

Florida 2008 Arbovirus Activity by County

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Summary

In 2008, 13 of Florida's 67 counties reported West Nile virus (WNV) activity and 38 counties reported Eastern Equine Encephalitis virus (EEEV) activity. In comparison, 12 counties reported WNV activity and 25 counties reported EEEV activity in 2007. St. Louis Encephalitis virus (SLEV) activity was not reported in 2008, compared with activity in two counties in 2007. Highlands J virus (HJV) activity was reported in 15 counties in 2008, compared to 7 in 2007.

Two locally-acquired human cases of WNV disease were reported in Escambia County in 2008. An additional case was reported in a Wakulla County resident who acquired the infection while visiting another state. One locally acquired case of EEEV disease was reported in Leon County. A Hillsborough County resident was infected with La Crosse Encephalitis virus (LACV) while visiting another state.

In 2008, Escambia County issued a mosquito-borne illness alert in response to the two human WNV disease cases. Mosquito-borne illness advisories due to above-average levels of EEEV activity in sentinel chickens and horses were issued in Holmes, Jackson, Jefferson, Volusia, Walton, and Washington counties. Leon County issued an advisory in response to one human EEEV disease case. The alert and advisories were lifted in December when the weather cooled and the level of virus activity returned to baseline.

Twenty-five confirmed and probable cases of imported dengue fever were reported with disease onset in 2008. Sixty-five confirmed cases of imported malaria were reported.

Human Surveillance

Eastern equine encephalitis virus (Florida Reporting Codes 6220 and 6221)

One case of locally-acquired EEEV disease was confirmed in a Leon County resident in August.

West Nile virus (Florida Reporting Codes 6630 and 6631)

Two cases of locally-acquired WNV encephalitis were confirmed in Escambia County residents in August. One case of WNV encephalitis was confirmed in a resident of Wakulla County, though the infection was acquired out-of-state. This case was reported as a Florida case acquired in Louisiana.

La Crosse virus (Florida Reporting Codes 6250 and 6251)

La Crosse encephalitis was confirmed in a Hillsborough County resident with travel history to North Carolina in July. This case was reported as a Florida case acquired out-of-state. La Crosse virus is a member of the California Encephalitis group of viruses. No other California group encephalitis virus activity was reported.

Table 1. Locally-acquired human arbovirus cases reported in Florida, 2001-2008

Human Cases	2008	2007	2006	2005	2004	2003	2002	2001
WNV	2 (1)*	2 (1)	0	21 (4)	42 (7)	94 (29)	35 (17)	11 (8)
EEEV	1(1)	0	0	5 (5)	0	3 (3)	1	3 (3)
SLEV	0	0	0	0	0	0	1	0

*Number of counties in parentheses

Dengue virus (Florida Reporting Code 6100)

Twenty-five cases of imported dengue fever were reported in Florida with disease onset in 2008. Of these, three were confirmed and the remaining cases were probable. Five cases (21%) reported recent travel to the Dominican Republic and five reported travel to Puerto Rico. Two persons each traveled to Haiti and Jamaica, the remainder reported travel to one of the following countries or regions: Brazil, Carcao, Caribbean Island, Costa Rica, Honduras, Jamaica, Malaysia, St. Thomas, Thailand, Venezuela, and Asia/Africa (1 unknown). The following counties reported imported dengue cases in 2008: Broward (9), Hillsborough (3), Lake (2), Lee (1), Leon (1), Miami-Dade (3), Orange (1), Palm Beach (3), Pinellas (1), and Polk (1).

Malaria (Florida Reporting Code 08460)

Sixty-five cases of imported malaria (a mosquito-borne parasite) were reported in Florida in 2008. All were confirmed: 26 (40%) reported recent travel to Haiti, 18 (28%) reported travel to Nigeria. Uganda/Kenya and Ghana were each reported in four cases. The remaining cases traveled to Guatemala, Guyana, Honduras, India, Indonesia, Liberia, Senegal, Sierra Leone, Sudan, Venezuela, or a non-specified African country. The following counties reported imported malaria cases: Alachua (3), Brevard (2), Broward (12), Charlotte (1), Clay (1), Collier (1), Franklin (1), Hillsborough (4), Leon (2), Miami-Dade (13), Okaloosa (1), Orange (8), Palm Beach (4), Pasco (1), Pinellas (3), Polk (5), Santa Rosa (1), Seminole (1), and Volusia (1).

Animal Surveillance

Eastern Equine Encephalitis virus surveillance

Positive samples from 96 live wild birds*, 129 sentinel chickens, 89 equines, 2 other mammals (1 dog and 1 alpaca), and 3 dead birds (3 emus from 2 farms) were received. To date, 38 of Florida's 67 counties have reported EEEV activity. Date of disease onset (equines, mammals), date of death (birds), and date of first known antibody positive bleed (sentinels, live wild birds) is shown in parentheses.

Alachua: 6 sentinel chickens (5/5, 7/14, 7/21x2, 9/15, 9/16), 2 horses (5/3, 8/3)

Baker: 4 horses (4/7, 5/26, 5/30, 8/5)

Bradford: 1 dead bird (emu, 3/27); 2 horses (5/25, 5/26)

Brevard: 1 sentinel chicken (6/12)

Citrus: 1 sentinel chicken (1/7)

Clay: 2 horses (2/27, 7/20)

Columbia: 3 horses (3/10, 3/26, 4/8)

Duval: 2 sentinel chickens (5/21, 7/18); 1 horse (7/26)

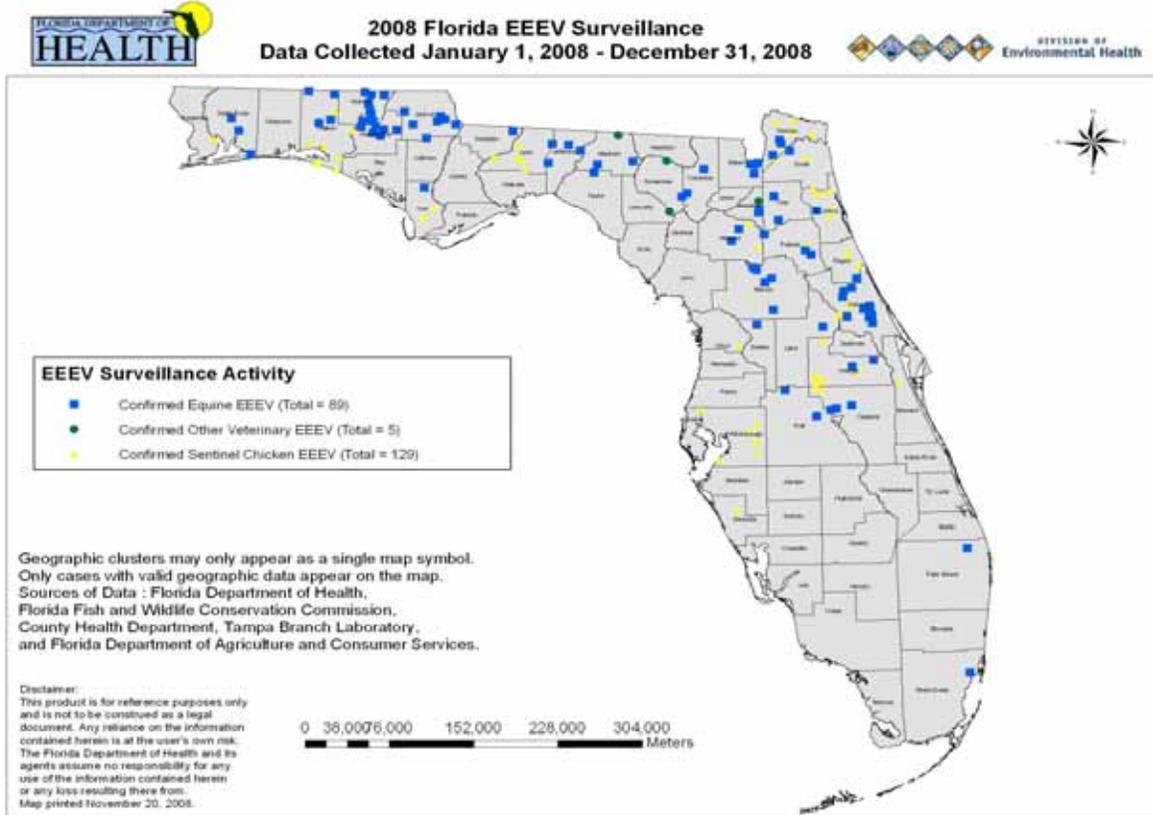
Escambia: 3 sentinel chickens (6/3, 6/24, 7/22)

Flagler: 5 sentinel chickens (3/24, 5/12 x2, 7/7, 7/21);

1 horse (6/12)

Gadsden: 1 horse (7/6)
Gulf: 6 sentinel chickens (3/17, 4/7, 4/14, 5/12, 5/27, 7/22); 1 miniature donkey (8/24)
Hillsborough: 1 live wild bird (1 African Crane 2/13); 7 sentinel chickens (9/16 x3, 9/24 x4)
Holmes: 9 horses (6/5, 6/18, 6/19, 6/21, 6/24, 6/26, 6/28, 7/21 x2)
Jackson: 7 horses (4/18, 5/22, 6/20, 6/25, 7/10, 7/22, 10/16)
Jefferson: 3 horses (6/18, 6/23, 12/15)
Lake: 1 horse (1/28)
Leon: 12 sentinel chickens (5/6, 5/27, 6/9, 6/17, 8/4, 8/11, 9/2 x2, 9/23 x3, 9/29); 1 horse (8/10)
Madison: 1 canine (5/31); 2 horses (7/17, 12/31)
Marion: 5 horses (3/14, 5/14, 7/7, 7/27, 8/5)
Nassau: 3 horses (6/23, 7/17, 12/31); 12 sentinel chickens (7/14 x2, 7/28, 8/4 x2, 8/18 x5, 9/1, 9/8)
Okaloosa: 57 live wild birds (3 White-throated Sparrows 1/02, 1/15, 1/21; 25 Cardinals 1/02, 4/30, 6/16 x2, 6/23, 7/14 x2, 7/28 x3, 7/30, 8/4, 8/6, 8/7, 8/11, 8/18 x2, 8/20, 8/25, 9/2, 9/8, 9/11 x2, 9/15, 12/15; 3 House Sparrows 1/9, 2/13, 11/5; 17 Blue Jays 3/10, 5/12, 6/12, 7/16, 7/21, 8/4 x2, 8/11 x2, 8/25 x2, 9/22 x2, 9/24, 10/9, 10/14, 12/1; 6 Brown Thrashers 4/23, 5/14, 5/19, 5/26, 6/25, 10/27; 1 House Finch 6/16; 1 Northern Mockingbird 9/2; 1 Mockingbird 10/14)
Okeechobee: 1 horse (8/6)
Orange: 18 sentinel chickens (1/7, 1/10, 2/14, 4/21, 5/19, 5/22, 6/16 x2, 6/23, 7/17 x2, 7/28, 8/11 x2, 8/29, 10/27, 11/13, 11/17); 2 live wild birds (1 Red-tailed Hawk 2/6, 1 Red-shouldered Hawk 3/3); 2 horses (6/9, 7/12)
Osceola: 4 horses (4/11, 5/30, 6/6, 7/9); 1 sentinel chicken (12/31)
Palm Beach: 1 horse (6/11)
Polk: 2 horses (2/14, 8/5)
Pinellas: 1 sentinel chicken (7/28)
Putnam: 3 horses (1/8, 6/18, 8/22); 3 sentinel chickens (3/20, 5/5, 8/18)
Santa Rosa: 29 live wild birds (13 Blue Jays 1/14, 3/31 x2, 4/10, 5/7, 5/13, 5/21, 6/3, 7/29, 8/5, 9/9, 12/16 x2; 1 Northern Mockingbird 1/15; 12 Cardinals 4/29, 6/3, 7/1, 7/22 x2, 7/29 x2, 8/5 x4, 10/28; 1 House Finch 7/22; 1 Red-Winged Blackbird 8/12; 1 Northern Cardinal 10/15); 3 horses (5/16, 8/9, 8/29)
Sarasota: 1 sentinel chicken (9/23)
St. Johns: 22 sentinel chickens (3/10, 3/17, 3/24 x4, 3/31, 4/14, 4/28 x2, 5/19 x2, 5/27 x3, 6/2, 6/9 x2, 6/23, 6/30, 7/7, 7/21); 1 horse (5/8)
Sumter: 1 horse (9/8)
Suwannee: 2 dead birds (emus, onset 4/26); 1 alpaca (6/24)
Taylor: 1 horse (7/7)
Volusia: 10 horses (1/4, 1/26, 2/11, 2/26, 3/25, 3/28, 4/20, 5/26, 7/24, 7/28); 3 sentinel chickens (2/4 x2, 2/11)
Walton: 3 horses (6/1, 6/19, 8/5); 25 sentinel chickens (6/23 x2, 8/18, 9/8 x6, 9/15, 9/16 x2, 10/27, 11/3 x7, 11/4, 11/12, 11/13, 12/8 x2); 7 live wild birds (4 Cardinals 8/7, 8/14, 10/16 x2; 3 House Sparrows 8/21, 9/11, 9/15)
Washington: 9 horses (5/25, 6/6, 6/9, 6/22 x2, 6/23, 6/25, 7/2, 10/22)

Figure 1. EEEV veterinary and sentinel surveillance, Florida, 2008



Highlands J virus surveillance

Positive samples from 54 sentinel chickens were received from 15 counties. Date of first known antibody positive bleed (chickens) is shown in parentheses.

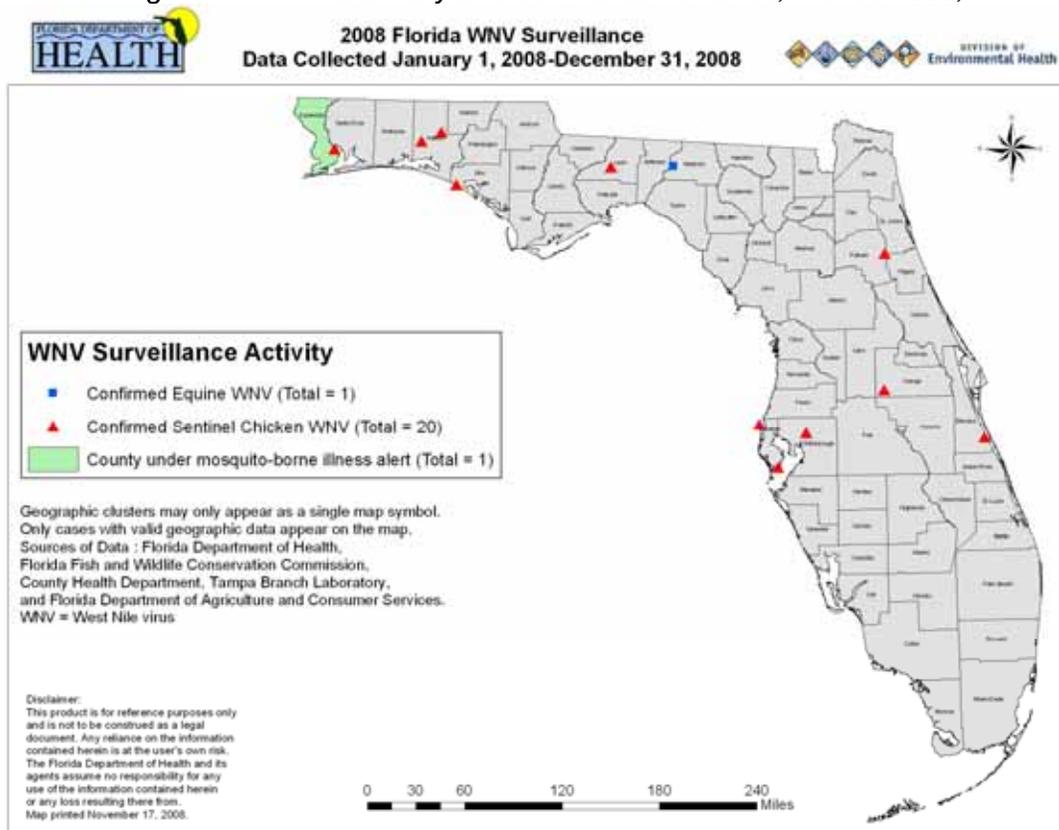
- Alachua: 1 sentinel chicken (9/2)
- Brevard: 1 sentinel chicken (8/15)
- Citrus: 1 sentinel chicken (4/21)
- Duval: 4 sentinel chickens (6/16, 8/25 x3)
- Escambia: 4 sentinel chickens (2/19, 3/3, 3/18, 6/17)
- Flagler: 1 sentinel chicken (8/4)
- Gulf: 1 sentinel chicken (2/18)
- Leon: 6 sentinel chickens (6/30, 7/8, 7/21, 8/25, 9/15, 10/20)
- Nassau: 5 sentinel chickens (6/16, 6/30, 8/11, 8/18, 8/25)
- Orange: 8 sentinel chickens (4/17, 6/12 x2, 8/18, 8/29 x2, 9/2, 12/26)
- Osceola: 2 sentinel chickens (6/12, 8/29)
- Putnam: 2 sentinel chickens (4/25, 5/16)
- St. Johns: 7 sentinel chickens (4/14, 5/19, 6/23 x2, 7/7, 7/28, 11/7)
- Volusia: 2 sentinel chickens (2/18, 7/28)
- Walton: 9 sentinel chickens (5/19, 5/29 x2, 6/11 x3, 6/16, 10/28, 11/3)

West Nile virus surveillance

WNV-positive samples from 20 sentinel chickens and 1 horse were received from 13 counties. Flavivirus-reactive samples were received from 3 live wild birds. It was not determined whether the wild bird samples were reactive to SLEV or WNV. Date of disease onset (horses) and date of first known antibody positive bleed (sentinels, live wild birds) is shown in parentheses.

Bay: 2 sentinel chickens (9/16, 9/23)
Brevard: 1 sentinel chicken (10/22)
Escambia: 3 sentinel chickens (9/29 x2, 10/13)
Hillsborough: 1 live wild bird (1 Vulture 2/28); 3 sentinel chickens (10/28 x3)
Leon: 5 sentinel chickens (8/18 x2, 8/25 x2, 9/2)
Madison: 1 horse (4/15)
Okaloosa: 1 live wild bird (1 Blue Jay 7/16)
Orange: 1 sentinel chicken (9/5)
Pinellas: 1 sentinel chicken (10/6)
Putnam: 1 sentinel chicken (3/20)
Santa Rosa: 1 live wild bird (1 House Finch 1/29)
Walton: 3 sentinel chickens (3/20, 8/27, 11/17)

Figure 2. WNV veterinary and sentinel surveillance, Florida 2008,



St. Louis Encephalitis virus surveillance

No activity in 2008.

Mosquito Surveillance

During 2008, 650 mosquito pools were received for testing from 15 counties. Three pools tested positive for EEEV, five pools tested positive for HJV, and one pool tested positive for a California serogroup virus.

Eastern Equine Encephalitis virus surveillance

Flagler: 1 mosquito pool (*Cs. melanura*, 3/19)

Volusia: 2 mosquito pools (*Cx. salinarius*, 2/13; *Cx. nigripalpus*, 2/13)

Highlands J virus surveillance

Flagler: 2 mosquito pools (*Cs. melanura*, 3/19, 5/7)

Volusia: 3 mosquito pools (*Cx. nigripalpus*, 2/22, 2/26, 3/28)

Bird Mortality Surveillance

During 2008, residents of 57 Florida counties reported dead birds to the website maintained by the Florida Fish and Wildlife Conservation Commission (www.myfwc.com/bird/). This resulted in 550 reports representing a total of 1,296 dead birds (53 crows, 63 jays, 75 raptors, and 1,105 others). In 2007, 1,050 reports representing a total of 4,571 birds were received from 64 counties. The DOH Bureau of Laboratories in Tampa accepts dead bird specimens for testing, as long as they are shipped in good condition. In 2008, 59 specimens from 15 counties were tested; one was positive for EEEV.

For more surveillance information, please see the DOH web site at:
<http://www.doh.state.fl.us/Environment/medicine/arboviral/index.htm> .

Acknowledgements and data sources: 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 Florida A&M University, John A. Mulrennan Sr., Public Health Entomology Research & Education Center. For more information, go to <http://www.pherec.org/DECS>, and click on "Arbovirus Ecology" to download the database, then the "Bird Serology" tab.