



## Florida Arbovirus Surveillance Week 41: October 10-16, 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 October 10-16, 2010, the following arboviral activity was recorded in Florida:

**DENV activity:** Five new cases of dengue associated with Key West were reported this week. In 2010, there have been 53 locally-acquired cases in Key West and one in Broward County.

**EEEV activity:** One EEEV-confirmed positive horse was reported from Marion County. One sentinel chicken in Walton County tested positive for antibodies to EEEV. In 2010, positive samples from four humans, 92 equines, 157 sentinel chickens, 34 live wild birds, and six mosquito pools have been received from 45 of Florida's 67 counties.

**WNV activity:** One human case of West Nile Virus infection with travel outside the county was reported in Suwannee County. Three WNV-confirmed positive horses and one positive alligator were reported from De Soto, Citrus, Marion, and Glades counties. Thirty-five sentinel chickens in Brevard, Citrus, Hillsborough, Indian River, Lee, Manatee, Orange, Palm Beach, Putnam, St. Johns, and Volusia counties tested positive for antibodies to WNV. In 2010, positive samples from ten humans, 20 equines, 1 reptile, 358 sentinel chickens, and one live wild bird (flavivirus positive) have been received from 35 counties.

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

**HJV activity:** No HJV activity was reported this week. In 2010, positive samples from 71 sentinel chickens have been received from 13 counties.

**Advisories/Alerts:** St. Lucie County issued a mosquito-borne illness advisory this week. Collier, Hillsborough, Monroe, and Orange counties are under mosquito-borne illness alerts and Broward, Clay, De Soto, Duval, Flagler, Glades, Hendry, Indian River, Jackson, Jefferson, Lake, Leon, Madison, Marion, Martin, Miami-Dade, Osceola, Palm Beach, Polk, Putnam, 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:** Nine human cases of WNV have been reported in 2010 in Osceola, Orange (2), Collier (2), Broward, Duval, De Soto, and Suwannee counties with onset in July (2), August (4), and September (3). 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, one case of dengue has been reported as acquired in Broward County and 53 cases of dengue have been reported as acquired in Key West (Monroe County). Of the Key West cases, 45 are Key West residents, eight are residents of other Florida counties, and one resides out of state. Onset dates ranged from March 17 to September 24, 2010.

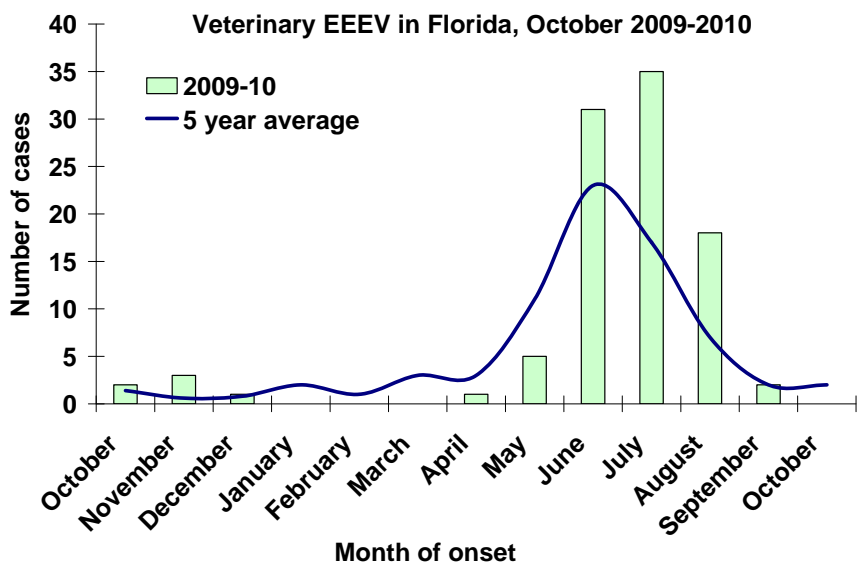
**Imported Dengue:** One hundred and ten cases of dengue with onset in 2010 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Brazil, Colombia (8), Costa Rica (4), Dominican Republic (12), Ecuador, El Salvador, Grenada (3), Guatemala (2), Haiti (5), Honduras (6), Jamaica (5), Martinique, Nicaragua (8), Philippines, Puerto Rico (33), Trinidad, Venezuela (13), Virgin Islands (3), Malaysia/Dubai/Bangladesh, and Panama/Venezuela (slash indicates travel to more than one country). Counties reporting cases were Alachua (2), Broward (19), Collier (2), Duval (2), Escambia, Flagler, Hendry, Hillsborough (7), Lake, Lee, Marion, Miami-Dade (39), Monroe, Orange (9), Osceola (4), Palm Beach (8), Pasco, Pinellas, Polk, Seminole (3), St. Lucie (2), and Volusia (3).

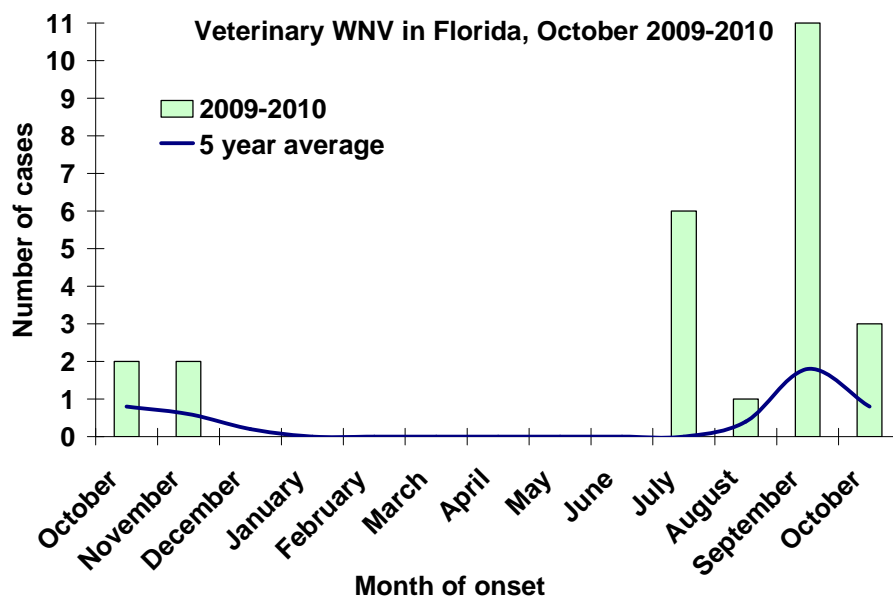
**Imported Malaria:** Ninety-eight imported cases of malaria with onset in 2010 have been reported. Countries of origin were: Angola, Dominican Republic, Ghana (4), Guyana, Haiti (57), Honduras (4), India (7), Indonesia, Ivory Coast, Malawi (2), Nigeria (7), Pakistan, Peru, Philippines, South Africa, Togo, Uganda, West Africa (2), Zambia/South Africa, Africa, and unknown (2). Counties reporting cases were: Brevard (2), Broward (16), Charlotte, Citrus, Collier (4), Duval (4), Escambia (3), Hillsborough (4), Lake, Lee, Leon, Miami-Dade (19), Manatee (2), Orange (15), Osceola (3), Palm Beach (12), Pasco, Pinellas, Polk (2), Sarasota, Seminole, St. Lucie, Volusia, and Wakulla.

**Veterinary Cases**

Three horses in De Soto, Citrus and Marion counties and one alligator in Glades County tested positive for WNV. One horse in Marion County tested positive for EEE. In 2010, 20 WNV positive horses, one WNV positive reptile, and 92 EEEV positive horses have been reported.

County	Onset Date	Species	Virus	Status	County YTD
Citrus	10/03/2010	Equine	WNV	Alive	1 WNV
De Soto	09/21/2010	Equine	WNV	Alive	3 WNV
Glades	10/01/2010	Alligator	WNV	Dead	1 WNV, 3 EEE
Marion	10/01/2010	Equine	WNV	Euthanized	1 WNV, 5 EEE
	09/24/2010	Equine	EEEE	Dead	



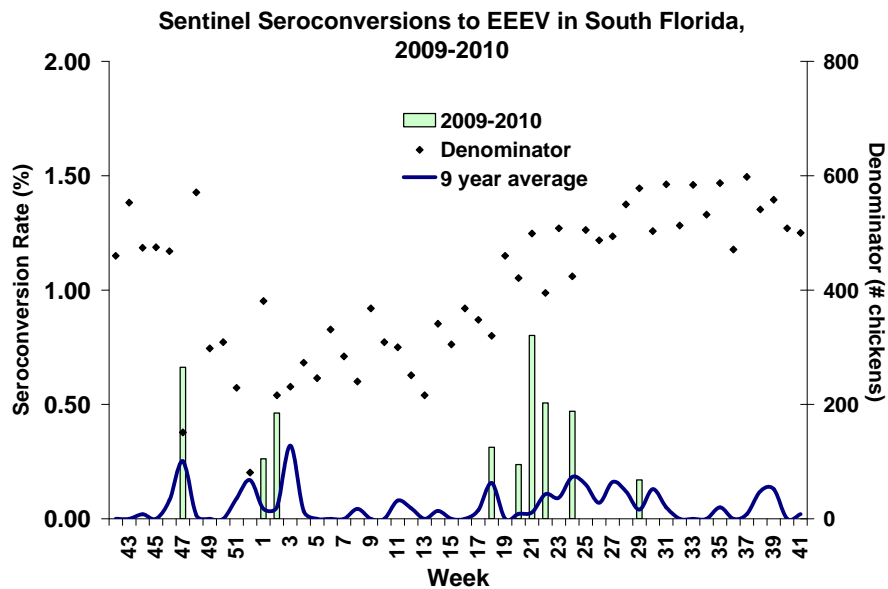
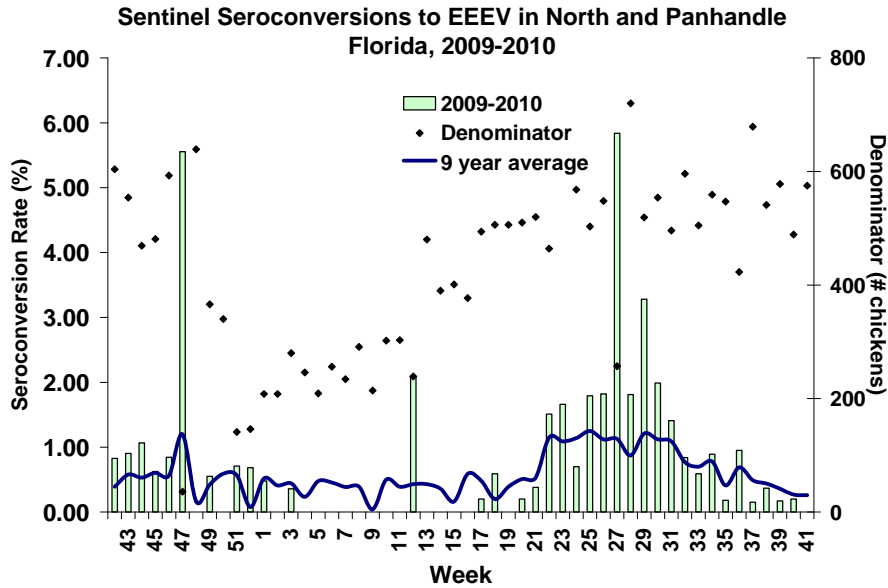


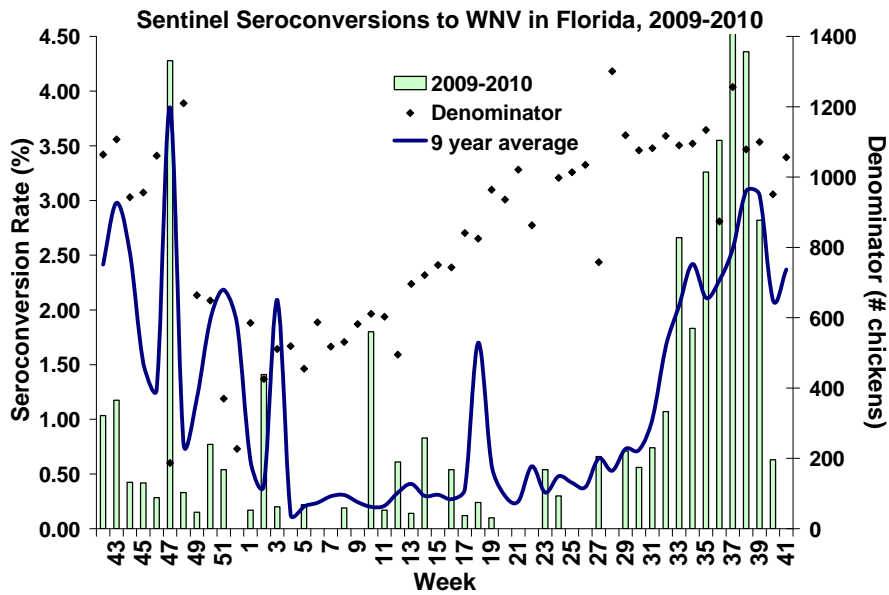
### Sentinel Chickens

There was one seroconversion to EEE in a sentinel chicken from Walton County and 35 to WNV in Brevard, Citrus, Hillsborough, Indian River, Lee, Manatee, Orange, Palm Beach, Putnam, St. Johns, and Volusia 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
Brevard	09/08/2010		7.0			4 WNV	34 WNV, 1 EEE
	09/16, 09/17/2010		7.8			2 WNV	
	10/01/2010		3.8			2 WNV	
Citrus	10/04/2010		3.2			2 WNV	6 WNV, 5 EEE, 3 HJV
Hillsborough	09/20/2010		2.4			1 WNV	15 WNV, 2 EEE, 1 HJV
Indian River	09/16/2010		9.8			4 WNV	24 WNV
	09/29/2010		2.2			1 WNV	
Lee	09/13, 09/14/2010		18.5			15 WNV	42 WNV
	10/04/2010		5.7			2 WNV	
	10/04/2010		1.7			1 WNV	11 WNV
Manatee	10/04/2010		1.7			1 WNV	11 WNV
	09/13, 09/16/2010		3.0	1.0		3 WNV, 1 EEE	32 WNV, 23 EEE, 22 HJV
Orange	09/13/2010		41.7			10 WNV	45 WNV
	09/20/2010		31.3			10 WNV	
Putnam	09/09/2010		16.7	8.3		2 WNV, 1 EEE	7 WNV, 7 EEE, 2 HJV
	09/17/2010		25.0			7 WNV	
	09/13/2010		12.3			7 WNV	18 WNV, 3 EEE, 3 HJV
St. Johns	09/13/2010		12.3			7 WNV	18 WNV, 3 EEE, 3 HJV
	09/20/2010		1.7			1 WNV	

County	Collection Date	Seroconversion Rates (%)			County Totals		
		SLEV	WNV	EEEV	HJV	Week	YTD
Volusia	09/20/2010		4.3			2 WNV	16 WNV, 16 EEE, 3 HJV
	10/04/2010		9.1			2 WNV	
Walton (South)	10/04/2010			1.4		1 EEE	3 WNV, 19 EEE, 5 HJV





### Live Wild Birds

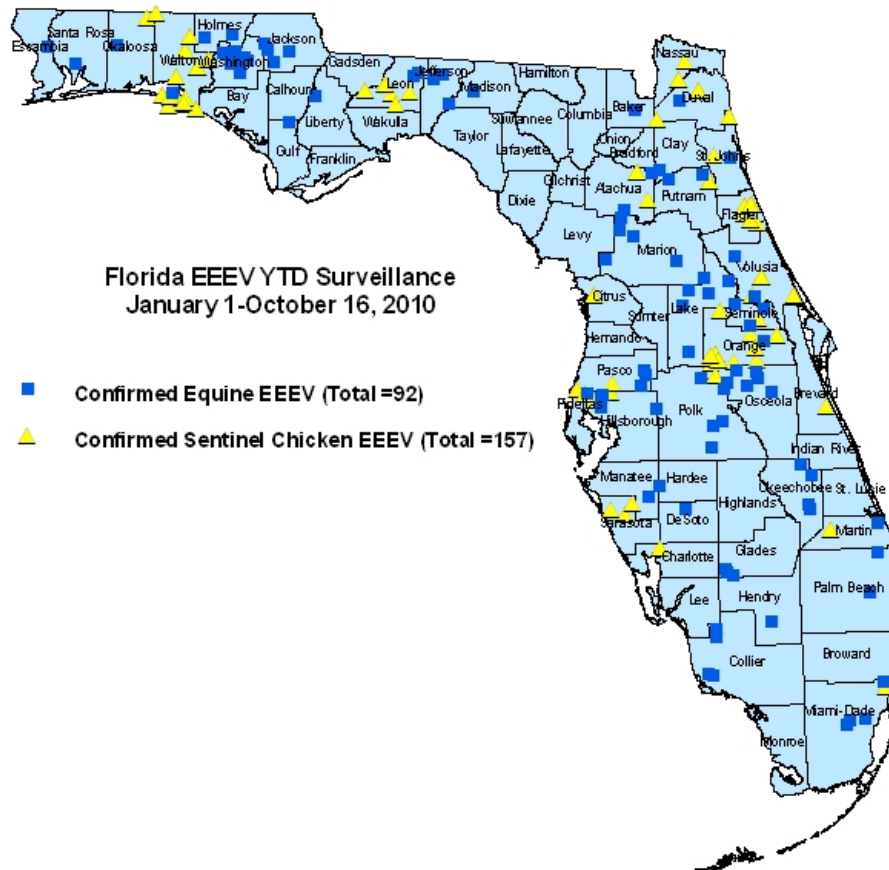
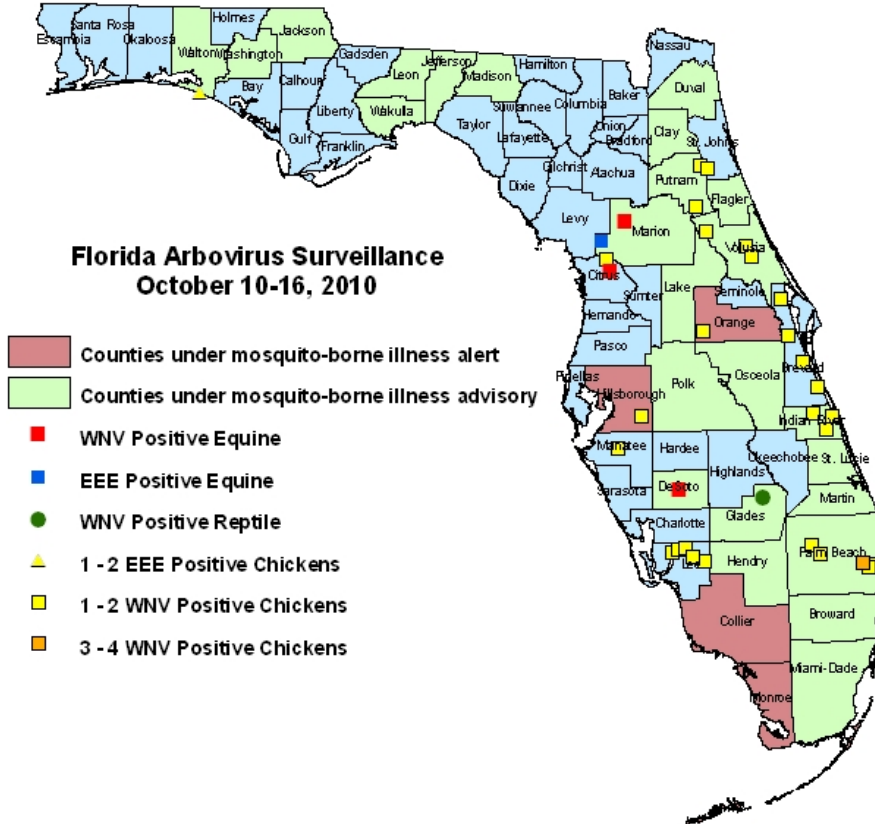
Out of 21 live wild birds collected from three counties on October 4-7, 2010, one mockingbird from Okaloosa County tested positive for antibodies to EEEV.

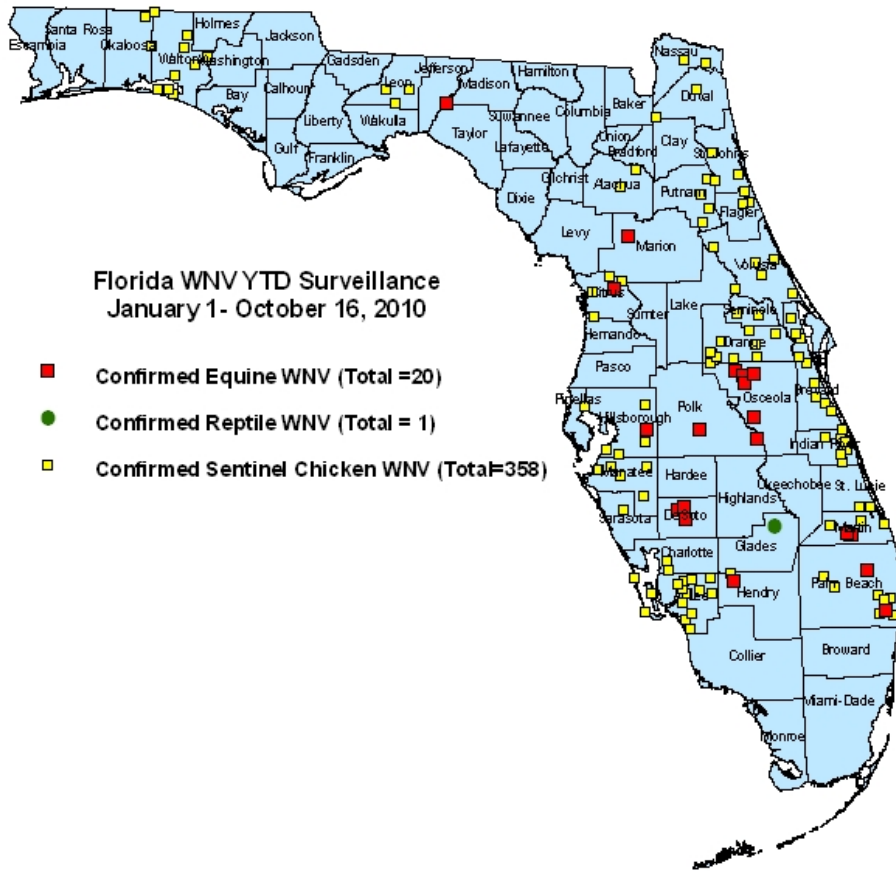
County	Collection Date	EEEV	Flavi	Species	EEEV Rate	Flavi Rate	County YTD
Okaloosa	10/04/2010	1		Northern mockingbird	1 out of 11	N/A	13 EEE

### 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, 12 reports representing 48 dead birds were received from 7 counties. Four were identified as jays and one as a raptor; none were identified as crows. In 2010, 283 reports representing a total of 896 dead birds (47 crows, 16 jays, 45 raptors, 788 others) have been reported from 46 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: 7sentinels (8/2, 8/16, 9/7, 9/13, 9/20, 9/27) EEE: 1 horse (7/21); 3 sentinels (7/16, 7/19, 8/2)
<b>Baker</b>	EEE: 1 horse (7/26)
<b>Bradford</b>	EEE: 1 horse (6/16)
<b>Brevard</b>	WNV: 1 human blood donor; 34 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) 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: 2 sentinels (8/27, 9/10)
<b>Citrus</b>	WNV: 1 horse (10/3); 6 sentinels (9/20, 9/27, 10/4) 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); 3 sentinels (9/13, 9/27) 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: 3 sentinels (9/13, 9/27) EEE : 18 sentinels (3/22, 4/26, 5/3, 6/7, 6/21, 7/12, 7/19, 7/26, 8/2, 8/9, 9/27); 3 mosquito pools ( <i>Culiseta melanura</i> 4/27, 5/11, 6/15) HJV: 4 sentinels (6/14, 6/28, 8/16, 9/20)
<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 : 2 sentinels (9/27)
<b>Hillsborough</b>	WNV : 1 horse (9/3) ; 15 sentinels (1/12, 1/19, 2/22, 3/9, 3/22, 4/20, 5/11, 6/15, 9/20) 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: 24 sentinels (7/22, 8/12, 8/19, 9/2, 9/9, 9/16, 9/23, 9/29)
<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: 42 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)
<b>Leon</b>	DENV: 2 humans (acquired in Key West) WNV: 4 sentinels (9/20, 9/28) EEE: 1 human (July); 2 horses (6/29, 8/5); 8 sentinels (6/1, 6/21, 8/2, 8/9, 8/16, 9/7, 9/20) HJV: 2 sentinels (8/16, 8/23)
<b>Liberty</b>	EEE: 1 horse (7/11)
<b>Madison</b>	EEE: 2 horses (6/21, 7/3)
<b>Manatee</b>	WNV: 11 sentinels (8/30, 9/7, 9/13, 9/20, 9/27, 10/4) EEE: 1 horse (7/21)
<b>Marion</b>	WNV: 1 horse (10/1) EEE: 5 horses (5/7, 7/22, 8/3, 10/1)
<b>Martin</b>	WNV: 2 horses (9/11, 9/16); 9 sentinels (8/13, 8/27, 9/10, 9/16, 9/23) EEE: 1 horse (8/4); 2 sentinels (5/28)
<b>Miami-Dade</b>	DENV: 1 human (acquired in Key West) SLEV: 4 sentinels (8/23, 9/7, 9/20) EEE: 4 horses (6/7, 6/17, 7/4); 2 sentinels (6/14)
<b>Monroe</b>	DENV: 45 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: 1 live wild bird (flavivirus positive, blue jay 6/14) EEE : 1 horse (7/25); 13 live wild birds (1 house sparrow 1/4, 8 blue jays 1/27, 4/19, 4/21, 4/26, 7/5, 7/26, 9/16, 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) ; 32 sentinels (6/14, 7/6, 7/19, 7/26, 8/2, 8/16, 8/23, 8/30, 9/2, 9/7, 9/16, 9/27) 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 : 22 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)
<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); 45 sentinels (3/15, 8/2, 8/9, 8/17, 8/23, 8/30, 9/7, 9/13, 9/17, 9/20, 9/27) 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: 7 sentinels (8/27, 9/9, 9/17) EEE: 2 horses (7/26, 8/8); 7 sentinels (6/4, 7/23, 7/30, 8/6, 9/9, 9/24) HJV: 2 sentinels (5/14, 8/6)
<b>St. Johns</b>	WNV : 18 sentinels (8/16, 8/23, 8/30, 9/7, 9/13, 9/20, 9/27) 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: 5 sentinels (9/10, 9/17, 9/24)
<b>Santa Rosa</b>	EEE: 1 horse (6/29); 16 live wild birds (11 blue jays 2/2, 3/22, 4/13, 4/19, 5/11, 5/18, 7/13, 8/31, 9/14, 5 cardinals 6/22, 7/13, 7/27, 8/3, 8/31)
<b>Sarasota</b>	DENV: 2 humans (acquired in Key West)



	WNV: 1 sentinel (1/8) EEE: 3 sentinels (1/5, 1/11, 6/1)
<b>Seminole</b>	WNV : 3 sentinels (9/2, 9/16, 9/23) 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>Volusia</b>	WNV : 16 sentinels (7/19, 8/9, 8/16, 8/30, 9/7, 9/13, 9/20, 10/4) 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 : 3 sentinels (5/17, 7/12, 9/7)
<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); 46 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); 6 live wild birds (5 cardinals 6/24, 7/16, 7/22, 1 blue jay 6/24) HJV : 16 sentinels (3/22, 5/17, 6/23, 7/19, 8/2, 9/2, 9/13, 9/16, 9/20)
<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.