



## Florida Arbovirus Surveillance

### Week 45: November 7-13, 2010

Arbovirus surveillance in Florida includes endemic mosquito-borne viruses 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 November 7-13, 2010, the following arboviral activity was recorded in Florida:

**DENV activity:** One locally-acquired case of dengue in Miami-Dade County and one associated with Key West were reported this week. In 2010, there have been 58 locally-acquired cases in Key West, one in Broward County, and one in Miami-Dade County.

**EEEV activity:** Three sentinel chickens in Leon and Walton counties tested positive for antibodies to EEEV. In 2010, positive samples from four humans, 93 equines, 163 sentinel chickens, 34 live wild birds, and six mosquito pools have been received from 45 of Florida's 67 counties.

**WNV activity:** One WNV-confirmed positive horse was reported from Union County. Twenty-two sentinel chickens in Alachua, Brevard, Citrus, Flagler, Hillsborough, Indian River, Orange, Putnam, Sarasota, Seminole, and St. Johns counties tested positive for antibodies to WNV. In 2010, positive samples from 12 humans, 22 equines, 1 reptile, 474 sentinel chickens, and two live wild birds (flavivirus positive) have been received from 38 counties.

**SLEV activity:** No SLEV activity was reported this week. In 2010, positive samples from five sentinel chickens have been received from one county.

**HJV activity:** Seven sentinel chickens in Flagler, Indian River, and Walton counties tested positive for antibodies to HJV. In 2010, positive samples from 88 sentinel chickens have been received from 14 counties.

**Advisories/Alerts:** Brevard, Collier, Hillsborough, Monroe, and Orange counties are under mosquito-borne illness alerts. Broward, Clay, De Soto, Duval, Flagler, Glades, Hendry, Highlands, Indian River, Jackson, Jefferson, Lake, Leon, Madison, Marion, Martin, Miami-Dade, Osceola, Palm Beach, Polk, Putnam, St. Lucie, Volusia, Walton, Wakulla, and Washington counties are under mosquito-borne illness advisories.

## Year to Date Human Case Summary

**Eastern Equine Encephalitis Acquired in Florida:** Four human cases of EEE have been reported in 2010 in Hillsborough (2), Wakulla, and Leon counties with onset dates in June and July (3).

**West Nile Virus Infection Acquired in Florida:** Eleven human cases of WNV have been reported in 2010 in Osceola, Orange (2), Collier (2), Broward, Duval, De Soto, Suwannee, Brevard, and Highlands counties with onset in July (2), August (4), September (3), and October (2). The Suwannee County case had travel outside the county, primarily in Florida. One positive asymptomatic blood donor was reported in Brevard County.

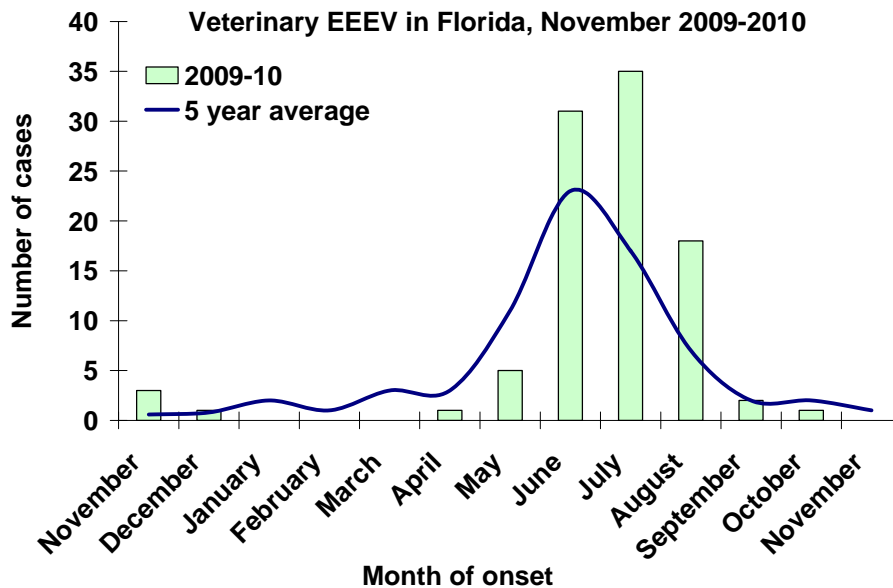
**Dengue Acquired in Florida:** In 2010, sixty cases of locally acquired dengue have been reported in Broward (1), Miami-Dade (1) and Monroe (58-Key West) counties. Of the Key West cases, 49 are Key West residents, eight are residents of other Florida counties, and one resides out of state. Onset dates ranged from March 17 to October 28, 2010.

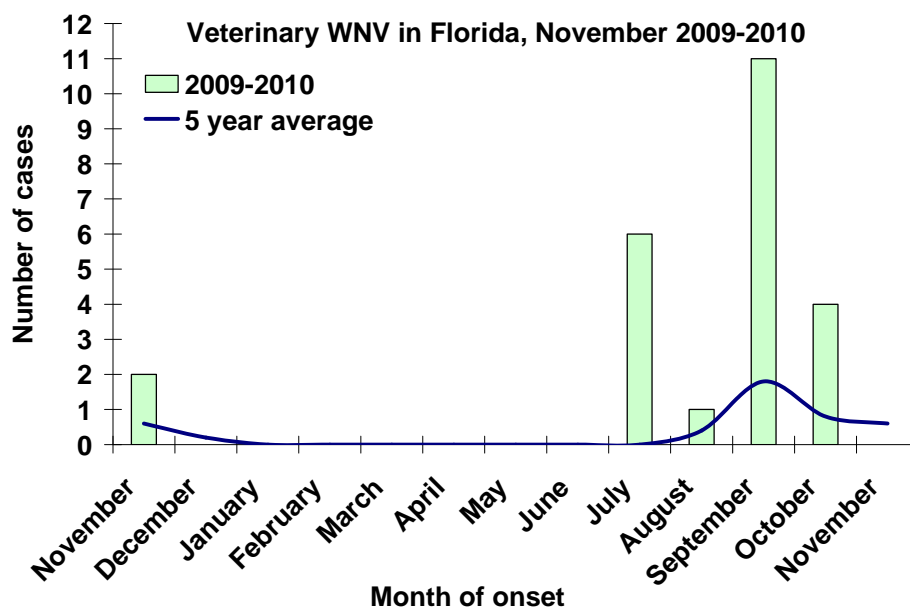
**Imported Dengue:** One hundred and twenty cases of dengue with onset in 2010 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Bangladesh, Brazil, Colombia (8), Costa Rica (4), Dominican Republic (13), Ecuador, El Salvador, Ghana, Grenada (4), Guatemala (2), Haiti (5), Honduras (6), Jamaica (5), Martinique (2), Mexico, Nicaragua (9), Pakistan, Philippines, Puerto Rico (33), Trinidad, Venezuela (15), Virgin Islands (3), Malaysia/Dubai/Bangladesh, and Panama/Venezuela (slash indicates travel to more than one country). Counties reporting cases were Alachua (2), Broward (20), Collier (2), Duval (3), Escambia, Flagler, Hendry, Hillsborough (7), Lake, Lee, Manatee, Marion, Miami-Dade (43), Monroe, Orange (9), Osceola (5), Palm Beach (10), Pasco, Pinellas, Polk, Seminole (3), St. Lucie (2), and Volusia (3).

**Imported Malaria:** One hundred and five imported cases of malaria with onset in 2010 have been reported. Countries of origin were: Angola, Cameroon, Dominican Republic, Ghana (4), Guyana, Haiti (60), Honduras (4), India (8), Indonesia, Ivory Coast, Malawi (2), Nigeria (7), Pakistan (2), Peru, Philippines, Sierra Leone, South Africa, Togo, Uganda, West Africa (2), Zambia/South Africa, Africa, and unknown (2). Counties reporting cases were: Alachua, Brevard (2), Broward (18), Charlotte, Citrus, Collier (4), Duval (4), Escambia (3), Hillsborough (5), Lake, Lee, Leon, Miami-Dade (21), Manatee (2), Orange (15), Osceola (3), Palm Beach (12), Pasco, Pinellas, Polk (2), Sarasota, Seminole, St. Lucie, Volusia (2), and Wakulla.

**Veterinary Cases**

No positive horses were reported this week. In 2010, 22 WNV positive horses, one WNV positive reptile, and 93 EEEV positive horses have been reported.



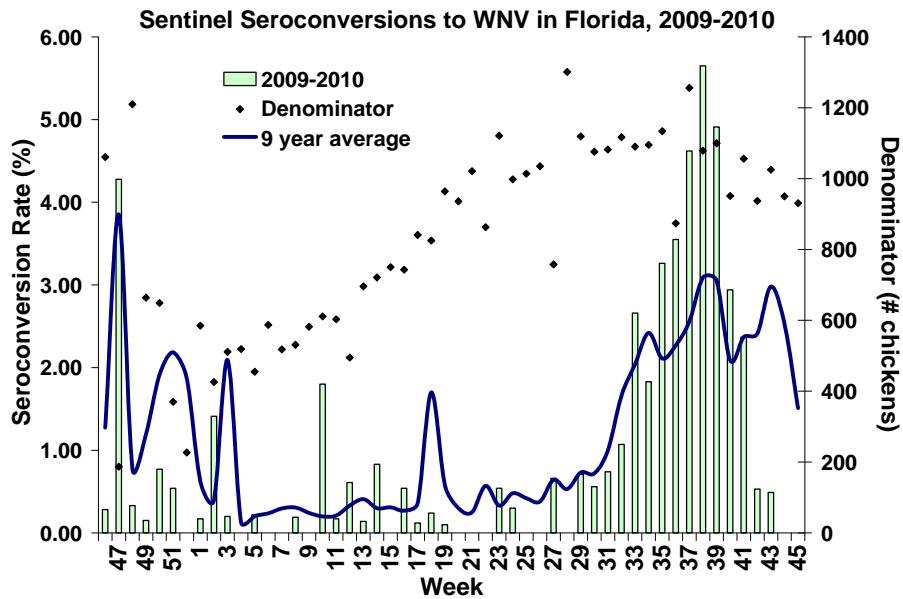
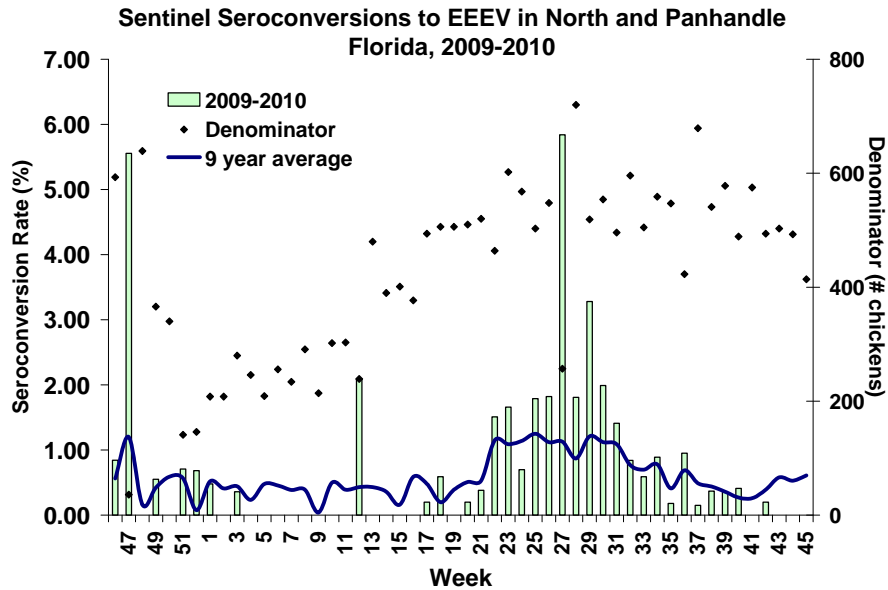


**Sentinel Chickens**

There were three seroconversions to EEEV in sentinel chickens from Leon and Walton counties, 22 to WNV in Alachua, Brevard, Citrus, Flagler, Hillsborough, Indian River, Orange, Putnam, Sarasota, Seminole, and St. Johns counties, and seven to HJV in Flagler, Indian River, and Walton counties this week. Seroconversion rates are calculated by week and include previously reported results.

County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Week	YTD
Alachua	10/18/10		10.3			3 WNV	11 WNV, 4 EEE, 1 HJV
Brevard	10/18/10		16.7			3 WNV	47 WNV, 1 EEE
Citrus	10/18/10		1.6			1 WNV	10 WNV, 5 EEE, 3 HJV
Flagler	10/18/10		7.7		7.7	1 WNV, 1 HJV	6 WNV, 19 EEE, 5 HJV
Hillsborough	10/18/10		2.1			2 WNV	23 WNV, 2 EEE, 1 HJV
Indian River	10/14/10		8.8		1.2	3 WNV, 1 HJV	44 WNV, 1 HJV
	10/26/10		4.9			2 WNV	
Leon	10/18/10			4.8		2 EEE	6 WNV, 10 EEE, 4 HJV
Orange	09/23/10		1.0			1 WNV	41 WNV, 23 EEE, 23 HJV
	10/18, 10/21/10		3.1			3 WNV	
Putnam	09/24/10		23.1	7.7		3 WNV, 1 EEE	12 WNV, 7 EEE, 4 HJV
Sarasota	10/15/10		1.5			1 WNV	4 WNV, 3 EEE
	11/01/10		1.6			1 WNV	
Seminole	10/14/10		4.2			1 WNV	7 WNV, 1 EEE, 1 HJV
	10/26/10		5.9			1 WNV	
St. Johns	10/18/10		1.8			1 WNV	24 WNV, 3 EEE, 3 HJV
	11/01/10		3.4			2 WNV	
Walton (North)	10/18/10			5.3	10.5	2 EEE, 4 HJV	50 WNV, 29 EEE, 16 HJV

County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Week	YTD
Walton (South)	10/25/10				1.5	1 HJV	3 WNV, 19 EEE, 8 HJV



### Live Wild Birds

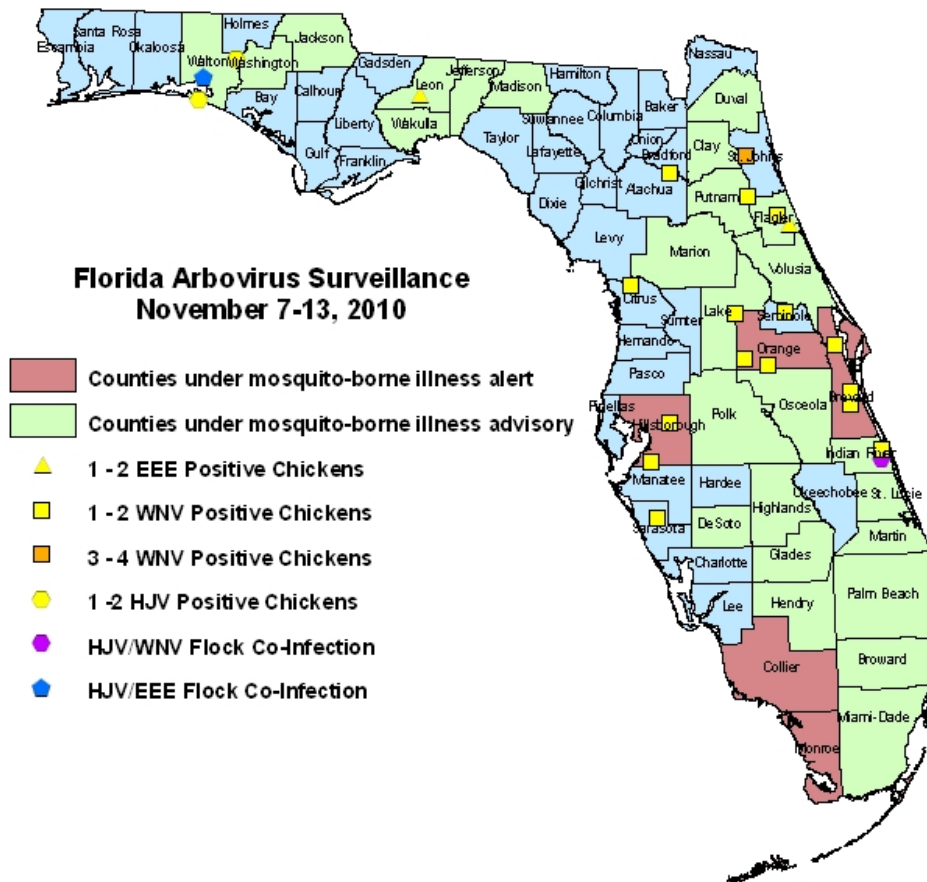
Out of 33 live wild birds collected from three counties on October 25-November 5, 2010, three blue jays, one cardinal, and one blackbird tested positive for antibodies to EEEV.

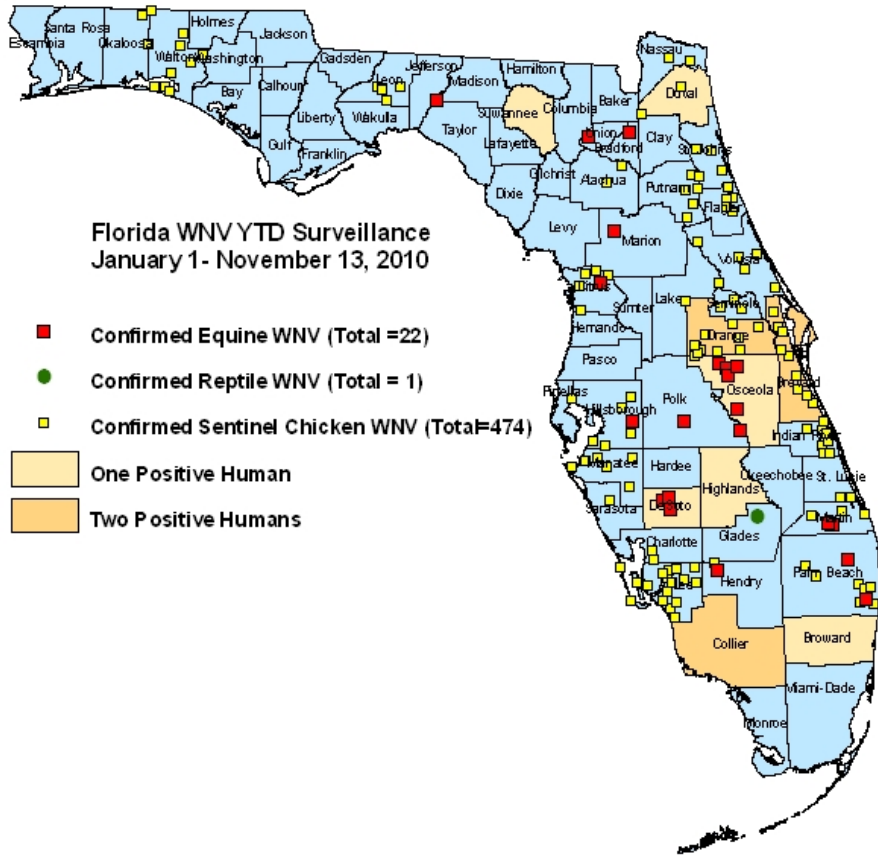
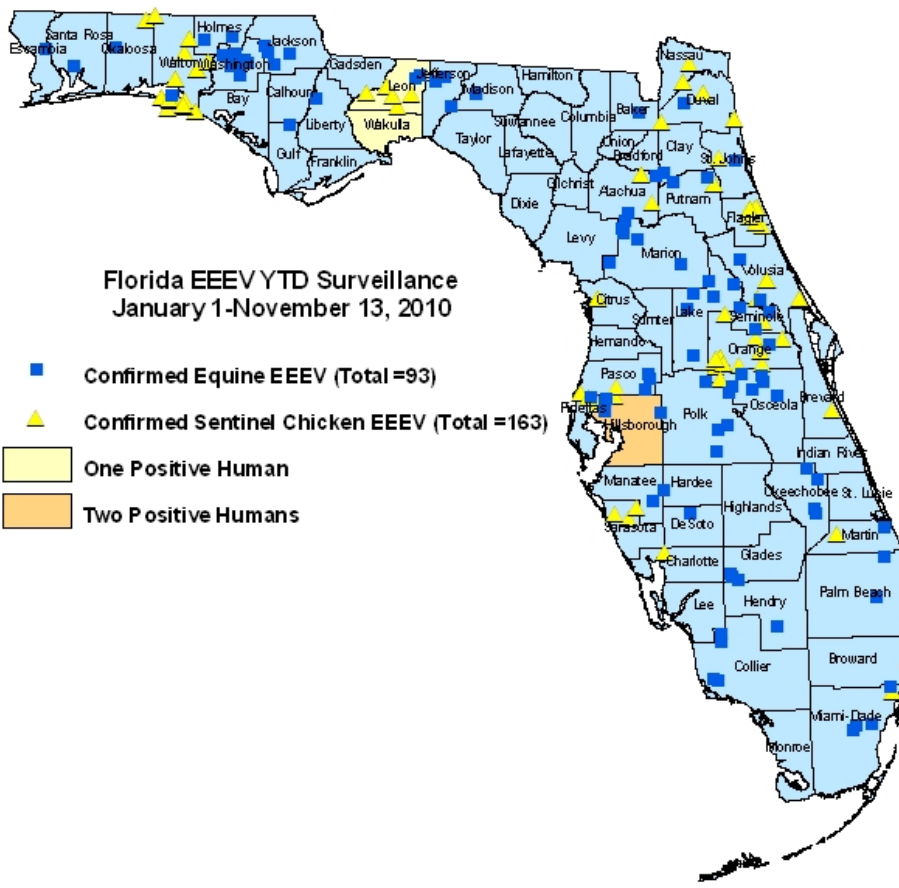
County	Collection Date	EEEV	Flavi	Species	EEEV Rate	Flavi Rate	County YTD
Santa Rosa	10/26/10	1		Red-winged blackbird	1 out of 7	N/A	18 EEE
	11/02/10	1		Cardinal	1 out of 8	N/A	
Okaloosa	11/01, 11/03/10	3	1	3 Blue jays	3 out of 4	1 out of 4	1 WNV, 17 EEE

## 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, nine reports representing 38 dead birds were received from seven counties. Two were identified as crows and one as a raptor; none were identified as jays. In 2010, 314 reports representing a total of 1015 dead birds (49 crows, 16 jays, 49 raptors, 800 others) have been reported from 48 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/)

## Maps





## YTD Arbovirus Activity by County

County	Arbovirus Activity
<b>Alachua</b>	WNV: 11 sentinels (8/2, 8/16, 9/7, 9/13, 9/20, 9/27, 10/18) EEE: 1 horse (7/21); 4 sentinels (7/16, 7/19, 8/2, 9/28) HJV: 1 sentinel (9/20)
<b>Baker</b>	EEE: 1 horse (7/26)
<b>Bradford</b>	WNV: 1 horse (10/06) EEE: 1 horse (6/16)
<b>Brevard</b>	WNV: 2 humans (1 case in October, 1 positive blood donor); 47 sentinels (7/7, 7/21, 8/4, 8/11, 8/18, 8/20, 9/1, 9/3, 9/8, 9/17, 9/22, 9/23, 9/24, 10/1, 10/6, 10/7, 10/8, 10/18) EEE: 1 sentinel (6/2)
<b>Broward</b>	DENV: 3 humans (1 acquired in Broward, 2 acquired in Key West) WNV: 1 human (August)
<b>Charlotte</b>	WNV: 3 sentinels (8/27, 9/10, 10/8)
<b>Citrus</b>	WNV: 1 horse (10/3); 10 sentinels (9/20, 9/27, 10/4, 10/11, 10/18, 10/25) EEE: 5 sentinels (5/24, 6/7, 6/28, 7/12, 7/19) HJV: 3 sentinels (5/17, 5/24, 8/9)
<b>Clay</b>	EEE: 1 horse (6/16)
<b>Collier</b>	WNV: 2 humans (August) EEE: 4 horses (6/9, 6/22, 6/29, 7/9)
<b>De Soto</b>	WNV: 1 human (September); 3 horses (9/6, 9/10, 9/21) EEE: 1 horse (8/23)
<b>Duval</b>	WNV: 1 human (September); 4 sentinels (9/13, 9/27, 10/11) EEE: 1 horse (8/18); 5 sentinels (6/21, 7/8, 7/21)
<b>Escambia</b>	EEE: 1 horse (8/16)
<b>Flagler</b>	WNV: 6 sentinels (9/13, 9/27, 10/4, 10/18) EEE : 19 sentinels (3/22, 4/26, 5/3, 6/7, 6/21, 7/12, 7/19, 7/26, 8/2, 8/9, 9/27, 10/4); 3 mosquito pools ( <i>Culiseta melanura</i> 4/27, 5/11, 6/15) HJV: 5 sentinels (6/14, 6/28, 8/16, 9/20, 10/18)
<b>Glades</b>	WNV : 1 alligator (10/1) EEE : 3 horses (6/20, 6/24, 7/26)
<b>Gulf</b>	EEE : 1 horse (9/5)
<b>Hardee</b>	EEE : 1 horse (8/22)
<b>Hendry</b>	WNV : 1 horse (9/15) ; 10 sentinels (8/18, 8/31, 9/13) EEE : 1 horse (7/21)
<b>Hernando</b>	WNV : 3 sentinels (9/27, 10/12)
<b>Highlands</b>	WNV : 1 human (October)
<b>Hillsborough</b>	WNV : 1 horse (9/3) ; 23 sentinels (1/12, 1/19, 2/22, 3/9, 3/22, 4/20, 5/11, 6/15, 9/20, 10/6, 10/12, 10/18) EEE: 2 humans (June, July) ; 5 horses (5/29, 6/11, 7/8, 7/17); 2 sentinels (5/4, 5/18) HJV : 1 sentinel (6/28)
<b>Holmes</b>	EEE: 2 horses (7/23, 8/9)
<b>Indian River</b>	WNV: 44 sentinels (7/22, 8/12, 8/19, 9/2, 9/9, 9/16, 9/23, 9/29, 9/30, 10/7, 10/14, 10/21, 10/26) HJV: 1 sentinel (10/14)
<b>Jackson</b>	EEE: 4 horses (6/14, 6/28, 7/10, 8/1)
<b>Jefferson</b>	WNV: 1 horse (7/4) EEE: 3 horses (7/20, 8/1, 8/25)
<b>Lake</b>	EEE: 6 horses (5/20, 6/29, 7/4, 7/9, 7/15, 7/17)
<b>Lee</b>	WNV: 53 sentinels (3/30, 4/20, 8/2, 8/9, 8/16, 8/24, 8/30, 9/7, 9/13, 9/14, 9/20, 9/27, 9/28, 10/4, 10/11)
<b>Leon</b>	DENV: 2 humans (acquired in Key West) WNV: 6 sentinels (9/20, 9/28, 10/25) EEE: 1 human (July); 2 horses (6/29, 8/5); 10 sentinels (6/1, 6/21, 8/2, 8/9, 8/16, 9/7, 9/20, 10/18) HJV: 4 sentinels (8/16, 8/23, 10/4, 10/11)
<b>Liberty</b>	EEE: 1 horse (7/11)
<b>Madison</b>	EEE: 2 horses (6/21, 7/3)
<b>Manatee</b>	WNV: 15 sentinels (8/30, 9/7, 9/13, 9/20, 9/27, 10/4, 10/11, 10/18) EEE: 1 horse (7/21)
<b>Marion</b>	WNV: 1 horse (10/1) EEE: 6 horses (5/7, 7/22, 8/3, 9/24, 10/11)
<b>Martin</b>	WNV: 2 horses (9/11, 9/16); 13 sentinels (8/13, 8/27, 9/10, 9/16, 9/23, 10/1, 10/15) EEE: 1 horse (8/4); 2 sentinels (5/28)
<b>Miami-Dade</b>	DENV: 2 humans (acquired in Miami-Dade, 1 acquired in Key West) SLEV: 5 sentinels (8/23, 9/7, 9/20, 9/27)



	EEE: 4 horses (6/7, 6/17, 7/4); 2 sentinels (6/14)
<b>Monroe</b>	DENV: 58 humans (acquired in Key West)
<b>Nassau</b>	WNV: 5 sentinels (9/6, 9/20) EEE: 6 sentinels (6/28, 7/13, 7/19, 8/9, 8/16, 8/31) HJV: 9 sentinels (6/28, 7/13, 7/19, 7/26, 8/16, 8/23, 9/20)
<b>Okaloosa</b>	WNV: 2 live wild birds (flavivirus positive, 2 blue jays 6/14, 11/1) EEE : 1 horse (7/25); 16 live wild birds (1 house sparrow 1/4, 11 blue jays 1/27, 4/19, 4/21, 4/26, 7/5, 7/26, 9/16, 11/1, 11/3, 3 cardinals 7/5, 7/22, 8/5; 1 northern mockingbird 10/4)
<b>Okeechobee</b>	EEE : 4 horses (6/14, 7/1, 7/7, 7/17)
<b>Orange</b>	WNV : 2 humans (1 July, 1 August) ; 41 sentinels (6/14, 7/6, 7/19, 7/26, 8/2, 8/16, 8/23, 8/30, 9/2, 9/7, 9/16, 9/23, 9/27, 10/4, 10/11, 10/14, 10/18, 10/21) EEE : 1 horse (7/16); 23 sentinels (1/7, 5/3, 5/17, 6/7, 6/10, 6/14, 6/21, 7/6, 7/12, 7/19, 7/22, 7/29, 9/7, 9/13) HJV : 23 sentinels (5/17, 6/7, 6/10, 6/14, 6/24, 7/6, 7/8, 7/15, 7/19, 7/22, 8/5, 8/16, 8/19, 10/11)
<b>Osceola</b>	WNV: 1 human (July); 6 horses (7/14, 7/15, 7/20, 7/24, 7/26, 8/30) EEE: 7 horses (5/15 (donkey), 6/8, 6/10, 6/13, 7/9)
<b>Palm Beach</b>	WNV: 2 horses (9/9, 9/21); 53 sentinels (3/15, 8/2, 8/9, 8/17, 8/23, 8/30, 9/7, 9/13, 9/17, 9/20, 9/27, 10/4, 10/11, 10/18, 10/25) EEE: 2 horses (6/22, 8/31)
<b>Pasco</b>	EEE: 3 horses (6/11, 7/16, 8/7); 3 sentinels (7/6, 7/12) HJV: 3 sentinels (6/28, 7/6, 8/16)
<b>Pinellas</b>	DENV: 1 human (acquired in Key West) WNV: 1 sentinel (9/27) EEE: 3 sentinels (5/24, 7/19) HJV: 2 sentinels (4/26, 7/6)
<b>Polk</b>	WNV: 2 horses (9/1, 9/10) EEE: 4 horses (4/28, 6/25, 6/28, 8/19)
<b>Putnam</b>	WNV: 12 sentinels (8/27, 9/9, 9/17, 9/24, 10/1) EEE: 2 horses (7/26, 8/8); 7 sentinels (6/4, 7/23, 7/30, 8/6, 9/9, 9/24) HJV: 4 sentinels (5/14, 8/6, 10/1)
<b>St. Johns</b>	WNV : 24 sentinels (8/16, 8/23, 8/30, 9/7, 9/13, 9/20, 9/27, 10/18, 11/1) EEE: 1 horse (6/18); 3 sentinels (6/1, 7/12, 7/26) HJV: 3 sentinels (4/26, 5/3, 7/12)
<b>St. Lucie</b>	WNV: 8 sentinels (9/10, 9/17, 9/24, 10/1, 10/8)
<b>Santa Rosa</b>	EEE: 1 horse (6/29); 18 live wild birds (11 blue jays 2/2, 3/22, 4/13, 4/19, 5/11, 5/18, 7/13, 8/31, 9/14, 6 cardinals 6/22, 7/13, 7/27, 8/3, 8/31, 11/2, 1 red-winged blackbird 10/26)
<b>Sarasota</b>	DENV: 2 humans (acquired in Key West) WNV: 4 sentinels (1/8, 10/8, 10/15, 11/1) EEE: 3 sentinels (1/5, 1/11, 6/1)
<b>Seminole</b>	WNV : 7 sentinels (9/2, 9/16, 9/23, 10/7, 10/14, 10/26) EEE : 3 horses (6/26, 7/15, 8/14) ; 1 sentinel (7/2) HJV : 1 sentinel (7/27)
<b>Suwannee</b>	WNV : 1 human (September)
<b>Union</b>	WNV : 1 horse (10/13)
<b>Volusia</b>	WNV : 18 sentinels (7/19, 8/9, 8/16, 8/30, 9/7, 9/13, 9/20, 9/27, 10/4, 10/11) EEE : 2 horses (5/7, 7/1) ; 16 sentinels (5/24, 6/1, 6/7, 6/14, 6/21, 6/28, 7/6, 7/12, 7/26, 8/9) ; 3 mosquito pools ( <i>Culiseta melanura</i> 6/15, 6/22, 6/29) HJV : 4 sentinels (5/17, 7/12, 9/7, 10/4)
<b>Wakulla</b>	EEE: 1 human (July)
<b>Walton</b>	WNV : 53 sentinels (1/14, 2/4, 3/8, 3/12, 3/22, 4/7, 4/8, 4/23, 4/30, 5/5, 5/20, 6/7, 6/11, 7/8, 7/9, 7/22, 7/30, 8/12, 8/19, 8/20, 9/2) EEE : 1 horse (8/5); 48 sentinels (1/19, 3/22, 5/3, 6/8, 6/21, 7/6, 6/28, 6/30, 7/6, 7/12, 7/15, 7/18, 7/19, 7/20, 7/26, 7/28, 8/2, 8/3, 8/9, 8/23, 8/27, 9/7, 10/4, 10/18); 8 live wild birds (7 cardinals 6/24, 7/16, 7/22, 10/29, 1 blue jay 6/24) HJV : 24 sentinels (3/22, 5/17, 6/23, 7/19, 8/2, 9/2, 9/13, 9/16, 9/20, 9/23, 9/27, 10/18, 10/25)
<b>Washington</b>	EEE : 7 horses (6/17, 6/22, 6/25, 6/28, 7/4, 7/16, 7/20)



## Acknowledgements and Data Sources

Contributors: Elizabeth Radke, MPH, Danielle Stanek, DVM, and Carina Blackmore, DVM, PhD, DOH Bureau of Environmental Public Health Medicine; Lillian Stark, PhD and Valerie Mock, DOH Bureau of Laboratories.

**For more surveillance information, please see the DOH website at:**

**<http://www.doh.state.fl.us/Environment/medicine/arboviral/index.html>**

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 determined by the Department of Agriculture and Consumer Services. Wild captured bird information is provided by the John A. Mulrennan Public Health Entomology Research and Education Center.