



Florida Arbovirus Surveillance Week 39: September 22 - 28, 2013

Arbovirus surveillance in Florida includes endemic mosquito-borne viruses such as 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 September 22 - 28, 2013 the following arboviral activity was recorded in Florida:

WNV activity: One human case of WNV illness has been reported this week in Nassau County. One horse with WNV infection was reported this week in Lake County. Seventeen sentinel chickens tested positive this week for antibodies to WNV in Leon, Nassau, Putnam and Walton counties. In 2013, positive samples from two human, three equines and 112 sentinel chickens have been received from 16 counties.

EEEV activity: No human cases of EEE were reported this week. One horse with EEEV infection was reported this week in Marion County. One sentinel chicken tested positive for antibodies to EEEV this week in Putnam County. In 2013, positive samples from two humans, four birds, 33 equines, and 141 sentinel chickens have been received from 28 counties.

DENV activity: No cases of locally acquired dengue were reported this week. In 2013, a total of 21 cases of locally acquired dengue have been reported in 19 Florida residents and two out-of-state-residents. Exposures occurred in two counties, Martin (20) or Miami-Dade (1).

SLEV activity: Eight sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Lee, Manatee, and Palm Beach Counties. In 2013, 17 positive samples have been received from seven counties.

HJV activity: Four sentinel chickens tested positive for antibodies to HJV this week in Flagler, Orange, Putnam and St. Johns Counties. In 2013, 32 positive samples have been received from ten counties.

Advisories/Alerts: Bradford, Duval, Gilchrist, Hillsborough, Levy, Marion, Miami-Dade, Nassau and St. Lucie counties are currently under a mosquito-borne illness advisory. Martin County is currently under a mosquito-borne illness alert. No other counties are currently under mosquito-borne illness advisory or alert.

2013 Human Case Summary*

WNV infection Acquired in Florida: Two human cases of WNV illness with onset in August (1) and September (1) has been reported in 2013 in Duval (1) and Nassau (1) Counties. One asymptomatic positive blood donor was identified in August. The donor is a resident of Florida and has outdoor exposure in multiple North-East Florida counties.

EEEV Infection Acquired in Florida: Two human cases of EEE with onset in January (1) and March (1) have been reported in 2013 in Levy (1) and Hillsborough (1) County residents.

Dengue Infection Acquired in Florida: In 2013, a total of 21 cases of locally acquired dengue have been reported.

Twenty cases of dengue have been reported as acquired in Martin County with onsets in June (1), July (4), August (14), and September (1) 2013. Of these 20 cases, thirteen are residents of Martin County; four are residents of St. Lucie County; one resident of Palm Beach County; and two are out-of-state visitors.

One case of dengue has been reported as acquired in Miami-Dade County by a Miami-Dade resident with onset in August, 2013.

Imported Dengue: Seventy-five cases of dengue with onset in 2013 have been reported in individuals with travel history to a dengue endemic country in the two weeks prior to onset. Countries of origin were: Angola, Bangladesh (2), Barbados, Bolivia, Brazil (3), the Caribbean, Columbia (4), Costa Rica (3), Dominica, Dominican Republic (6), Haiti (2), Honduras, Indonesia, Jamaica (4), Nicaragua, Nigeria, Panama, Philippines (2), Puerto Rico (37) and Saint Martin (2). Counties reporting cases were: Alachua, Brevard, Broward (8), Clay, Duval, Indian River, Lake, Lee, Miami-Dade (23), Nassau, Orange (12), Osceola (5), Palm Beach (8), Pasco, Pinellas, Santa Rosa, Seminole (3), St. Lucie (2) and Volusia (3). Nine of the cases were reported in non-Florida residents.

In 2013, 60 of the 96 cases of dengue reported in Florida have been serotyped by PCR. Additional serotyping and strain typing are being conducted.

| | # of cases per serotype – 2013 |
|---------------|---------------------------------------|
| DENV-1 | 45 |
| DENV-2 | 1 |
| DENV-3 | 3 |
| DENV-4 | 11 |
| | 60 |

Imported Malaria: Thirty-three cases of malaria with onset in 2013 have been reported. Countries of origin were: Benin, Chad, Democratic Republic of the Congo, Equatorial Guinea, Guinea, Ghana (3), Guyana (6), Haiti (5), India (2), Kenya, Liberia, Nigeria (3), Peru, Sierra Leone (2), Solomon Islands, Uganda (2), and undetermined African country. Counties reporting cases were: Alachua, Broward, Duval, Hillsborough (5), Lake, Lee (2), Miami-Dade (7), Orange (7), Palm Beach (5), Pinellas and Seminole (2). Two of the cases were reported in non-Florida residents

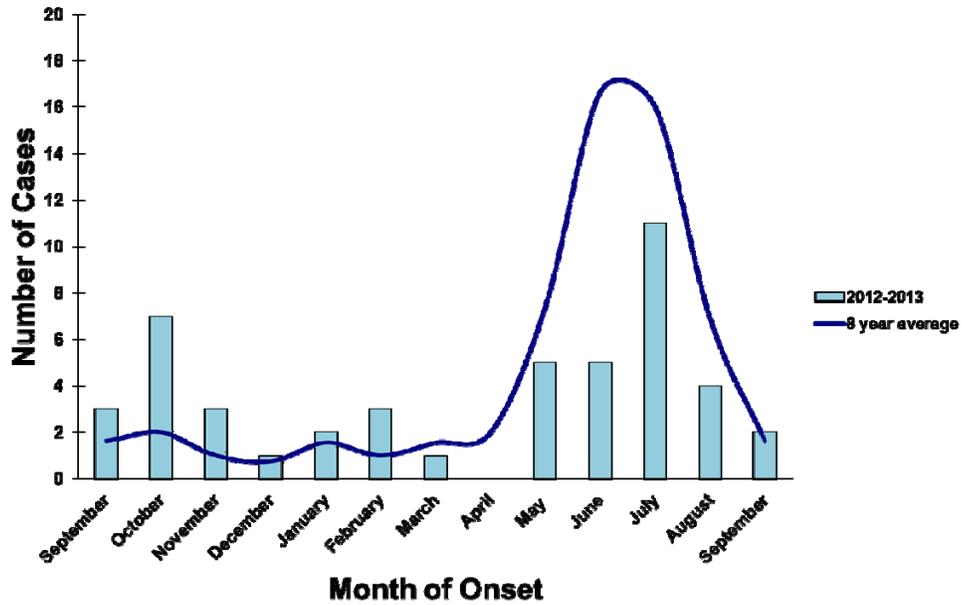
Twenty-four cases (73%) were diagnosed with *Plasmodium falciparum*, seven (21%) with *Plasmodium vivax*, one with *Plasmodium ovale* (3%), and one mixed *Plasmodium falciparum*/*Plasmodium vivax* (3%).

Veterinary Cases

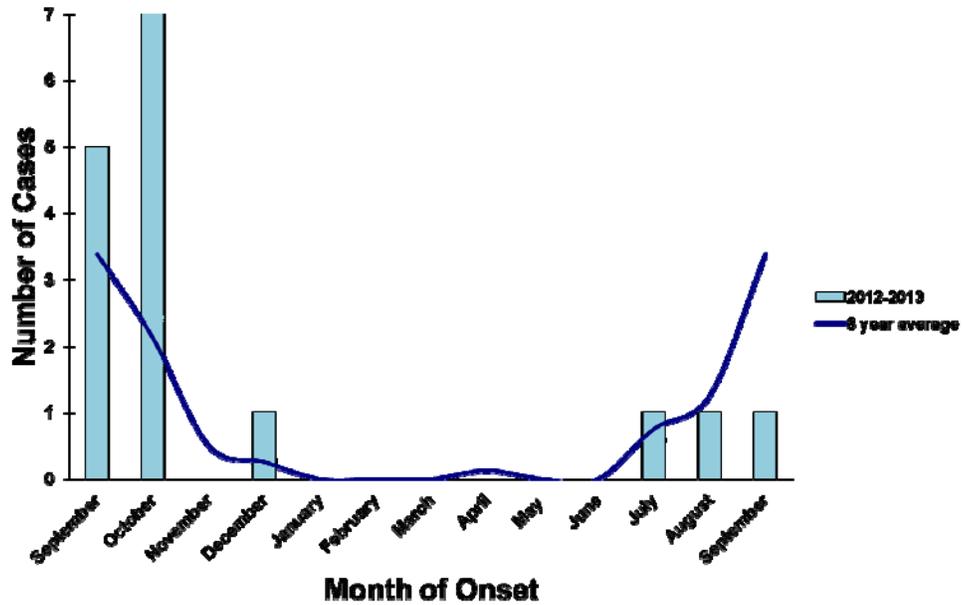
One horse with EEEV infection was reported this week in Marion County. One horse with WNV infection was reported this week in Lake County.

| County | Onset Date | Species | Virus | Status | County YTD |
|---------------|-------------------|----------------|--------------|---------------|-------------------|
| Marion | 9/10/13 | Equine | EEEV | Euthanized | 6 EEEV |
| Lake | 9/16/13 | Equine | WNV | Euthanized | 1 WNV, 1 EEEV |

Veterinary EEE in Florida, September 2012-2013



Veterinary WNV Disease In Florida, September 2012-2013

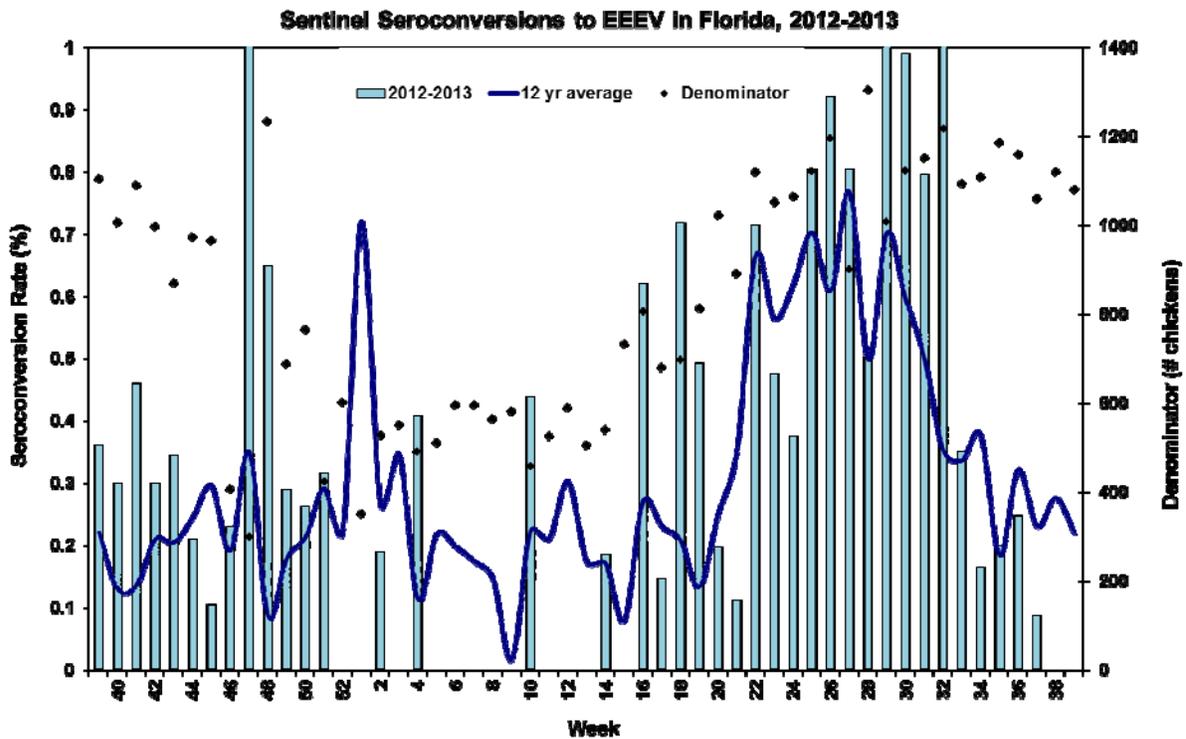


Sentinel Chickens

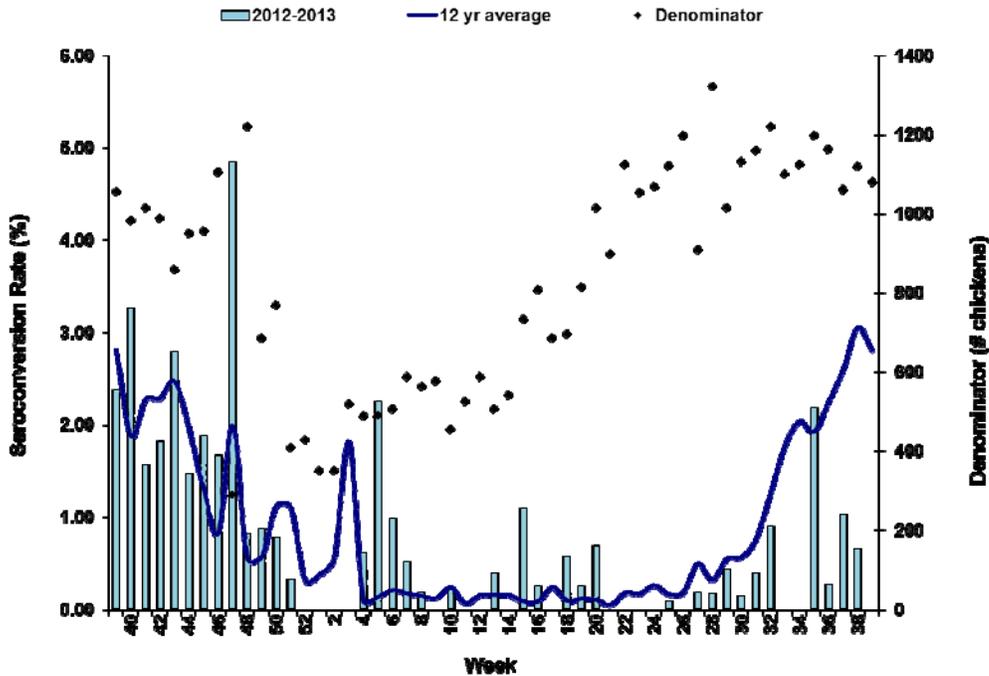
The table below is for the reporting of confirmatory laboratory results from this week. Some of the samples were collected at earlier dates. The date of collection is recorded for samples collected on that day along with the total number of positives and the corresponding seroconversion rate for the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

Seventeen sentinel chickens tested positive this week for antibodies to WNV in Leon, Nassau, Putnam and Walton counties. One sentinel chicken tested positive for antibodies to EEEV this week in Putnam County. Eight sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Lee, Manatee, and Palm Beach Counties. Four sentinel chickens tested positive for antibodies to HJV this week in Flagler, Orange, Putnam and St. Johns Counties.

| County | Collection Date | Seroconversion Rates (%) | | | | County Totals | |
|--------------|-----------------|--------------------------|-------|------|------|----------------------|-------------------------|
| | | SLEV | WNV | EEEV | HJV | Collection Week | YTD |
| Flagler | 09/03/13 | | | | 9.09 | 1 HJV | 5 EEEV, 1 WNV, 5 HJV |
| Hillsborough | 09/17/13 | 3.53 | | | | 3 SLEV | 6 SLEV |
| Lee | 09/16/13 | 2.50 | | | | 2 SLEV | 4 SLEV |
| Leon | 09/17/13 | | 9.52 | | | 4 WNV | 6 EEEV, 5 WNV |
| Manatee | 09/17/13 | 1.47 | | | | 1 SLEV | 1 SLEV |
| Nassau | 09/13/13 | | 15.15 | | | 5 WNV | |
| | 09/16/13 | | 6.06 | | | 2 WNV | 12 EEEV, 22 WNV, 3 HJV |
| Orange | 09/05/13 | | | | 0.91 | 1 HJV | 22 EEEV, 1 HJV |
| | 9/16, | | | | | 2 SLEV | |
| Palm Beach | 9/17/2013 | 11.11 | | | | 2 SLEV | 3 SLEV |
| Putnam | 09/10/13 | | | 6.25 | 6.25 | 1 EEEV, 1 HJV | |
| | 09/17/13 | | 9.52 | | | 2 WNV | 9 EEEV, 2 WNV, 1 HJV |
| St. Johns | | | | | | 1 HJV, 2 EEEV, 1 WNV | |
| | 09/03/13 | | | | 1.85 | | 24 EEEV, 2 WNV, 4 HJV |
| Walton | 09/11/13 | | 4.72 | | | 5 WNV | 50 EEEV, 57 WNV, 11 HJV |



Sentinel Seroconversions to WNV in Florida, 2012-2013



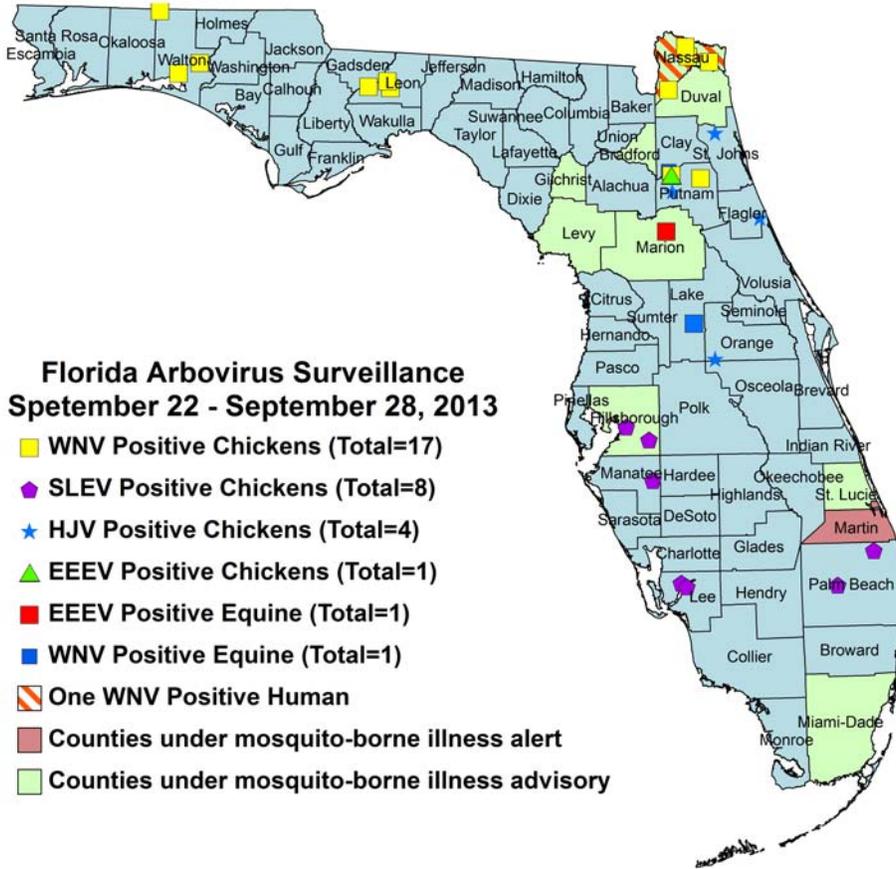
Dead Birds

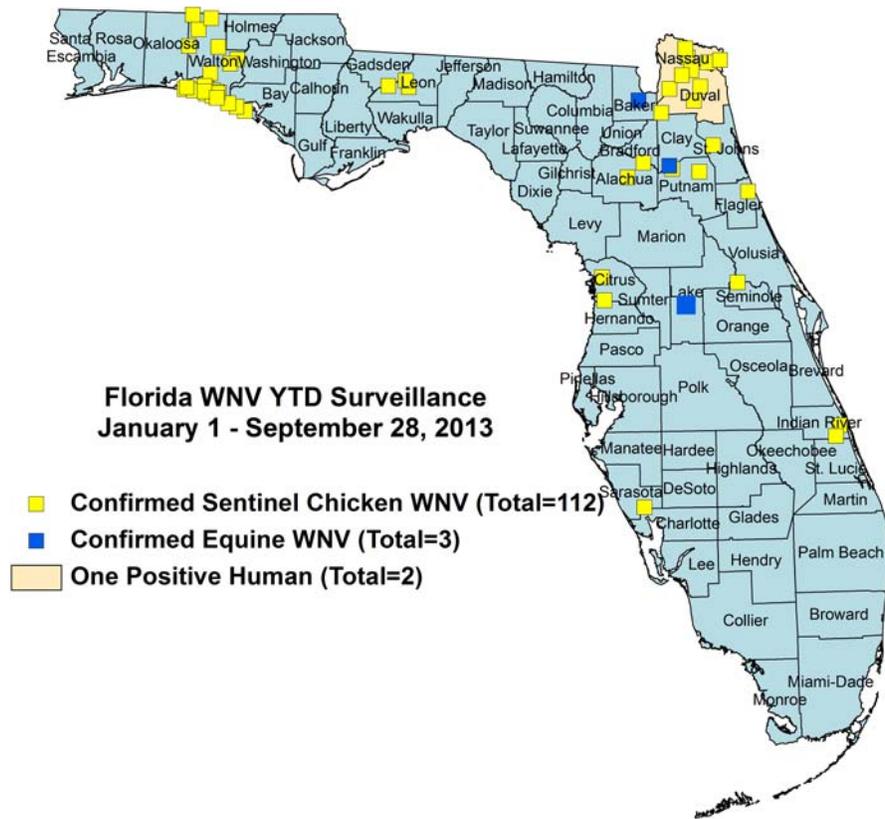
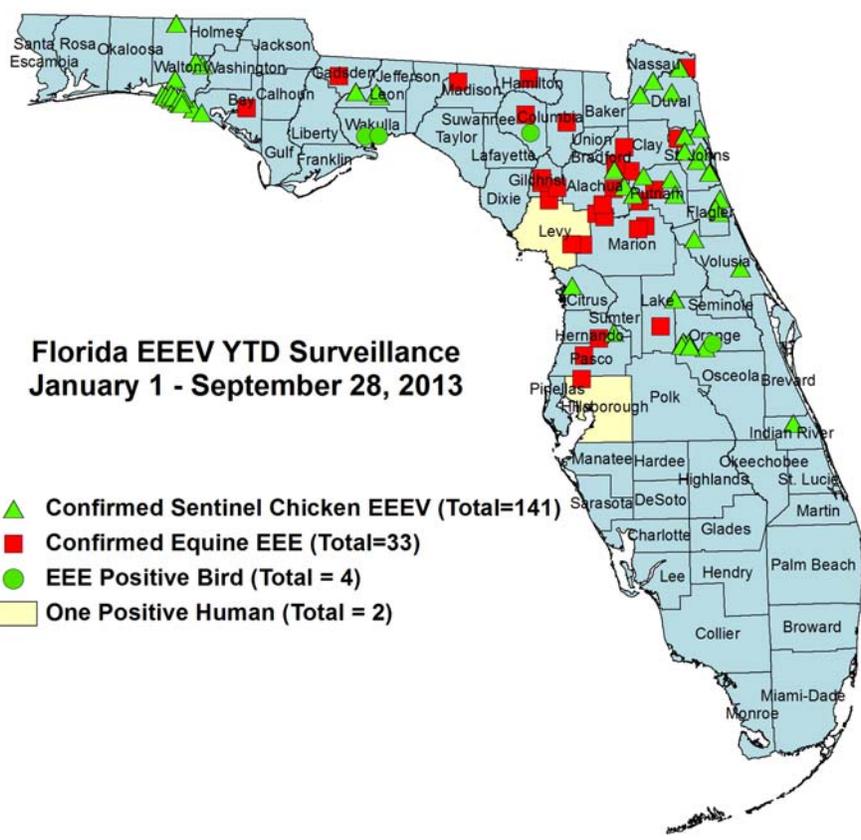
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 9 reports representing 21 dead birds, including 1 crow, 1 jay and 1 raptor were received from 9 counties.

In 2013, 560 reports representing a total of 1806 dead birds (23 crow, 20 jays, 108 raptors, 36 doves) were received from 49 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/

| County | Total Dead Birds | Crows | Jays | Raptors | Dove |
|-----------|------------------|-------|------|---------|------|
| Alachua | 1 | 0 | 0 | 0 | 0 |
| Brevard | 1 | 0 | 0 | 1 | 0 |
| Collier | 12 | 0 | 0 | 0 | 0 |
| Duval | 1 | 0 | 0 | 0 | 0 |
| Escambia | 2 | 0 | 1 | 0 | 0 |
| Gilchrist | 1 | 1 | 0 | 0 | 0 |
| Osceola | 1 | 0 | 0 | 0 | 0 |
| Sarasota | 1 | 0 | 0 | 0 | 0 |
| Volusia | 1 | 0 | 0 | 0 | 0 |

Maps





2013 Arbovirus Activity by County

| County | Arbovirus Activity |
|---------------------|--|
| Alachua | EEEV: 2 horses (2/13, 7/11) ; 5 sentinels (6/17, 6/24, 7/15, 8/5) WNV: 2 sentinels (7/1, 8/19) |
| Baker | WNV: 1 horse (7/9) |
| Bay | EEEV: 1 horse (8/21) 1 sentinel (5/21) WNV: 3 sentinels (5/7, 8/26) HJV: 2 sentinels (5/7, 5/28) |
| Bradford | EEEV: 2 horses (5/27, 5/30) |
| Citrus | EEEV: 1 sentinel (4/15) WNV: 3 sentinels (1/21, 1/28) SLEV: 1 sentinel (1/21) HJV: 2 sentinels (3/25, 4/2) |
| Clay | EEEV: 1 horse (7/17) WNV: 1 horse (8/7) |
| Columbia | EEEV: 1 horse (5/4) |
| Duval | EEEV: 1 sentinel (8/22) WNV: 1 Human (August), 12 sentinels (7/1, 7/15, 7/29, 8/26, 8/28, 9/3, 9/10) HJV: 2 sentinels (6/17, 7/8) |
| Flagler | EEEV: 5 sentinels (4/22, 6/24, 7/22, 7/29) WNV: 1 sentinel (8/19) HJV: 5 sentinels (6/17, 7/29, 8/5, 9/3) |
| Gadsden | EEEV: 1 horse (9/3) |
| Gilchrist | EEEV: 4 horses* (2/6, 6/28, 6/29) |
| Hamilton | EEEV: 1 horse (5/30) |
| Hernando | EEEV: 1 horse (6/27) ; 1 sentinel (6/10) |
| Hillsborough | EEEV: 1 human (March), 1 horse (7/20) SLEV: 6 sentinels (9/3, 9/17) |
| Indian River | EEEV: 2 sentinel (5/9,8/15) WNV: 2 sentinels (7/10, 7/31) |
| Lake | EEEV: 1 horse (1/30) WNV: 1 horse (9/16) |
| Lee | SLEV: 4 sentinels (9/2, 9/16) |
| Leon | EEEV: 6 sentinels (6/3, 8/5, 8/12, 8/20) WNV : 5 sentinels (8/27, 9/17) |
| Levy | EEEV : 1 human (January) ; 3 horses (1/7, 7/21, 7/27) |
| Madison | EEEV : 1 horse (2/16) |
| Manatee | SLEV: 1 sentinel (9/17) |
| Marion | EEEV : 6 horses (7/11, 7/12, 7/18, 7/31, 8/7, 9/10) |
| Martin | Dengue : 13 humans (June, July, August, September) |
| Miami-Dade | Dengue : 1 human (August) |
| Nassau | EEEV : 1 horse (7/8) ; 12 sentinels (6/8, 6/15, 6/28, 7/1, 7/5, 7/12, 7/19, 7/26, 8/5, 8/10) WNV : 1 Human (September) ; 22 sentinels (7/19, 7/26, 8/3, 8/5, 8/23, 9/9, 9/13, 9/16) HJV : 3 sentinels (6/28, 7/29) |
| Orange | EEEV : 22 sentinels (5/2, 5/30, 6/6, 6/13, 6/20, 6/24, 6/27, 7/1, 7/3, 7/11, 7/15, 7/23, 8/12, 8/22, 8/26) ; 1 bird (1/1) HJV : 1 sentinel (9/5) |
| Palm Beach | SLEV : 3 sentinels (9/3, 9/16, 9/17) Dengue : 1 human with exposure in Martin (August) |
| Pasco | EEEV : 1 horse (7/16) |
| Polk | SLEV : 1 sentinel (9/9) |
| Putnam | EEEV : 2 horses (6/26, 8/8) ; 9 sentinels (7/16, 7/23, 7/30, 8/6, 9/10) WNV : 2 sentinels (9/17) HJV : 1 sentinel (9/10) |
| Sarasota | WNV : 1 sentinel (5/3) |

| County | Arbovirus Activity |
|------------------|--|
| | SLEV : 1 sentinel (4/5) |
| Seminole | WNV : 1 sentinel (9/10) HJV : 1 sentinel (5/7) |
| St. Johns | EEEV : 1 horse (3/1) ; 24 sentinels (4/8, 5/6, 5/28, 6/3, 6/10, 6/17, 6/24, 7/22, 7/29, 8/5, 8/12, 8/26, 9/3) WNV : 1 sentinel (9/3) HJV : 4 sentinels (6/3, 6/17, 7/1, 9/3) |
| St. Lucie | Dengue : 4 humans with exposure in Martin (July, August) |
| Suwannee | EEEV : 1 horse (8/9), 1 bird (8/11) |
| Volusia | EEEV : 2 sentinel (7/15, 9/3) |
| Wakulla | EEEV : 2 birds (4/8) |
| Walton | EEEV : 50 sentinels (1/7, 2/26, 3/25, 4/15, 4/29, 4/30, 5/6, 5/13, 5/28, 6/17, 6/24, 7/1, 7/8, 7/23, 7/30, 8/5, 8/6, 8/19, 8/26, 8/27) WNV : 57 sentinels (1/7, 1/14, 1/15, 1/23, 1/28, 2/4, 2/20, 3/11, 4/8, 4/9, 4/15, 4/29, 4/30, 5/7, 5/13, 5/14, 6/17, 7/8, 8/6, 8/19, 8/26, 9/3, 9/11) HJV : 11 sentinels (5/13, 6/17, 7/1, 7/8, 7/29, 8/20) |

*The equine listed as Gilchrist/Columbia for 5/29/13 had exposure in both counties during the 2 weeks prior to onset and is not listed in the table above.

Acknowledgements and Data Sources

Contributors: Stephanie Moody-Geissler, MPH, Shaiasia Itwaru-Womack, Danielle Stanek, DVM, and Carina Blackmore, DVM, Ph.D., DOH Bureau of Epidemiology; Lea Heberlein-Larson and Valerie Mock, DOH Bureau of Public Health 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. Activity is mapped by county of exposure rather than county of residence. 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

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.