



## Florida Arbovirus Surveillance Week 42: October 17-23, 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 17-23, 2010, the following arboviral activity was recorded in Florida:

**DENV activity:** Two new cases of dengue associated with Key West were reported this week. In 2010, there have been 55 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 Alachua County tested positive for antibodies to EEEV. In 2010, positive samples from four humans, 93 equines, 158 sentinel chickens, 34 live wild birds, and six mosquito pools have been received from 45 of Florida's 67 counties.

**WNV activity:** Two human cases of West Nile Virus infection with were reported in Highlands and Brevard counties. One WNV-confirmed positive horse was reported from Bradford County. Thirty-eight sentinel chickens in Alachua, Brevard, Charlotte, Citrus, Hernando, Indian River, Lee, Leon, Manatee, Orange, Palm Beach, Putnam, Seminole, St. Johns, St. Lucie, and Volusia counties tested positive for antibodies to WNV. In 2010, positive samples from 12 humans, 21 equines, 1 reptile, 396 sentinel chickens, and one live wild bird (flavivirus positive) have been received from 37 counties.

**SLEV activity:** One sentinel chicken in Miami-Dade County tested positive for antibodies to SLEV. In 2010, positive samples from five sentinel chickens have been received from one county.

**HJV activity:** Four sentinel chickens in Alachua and Walton counties tested positive for antibodies to HJV. In 2010, positive samples from 75 sentinel chickens have been received from 14 counties.

**Advisories/Alerts:** Brevard County issued a mosquito-borne illness alert this week in response to a second WNV positive human and Highlands County issued a mosquito-borne illness advisory in response to one human case of WNV. 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, 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, one case of dengue has been reported as acquired in Broward County and 55 cases of dengue have been reported as acquired in Key West (Monroe County). Of the Key West cases, 47 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 10, 2010.

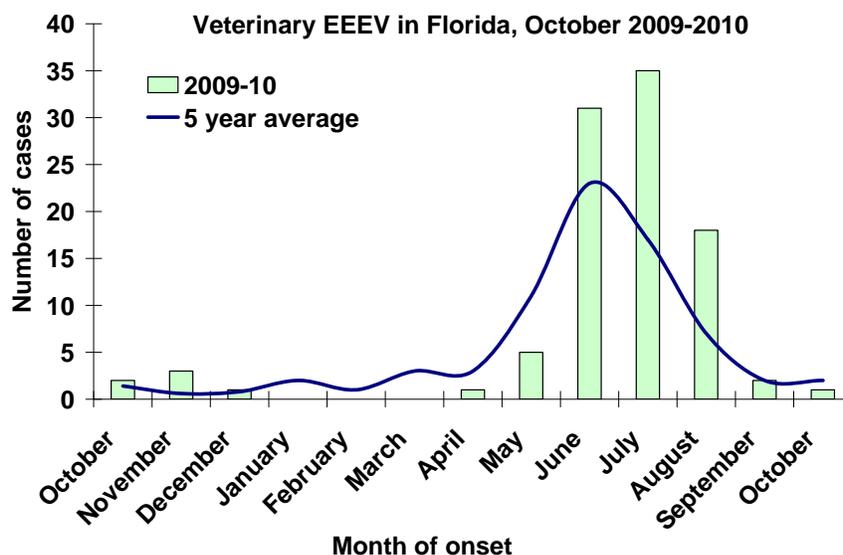
**Imported Dengue:** One hundred and thirteen cases of dengue with onset in 2010 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Bangladesh, Brazil, Colombia (8), Costa Rica (4), Dominican Republic (12), Ecuador, El Salvador, Grenada (4), Guatemala (2), Haiti (5), Honduras (6), Jamaica (5), Martinique (2), 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 (3), Escambia, Flagler, Hendry, Hillsborough (7), Lake, Lee, Marion, Miami-Dade (39), Monroe, Orange (9), Osceola (4), Palm Beach (10), Pasco, Pinellas, Polk, Seminole (3), St. Lucie (2), and Volusia (3).

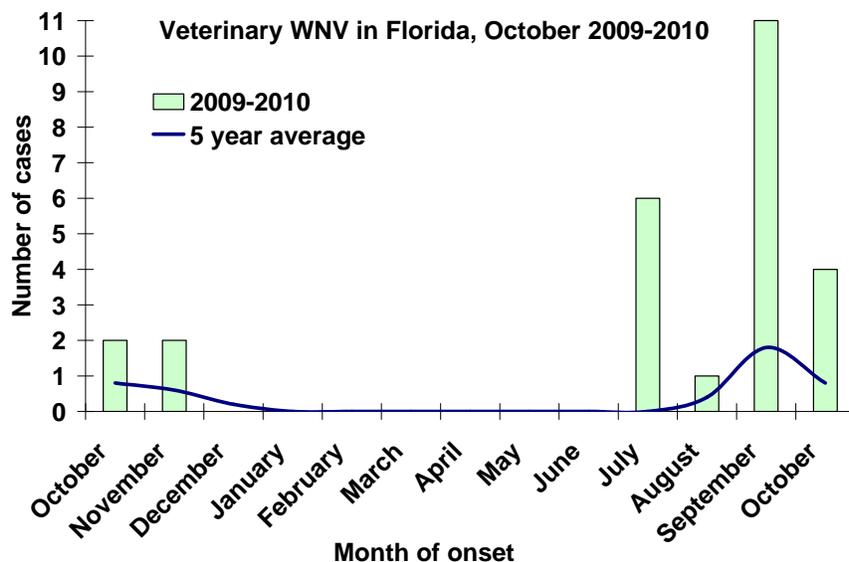
**Imported Malaria:** Ninety-eight imported cases of malaria with onset in 2010 have been reported. Countries of origin were: Angola, Dominican Republic, Ghana (4), Guyana, Haiti (57), Honduras (4), India (7), Indonesia, Ivory Coast, Malawi (2), Nigeria (7), Pakistan, Peru, Philippines, South Africa, 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**

One horse in Bradford County tested positive for WNV and one horse in Marion County tested positive for EEEV. In 2010, 21 WNV positive horses, one WNV positive reptile, and 93 EEEV positive horses have been reported.

County	Onset Date	Species	Virus	Status	County YTD
Bradford	10/06/2010	Equine	WNV	Alive	1 WNV, 1 EEE
Marion	10/11/2010	Equine	EEE	Dead	1 WNV, 6 EEE



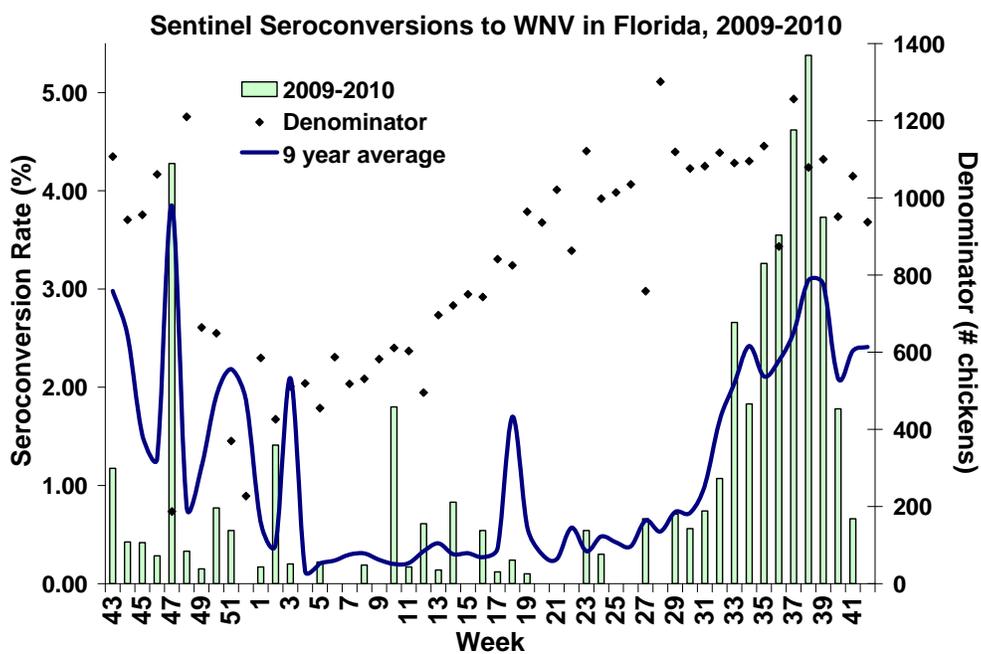
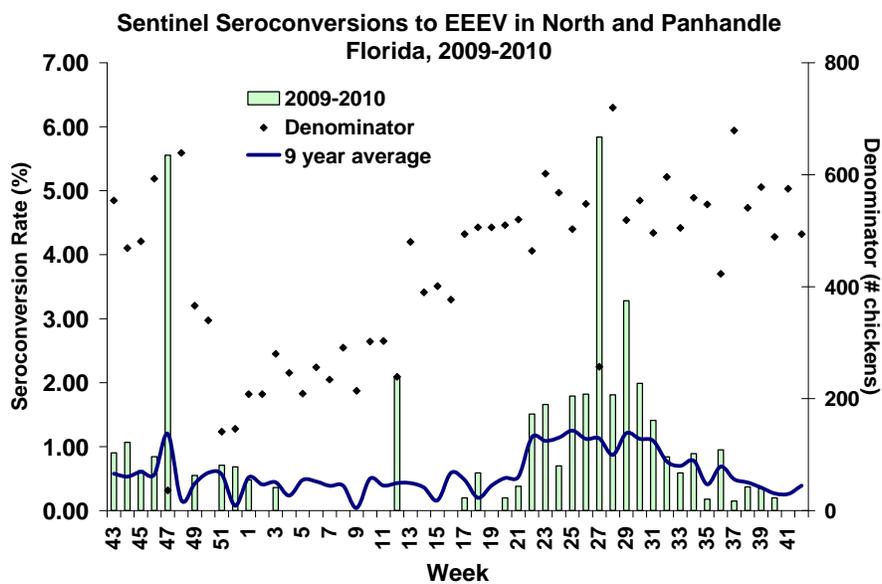


### Sentinel Chickens

There was one seroconversion to EEEV in a sentinel chicken from Alachua County, 38 to WNV in Alachua, Brevard, Charlotte, Citrus, Hernando, Indian River, Lee, Leon, Manatee, Orange, Palm Beach, Putnam, Seminole, St. Johns, St. Lucie, and Volusia counties, one to SLEV in Miami-Dade County, and four to HJV in Alachua 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	09/20/2010		6.9		3.4	2 WNV, 1 HJV	8 WNV, 4 EEE, 1 HJV
	09/27, 09/28/2010		3.4	3.4		1 WNV, 1 EEE	
Brevard	09/22, 09/23, 09/24/2010		22.4			11 WNV	41 WNV, 1 EEE
	10/06, 10/07, 10/08/2010		8.9			4 WNV	
Charlotte	10/08/2010		4.2			1 WNV	3 WNV
Citrus	10/11/2010		1.6			1 WNV	7 WNV, 5 EEE, 3 HJV
Hernando	10/12/2010		4.2			1 WNV	3 WNV
Indian River	09/23/2010		28.6			12 WNV	32 WNV
	10/07/2010		8.6			3 WNV	
Lee	09/27, 09/28/2010		14.9			11 WNV	48 WNV
	10/11/2010		4.1			3 WNV	
Leon	09/28/2010		10.3			4 WNV	5 WNV, 8 EEE, 2 HJV
Manatee	10/11/2010		1.8			1 WNV	12 WNV
Miami-Dade	09/27/2010	6.3				1 SLEV	5 SLEV, 2 EEE
Orange	09/27/2010		3.0			3 WNV	35 WNV, 23 EEE, 22 HJV
	10/11/2010		1.1			1 WNV	

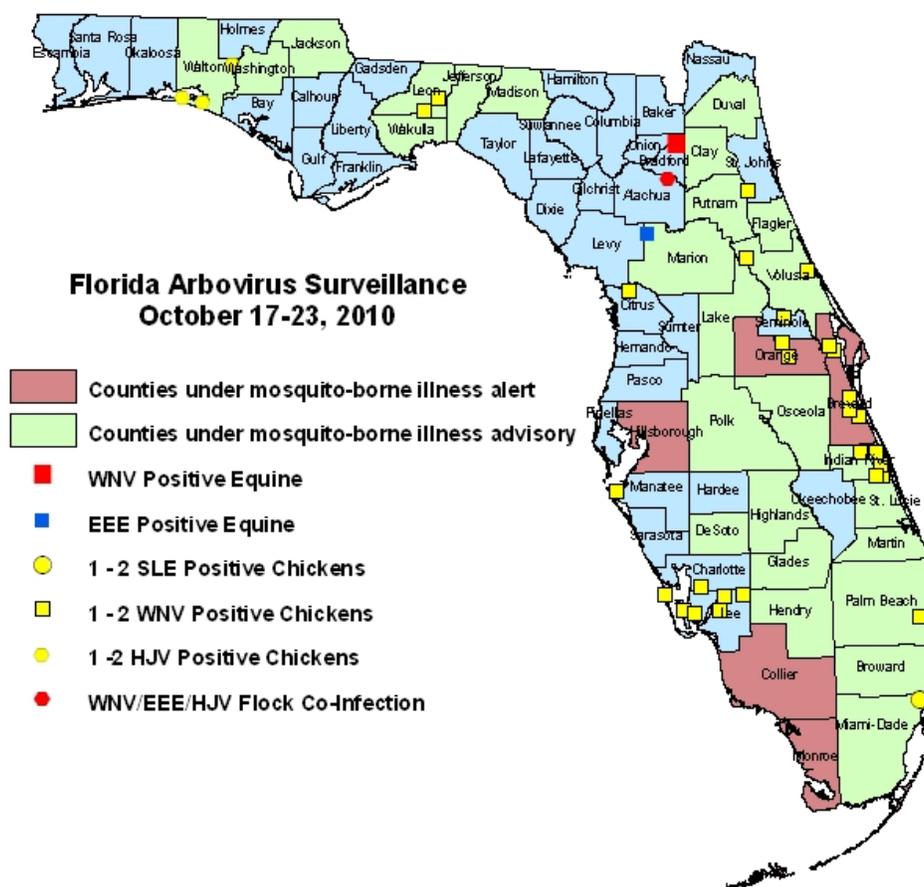
County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Week	YTD
Palm Beach	09/27/2010		16.7			3 WNV	46 WNV
Putnam	09/24/2010		7.7	7.7		1 WNV, 1 EEE	8 WNV, 7 EEE, 2 HJV
Seminole	09/23/2010		15.4			2 WNV	5 WNV, 1 EEE, 1 HJV
	10/07/2010		8.3			1 WNV	
St. Johns	09/27/2010		5.4			3 WNV	19 WNV, 3 EEE, 3 HJV
St. Lucie	10/08/2010		9.1			2 WNV	7 WNV
Volusia	09/27/2010		4.5			1 WNV	17 WNV, 16 EEE, 3 HJV
Walton (North)	09/23/2010				2.9	1 HJV	50 WNV, 27 EEE, 12 HJV
Walton (South)	09/27/2010				3.6	2 HJV	3 WNV, 19 EEE, 7 HJV

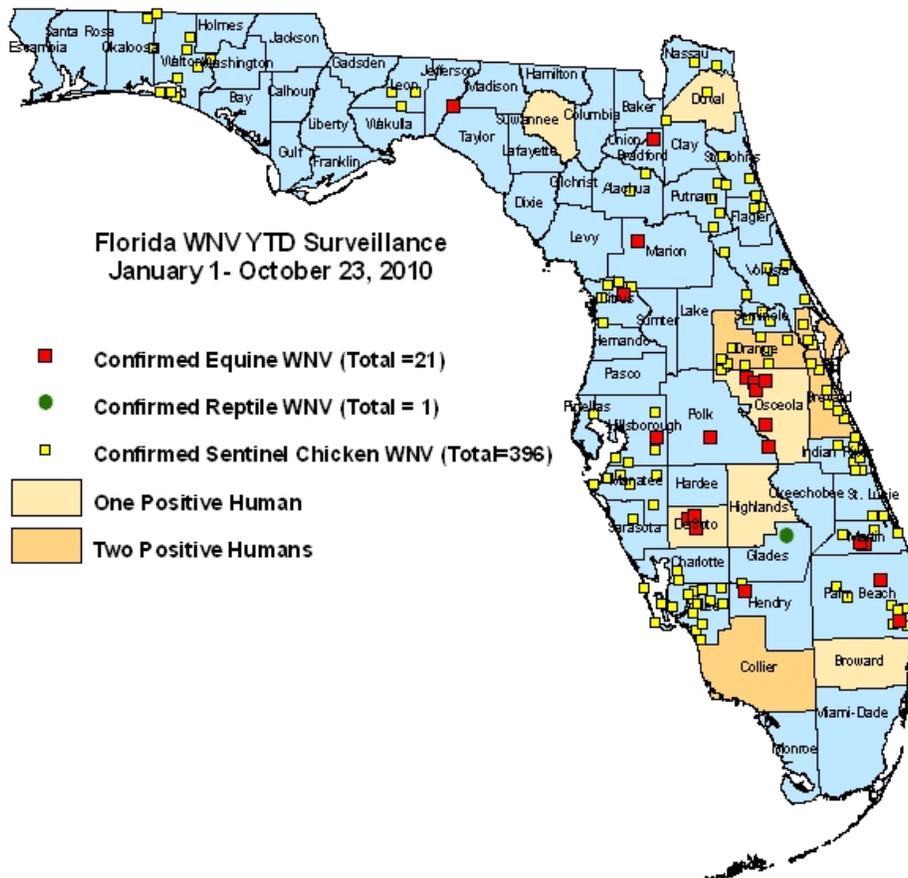
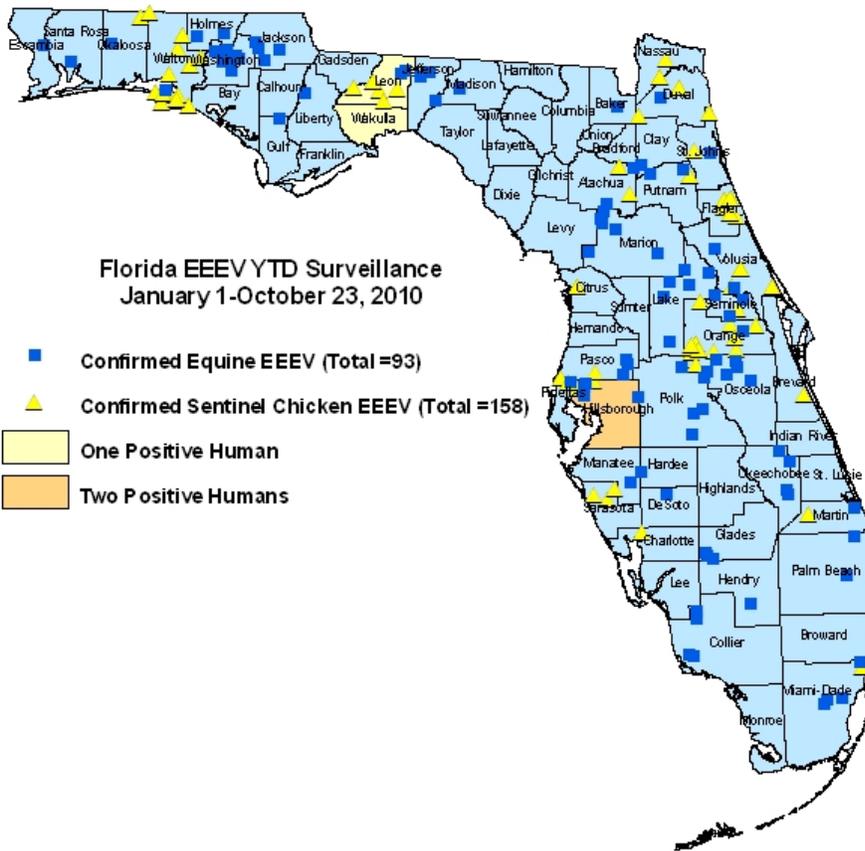


## Dead Birds

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 31 dead birds were received from nine counties. None were identified as crows, jays, or raptors. In 2010, 292 reports representing a total of 928 dead birds (47 crows, 16 jays, 45 raptors, 719 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: 8 sentinels (8/2, 8/16, 9/7, 9/13, 9/20, 9/27) 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); 41 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) 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); 7 sentinels (9/20, 9/27, 10/4, 10/11) 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 : 3 sentinels (9/27, 10/12)
<b>Highlands</b>	WNV : 1 human (October)
<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: 32 sentinels (7/22, 8/12, 8/19, 9/2, 9/9, 9/16, 9/23, 9/29, 10/7)
<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: 48 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: 5 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: 12 sentinels (8/30, 9/7, 9/13, 9/20, 9/27, 10/4, 10/11) 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); 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: 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: 47 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); 35 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, 10/11) 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); 46 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: 19 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: 7 sentinels (9/10, 9/17, 9/24, 10/8)
<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: 5 sentinels (9/2, 9/16, 9/23, 10/7) 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: 17 sentinels (7/19, 8/9, 8/16, 8/30, 9/7, 9/13, 9/20, 9/27, 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: 19 sentinels (3/22, 5/17, 6/23, 7/19, 8/2, 9/2, 9/13, 9/16, 9/20, 9/23, 9/27)
<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.