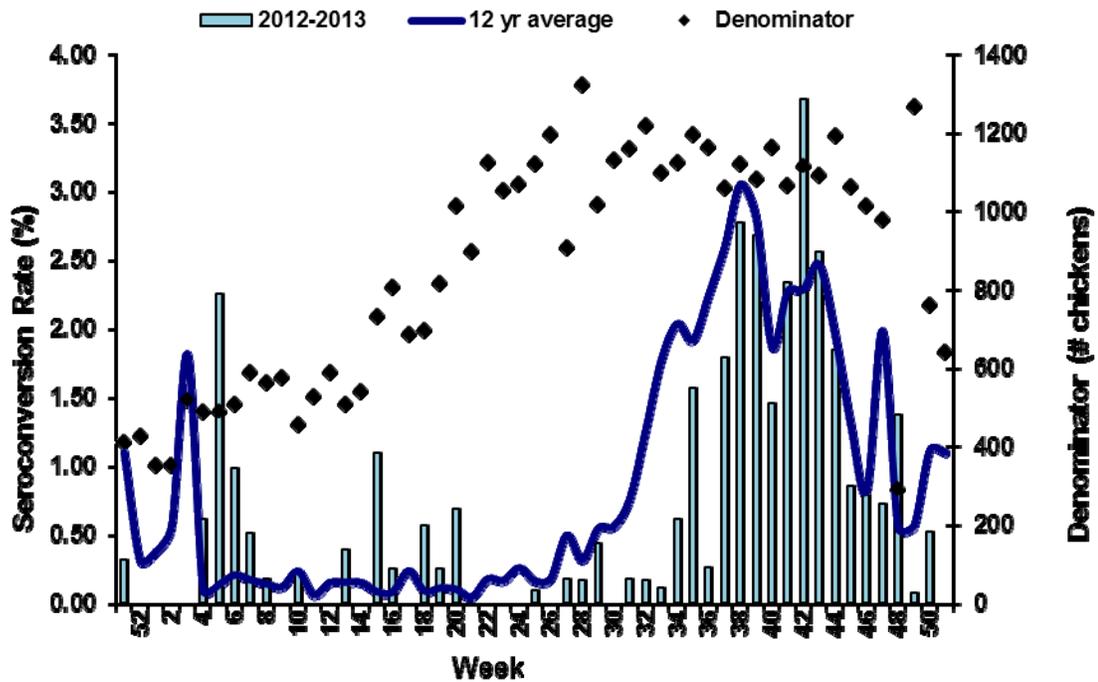
Five sentinel chickens tested positive for antibodies to WNV in Citrus, Manatee, St. Johns, and Walton Counties this week. Six sentinel chickens tested positive for antibodies to EEEV this week in Orange and Walton Counties. Six sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Lee and Manatee Counties.

County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Collection Week	YTD
Citrus	12/09/13		2.86			2 WNV	6 EEEV, 14 WNV, 2 HJV, 1 SLEV
Hillsborough	11/19/13	3.30				3 SLEV	4 WNV, 34 SLEV
Lee	11/18/13	9.52				2 SLEV	15 SLEV
Manatee	12/10/13	1.43	1.43			1 SLEV, 1 WNV	6 WNV, 6 SLEV
Orange	12/02/13			5.75		5 EEEV	38 EEEV, 4 WNV, 2 HJV
St. Johns	11/18/13		7.55			4 WNV, 1 EEEV	25 EEEV, 31 WNV, 4HJV
Walton	12/09/13		0.88	0.92		1 WNV, 1 EEEV	60 EEEV, 73 WNV, 11 HJV

Sentinel Seroconversions to EEEV In Florida, 2012-2013



Sentinel Seroconversions to WNV In Florida, 2012-2013



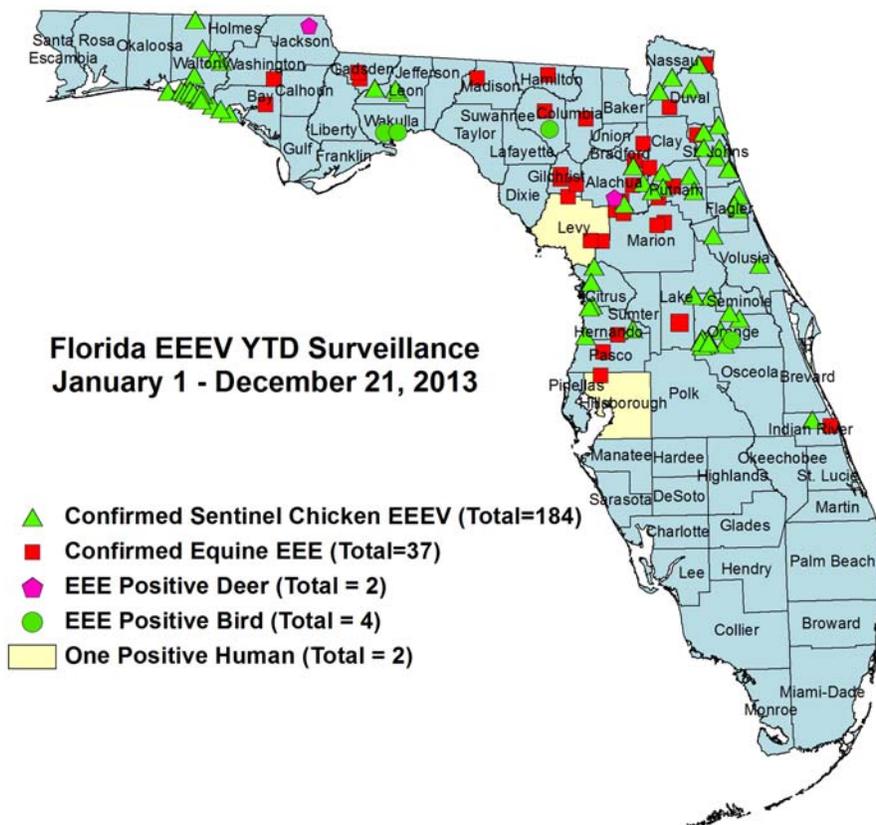
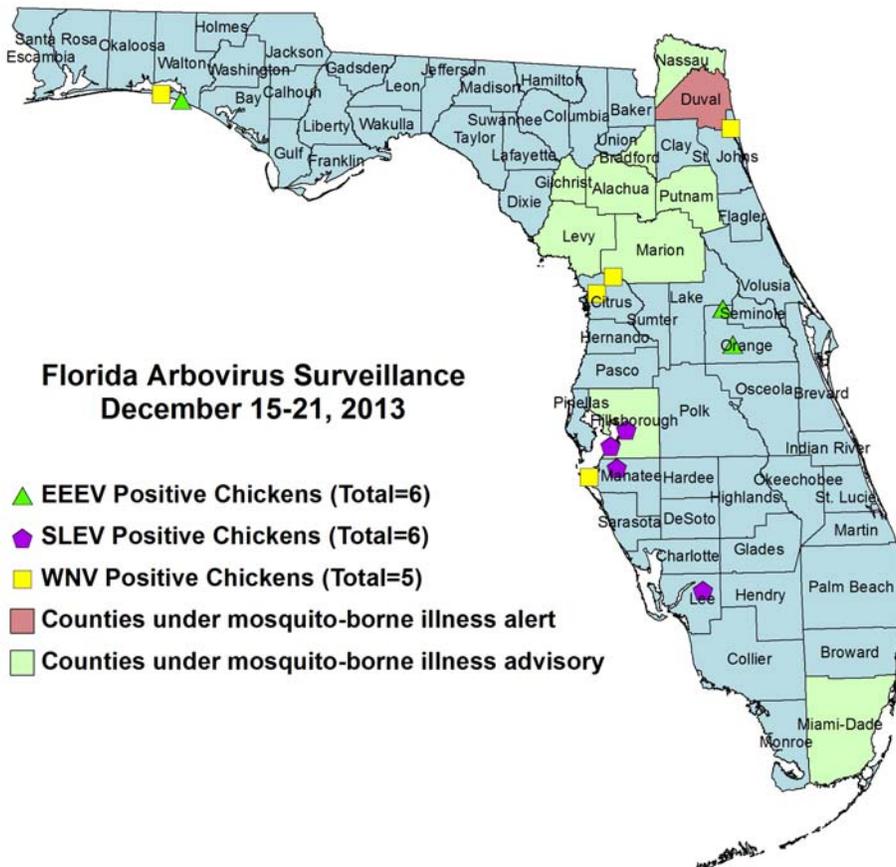
Dead Birds

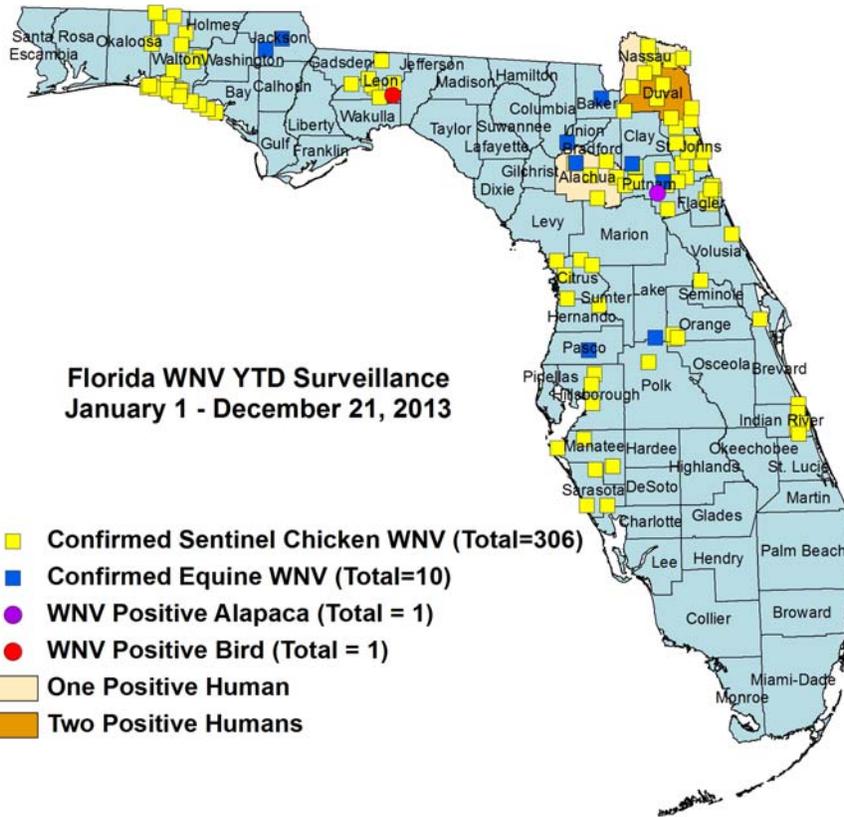
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 5 reports representing 8 dead birds, including 1 raptor were received from 4 counties.

In 2013, 629 reports representing a total of 1972 dead birds (33 crow, 21 jays, 123 raptors, 45 doves) were received from 52 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
Escambia	4	0	0	1	0
Hillsborough	1	0	0	0	0
Manatee	1	0	0	0	0
Pinellas	2	0	0	0	0

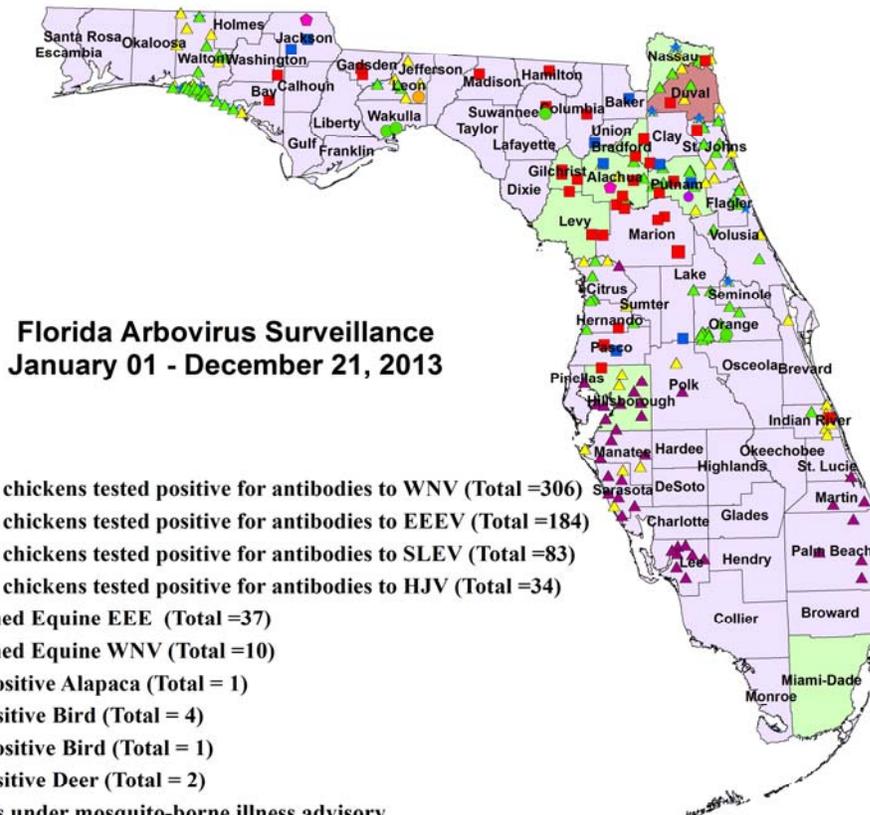
Maps





**Florida WNV YTD Surveillance
January 1 - December 21, 2013**

- Confirmed Sentinel Chicken WNV (Total=306)
- Confirmed Equine WNV (Total=10)
- WNV Positive Alapaca (Total = 1)
- WNV Positive Bird (Total = 1)
- One Positive Human
- Two Positive Humans



**Florida Arbovirus Surveillance
January 01 - December 21, 2013**

- ▲ Sentinel chickens tested positive for antibodies to WNV (Total =306)
- ▲ Sentinel chickens tested positive for antibodies to EEEV (Total =184)
- ▲ Sentinel chickens tested positive for antibodies to SLEV (Total =83)
- ★ Sentinel chickens tested positive for antibodies to HJV (Total =34)
- Confirmed Equine EEE (Total =37)
- Confirmed Equine WNV (Total =10)
- WNV Positive Alapaca (Total = 1)
- EEE Positive Bird (Total = 4)
- WNV Positive Bird (Total = 1)
- EEE Positive Deer (Total = 2)
- Counties under mosquito-borne illness advisory
- Counties under mosquito-borne illness alert

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); 15 sentinels (7/1, 8/19, 9/16, 9/24, 9/30, 10/22)
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: 6 sentinels (4/15, 10/7, 10/21) 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: 1 horse (5/4) 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: 4 horses* (2/6, 6/28, 6/29)
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: 4 sentinels (10/15, 10/22, 10/29) SLEV: 34 sentinels (9/3, 9/17, 9/25, 9/30, 10/8, 10/15, 10/18, 10/22, 11/19)
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: 15 sentinels (9/2, 9/16, 9/30, 10/14, 10/21, 10/29, 11/18, 12/2)
Leon	EEEV: 7 sentinels (6/3, 8/5, 8/12, 8/20,11/5) WNV : 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: 6 sentinels (9/24, 10/1, 10/15, 10/29, 12/10) SLEV: 6 sentinels (9/17, 9/24, 10/1, 11/5, 12/10)
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)

County	Arbovirus Activity
Orange	EEEV : 38 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) ; 1 bird (1/1) WNV : 4 sentinels (11/7, 11/14, 11/21) HJV : 2 sentinels (9/5, 9/12)
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)
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) HJV : 1 sentinel (9/10)
Sarasota	WNV : 3 sentinels (5/3, 9/10, 11/1) SLEV : 8 sentinels (4/5, 9/20, 9/30, 10/18, 10/28, 11/22)
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 : 60 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) WNV : 73 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) 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.

*Dead birds were updated on December 30, 2013.