



Florida Arbovirus Surveillance Week 39: September 26 – October 2, 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 September 26-October 2, 2010, the following arboviral activity was recorded in Florida:

DENV activity: One new case of dengue associated with Key West was reported this week. In 2010, there have been 45 locally-acquired cases in Key West and one in Broward.

EEEV activity: Three sentinel chickens in Leon, Orange, and Putnam counties tested positive for antibodies to EEEV. In 2010, positive samples from four humans, 91 equines, 153 sentinel chickens, 34 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 from Martin County. Sixty-seven sentinel chickens in Alachua, Brevard, Citrus, Duval, Flagler, Hendry, Indian River, Lee, Leon, Manatee, Martin, Nassau, Orange, Palm Beach, Putnam, Seminole, St. Johns, St. Lucie, Volusia, and Walton counties tested positive for antibodies to WNV. In 2010, positive samples from seven humans, 16 equines, 247 sentinel chickens, and one live wild bird (flavivirus positive) have been received from 30 counties.

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

HJV activity: No HJV activity was reported this week. In 2010, positive samples from 63 sentinel chickens have been received from 13 counties.

Advisories/Alerts: Martin County issued a mosquito-borne illness advisory this week. Monroe, Hillsborough, Orange and Collier counties are also under mosquito-borne illness alerts and Walton, Volusia, Clay, Osceola, Miami-Dade, Glades, Polk, Lake, Jackson, Washington, Jefferson, Wakulla, Leon, Madison, Broward, Marion, Putnam, Palm Beach, Flagler, Duval, De Soto, and Hendry 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: Seven human cases of WNV have been reported in 2010 in Osceola, Orange (2), Collier (2), Broward, and Duval counties with onset in July (2), August (4), and September.

Dengue Acquired in Florida: In 2010, one case of dengue has been reported as acquired in Broward County and 45 cases of dengue have been reported as acquired in Key West (Monroe County). Of the Key West cases, 36 are Key West residents, eight are residents of other Florida counties, and one resides out of state. Onset dates ranged from March 17 to September 9, 2010.

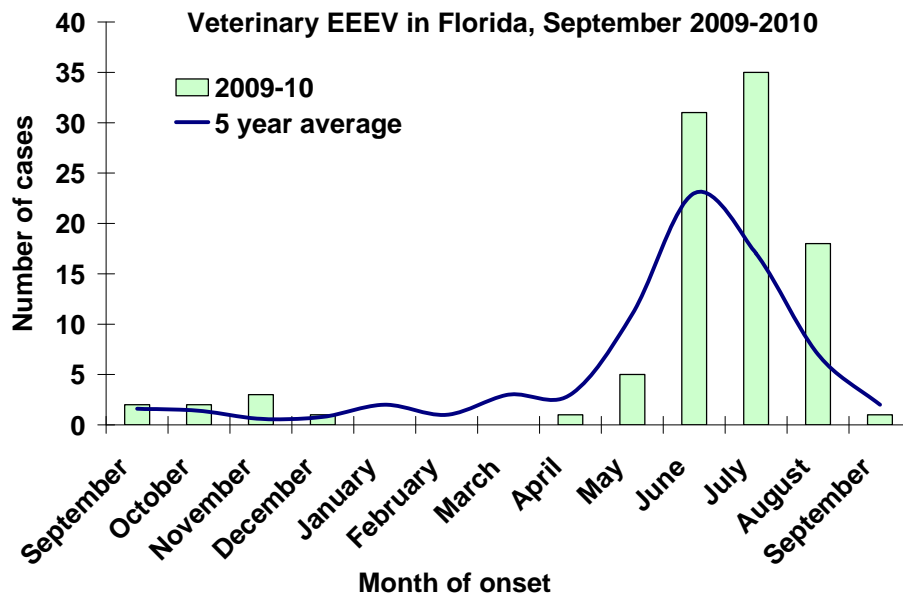
Imported Dengue: One hundred and eight cases of dengue with onset in 2010 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Brazil, Colombia (8), Costa Rica (4), Dominican Republic (12), Ecuador, El Salvador, Grenada (3), Guatemala (2), Haiti (5), Honduras (6), Jamaica (5), Martinique, Nicaragua (7), Philippines, Puerto Rico (32), 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 (2), Escambia, Flagler, Hendry, Hillsborough (7), Lake, Lee, Marion, Miami-Dade (37), Monroe, Orange (9), Osceola (4), Palm Beach (8), Pasco, Pinellas, Polk, Seminole (3), St. Lucie (2), and Volusia (3).

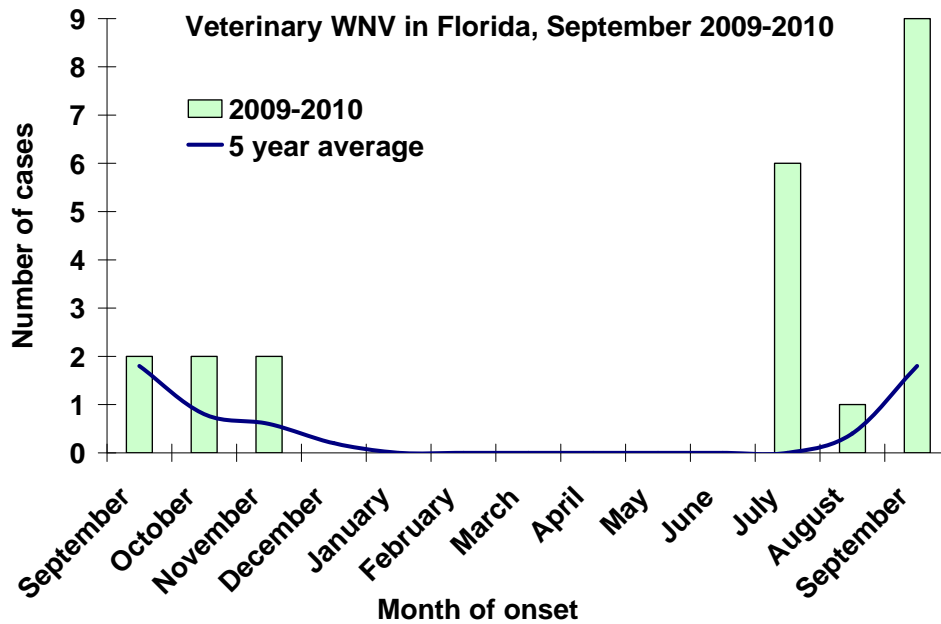
Imported Malaria: Ninety-two imported cases of malaria with onset in 2010 have been reported. Countries of origin were: Angola, Dominican Republic, Ghana (4), Guyana, Haiti (56), Honduras (3), India (7), Ivory Coast, Malawi (2), Nigeria (7), Philippines, South Africa, Togo, Uganda, West Africa, Zambia/South Africa, Africa, and unknown (2). Counties reporting cases were: Brevard (2), Broward (14), Charlotte, Citrus, Collier (4), Duval (4), Escambia (3), Hillsborough (4), Lake, Leon, Miami-Dade (18), Manatee (2), Orange (15), Osceola (3), Palm Beach (12), Pasco, Pinellas, Polk, Seminole, St. Lucie, Volusia, and Wakulla.

Veterinary Cases

One horse in Martin County tested positive for WNV. In 2010, 16 WNV positive horses and 91 EEEV positive horses have been reported.

| County | Onset Date | Species | Virus | Status | County YTD |
|--------|------------|---------|-------|------------|--------------|
| Martin | 09/16/2010 | Equine | WNV | Euthanized | 2 WNV, 1 EEE |



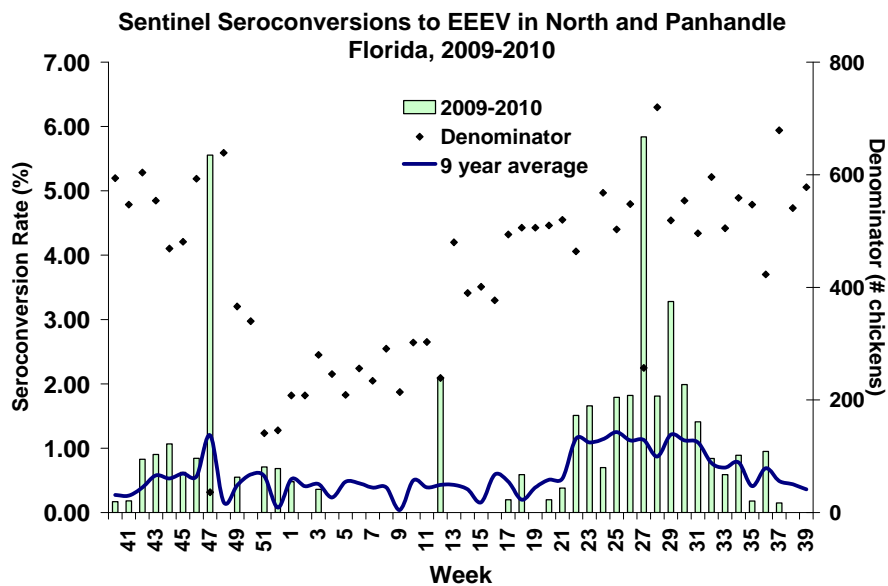


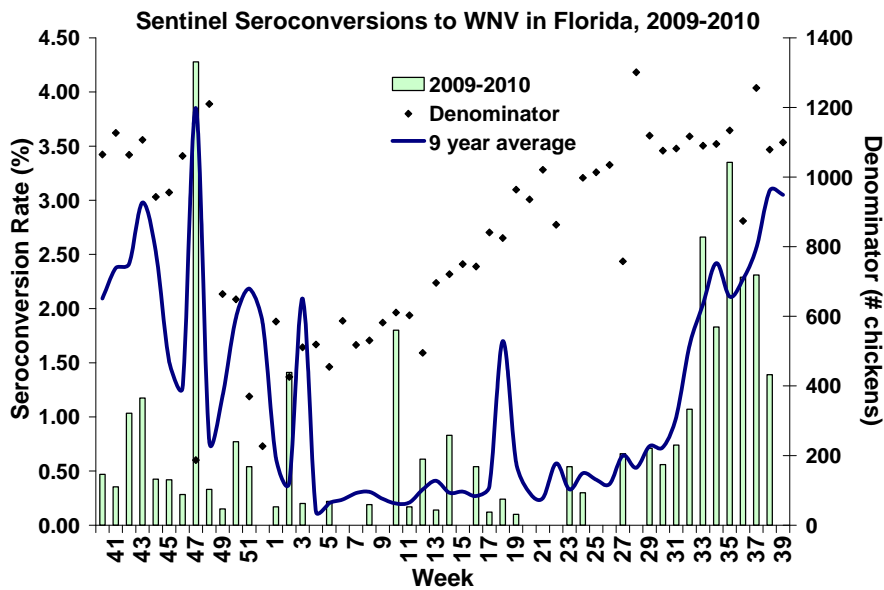
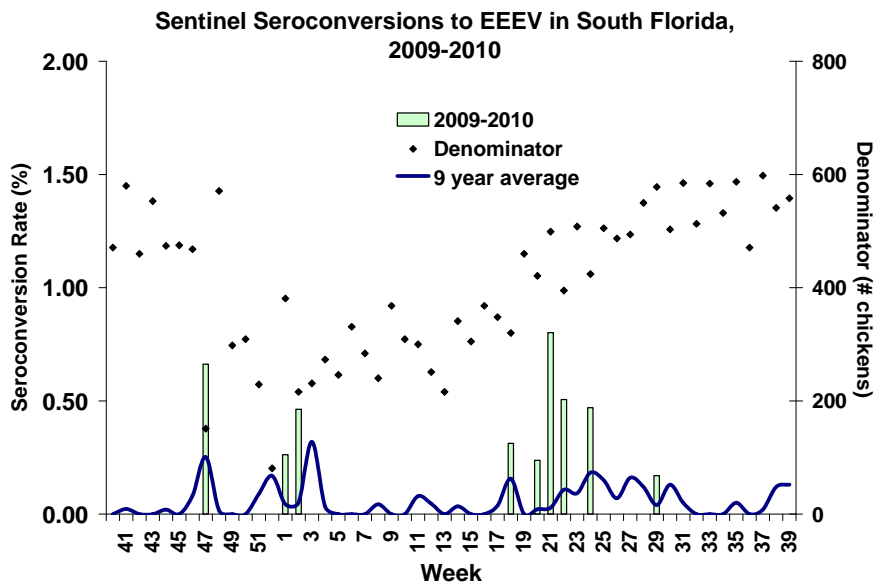
Sentinel Chickens

There were three seroconversions to EEE in sentinel chickens from Leon, Orange, and Putnam counties, 67 to WNV in Alachua, Brevard, Citrus, Duval, Flagler, Hendry, Indian River, Lee, Leon, Manatee, Martin, Nassau, Orange, Palm Beach, Putnam, Seminole, St. Johns, St. Lucie, Volusia, and Walton counties, and two to SLEV in Miami-Dade County 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 | 09/07/2010 | | 4.5 | | | 1 WNV | 4 WNV, 3 EEE |
| | 09/13/2010 | | 4.5 | | | 1 WNV | |
| Brevard | 09/17/2010 | | 3.9 | | | 2 WNV | 18 WNV, 1 EEE |
| Citrus | 09/20/2010 | | 3.0 | | | 2 WNV | 2 WNV, 5 EEE, 3 HJV |
| Duval | 09/13/2010 | | 4.0 | | | 1 WNV | 1 WNV, 5 EEE |
| Flagler | 09/13/2010 | | 15.4 | | | 2 WNV | 2 WNV, 17 EEE, 3 HJV |
| | 08/18/2010 | | 20.0 | | | 2 WNV | 8 WNV |
| Hendry | 08/31/2010 | | 75.0 | | | 6 WNV | |
| | 09/09/2010 | | 2.2 | | | 1 WNV | 11 WNV |
| Indian River | 09/16/2010 | | 4.9 | | | 2 WNV | |
| | 08/30/2010 | | 5.1 | | | 4 WNV | 22 WNV |
| Lee | 09/07/2010 | | 2.5 | | | 1 WNV | |
| | 09/13, | | 9.8 | | | 4 WNV | |
| | 09/14/2010 | | | | | | |
| Leon | 09/20/2010 | | 1.9 | | | 1 WNV | |
| | 09/07/2010 | | | 2.5 | | 1 EEE | 1 WNV, 7 EEE, 2 HJV |
| Manatee | 09/20/2010 | | 2.6 | | | 1 WNV | |
| | 09/13/2010 | | 1.5 | | | 1 WNV | 6 WNV |

| County | Collection Date | Seroconversion Rates (%) | | | | County Totals | |
|----------------|-----------------|--------------------------|------|------|-----|-----------------|------------------------|
| | | SLEV | WNV | EEEV | HJV | Week | YTD |
| | 09/20/2010 | | 3.0 | | | 2 WNV | |
| Martin | 09/10/2010 | | 5.3 | | | 1 WNV | 4 WNV, 2 EEE |
| | 09/16/2010 | | 5.3 | | | 1 WNV | |
| Miami-Dade | 08/23/2010 | 5.0 | | | | 1 SLEV | 2 SLEV, 2 EEE |
| | 09/20/2010 | 5.0 | | | | 1 SLEV | |
| Nassau | 09/20/2010 | | 11.8 | | | 4 WNV | 5 WNV, 6 EEE, 8 HJV |
| Orange | 08/30, | | 5.9 | | | 6 WNV | 30 WNV, 23 EEE, 22 HJV |
| | 09/02/2010 | | | | | | |
| | 09/07/2010 | | 2.1 | 1.0 | | 2 WNV, 1 EEE | |
| | 09/13, | | 3.0 | 1.0 | | 3 WNV, 1 EEE | |
| | 09/16/2010 | | | | | | |
| Palm Beach | 09/07/2010 | | 2.4 | | | 5 WNV | 30 WNV |
| | 09/13/2010 | | 1.3 | | | 3 WNV | |
| | 09/20/2010 | | 1.3 | | | 4 WNV | |
| Putnam | 09/09/2010 | | | 8.3 | | 1 EEE | 4 WNV, 6 EEE, 2 HJV |
| | 09/17/2010 | | 16.7 | | | 2 WNV | |
| Seminole | 09/16/2010 | | 6.3 | | | 1 WNV | 2 WNV, 1 EEE, 1 HJV |
| St. Johns | 09/07/2010 | | 1.8 | | | 1 WNV | 11 WNV, 3 EEE, 3 HJV |
| | 09/13/2010 | | 5.3 | | | 3 WNV | |
| St. Lucie | 09/10/2010 | | 8.3 | | | 2 WNV | 4 WNV |
| | 09/17/2010 | | 10.0 | | | 2 WNV | |
| Volusia | 09/07/2010 | | 13.0 | | | 3 WNV | 13 WNV, 16 EEE, 3 HJV |
| | 09/13/2010 | | 8.7 | | | 2 WNV | |
| | 09/20/2010 | | 4.3 | | | 1 WNV | |
| Walton (North) | 09/02/2010 | | 11.8 | | | 4 WNV | 50 WNV, 27 EEE, 7 HJV |





Live Wild Birds

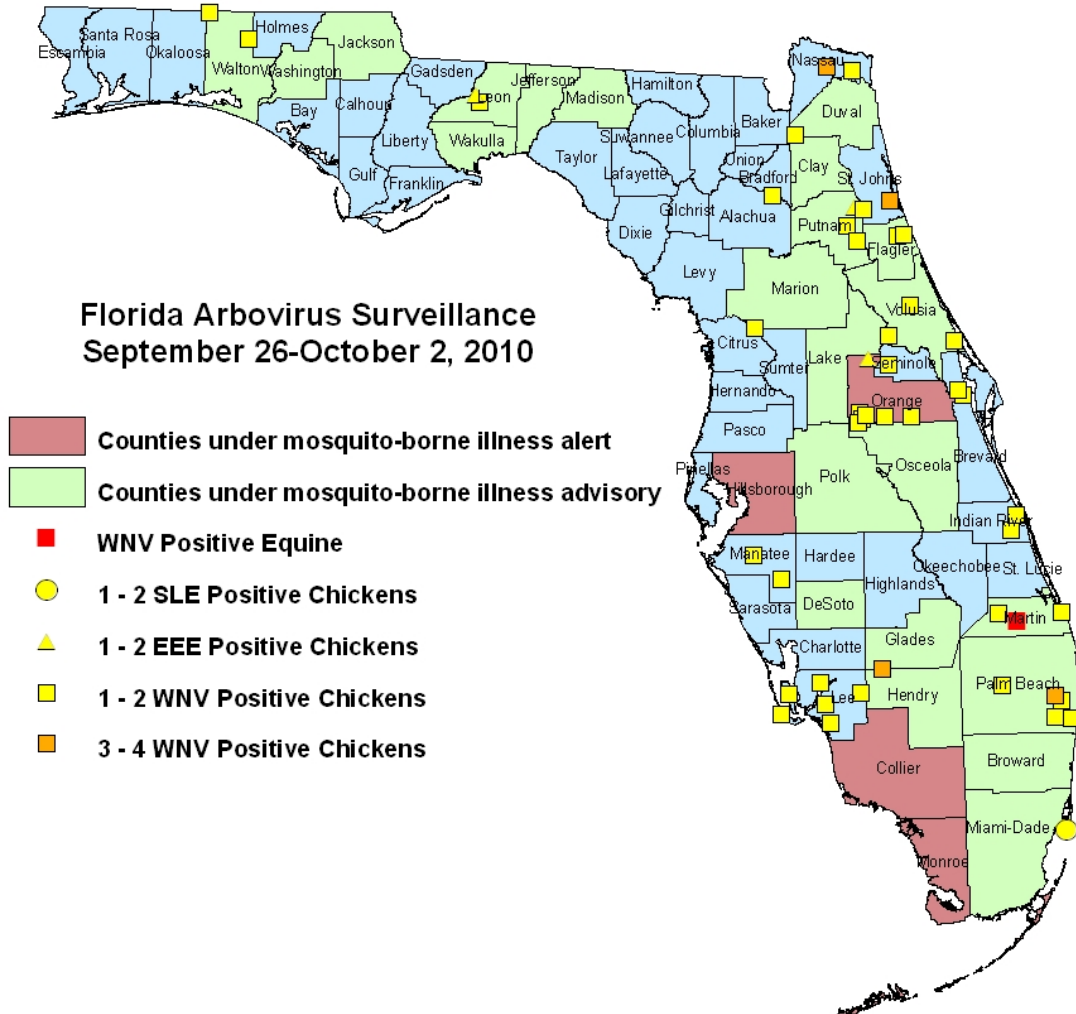
Out of 24 live wild birds collected from three counties on March 22-25, 2010, one blue jay tested positive for antibodies to EEEV.

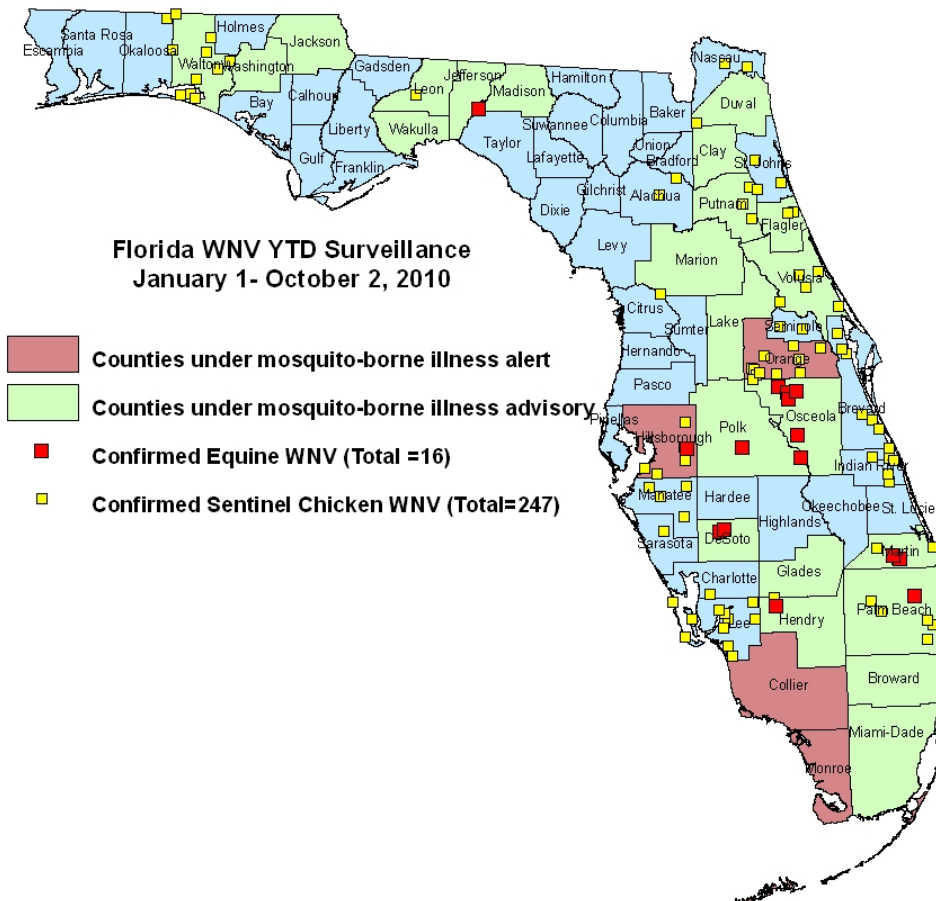
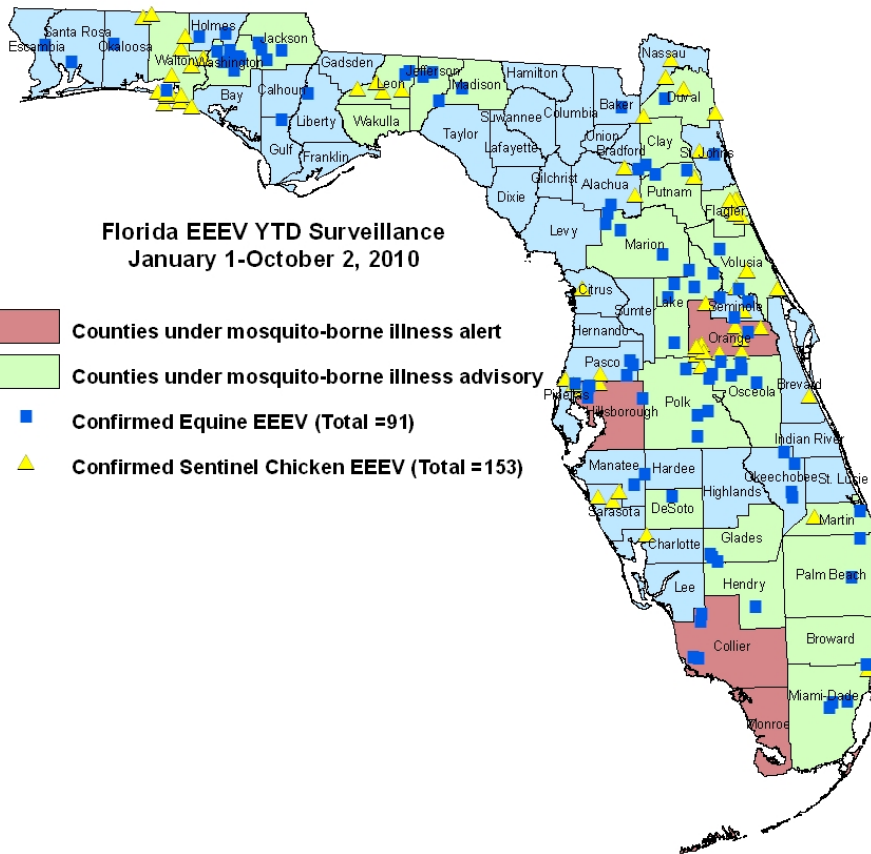
| County | Collection Date | EEEV | Flavi | Species | EEEV Rate | Flavi Rate | County YTD |
|------------|-----------------|------|-------|---------------------------|------------|------------|------------|
| Santa Rosa | 08/31/2010 | 2 | | 1 Blue jay, 1 Cardinal | 2 out of 8 | N/A | 15 EEE |
| | 09/14/2010 | 1 | | 1 Blue jay | 1 out of 7 | N/A | |
| Okaloosa | 09/16/2010 | 1 | | 1 Blue jay | 1 out of 6 | N/A | 12 EEE |

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, five reports representing five dead birds were received from four counties. One was identified as a crow; none were identified as jays or raptors. In 2010, 267 reports representing a total of 839 dead birds (47 crows, 12 jays, 44 raptors, 736 others) have been reported from 45 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: 4 sentinels (8/2, 8/16, 9/7, 9/13) EEE: 1 horse (7/21); 3 sentinels (7/16, 7/19, 8/2) |
| Baker | EEE: 1 horse (7/26) |
| Bradford | EEE: 1 horse (6/16) |
| Brevard | WNV: 18 sentinels (7/7, 7/21, 8/4, 8/11, 8/18, 8/20, 9/1, 9/3, 9/17) EEE: 1 sentinel (6/2) |
| Broward | DENV: 3 humans (1 acquired in Broward, 2 acquired in Key West) WNV: 1 human (August) |
| Charlotte | WNV: 1 setinel (8/27) |
| Citrus | WNV: 2 sentinels (9/20) 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: 2 horses (9/6, 9/10) EEE: 1 horse (8/23) |
| Duval | WNV: 1 human (September); 1 sentinel (9/13) EEE: 1 horse (8/18); 5 sentinels (6/21, 7/8, 7/21) |
| Escambia | EEE: 1 horse (8/16) |
| Flagler | WNV: 2 sentinels (9/13) EEE : 17 sentinels (3/22, 4/26, 5/3, 6/7, 6/21, 7/12, 7/19, 7/26, 8/2, 8/9); 3 mosquito pools (<i>Culiseta melanura</i> 4/27, 5/11, 6/15) HJV: 3 sentinels (6/14, 6/28, 8/16) |
| Glades | 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) ; 8 sentinels (8/18, 8/31) EEE : 1 horse (7/21) |
| Hillsborough | WNV : 1 horse (9/3) ; 14 sentinels (1/12, 1/19, 2/22, 3/9, 3/22, 4/20, 5/11, 6/15) 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) |
| Holmes | EEE: 2 horses (7/23, 8/9) |
| Indian River | WNV: 11 sentinels (7/22, 8/12, 8/19, 9/2, 9/9, 9/16) |
| 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: 22 sentinels (3/30, 4/20, 8/2, 8/9, 8/16, 8/24, 8/30, 9/7, 9/13, 9/14, 9/20) |
| Leon | DENV: 2 humans (acquired in Key West) WNV: 1 sentinel (9/20) EEE: 1 human (July); 2 horses (6/29, 8/5); 7 sentinels (6/1, 6/21, 8/2, 8/9, 8/16, 9/7) HJV: 2 sentinels (8/16, 8/23) |
| Liberty | EEE: 1 horse (7/11) |
| Madison | EEE: 2 horses (6/21, 7/3) |
| Manatee | WNV: 6 sentinels (8/30, 9/7, 9/13, 9/20) EEE: 1 horse (7/21) |
| Marion | EEE: 4 horses (5/7, 7/22, 8/3) |
| Martin | WNV: 2 horses (9/11, 9/16); 4 sentinels (8/13, 8/27, 9/10, 9/16) EEE: 1 horse (8/4); 2 sentinels (5/28) |
| Miami-Dade | DENV: 1 human (acquired in Key West) SLEV: 2 sentinels (8/23, 9/20) EEE: 4 horses (6/7, 6/17, 7/4); 2 sentinels (6/14) |
| Monroe | DENV: 36 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: 8 sentinels (6/28, 7/13, 7/19, 7/26, 8/16, 8/23) |
| Okaloosa | WNV: 1 live wild bird (flavivirus positive, blue jay 6/14) EEE : 1 horse (7/25); 12 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) |

| | |
|-------------------|--|
| Okeechobee | EEE : 4 horses (6/14, 7/1, 7/7, 7/17) |
| Orange | WNV : 2 humans (1 July, 1 August) ; 30 sentinels (6/14, 7/6, 7/19, 7/26, 8/2, 8/16, 8/23, 8/30, 9/2, 9/7, 9/16) 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) |
| 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: 1 horse (9/9); 30 sentinels (3/15, 8/2, 8/9, 8/17, 8/23, 8/30, 9/7, 9/13, 9/17, 9/20) 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) 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: 4 sentinels (8/27, 9/17) EEE: 2 horses (7/26, 8/8); 6 sentinels (6/4, 7/23, 7/30, 8/6, 9/9) HJV: 2 sentinels (5/14, 8/6) |
| St. Johns | WNV : 11 sentinels (8/16, 8/23, 8/30, 9/7, 9/13) 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: 4 sentinels (9/10, 9/17) |
| Santa Rosa | 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) |
| Sarasota | DENV: 2 humans (acquired in Key West) WNV: 1 sentinel (1/8) EEE: 3 sentinels (1/5, 1/11, 6/1) |
| Seminole | WNV : 2 sentinels (9/2, 9/16) EEE : 3 horses (6/26, 7/15, 8/14) ; 1 sentinel (7/2) HJV : 1 sentinel (7/27) |
| Volusia | WNV : 13 sentinels (7/19, 8/9, 8/16, 8/30, 9/7, 9/13, 9/20) 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) |
| Wakulla | EEE: 1 human (July) |
| Walton | 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); 45 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); 6 live wild birds (5 cardinals 6/24, 7/16, 7/22, 1 blue jay 6/24) HJV : 10 sentinels (3/22, 5/17, 6/23, 7/19, 8/2, 9/2) |
| 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.