



Florida Arbovirus Surveillance Week 48: November 28-December 4, 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 28-December 4, 2010, the following arboviral activity was recorded in Florida:

DENV activity: One new cases of dengue associated with Key West was reported this week. In 2010, there have been 61 locally-acquired cases in Key West, one in Broward County, and one in Miami-Dade County.

EEEV activity: Four sentinel chickens in Walton County and six live wild birds in Okaloosa, Santa Rosa, and Walton counties tested positive for antibodies to EEEV. In 2010, positive samples from five humans, 93 equines, 170 sentinel chickens, 47 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 Citrus County. Twenty-one sentinel chickens in Brevard, Citrus, Hillsborough, Indian River, Manatee, Pinellas, Sarasota, Seminole, and St. Johns counties tested positive for antibodies to WNV. One live wild bird tested positive to antibodies to a flavivirus in Okaloosa County. One mosquito pool in Hillsborough County tested positive for WNV. In 2010, positive samples from 12 humans, 24 equines, 1 reptile, 533 sentinel chickens, one mosquito pool, and three 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: No HJV activity was reported this week. In 2010, positive samples from 92 sentinel chickens have been received from 14 counties.

Advisories/Alerts: Madison and Jefferson counties removed their mosquito-borne illness advisories this week. 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, Lake, Leon, 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, 63 cases of locally acquired dengue have been reported in Broward (1), Miami-Dade (1) and Monroe (61-Key West) counties. Of the Key West cases, 52 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.

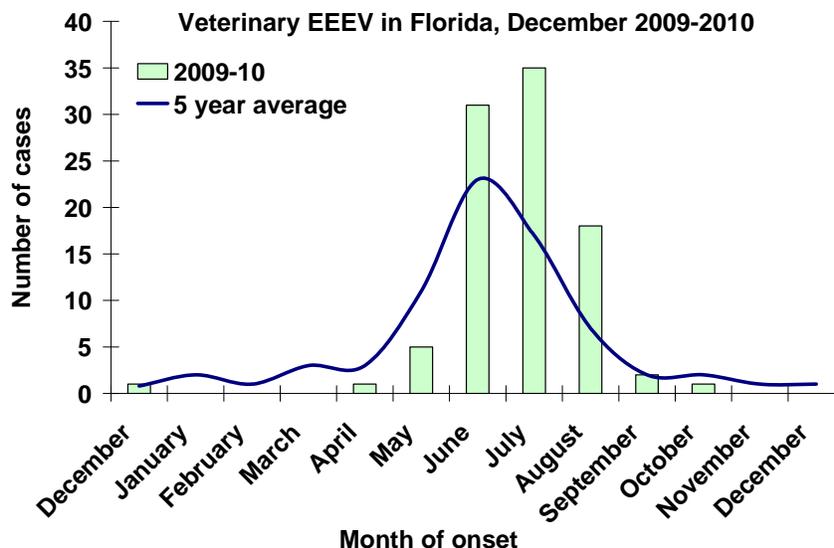
Imported Dengue: One hundred and twenty-six cases of dengue with onset in 2010 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Bangladesh, Brazil, Colombia (8), Costa Rica (4), Dominican Republic (13), Ecuador, El Salvador, Ghana, Grenada (4), Guatemala (2), Haiti (5), Honduras (6), Jamaica (5), Martinique (2), Mexico, Nicaragua (10), Pakistan, Philippines, Puerto Rico (36), Thailand, Trinidad, Venezuela (16), 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 (47), Monroe, Orange (9), Osceola (6), Palm Beach (10), Pasco, Pinellas, Polk (2), Seminole (3), St. Lucie (2), and Volusia (3).

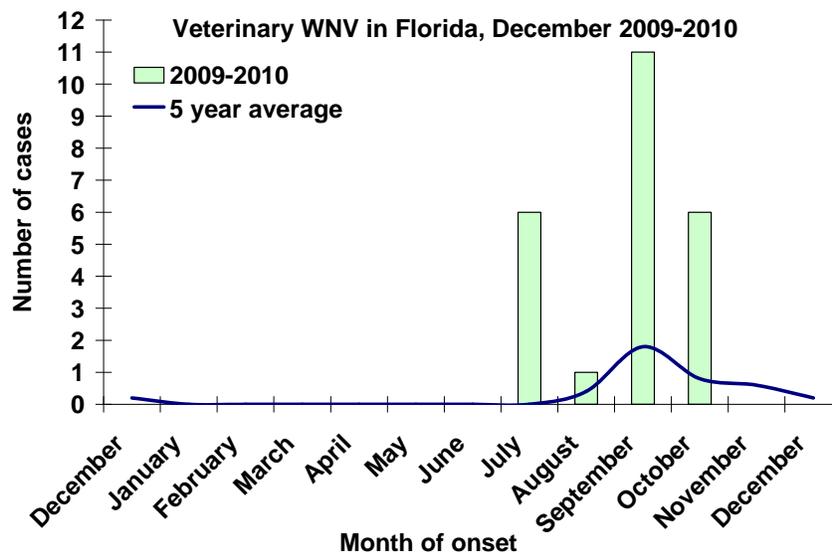
Imported Malaria: One case of malaria with cryptic origin (possible Florida acquired) was reported in Duval County. One hundred and fourteen imported cases of malaria with onset in 2010 have been reported. Countries of origin were: Angola, Cameroon, Dominican Republic, Eritrea, Ghana (4), Guyana, Haiti (65), Honduras (4), India (8), Indonesia, Ivory Coast, Kenya, Malawi (2), Nigeria (7), Pakistan (2), Peru, Philippines, Sierra Leone, South Africa, Togo, Uganda, Venezuela, West Africa (2), Zambia/South Africa, Africa (2), and unknown (2). Counties reporting cases were: Alachua, Brevard (2), Broward (19), Charlotte, Citrus (2), Collier (4), Duval (5), Escambia (3), Hillsborough (5), Lake, Lee, Leon, Miami-Dade (25), Manatee (2), Orange (15), Osceola (3), Palm Beach (14), Pasco, Pinellas, Polk (2), Sarasota, Seminole, St. Lucie, Volusia (2), and Wakulla.

Veterinary Cases

One horse in Citrus County tested positive for WNV this week. In 2010, 24 WNV positive horses, one WNV positive reptile, and 93 EEEV positive horses have been reported.

County	Onset Date	Species	Virus	Status	County YTD
Citrus	10/03/10	Equine	WNV	Euthanized	2 WNV

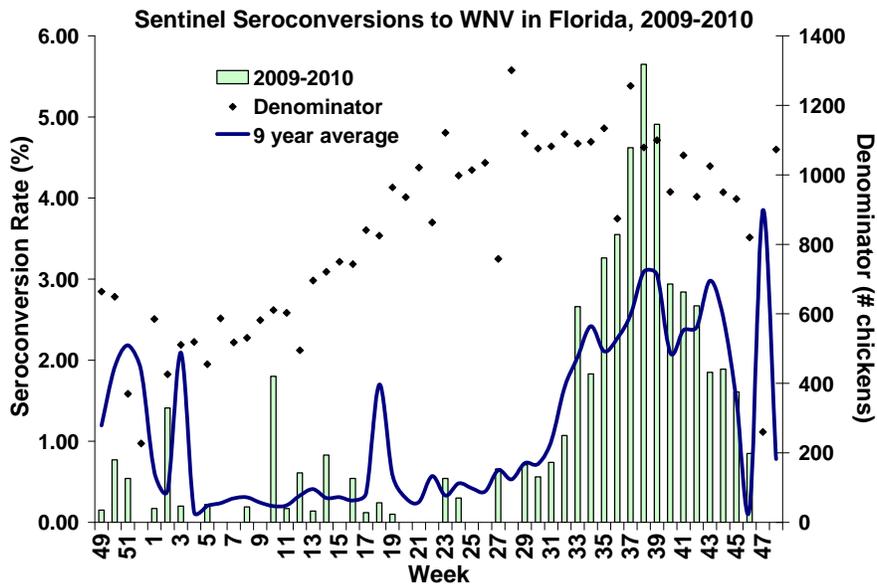
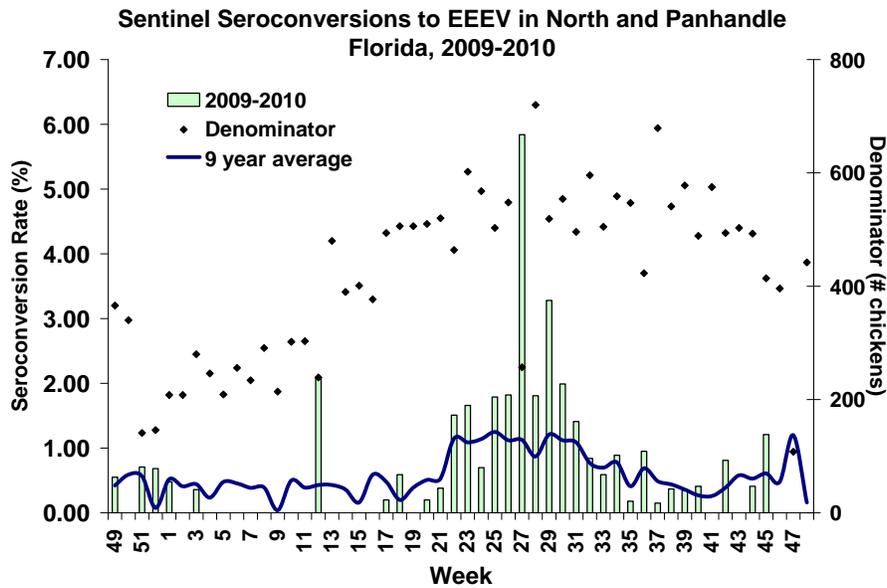




Sentinel Chickens

There were four seroconversions to EEEV in sentinel chickens from Walton County and 21 to WNV in Brevard, Citrus, Hillsborough, Indian River, Manatee, Pinellas, Sarasota, Seminole, and St. Johns counties. 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	11/03, 11/04/10		7.8			4 WNV	56 WNV, 1 EEE
Citrus	11/08/10		5.5			3 WNV	15 WNV, 5 EEE, 3 HJV
Hillsborough	11/09/10		1.1			1 WNV	29 WNV, 2 EEE, 1 HJV
Indian River	11/04/10		5.0			2 WNV	49 WNV, 1 HJV
Manatee	11/08/10		1.5			1 WNV	17 WNV
Pinellas	10/18/10		1.8			1 WNV	3 WNV, 3 EEE, 2 HJV
Sarasota	11/08/10		6.8			4 WNV	9 WNV, 3 EEE
Seminole	11/04/10		11.8			2 WNV	11 WNV, 1 EEE, 1 HJV
St. Johns	11/01/10		6.9			4 WNV	29 WNV, 3 EEE, 3 HJV
	11/08/10		5.4			3 WNV	
Walton (North)	11/08, 11/09/10			13.8		4 EEE	51 WNV, 33 EEE, 17 HJV



Live Wild Birds

Out of 52 live wild birds collected from three counties on November 8-December 2, 2010, three cardinals, one blue jay, one sparrow, and one mockingbird from Okaloosa, Santa Rosa, and Walton counties tested positive for antibodies to EEEV.

County	Collection Date	EEEV	Flavi	Species	EEEV Rate	Flavi Rate	County YTD
Okaloosa	11/08/10	1	1	Blue jay	1 out of 6	1 out of 6	17 EEE, 3 Flavi
	11/15/10	1		Northern mockingbird	1 out of 6	N/A	
Santa Rosa	11/09/10	1		Cardinal	1 out of 8	N/A	20 EEE
	11/16/10	1		House sparrow	1 out of 8	N/A	
Walton	11/19/10	2		2 Cardinals	2 out of 8	N/A	10 EEE

Mosquito Pools

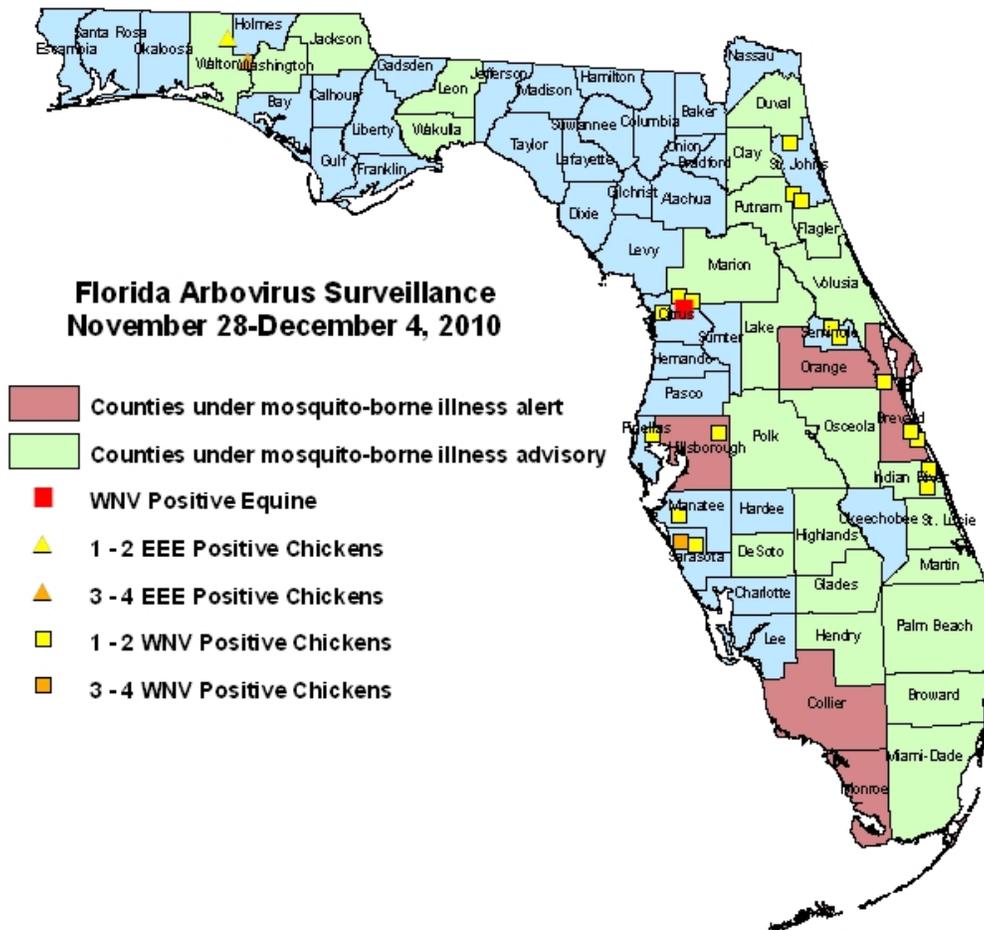
WNVV was isolated from one mosquito pool (*Culex spp.*) collected in Hillsborough County.

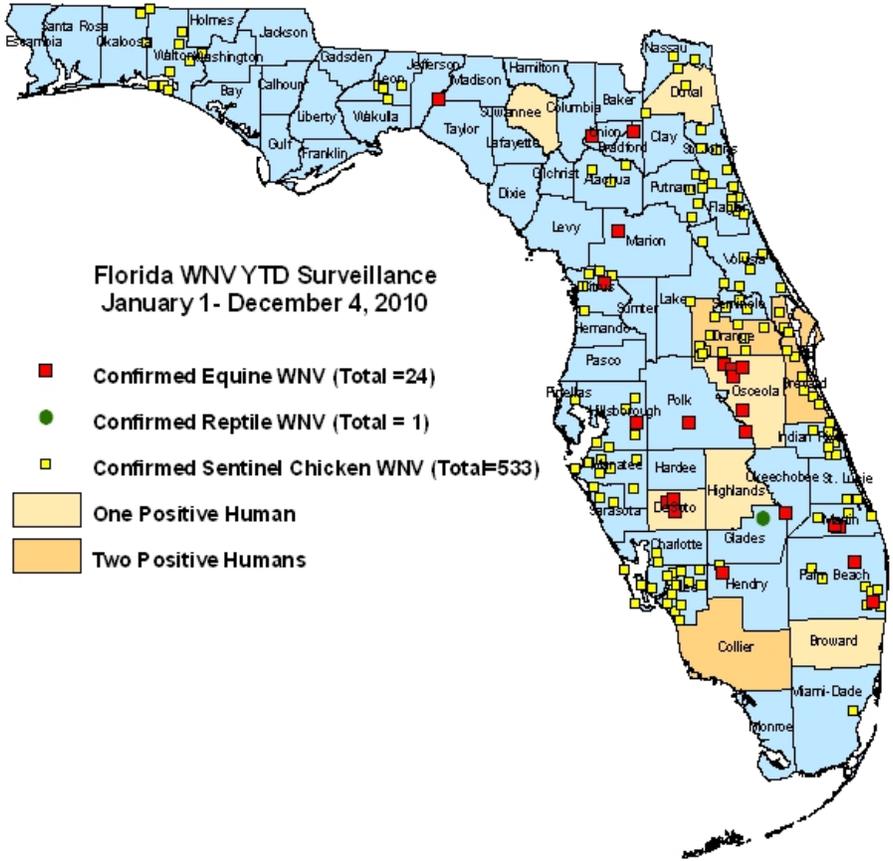
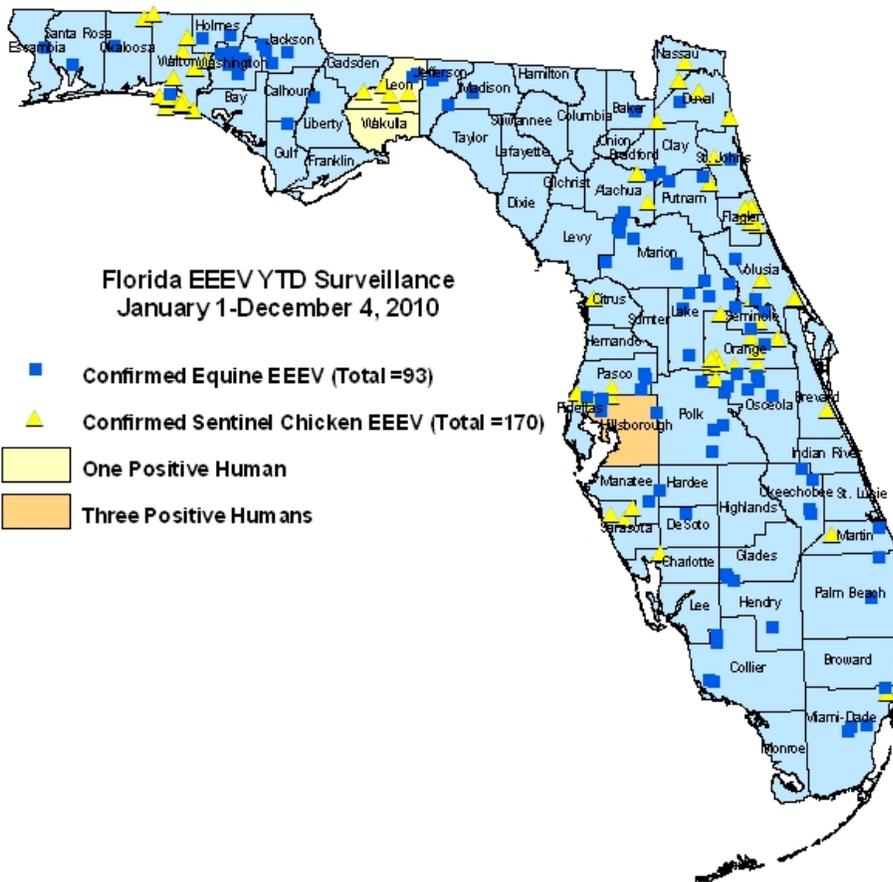
County	Collection Date	Result	Species	County YTD
Hillsborough	11/23/10	WNV	<i>Culex spp.</i>	1 WNV

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, three reports representing 14 dead birds were received from three counties. None were identified as crows, jays, or raptors. In 2010, 330 reports representing a total of 1076 dead birds (49 crows, 16 jays, 51 raptors, 960 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





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); 56 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, 11/3, 11/4, 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: 2 horses (10/3); 15 sentinels (9/20, 9/27, 10/4, 10/11, 10/18, 10/25, 11/8, 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) ; 29 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, 11/9, 11/16) ; 1 mosquito pool (11/23) 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: 49 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, 11/4) 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: 17 sentinels (8/30, 9/7, 9/13, 9/20, 9/27, 10/4, 10/11, 10/18, 10/25, 11/8) 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: 61 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: 3 live wild birds (flavivirus positive, 3 blue jays 6/14, 11/1, 11/8) EEE : 1 horse (7/25); 17 live wild birds (1 house sparrow 1/4, 12 blue jays 1/27, 4/19, 4/21, 4/26, 7/5, 7/26, 9/16, 11/1, 11/3, 11/8, 3 cardinals 7/5, 7/22, 8/5; 2 northern mockingbird 10/4, 11/15)
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: 3 sentinels (9/27, 10/18, 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 : 29 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); 20 live wild birds (11 blue jays 2/2, 3/22, 4/13, 4/19, 5/11, 5/18, 7/13, 8/31, 9/14, 7 cardinals 6/22, 7/13, 7/27, 8/3, 8/31, 11/2, 11/9, 1 red-winged blackbird 10/26, 1 house sparrow 11/16)
Sarasota	DENV: 2 humans (acquired in Key West) WNV: 9 sentinels (1/8, 10/8, 10/15, 10/25, 11/1, 11/8) EEE: 3 sentinels (1/5, 1/11, 6/1)
Seminole	WNV : 11 sentinels (9/2, 9/16, 9/23, 10/7, 10/14, 10/26, 10/28, 11/4) 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); 54 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, 11/9); 10 live wild birds (9 cardinals 6/24, 7/16, 7/22, 10/29, 11/19, 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.