



## Florida Arbovirus Surveillance Week 49: December 2 - 8, 2012

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 of December 2 - 8, 2012 the following arboviral activity was recorded in Florida:

**DENV activity:** No cases of locally acquired dengue were reported this week. A total of four locally acquired dengue cases have been reported in 2012.

**EEEV activity:** Seven sentinel chickens in Citrus, Leon, Orange, St. Johns, Volusia, and Walton Counties tested positive this week for antibodies to EEEV. In 2012, positive samples from 1 human, 33 equines, and 85 sentinel chickens have been received from 30 counties.

**WNV activity:** 1 human case of WNV infection was reported this week in Holmes County. Fourteen sentinel chickens in Bay, Citrus, Duval, Flagler, Indian River, St. Johns, Volusia, and Walton counties tested positive for antibodies to WNV. In 2012, positive samples from 66 humans, 17 horses, 464 sentinel chickens, 4 mosquito pools, and 3 birds have been received from 38 counties.

**SLEV activity:** Two sentinel chickens in Lee County tested positive for antibodies to SLEV, positive samples from 80 sentinel chickens, 1 mosquito pool, and 1 bird have been received from 13 counties

**HJV activity:** There were no sentinel chickens that tested positive for antibodies to HJV this week. In 2012, positive samples from 26 sentinel chickens have been received from 9 counties.

**Advisories/Alerts:** Duval, Escambia, Holmes, Leon, Miami-Dade, Okaloosa, Santa Rosa, Suwannee and Walton counties are currently under mosquito-borne illness alerts. Alachua, Bay, Gadsden, Hamilton, Hillsborough, Jackson, Jefferson, Nassau, Osceola, Orange, Seminole, St. Johns, Wakulla, and Washington counties are under mosquito-borne illness advisories. No other counties are currently under mosquito-borne illness advisory or alert.

## Year to Date Human Case Summary\*

**EEEV Infection Acquired in Florida:** One human case of EEE infection with onset in June was reported in 2012 in a Holmes County resident who spent time in Washington County.

**WNV Infection Acquired in Florida:** Sixty-six human cases of WNV infection were acquired in Florida in 2012. Twenty-nine with onset in June (4), July (7), August (11), September (3), and October (4) were reported in Duval County, three of which were presumptive positive blood donors who developed symptoms. Fifteen cases with onset in July (2), August (7), and September (6), and an asymptomatic presumptive positive blood donor were reported in Escambia County. Three cases with onset in August (2) and September were reported in Santa Rosa County. Three cases with onset in August (2) and one in September were reported in Okaloosa County. Four cases with onset in September (2), October, and November were reported in Walton County. Three cases with onset in October (2) and November were reported in Holmes County. Two cases with onset in August and October were reported in Leon County. Two presumptive positive blood donors in October were reported in Suwannee County. One case each with onset in August was reported in Hillsborough and

Gadsden counties, one case each with onset in September was reported in Bay, Hamilton, Jackson, and Washington counties, and one case with onset in October was reported in Nassau County. Four Florida residents in Broward, Manatee, Santa Rosa and Volusia counties acquired WNV infection in the U.S. outside Florida. Two human cases of WNV infection in non-Florida residents who traveled to Florida were acquired in Oklahoma and South Carolina.

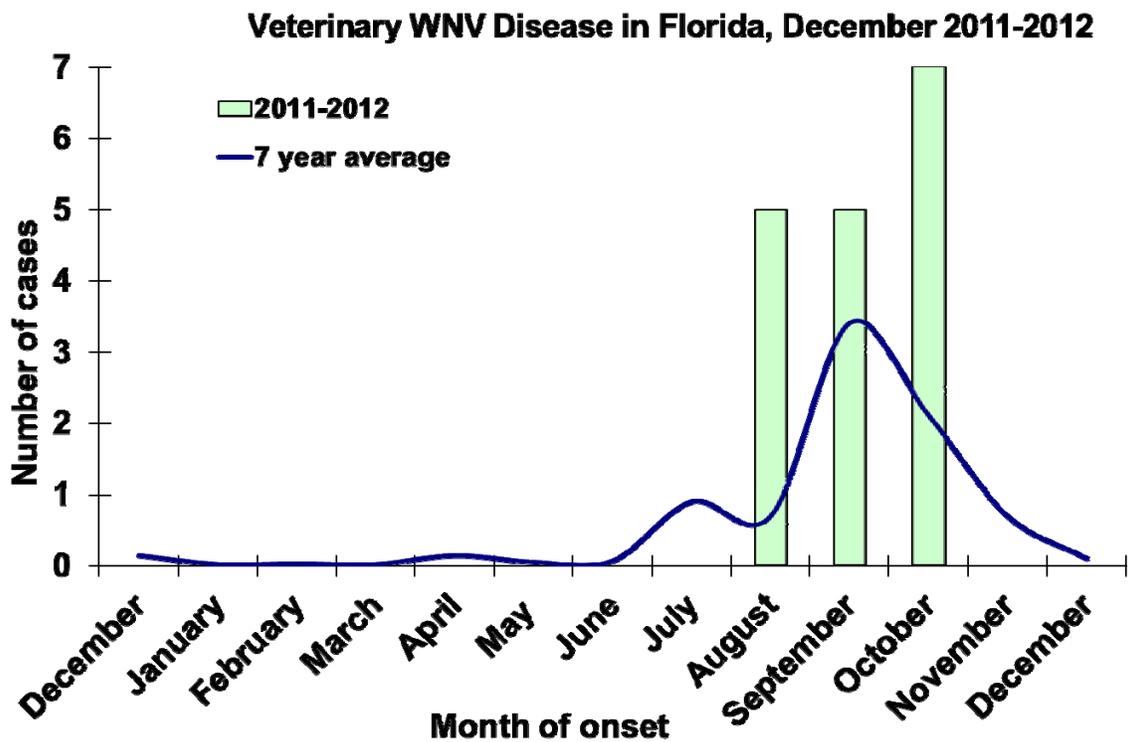
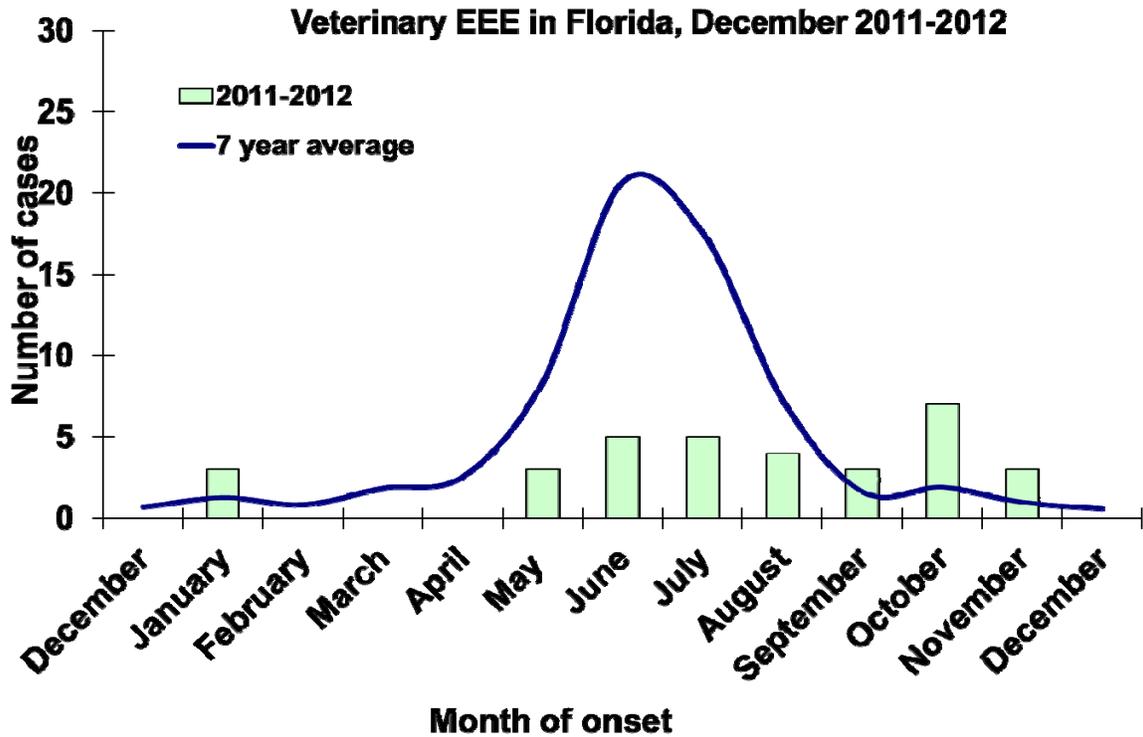
**Dengue Infection Acquired in Florida:** Four local cases of dengue have been reported in 2012; Two in Miami-Dade (August, October) and one each in Seminole (September) and Osceola (October) counties.

**Imported Dengue:** One hundred and twelve cases of dengue with onset in 2012 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, Cuba (25), Dominican Republic (13), Ecuador (4), El Salvador (2), Ghana, Guyana (2), Haiti (15), Honduras, India, Jamaica (19), Mexico (2), Nicaragua, Panama, Philippines, Portugal, Puerto Rico (12), South Africa, Sri Lanka, St. Vincent, Suriname, Trinidad (4), and Turks & Caicos. Counties reporting cases were Brevard (3), Broward (20), Collier, Duval (2), Hillsborough (5), Lee (3), Marion, Miami-Dade (40), Orange (17), Palm Beach (7), Pinellas (3), Polk, Sarasota (2), Seminole (3), St. Johns, St. Lucie, and Volusia (2). Ten of the cases were reported in non-Florida residents.

**Imported Malaria:** Fifty-seven imported cases of malaria with onset in 2012 have been reported. Countries of origin were: Afghanistan (2), Cameroon, Central African Republic, Colombia, Congo, Costa Rica, Ethiopia (2), Ghana (5), Guyana (2), Haiti (9), Honduras (3), India (2), Ivory Coast (3), Kenya, Liberia (2), Nigeria (8), Pakistan, Peru, Sierra Leone (2), South Africa, Sub Saharan Africa, Sudan, Togo, Uganda, Zambia, and multiple or unspecified African countries (3). Counties reporting cases were: Alachua (2), Brevard, Broward (8), Charlotte, Duval (7), Hillsborough (7), Lake (2), Leon, Manatee, Marion, Martin, Miami-Dade (7), Orange (6), Osceola (2), Palm Beach (4), Pinellas (3), Polk, Seminole, and Volusia. Six of the cases were reported in non-Florida residents.

## Veterinary Cases

There were no reports of positive horse activity this week.



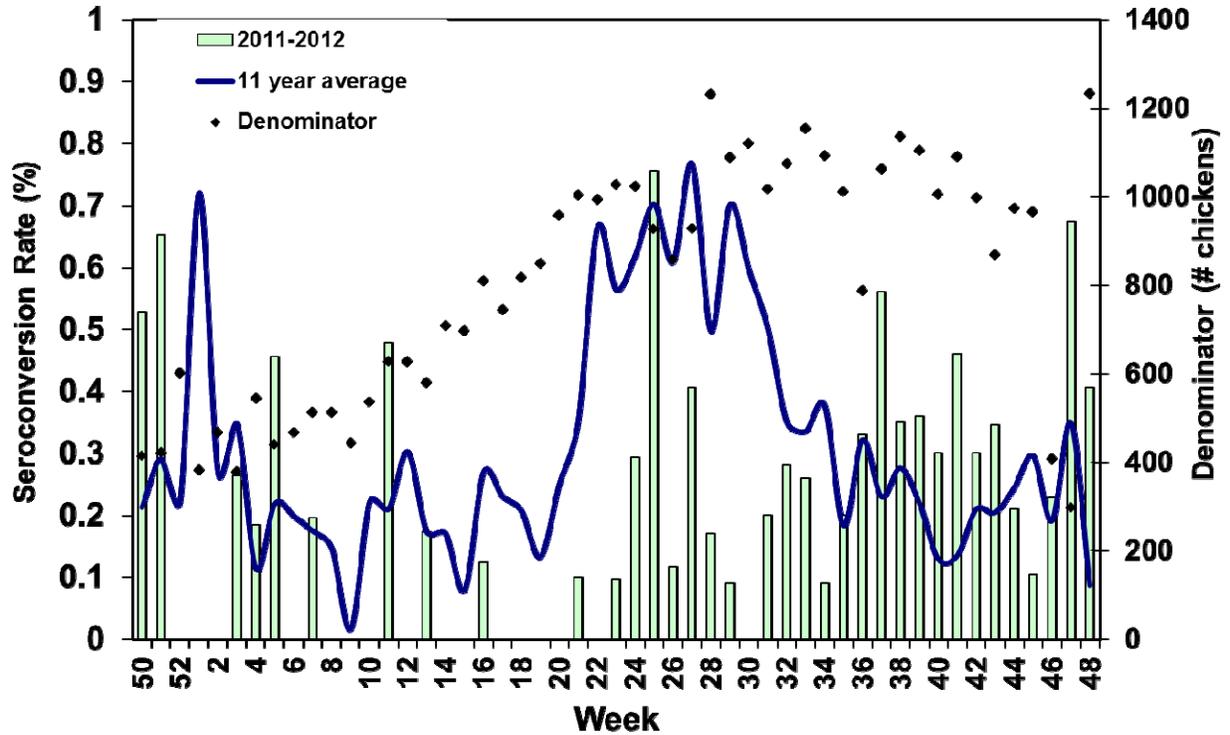
## Sentinel Chickens

The table below is for the reporting of confirmatory laboratory results from this week. Some of the samples were collected at earlier dates. The date of collection is recorded for samples collected on that day along with the total number of positives and the corresponding seroconversion rate for the week the sample was collected.

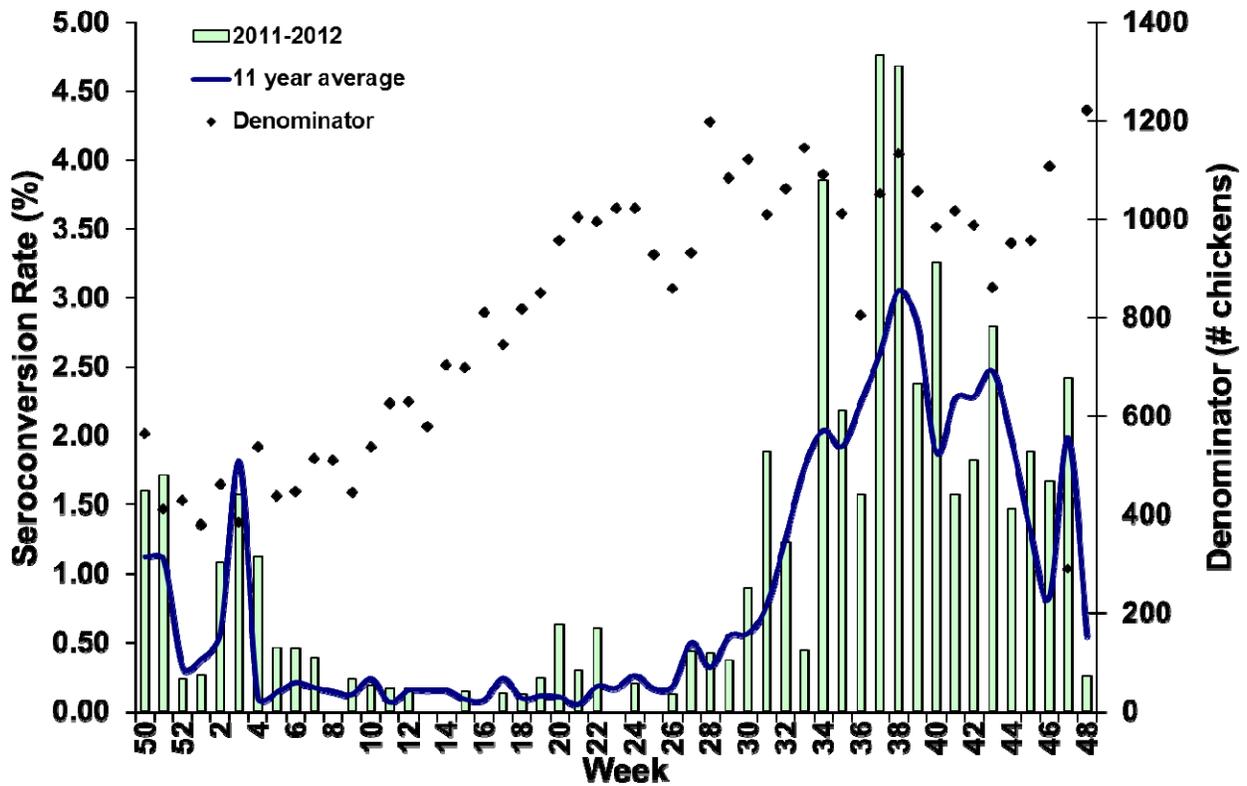
Seven sentinel chickens in Citrus, Leon, Orange, St. Johns, Volusia, and Walton Counties tested positive this week for antibodies to EEEV, fourteen sentinel chickens in Bay, Citrus, Duval, Flagler, Indian River, St. Johns, Volusia, and Walton counties tested positive for antibodies to WNV, two sentinel chickens in Lee County tested positive for antibodies to SLEV.

County	Collection Date	Seroconversion Rates (%)				Collection Week	County Totals
		SLEV	WNV	EEEV	HJV		YTD
Bay	11/27/12		5.88			1 WNV	23 WNV, 1 EEEV, 1 HJV
Citrus	11/26/12			1.45			
Citrus	11/26/12		1.45			1 WNV, 1 EEEV	14 WNV, 3 EEEV, 1 HJV
Duval	11/7/12		16.67			3 WNV	29 WNV
Flagler	11/19/12		5.00			1 WNV	9 WNV, 2 EEEV, 2 HJV
Indian River	11/15/12		2.08			1 WNV	17 WNV
Lee	11/12/12	3.39				2 SLEV	6 WNV, 26 SLEV
Leon	11/26/12			2.63		2 EEEV	35 WNV, 10 EEEV, 4 HJV
Orange	11/26/12			0.92		1 EEEV	16 WNV, 23 EEEV, 3 SLEV
St. Johns	11/13/12		1.96			1 WNV	
St. Johns	11/19/12		4.67			5 WNV	
St. Johns	11/27/12			0.93		1 EEEV	58 WNV, 7 EEEV, 2 HJV
Volusia	11/19/12			1.82			
Volusia	11/19/12		1.82			1 WNV, 1 EEEV	5 WNV, 1 EEEV
Walton	11/19/12			1.27		1 EEEV	
Walton	11/26/12		1.35			1 WNV	121 WNV, 16 EEEV, 7 HJV

### Sentinel Seroconversions to EEEV in Florida, 2011-2012



### Sentinel Seroconversions to WNV in Florida, 2011-2012

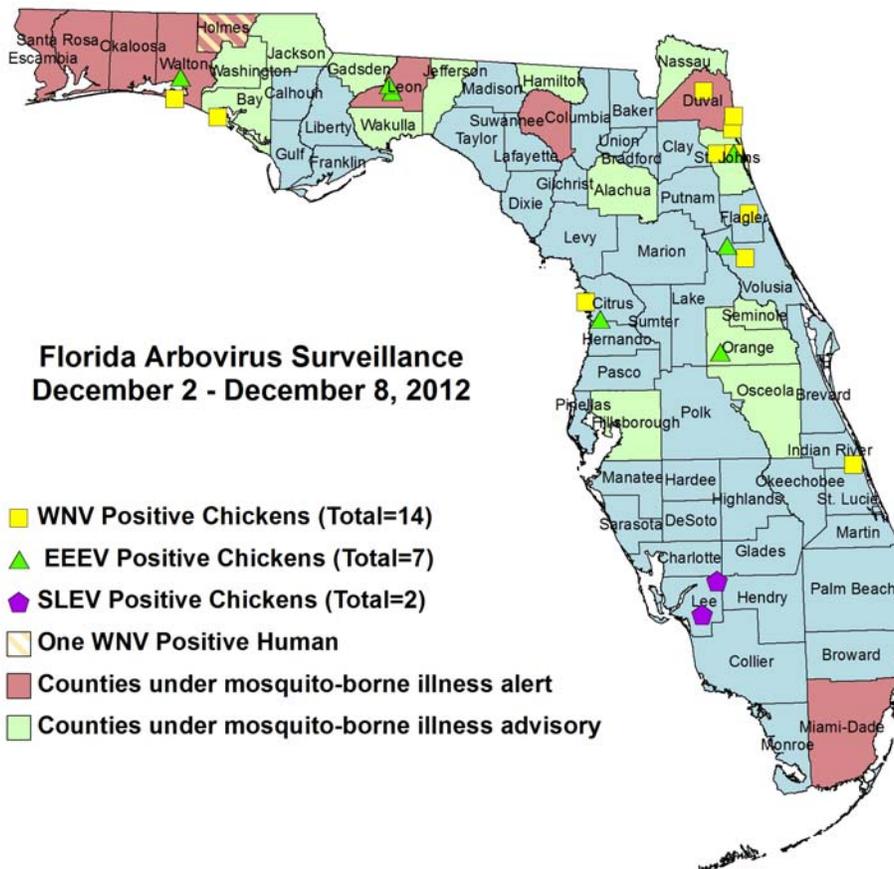


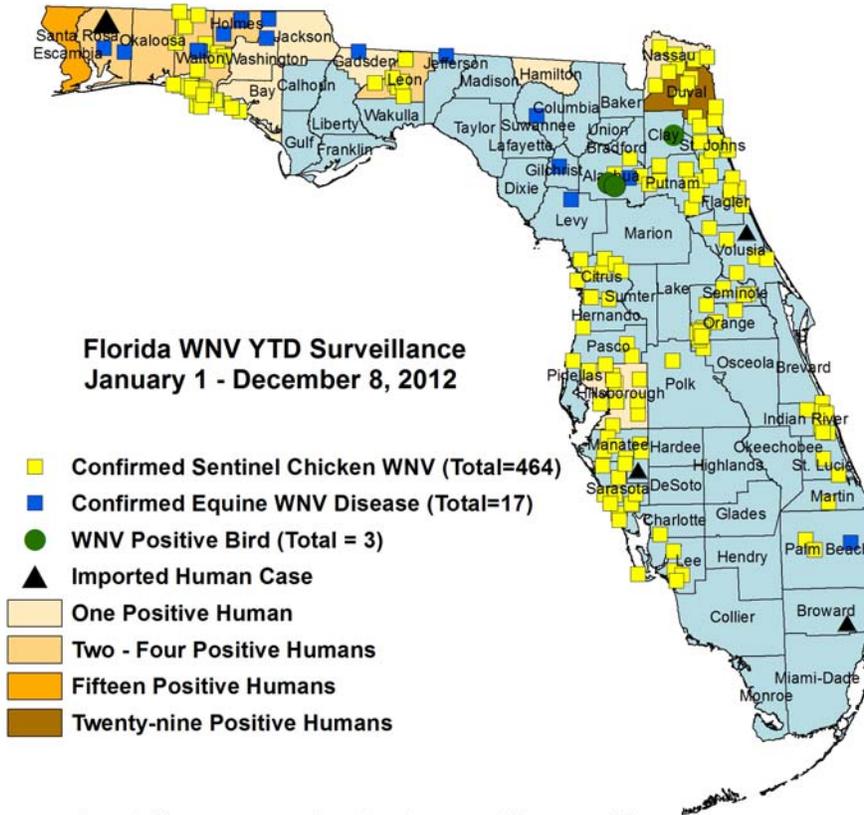
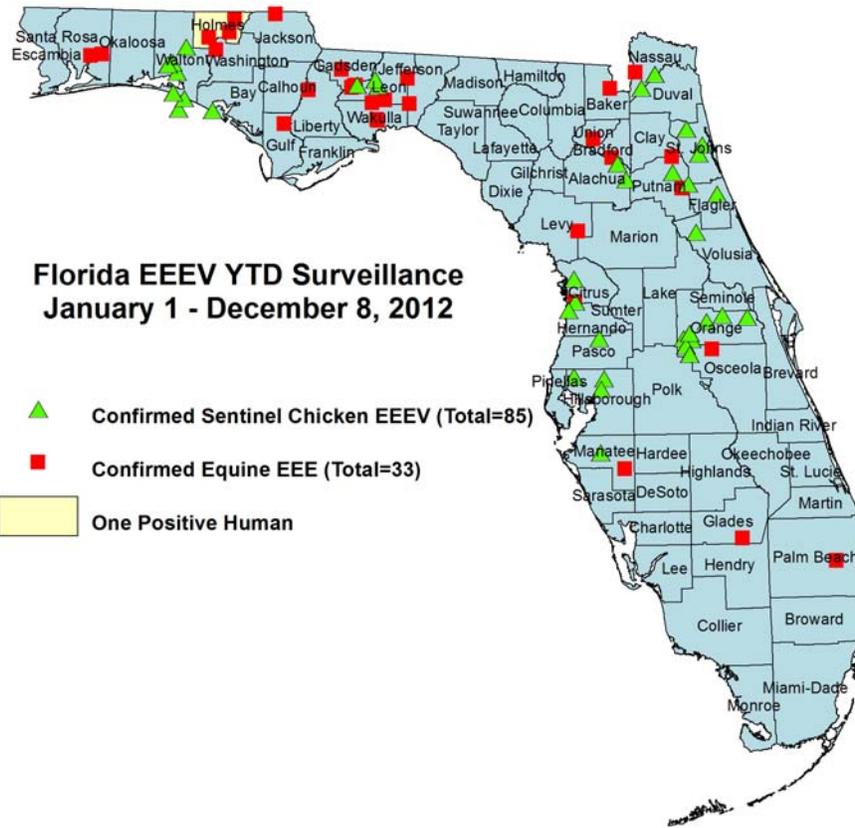
## Dead Birds

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, 6 reports representing 17 dead birds, including 1 crow, were received from 6 counties. In 2012, 461 reports representing a total of 1326 dead birds (68 crows, 40 jays, 71 raptors) were received from 56 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/)

County	Total Dead Birds	Crows	Jays	Raptors
Brevard	3	0	0	0
Citrus	1	1	0	0
Dade	1	0	0	0
Manatee	1	0	0	0
Pasco	1	0	0	0
St. Johns	10	0	0	0

## Maps





Imported human case markers do not represent the case residences.

## Arbovirus Activity by County

County	Arbovirus Activity
<b>Alachua</b>	EEEV : 1 horse (7/27) ; 3 sentinels (7/9, 9/18, 10/8) WNV : 1 horse (9/11) ; 5 sentinels (9/17, 9/18, 10/8, 10/15), 2 wild birds (10/7) HJV : 2 sentinels (9/18, 10/8)
<b>Bay</b>	EEEV : 1 sentinel (7/10) WNV : 1 human (September) ; 23 sentinels (7/24, 7/31, 8/7, 8/14, 8/21, 9/4, 9/11, 9/18, 10/2, 10/23, 10/30, 11/14, 11/27) ; 2 mosquito pools (9/6, 9/11) HJV : 1 sentinel (5/29) SLEV : 1 mosquito pool (10/2)
<b>Baker</b>	EEEV : 1 horse (6/21)
<b>Brevard</b>	SLEV : 1 sentinel (8/29)
<b>Charlotte</b>	WNV : 4 sentinels (9/7, 9/14, 9/28) SLEV : 3 sentinel (10/19, 11/2)
<b>Citrus</b>	EEEV : 3 sentinels(1/30, 10/8, 11/26), 1 horse (11/5) WNV: 14 sentinels (5/29, 8/27, 9/17, 9/24, 10/15, 10/22, 11/13, 11/26) HJV: 1 sentinel (1/3)
<b>Clay</b>	EEEV: 1 horse (10/14) WNV: 1 goose
<b>DeSoto</b>	SLEV: 1 pigeon
<b>Duval</b>	WNV: 29 humans (4 June, 7 July, 11 August, 3 September, 4 October); 29 sentinels (7/30, 8/3, 8/13, 8/20, 8/23, 8/28, 9/10, 9/13, 9/17, 10/1, 10/18, 10/22, 11/5, 11/7, 11/13); 2 mosquito pools (8/7, 8/8)
<b>Escambia</b>	WNV: 15 humans (2 July, 7 August, 6 September)
<b>Flagler</b>	EEEV: 2 sentinels (8/6, 9/24) WNV: 9 sentinels (9/4, 10/1, 10/9, 10/22, 10/29, 11/13, 11/19) HJV: 2 sentinels (7/30, 8/27)
<b>Gadsden</b>	WNV: 1 human (August); 1 horse (10/14) EEEV: 1 horse (10/31)
<b>Gilchrist</b>	WNV: 1 horse (10/12)
<b>Glades</b>	EEEV: 2 horses (6/25, 7/14)
<b>Gulf</b>	EEEV: 1 horse (8/21)
<b>Hamilton</b>	WNV: 1 human (September)
<b>Hernando</b>	EEEV: 2 sentinels (10/1, 10/22) WNV: 2 sentinels (1/23, 9/17)
<b>Hillsborough</b>	EEEV : 4 sentinels (2/14, 3/13, 4/17) WNV: 1 human (August); 19 sentinels (1/3, 1/17, 1/24, 1/31, 2/14, 3/6, 6/12, 8/28, 9/18, 9/25, 10/30) SLEV: 11 sentinels (1/3, 8/28, 10/9, 10/16, 10/30, 11/6)
<b>Holmes</b>	EEEV : 1 human (June); 3 horses (5/21, 6/25, 11/2) WNV : 3 human (2 October, November) ; 3 horses (8/11, 8/23, 9/26)
<b>Indian River</b>	WNV: 17 sentinels (5/24, 8/9, 8/30, 9/13, 9/20, 9/27, 11/8, 11/15)
<b>Jackson</b>	EEEV: 1 horse (9/9) WNV: 1 human (September), 1 horse (10/9)
<b>Jefferson</b>	EEEV: 1 horse (8/6) WNV: 1 horse (10/25)
<b>Lee</b>	WNV: 6 sentinels (1/24, 9/17, 9/18, 10/9, 10/23, 11/5) SLEV: 26 sentinels (3/7, 8/30, 9/4, 9/10, 9/17, 9/18, 10/1, 10/2, 10/8, 10/9, 10/15, 10/22, 10/23, 10/29, 10/30, 11/5, 11/12)
<b>Leon</b>	EEEV : 5 horses (8/21, 8/30, 9/3, 9/4, 10/4), 10 sentinels (8/13, 8/28, 9/22, 10/22, 10/29, 11/5, 11/13, 11/26) WNV : 2 humans (August, October), 35 sentinels (9/17, 9/22, 10/2, 10/15, 10/22, 10/29, 11/5, 11/13) HJV : 4 sentinels (8/28, 9/4, 9/11, 10/2)
<b>Levy</b>	EEEV: 2 horses (1/2) WNV : 1 horse (9/3)

<b>County</b>	<b>Arbovirus Activity</b>
<b>Liberty</b>	EEEV: 1 horse (10/19)
<b>Manatee</b>	EEEV: 1 horse (6/14); 1 sentinel (9/11) WNV: 8 sentinels (2/1, 3/14, 5/30, 8/15, 9/19, 9/25, 10/10) SLEV: 4 sentinels (9/19, 9/25, 10/1, 10/16)
<b>Martin</b>	WNV: 1 sentinel (9/14) SLEV: 4 sentinels (9/28, 10/5, 10/18)
<b>Miami-Dade</b>	Dengue: 2 humans (August, October)
<b>Nassau</b>	EEEV : 1 horse (7/18) ; 9 sentinels (6/16, 6/23, 9/8, 9/14, 9/28, 10/15) WNV : 1 human (October) ; 36 sentinels (8/6, 8/25, 8/31, 9/8, 9/10, 9/14, 9/20, 9/28, 10/21) HJV : 6 sentinels (7/13, 8/18, 8/31, 9/14, 9/28)
<b>Okaloosa</b>	WNV : 3 humans (2 August, 1 September)
<b>Orange</b>	EEEV : 23 sentinels (1/5, 1/9, 1/19, 1/23, 2/6, 3/15, 3/29, 5/21, 6/14, 7/2, 8/8, 8/13, 8/20, 9/10, 9/27, 10/1, 10/4, 10/8, 10/25, 11/15, 11/26) WNV: 16 sentinels (1/9, 1/12, 1/19, 1/25, 3/1, 7/26, 9/13, 9/17, 9/19, 10/22, 10/29) SLEV: 3 sentinels (10/1)
<b>Osceola</b>	EEEV : 1 horse (7/25) Dengue : 1 human (October)
<b>Palm Beach</b>	EEEV : 1 horse (6/20) WNV : 1 horse (8/29), 3 sentinels (8/27, 9/17, 10/15) SLEV : 11 sentinels (7/23, 8/20, 8/27, 9/17, 10/22)
<b>Pasco</b>	WNV : 2 sentinels (5/29, 9/19)
<b>Polk</b>	WNV : 4 sentinels (9/5, 9/18, 10/2)
<b>Putnam</b>	EEEV: 1 horse (1/1) ; 3 sentinels (7/20, 8/3, 10/9) WNV : 19 sentinels (9/18, 9/25, 10/2, 10/9, 10/16, 10/23) SLEV : 1 sentinel (10/2)
<b>Santa Rosa</b>	EEEV : 2 horses (5/11, 11/1) WNV : 3 humans (2 August, 1 September) ; 2 horses (8/23, 8/29)
<b>Sarasota</b>	WNV: 23 sentinels (1/9, 2/6, 3/19, 5/7, 5/14, 7/9, 7/16, 7/27, 8/3, 8/24, 8/31, 9/14, 9/17, 9/24, 10/19, 11/9); 1 of the positives were flavivirus positive (8/31 tallied under WNV) SLEV: 13 sentinels (7/2, 9/7, 10/1, 10/19, 10/26, 11/2, 11/9, 11/16) HJV: 1 sentinel (9/7)
<b>Seminole</b>	WNV : 3 sentinels (8/7, 9/25) Dengue: 1 human (September)
<b>St. Johns</b>	EEEV : 7 sentinels (9/2, 9/11, 9/18, 10/8, 10/29, 11/27) WNV : 58 sentinels (5/14, 5/22, 5/29, 8/5, 8/20, 8/27, 9/2, 9/11, 9/18, 9/28, 10/8, 10/15, 10/22, 11/5, 11/13, 11/19) HJV : 2 sentinels (4/30, 7/3)
<b>St. Lucie</b>	WNV : 2 sentinels (9/14, 10/8) SLEV : 3 sentinels (10/8, 10/22)
<b>Suwannee</b>	WNV : 2 asymptomatic blood donors (October) 2 horses (10/15, 10/18)
<b>Union</b>	EEEV : 1 horse (5/12)
<b>Volusia</b>	WNV : 5 sentinels (5/29, 6/25, 9/17, 11/5, 11/19) EEEV : 1 sentinel (11/19)
<b>Wakulla</b>	EEEV : 3 horses (10/9, 10/21, 10/22)
<b>Walton</b>	WNV : 4 humans (2 September, October, November) ; 2 horses (9/16, 9/29); 121 sentinels (4/9, 4/23, 4/30, 7/2, 7/3, 7/9, 7/10, 7/16, 7/23, 7/30, 8/7, 8/13, 8/20, 8/21, 9/6, 9/10, 9/17, 9/18, 9/24, 10/1, 10/8, 10/15, 10/22, 10/29, 11/5, 11/26) EEEV : 16 sentinels (6/4, 6/18, 6/25, 7/2, 7/30, 9/6, 9/10, 10/15, 11/19) HJV : 7 sentinels (5/14, 6/11, 6/18, 7/16, 7/23, 9/6, 10/1)
<b>Washington</b>	EEEV : 1 horse (7/1) WNV : 1 human (September), 1 horse (9/19)

## Acknowledgements and Data Sources

Contributors: Stephanie Moody-Geissler, MPH, Elizabeth Radke, MPH, Shaiasia Itwaru-Womack, Danielle Stanek, DVM, and Carina Blackmore, DVM, Ph.D., DOH Bureau of Epidemiology; Holly Hughes, Ph.D. 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>

**For arbovirus surveillance information for the United States, please see the Centers for Disease Control and Prevention website at:**

<http://www.cdc.gov/ncidod/dvbid/westnile/surv&control.htm>

\*Case tallies included in the weekly Florida arbovirus surveillance report include confirmed and probable cases for EEE, WNV infection, SLE, dengue, and malaria. In addition, dengue and malaria tallies may also include suspect cases. Case definitions being used in Florida are consistent with national criteria provided by the Council of State and Territorial Epidemiologists (CSTE) and may be viewed at:

[http://www.doh.state.fl.us/Disease\\_ctrl/epi/surv/CaseDefinitions/2012CaseDef\\_FINAL.pdf](http://www.doh.state.fl.us/Disease_ctrl/epi/surv/CaseDefinitions/2012CaseDef_FINAL.pdf)

Case tallies reported by CDC do not include suspect cases and cases are reported by patient state of residence rather than where the exposure occurred.

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 provided by the Department of Agriculture and Consumer Services.