

Florida Arbovirus Surveillance

Week 47: November 21-27, 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 21-27, 2010, the following arboviral activity was recorded in Florida:

DENV activity: No new cases of dengue associated with Key West were reported this week. In 2010, there have been 60 locally-acquired cases in Key West, one in Broward County, and one in Miami-Dade County.

EEEV activity: One sentinel chicken in Walton County tested positive for antibodies to EEEV. In 2010, positive samples from five humans, 93 equines, 166 sentinel chickens, 41 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 in Glades County. Twenty-four sentinel chickens in Alachua, Brevard, Citrus, Flagler, Hendry, Hillsborough, Martin, Orange, Palm Beach, Pinellas, Putnam, Seminole, St. Johns, and Volusia counties tested positive for antibodies to WNV. In 2010, positive samples from 12 humans, 23 equines, 1 reptile, 512 sentinel chickens, and two live wild birds (flavivirus positive) have been received from 39 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: Four sentinel chickens in Walton County tested positive for antibodies to HJV. In 2010, positive samples from 92 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). One incidental infection was reported in Hillsborough County.

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, 62 cases of locally acquired dengue have been reported in Broward (1), Miami-Dade (1) and Monroe (60-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.

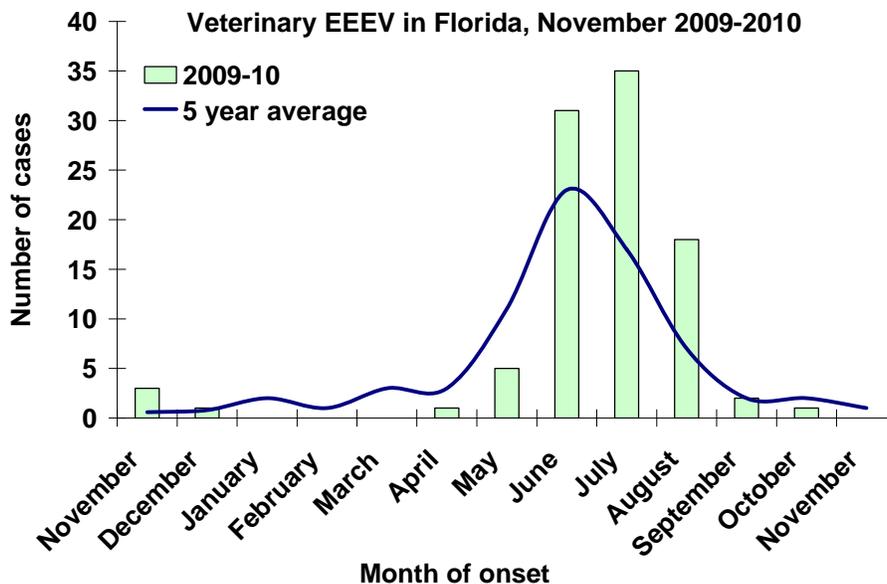
Imported Dengue: One hundred and twenty-three cases of dengue with onset in 2010 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Bangladesh, Brazil, Colombia (8), Costa Rica (4), Dominican Republic (13), Ecuador, El Salvador, Ghana, Grenada (4), Guatemala (2), Haiti (5), Honduras (6), Jamaica (5), Martinique (2), Mexico, Nicaragua (10), Pakistan, Philippines, Puerto Rico (35), 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 (45), Monroe, Orange (9), Osceola (5), Palm Beach (10), Pasco, Pinellas, Polk (2), Seminole (3), St. Lucie (2), and Volusia (3).

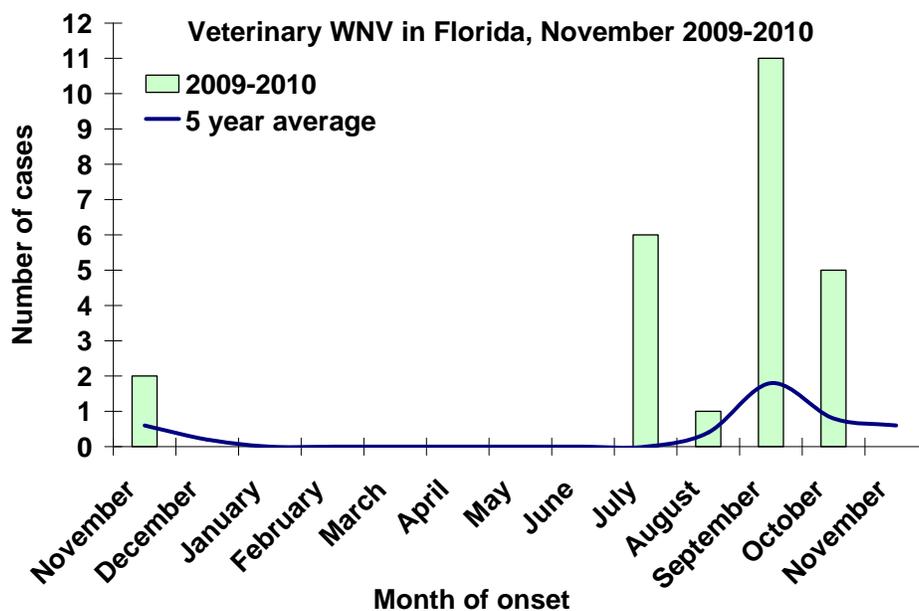
Imported Malaria: One hundred and eleven imported cases of malaria with onset in 2010 have been reported. Countries of origin were: Angola, Cameroon, Dominican Republic, Eritrea, Ghana (4), Guyana, Haiti (64), Honduras (4), India (8), Indonesia, Ivory Coast, Kenya, Malawi (2), Nigeria (7), Pakistan (2), 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 (5), Escambia (3), Hillsborough (5), Lake, Lee, Leon, Miami-Dade (25), Manatee (2), Orange (15), Osceola (3), Palm Beach (13), Pasco, Pinellas, Polk (2), Sarasota, Seminole, St. Lucie, Volusia (2), and Wakulla.

Veterinary Cases

One horse in Glades County tested positive for WNV this week. In 2010, 23 WNV positive horses, one WNV positive reptile, and 93 EEEV positive horses have been reported.

County	Onset Date	Species	Virus	Status	County YTD
Glades	10/25/10	Equine	WNV	Alive	1 WNV, 3 EEE

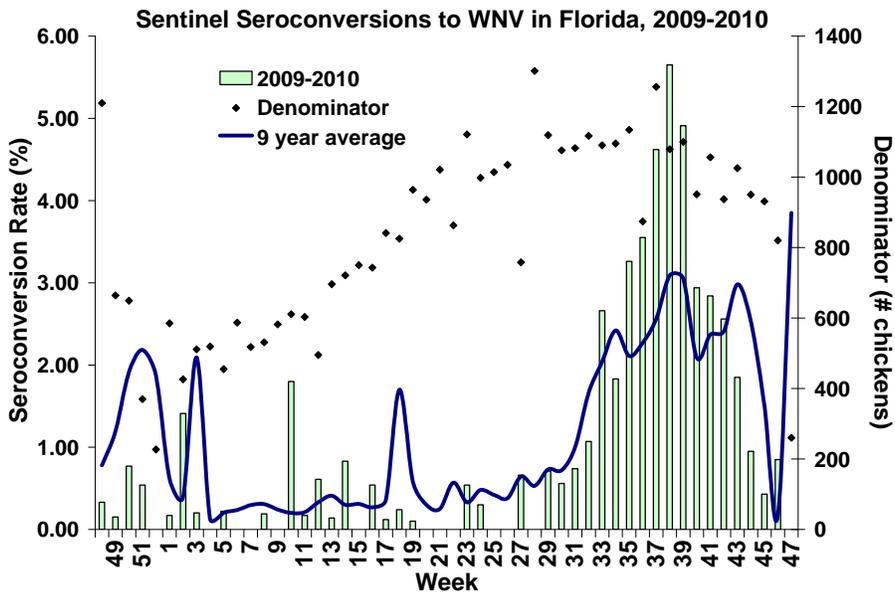
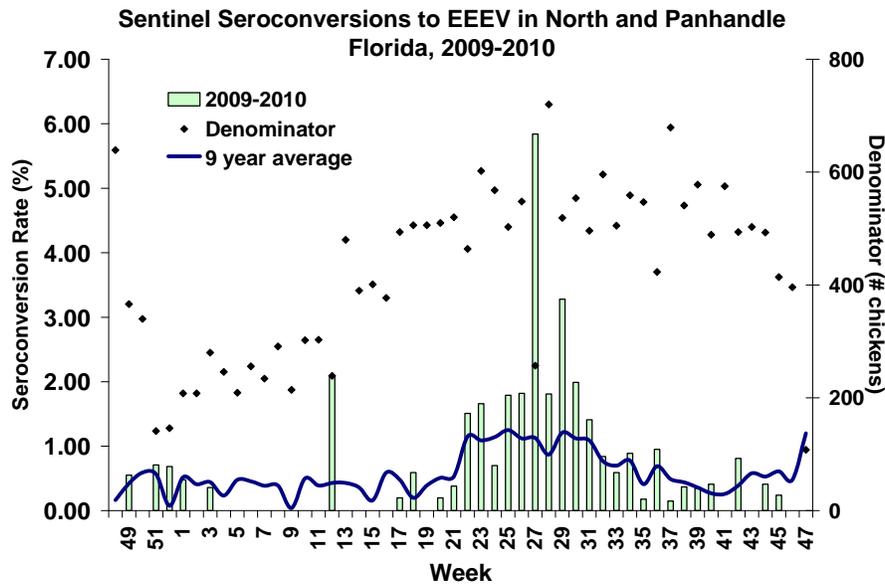




Sentinel Chickens

There was one seroconversion to EEEV in a sentinel chicken from Walton County, 24 to WNV in Alachua, Brevard, Citrus, Flagler, Hendry, Hillsborough, Martin, Orange, Palm Beach, Pinellas, Putnam, Seminole, St. Johns, and Volusia counties, and four to HJV in Walton County. Seroconversion rates are calculated by week and include previously reported results.

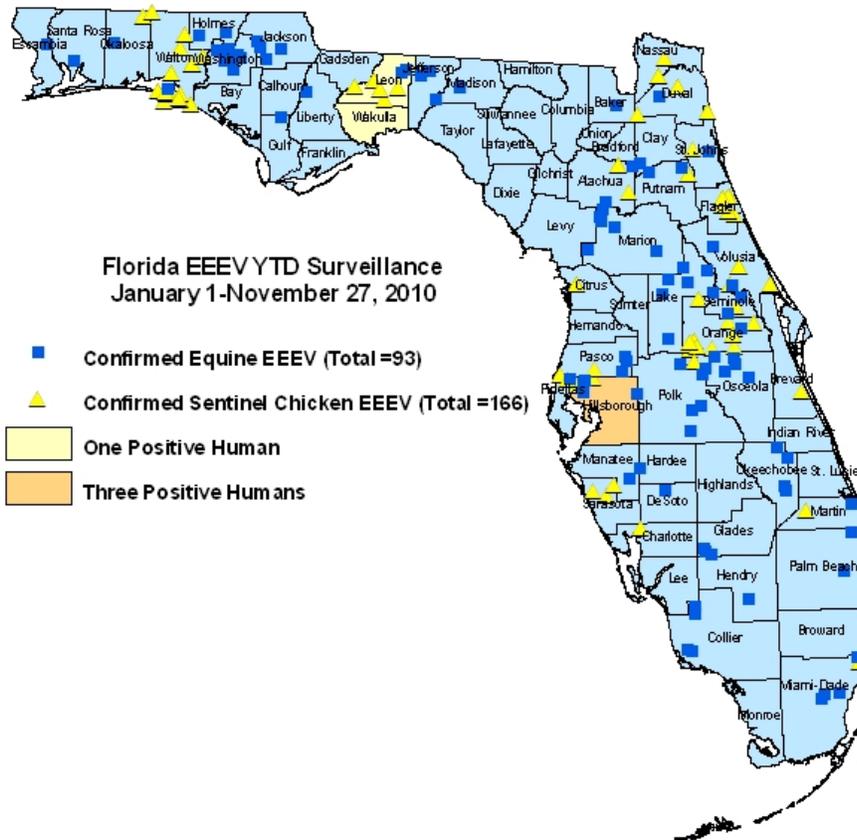
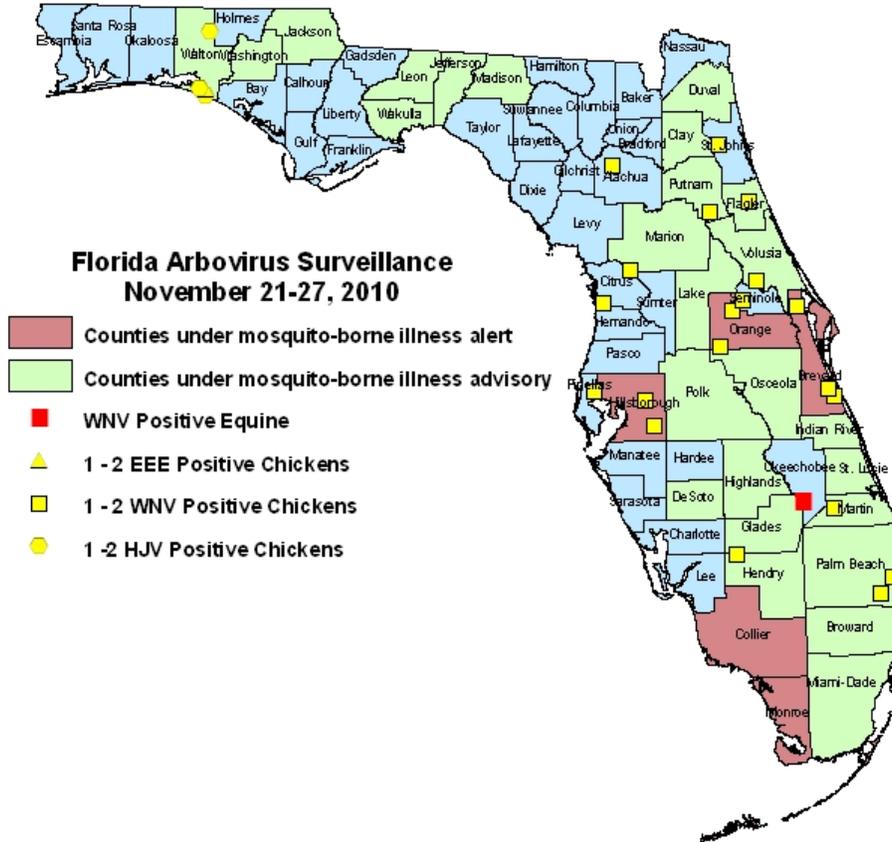
County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Week	YTD
Alachua	11/08/10		4.2			1 WNV	12 WNV, 4 EEE, 1 HJV
Brevard	10/27/10		2.2			1 WNV	52 WNV, 1 EEE
	11/10,		4.3			2 WNV	
	11/12/10						
Citrus	11/15/10		3.4			2 WNV	12 WNV, 5 EEE, 3 HJV
Flagler	11/01/10		8.3			1 WNV	9 WNV, 19 EEE, 5 HJV
Hendry	10/13/10		50.0			2 WNV	12 WNV
Hillsborough	11/02/10		2.2			2 WNV	28 WNV, 2 EEE, 1 HJV
	11/16/10		2.2			2 WNV	
Martin	10/29/10		5.6			1 WNV	14 WNV, 2 EEE
Orange	10/28/10		1.1			1 WNV	42 WNV, 23 EEE, 23 HJV
Palm Beach	11/01/10		12.5			2 WNV	55 WNV
Pinellas	11/15/10		1.8			1 WNV	2 WNV, 3 EEE, 2 HJV
Putnam	10/22/10		9.1			1 WNV	13 WNV, 7 EEE, 4 HJV
Seminole	10/26,		17.6			3 WNV	9 WNV, 1 EEE, 1 HJV
	10/28/10						
St. Johns	11/01/10		5.2			3 WNV	26 WNV, 3 EEE, 3 HJV
	11/08/10		1.8			1 WNV	
Volusia	11/15/10		8.3			2 WNV	20 WNV, 16 EEE, 4 HJV
Walton (North)	11/04/10				3.1	1 HJV	3 WNV, 29 EEE, 17 HJV
Walton (South)	11/08/10			1.5	4.5	1 EEE, 3 HJV	51 WNV, 21 EEE, 11 HJV

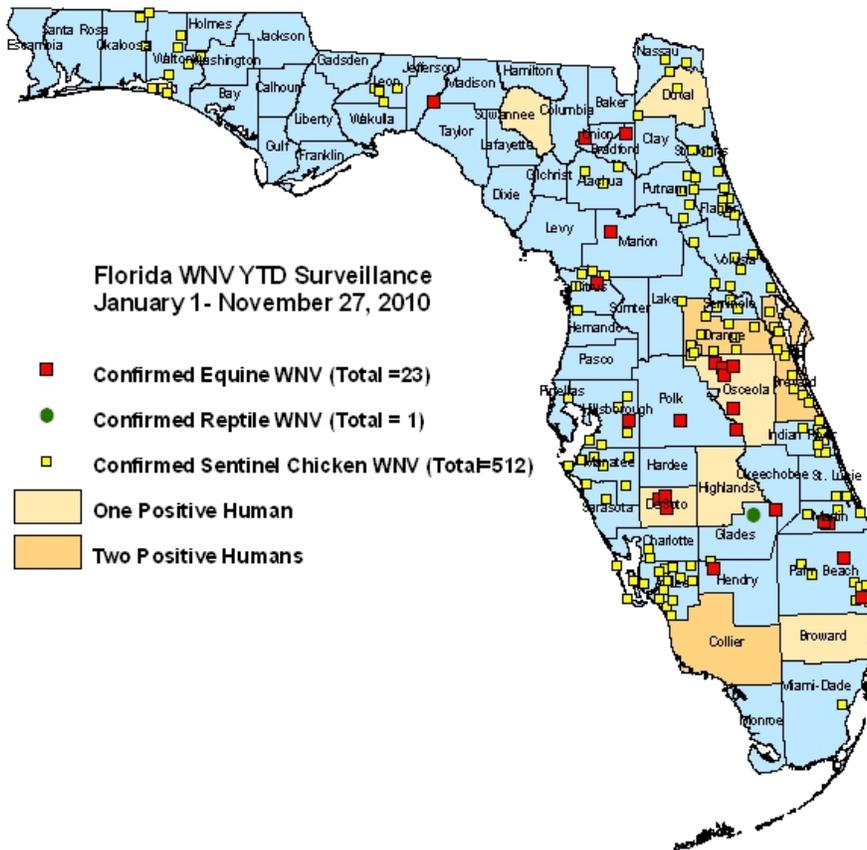


Dead Birds

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, four reports representing 10 dead birds were received from three counties. One was identified as a raptor; none were identified as crows or jays. In 2010, 327 reports representing a total of 1062 dead birds (49 crows, 16 jays, 51 raptors, 845 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/

Maps





Florida WNV YTD Surveillance
January 1- November 27, 2010

- Confirmed Equine WNV (Total =23)
- Confirmed Reptile WNV (Total = 1)
- Confirmed Sentinel Chicken WNV (Total=512)
- One Positive Human
- Two Positive Humans

YTD Arbovirus Activity by County

County	Arbovirus Activity
Alachua	WNV: 12 sentinels (8/2, 8/16, 9/7, 9/13, 9/20, 9/27, 10/18, 11/8) EEE: 1 horse (7/21); 4 sentinels (7/16, 7/19, 8/2, 9/28) HJV: 1 sentinel (9/20)
Baker	EEE: 1 horse (7/26)
Bradford	WNV: 1 horse (10/06) EEE: 1 horse (6/16)
Brevard	WNV: 2 humans (1 case in October, 1 positive blood donor); 52 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, 10/20, 10/27, 11/10, 11/12) EEE: 1 sentinel (6/2)
Broward	DENV: 3 humans (1 acquired in Broward, 2 acquired in Key West) WNV: 1 human (August)
Charlotte	WNV: 3 sentinels (8/27, 9/10, 10/8)
Citrus	WNV: 1 horse (10/3); 12 sentinels (9/20, 9/27, 10/4, 10/11, 10/18, 10/25, 11/15) EEE: 5 sentinels (5/24, 6/7, 6/28, 7/12, 7/19) HJV: 3 sentinels (5/17, 5/24, 8/9)
Clay	EEE: 1 horse (6/16)
Collier	WNV: 2 humans (August) EEE: 4 horses (6/9, 6/22, 6/29, 7/9)
De Soto	WNV: 1 human (September); 3 horses (9/6, 9/10, 9/21) EEE: 1 horse (8/23)
Duval	WNV: 1 human (September); 5 sentinels (9/13, 9/27, 10/11, 10/18) EEE: 1 horse (8/18); 5 sentinels (6/21, 7/8, 7/21)
Escambia	EEE: 1 horse (8/16)
Flagler	WNV: 9 sentinels (9/13, 9/27, 10/4, 10/18, 10/25, 11/1) 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)
Glades	WNV : 1 alligator (10/1), 1 horse (10/25)

	EEE : 3 horses (6/20, 6/24, 7/26)
Gulf	EEE : 1 horse (9/5)
Hardee	EEE : 1 horse (8/22)
Hendry	WNV : 1 horse (9/15) ; 12 sentinels (8/18, 8/31, 9/13, 10/13) EEE : 1 horse (7/21)
Hernando	WNV : 3 sentinels (9/27, 10/12)
Highlands	WNV : 1 human (October)
Hillsborough	WNV : 1 horse (9/3) ; 28 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, 10/26, 11/2, 11/16) EEE: 2 humans (June, July, 1; one incidental infection) ; 5 horses (5/29, 6/11, 7/8, 7/17); 2 sentinels (5/4, 5/18) HJV : 1 sentinel (6/28)
Holmes	EEE: 2 horses (7/23, 8/9)
Indian River	WNV: 47 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)
Jackson	EEE: 4 horses (6/14, 6/28, 7/10, 8/1)
Jefferson	WNV: 1 horse (7/4) EEE: 3 horses (7/20, 8/1, 8/25)
Lake	EEE: 6 horses (5/20, 6/29, 7/4, 7/9, 7/15, 7/17)
Lee	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)
Leon	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); 11 sentinels (6/1, 6/21, 8/2, 8/9, 8/16, 9/7, 9/20, 10/18, 11/1) HJV: 4 sentinels (8/16, 8/23, 10/4, 10/11)
Liberty	EEE: 1 horse (7/11)
Madison	EEE: 2 horses (6/21, 7/3)
Manatee	WNV: 16 sentinels (8/30, 9/7, 9/13, 9/20, 9/27, 10/4, 10/11, 10/18, 10/25) EEE: 1 horse (7/21)
Marion	WNV: 1 horse (10/1) EEE: 6 horses (5/7, 7/22, 8/3, 9/24, 10/11)
Martin	WNV: 2 horses (9/11, 9/16); 14 sentinels (8/13, 8/27, 9/10, 9/16, 9/23, 10/1, 10/15, 10/29) EEE: 1 horse (8/4); 2 sentinels (5/28)
Miami-Dade	DENV: 2 humans (acquired in Miami-Dade, 1 acquired in Key West) SLEV: 5 sentinels (8/23, 9/7, 9/20, 9/27) WNV: 1 sentinel (10/25) EEE: 4 horses (6/7, 6/17, 7/4); 2 sentinels (6/14)
Monroe	DENV: 60 humans (acquired in Key West)
Nassau	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)
Okaloosa	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)
Okeechobee	EEE : 4 horses (6/14, 7/1, 7/7, 7/17)
Orange	WNV : 2 humans (1 July, 1 August) ; 42 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, 10/28) 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)
Osceola	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)
Palm Beach	WNV: 2 horses (9/9, 9/21); 55 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, 11/1) EEE: 2 horses (6/22, 8/31)
Pasco	EEE: 3 horses (6/11, 7/16, 8/7); 3 sentinels (7/6, 7/12) HJV: 3 sentinels (6/28, 7/6, 8/16)
Pinellas	DENV: 1 human (acquired in Key West) WNV: 2 sentinels (9/27, 11/15) EEE: 3 sentinels (5/24, 7/19) HJV: 2 sentinels (4/26, 7/6)
Polk	WNV: 2 horses (9/1, 9/10) EEE: 4 horses (4/28, 6/25, 6/28, 8/19)
Putnam	WNV: 13 sentinels (8/27, 9/9, 9/17, 9/24, 10/1, 10/22) 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)
St. Johns	WNV : 26 sentinels (8/16, 8/23, 8/30, 9/7, 9/13, 9/20, 9/27, 10/18, 11/1, 11/8) EEE: 1 horse (6/18); 3 sentinels (6/1, 7/12, 7/26) HJV: 3 sentinels (4/26, 5/3, 7/12)
St. Lucie	WNV: 8 sentinels (9/10, 9/17, 9/24, 10/1, 10/8)
Santa Rosa	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)
Sarasota	DENV: 2 humans (acquired in Key West) WNV: 5 sentinels (1/8, 10/8, 10/15, 10/25, 11/1) EEE: 3 sentinels (1/5, 1/11, 6/1)
Seminole	WNV : 9 sentinels (9/2, 9/16, 9/23, 10/7, 10/14, 10/26, 10/28) EEE : 3 horses (6/26, 7/15, 8/14) ; 1 sentinel (7/2) HJV : 1 sentinel (7/27)
Suwannee	WNV : 1 human (September)
Union	WNV : 1 horse (10/13)
Volusia	WNV : 20 sentinels (7/19, 8/9, 8/16, 8/30, 9/7, 9/13, 9/20, 9/27, 10/4, 10/11, 11/15) 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)
Wakulla	EEE: 1 human (July)
Walton	WNV : 54 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, 10/12) EEE : 1 horse (8/5); 50 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, 11/1, 11/8); 8 live wild birds (7 cardinals 6/24, 7/16, 7/22, 10/29, 1 blue jay 6/24) HJV : 28 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, 11/4, 11/8)
Washington	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.