



## Florida Arbovirus Surveillance Week 45: November 3-9, 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 November 3-9, 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. Sixteen sentinel chickens tested positive this week for antibodies to WNV in Citrus, Hillsborough, Leon, Nassau, Putnam, St. Johns, and Walton counties. In 2013, positive samples from four human, six equines, 1 wild bird, and 251 sentinel chickens have been received from 23 counties.

**EEEV activity:** No human cases of EEE were reported this week. No horses with EEEV infection were reported this week. Seven sentinel chickens tested positive for antibodies to EEEV this week in Citrus, Hernando, Orange, and Walton Counties. In 2013, positive samples from two humans, four birds, 34 equines, two deer, and 160 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:** Seventeen sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Lee, Palm Beach, and Sarasota Counties. In 2013, 69 positive samples have been received from nine counties.

**HJV activity:** One sentinel chickens tested positive for antibodies to HJV this week in Leon County. In 2013, 34 positive samples have been received from 11 counties.

**Advisories/Alerts:** Alachua, Bradford, Gilchrist, Hillsborough, Levy, Marion, Miami-Dade, Nassau, Putnam, and St. Lucie counties are currently under a mosquito-borne illness advisory. Duval and Martin County are 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:** Four human cases of WNV illness with onset in August (1) and September (2), and October (1) has been reported in 2013 in Alachua (1), Duval (2) 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 North-East 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 resident of Palm Beach County; and two are out-of-state visitors.

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

**Imported Dengue:** One hundred and three 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 (2), Dominica, Dominican Republic (11), Haiti (4), Honduras (3), India, Indonesia, Jamaica (5), Mexico, Nicaragua, Nigeria (2), Panama, Philippines (2), Puerto Rico (44), Saint Martin (2), Trinidad and Tobago, and Venezuela (3). Counties reporting cases were: Alachua (2), Brevard, Broward (10), Clay, Duval (3), Hillsborough, Indian River, Lake, Lee, Marion, Miami-Dade (37), Nassau, Orange (17), Osceola (5), Palm Beach (8), Pasco, Pinellas, Polk, Santa Rosa, Sarasota, Seminole (3), St. Johns, St. Lucie and Volusia (3). Eleven of the cases were reported in non-Florida residents.

In 2013, 76 of the 126 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

	<b># of cases per serotype – 2013</b>
<b>DENV-1</b>	54
<b>DENV-2</b>	1
<b>DENV-3</b>	3
<b>DENV-4</b>	18
	<b>76</b>

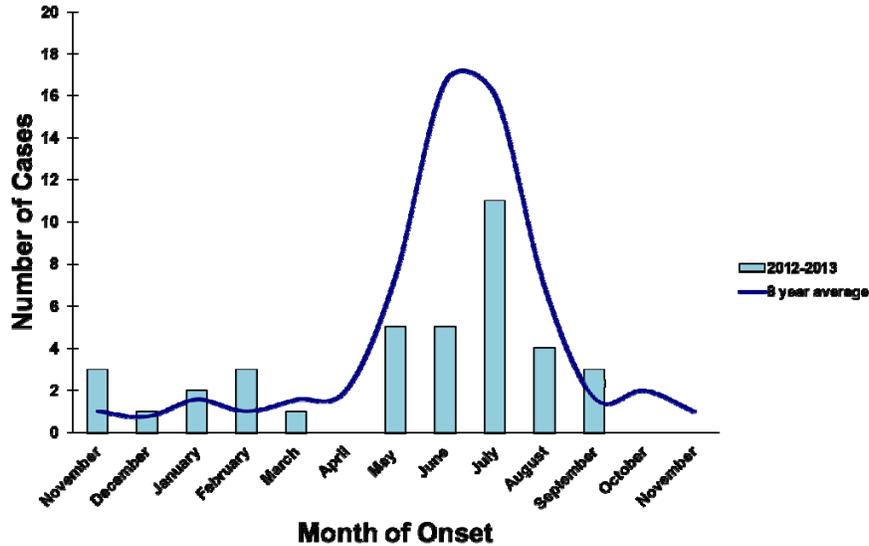
**Imported Malaria:** Forty-five cases of malaria with onset in 2013 have been reported. Countries of origin were: Benin, Chad (3), Democratic Republic of the Congo, Equatorial Guinea, Guinea (2), Ghana (4), Guyana (6), Haiti (6), India (4), Kenya (2), Liberia, Nigeria (3), Peru, Sierra Leone (2), Solomon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

Thirty-three cases (73%) were diagnosed with *Plasmodium falciparum*, eight (18%) with *Plasmodium vivax*, three with *Plasmodium ovale* (7%), and one mixed *Plasmodium falciparum*/*Plasmodium vivax* (2%).

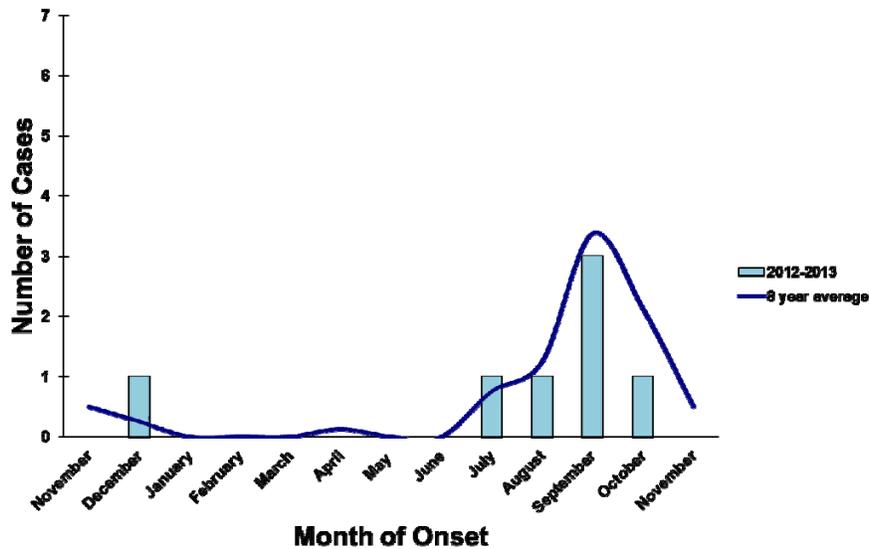
## Veterinary Cases

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**



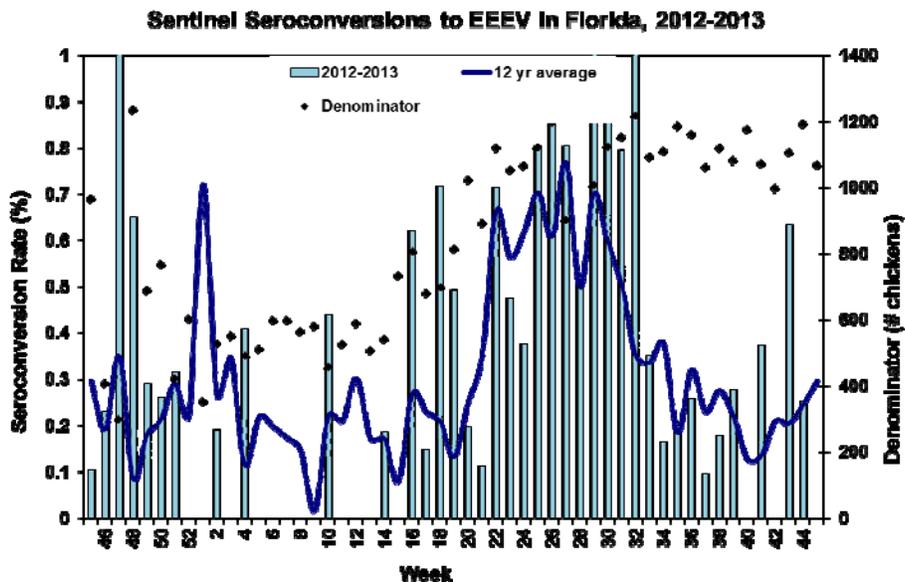
## Sentinel Chickens

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.

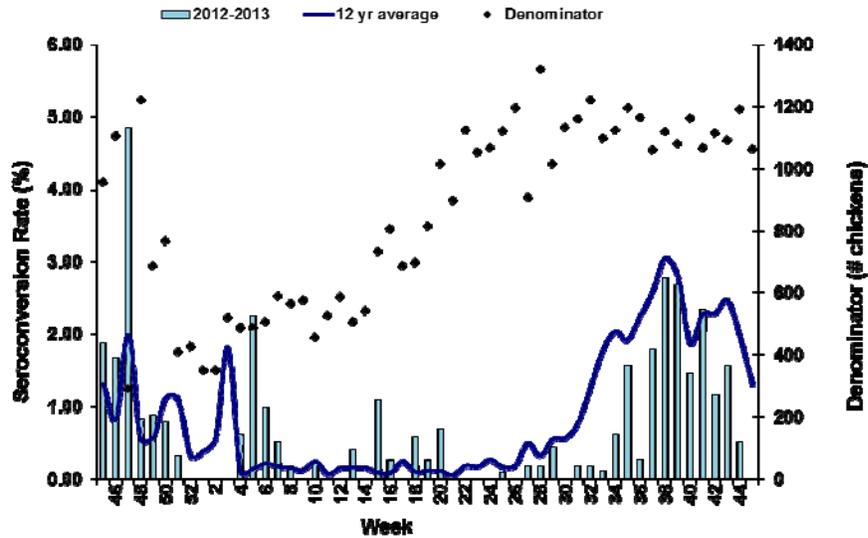
Sixteen sentinel chickens tested positive this week for antibodies to WNV in Citrus, Hillsborough, Leon, Nassau, Putnam, St. Johns, and Walton counties. Seven sentinel chickens tested positive for

antibodies to EEEV this week in Citrus, Hernando, Orange, and Walton Counties. Seventeen sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Lee, Palm Beach, and Sarasota Counties. One sentinel chickens tested positive for antibodies to HJV this week in Leon County.

County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Collection Week	YTD
Citrus	10/21/2013			4.35		3 EEEV, 4 WNV	6 EEEV, 9 WNV, 2 HJV, 1 SLEV
	10/28/2013		1.39			1 WNV	
Hernando	10/28/2013			4.35		1 EEEV	3 EEEV, 1 WNV
Hillsborough	10/15/2013	17.50	2.50			14 SLEV, 2 WNV	28 SLEV, 3 WNV
	10/29/2013		1.18			1 WNV	
Lee	10/29/2013	1.32				1 SLEV	12 SLEV
Leon	10/11/2013		1.29			4 WNV	6 EEEV, 20 WNV, 1 HJV
	10/21/2013				2.56	2 WNV, 1 HJV	
Nassau	10/7/2013		30.77			8 WNV	12 EEEV, 50 WNV, 3 HJV
	10/14/2013		12.12			4 WNV	
Orange	10/24/2013			2.70		3 EEEV	29 EEEV, 2 HJV
	10/28/2013			0.79		1 EEEV	
Palm Beach	10/28/2013	4.55				1 SLEV	8 SLEV
Putnam	10/8/2013		66.67			10 WNV, 1 EEEV	11 EEEV, 30 WNV, 1 HJV
	10/15/2013		28.57			4 WNV	
Sarasota	10/28/2013	1.33				1 SLEV	2 WNV, 6 SLEV
St. Johns	10/28/2013		5.26			3 WNV	24 EEEV, 19 WNV, 4 HJV
Walton	10/1/2013		1.96			2 WNV	52 EEEV, 65 WNV, 11 HJV
	10/28/2013		0.82	0.82		1 EEEV, 1 WNV	



### Sentinel Seroconversions to WNV in Florida, 2012-2013



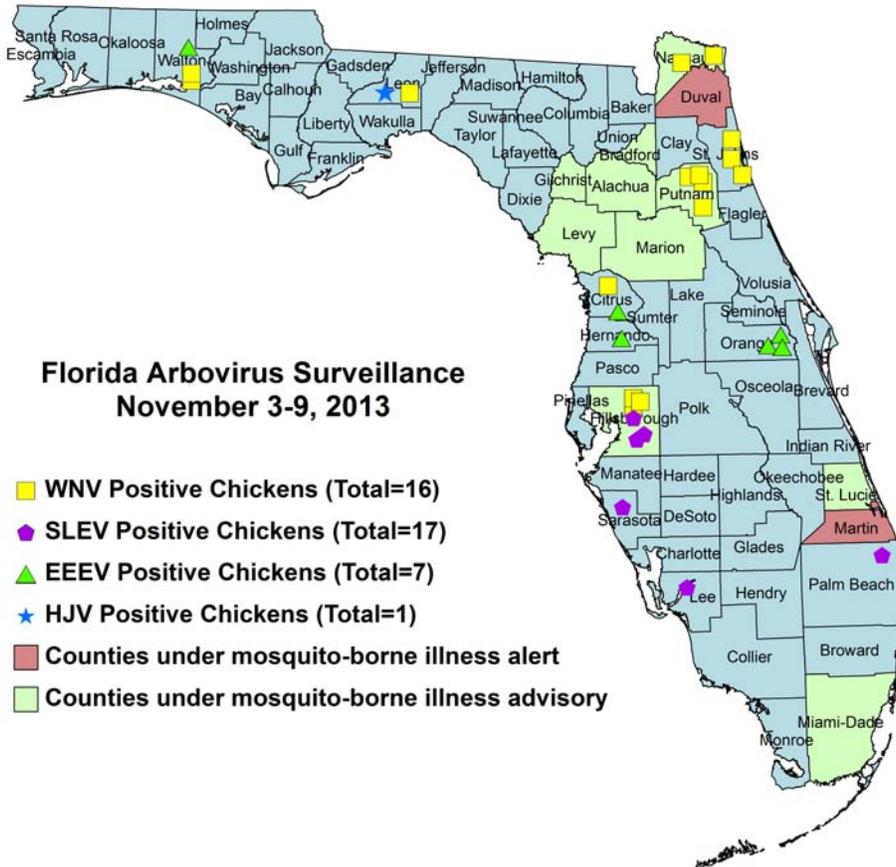
### Dead Birds

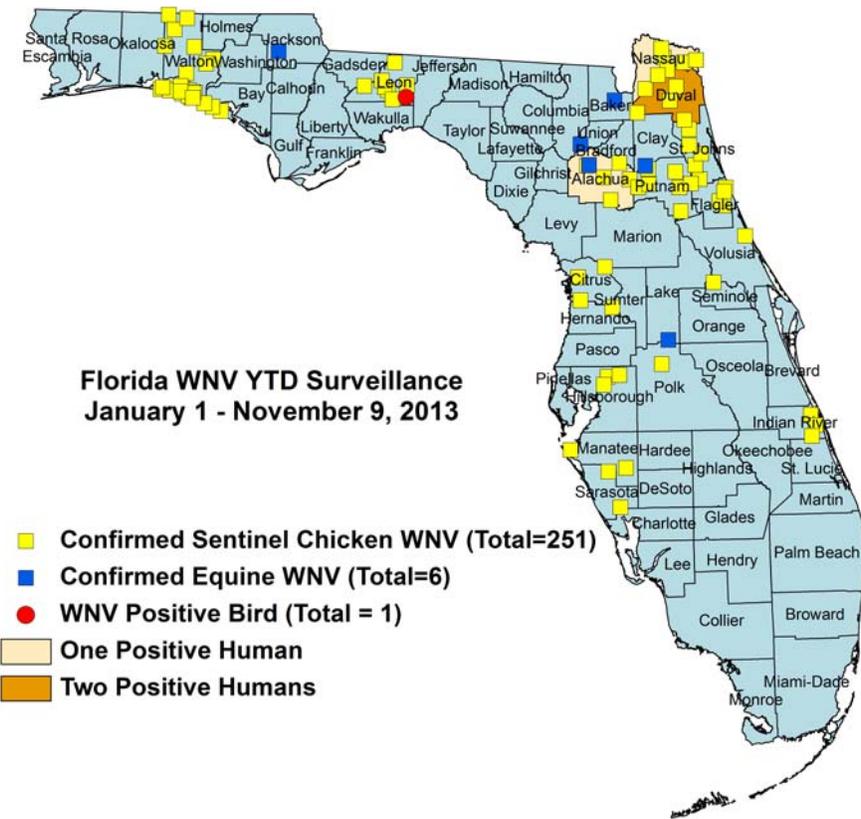
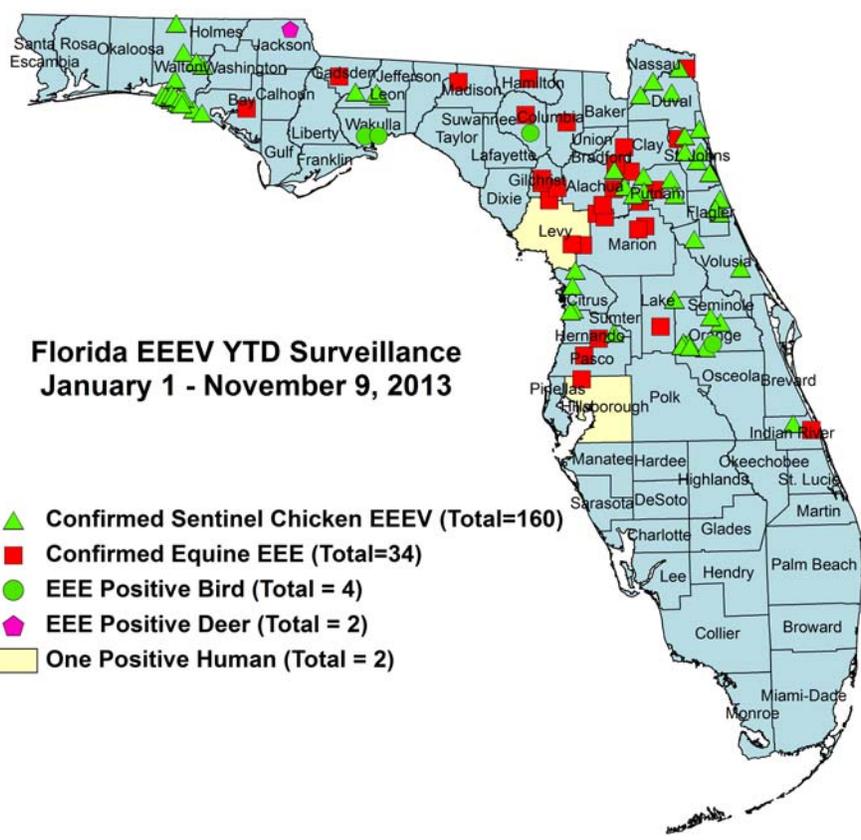
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 8 reports representing 12 dead birds, including 1 raptor and 1 dove were received from 7 counties.

In 2013, 597 reports representing a total of 1872 dead birds (26 crow, 21 jays, 115 raptors, 44 doves) were received from 51 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	3	0	0	0	0
Leon	1	0	0	0	0
Martin	2	0	0	0	0
Palm Beach	1	0	0	0	0
Pasco	1	0	0	1	0
Pinellas	2	0	0	0	0
Walton	2	0	0	0	1

## Maps





## 2013 Arbovirus Activity by County

County	Arbovirus Activity
<b>Alachua</b>	EEEV: 2 horses (2/13, 7/11) ; 1 deer (1/1); 6 sentinels (6/17, 6/24, 7/15, 8/5, 10/7) WNV: 1 human (September); 1 horse (10/14); 12 sentinels (7/1, 8/19, 9/16, 9/24, 9/30)
<b>Baker</b>	WNV: 1 horse (7/9)
<b>Bay</b>	EEEV: 1 horse (8/21) 1 sentinel (5/21) WNV: 3 sentinels (5/7, 8/26) HJV: 2 sentinels (5/7, 5/28)
<b>Bradford</b>	EEEV: 2 horses (5/27, 5/30)
<b>Citrus</b>	EEEV: 6 sentinel (4/15, 10/7, 10/21) WNV: 9 sentinels (1/21, 1/28, 9/16, 10/21, 10/28) SLEV: 1 sentinel (1/21) HJV: 2 sentinels (3/25, 4/2)
<b>Clay</b>	EEEV: 1 horse (7/17) WNV: 1 horse (8/7)
<b>Columbia</b>	EEEV: 1 horse (5/4) WNV: 1 horse (9/9)
<b>Duval</b>	EEEV: 1 sentinel (8/22) WNV: 2 Humans (August, October), 22 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) HJV: 2 sentinels (6/17, 7/8)
<b>Flagler</b>	EEEV: 5 sentinels (4/22, 6/24, 7/22, 7/29) WNV: 6 sentinels (8/19, 9/23, 9/30, 10/7, 10/21) HJV: 5 sentinels (6/17, 7/29, 8/5, 9/3)
<b>Gadsden</b>	EEEV: 1 horse (9/3)
<b>Gilchrist</b>	EEEV: 4 horses* (2/6, 6/28, 6/29)
<b>Hamilton</b>	EEEV: 1 horse (5/30)
<b>Hernando</b>	EEEV: 1 horse (6/27) ; 3 sentinels (6/10, 10/21, 10/28) WNV: 1 sentinel (10/21)
<b>Hillsborough</b>	EEEV: 1 human (March), 1 horse (7/20) WNV: 3 sentinel (10/15, 10/29) SLEV: 28 sentinels (9/3, 9/17, 9/25, 9/30, 10/8, 10/15)
<b>Indian River</b>	EEEV: 1 horse (9/29), 2 sentinels (5/9, 8/15) WNV: 3 sentinels (7/10, 7/31, 10/10)
<b>Jackson</b>	EEEV: 1 deer (10/1) WNV: 1 horse (9/24)
<b>Lake</b>	EEEV: 1 horse (1/30) WNV: 1 horse (9/16)
<b>Lee</b>	SLEV: 12 sentinels (9/2, 9/16, 9/30, 10/14, 10/21, 10/29)
<b>Leon</b>	EEEV: 6 sentinels (6/3, 8/5, 8/12, 8/20) 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)
<b>Levy</b>	EEEV : 1 human (January) ; 3 horses (1/7, 7/21, 7/27)
<b>Madison</b>	EEEV : 1 horse (2/16)
<b>Manatee</b>	WNV: 3 sentinel (9/24, 10/1, 10/15) SLEV: 4 sentinels (9/17, 9/24, 10/1)
<b>Marion</b>	EEEV : 6 horses (7/11, 7/12, 7/18, 7/31, 8/7, 9/10)
<b>Martin</b>	Dengue : 15 humans (June, July, August, September) SLEV : 6 sentinels (9/20, 10/4)
<b>Miami-Dade</b>	Dengue : 1 human (August)
<b>Nassau</b>	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) ; 50 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) HJV : 3 sentinels (6/28, 7/29)
<b>Orange</b>	EEEV : 29 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) ; 1 bird (1/1)

<b>County</b>	<b>Arbovirus Activity</b>
	HJV : 2 sentinels (9/5, 9/12)
<b>Palm Beach</b>	SLEV : 8 sentinels (9/3, 9/16, 9/17, 9/30, 10/14, 10/28) Dengue : 1 human with exposure in Martin (August)
<b>Pasco</b>	EEEV : 1 horse (7/16)
<b>Pinellas</b>	SLEV : 3 sentinel (10/7, 10/14)
<b>Polk</b>	WNV : 1 sentinel (10/15) SLEV : 1 sentinel (9/9)
<b>Putnam</b>	EEEV : 2 horses (6/26, 8/8) ; 11 sentinels (7/16, 7/23, 7/30, 8/6, 9/10, 9/24, 10/8) WNV : 30 sentinels (9/17, 9/24, 10/1, 10/8, 10/15, 10/22) HJV : 1 sentinel (9/10)
<b>Sarasota</b>	WNV : 2 sentinels (5/3, 9/10) SLEV : 6 sentinels (4/5, 9/20, 9/30, 10/18, 10/28)
<b>Seminole</b>	WNV : 1 sentinel (9/10) HJV : 1 sentinel (5/7)
<b>St. Johns</b>	EEEV : 1 horse (3/1) ; 24 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) WNV : 19 sentinels (9/3, 9/16, 9/23, 10/7, 10/14, 10/21, 10/28) HJV : 4 sentinels (6/3, 6/17, 7/1, 9/3)
<b>St. Lucie</b>	Dengue : 4 humans with exposure in Martin (July, August)
<b>Suwannee</b>	EEEV : 1 horse (8/9), 1 bird (8/11)
<b>Volusia</b>	EEEV : 2 sentinels (7/15, 9/3) WNV : 1 sentinel (9/16)
<b>Wakulla</b>	EEEV : 2 birds (4/8)
<b>Walton</b>	EEEV : 52 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) WNV : 65 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, 10/28) 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.doh.state.fl.us/Environment/medicine/arboviral/index.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. In addition, dengue and malaria tallies may also include suspect cases. 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.doh.state.fl.us/Disease\\_ctrl/epi/surv/CaseDefinitions/2012CaseDef\\_FINAL.pdf](http://www.doh.state.fl.us/Disease_ctrl/epi/surv/CaseDefinitions/2012CaseDef_FINAL.pdf)

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 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.