



## Florida Arbovirus Surveillance Week 40: September 29 – October 5, 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 29 – October 5, 2013 the following arboviral activity was recorded in Florida:

**WNV activity:** No human cases of WNV illness have been reported this week. Two horses with WNV infection was reported this week in Jackson and Columbia Counties. Twenty six sentinel chickens tested positive this week for antibodies to WNV in Alachua, Duval, Flagler, Leon, Manatee, Nassau, Putnam, Sarasota, St. Johns, and Walton counties. In 2013, positive samples from two human, five equines and 138 sentinel chickens have been received from 19 counties.

**EEEV activity:** No human cases of EEE were reported this week. No horses with EEEV infection was reported this week. Two sentinel chickens tested positive for antibodies to EEEV this week in Orange County. In 2013, positive samples from two humans, four birds, 33 equines, and 143 sentinel chickens have been received from 28 counties.

**DENV activity:** One case of locally acquired dengue was reported this week. In 2013, a total of 22 cases of locally acquired dengue have been reported in 20 Florida residents and two out-of-state-residents. Exposures occurred in two counties, Martin (21) or Miami-Dade (1).

**SLEV activity:** Eight sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Manatee, Martin, and Sarasota Counties. In 2013, 25 positive samples have been received from eight counties.

**HJV activity:** One sentinel chicken tested positive for antibodies to HJV this week in Orange County. In 2013, 33 positive samples have been received from 10 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 22 cases of locally acquired dengue have been reported.

Twenty one cases of dengue have been reported as acquired in Martin County with onsets in June (2), July (4), August (14), and September (1) 2013. Of these 20 cases, fourteen 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:** Eighty-eight 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 (4), Dominica, Dominican Republic (9), Haiti (3), Honduras (2), India, Indonesia, Jamaica (4), Nicaragua, Nigeria (2), Panama, Philippines (2), Puerto Rico (40), Saint Martin (2), and Venezuela. Counties reporting cases were: Alachua, Brevard, Broward (8), Clay, Duval (3), Hillsborough, Indian River, Lake, Lee, Miami-Dade (34), 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, 69 of the 110 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	50
DENV-2	1
DENV-3	3
DENV-4	15
	<b>69</b>

**Imported Malaria:** Forty-one cases of malaria with onset in 2013 have been reported. Countries of origin were: Benin, Chad (2), Democratic Republic of the Congo, Equatorial Guinea, Guinea (2), Ghana (3), Guyana (6), Haiti (6), India (2), Kenya (2), Liberia, Nigeria (3), Peru, Sierra Leone (2), Solomon Islands, South Sudan, Sudan (2), Uganda (2), and undetermined African country. Counties reporting cases were: Alachua (2), Broward, Duval (3), Hillsborough (6), Lake, Lee (2), Miami-Dade (9), Orange (7), Osceola (2), Palm Beach (5), Pinellas and Seminole (2). Two of the cases were reported in non-Florida residents

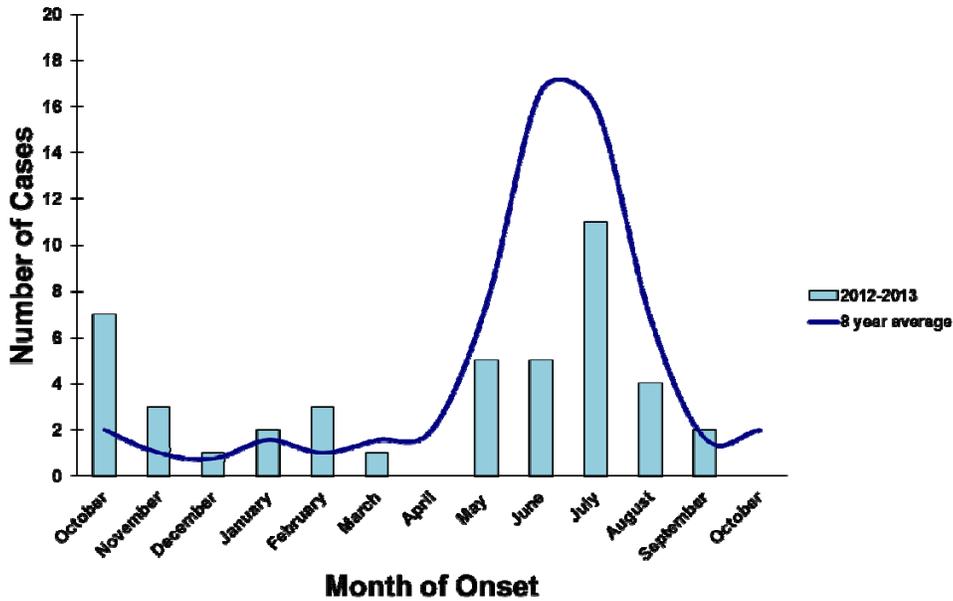
Thirty-two cases (78%) were diagnosed with *Plasmodium falciparum*, seven (17%) with *Plasmodium vivax*, one with *Plasmodium ovale* (2%), and one mixed *Plasmodium falciparum/ Plasmodium vivax* (2%).

### Veterinary Cases

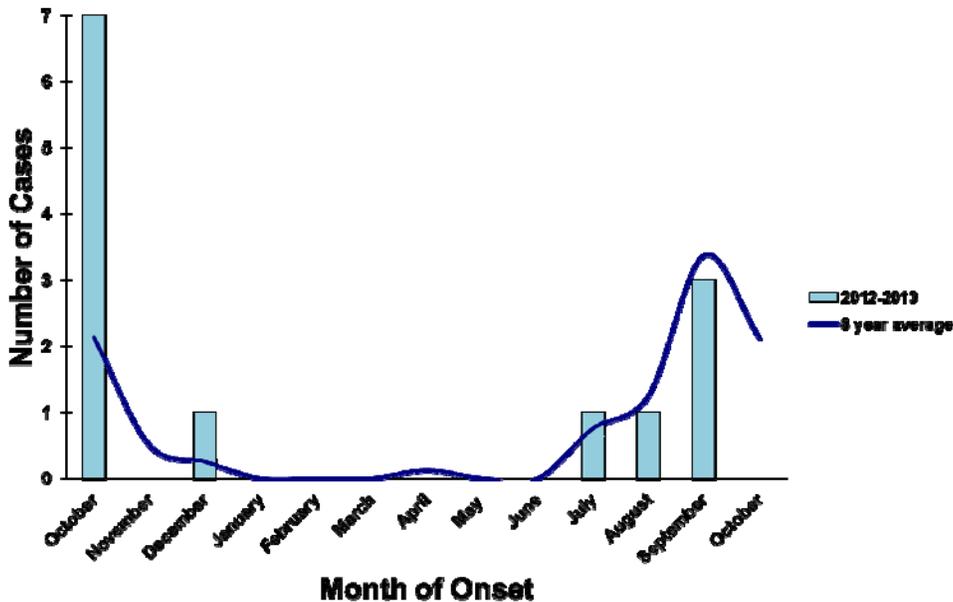
Two horses with WNV infection were reported this week in Columbia and Jackson Counties.

County	Onset Date	Species	Virus	Status	County YTD
Columbia	9/9/13	Equine	WNV	Recovered	1 EEEV, 1 WNV
Jackson	9/24/13	Equine	WNV	Recovered	1 WNV

**Veterinary EEE in Florida, October 2012-2013**



**Veterinary WNV Disease In Florida, October 2012-2013**

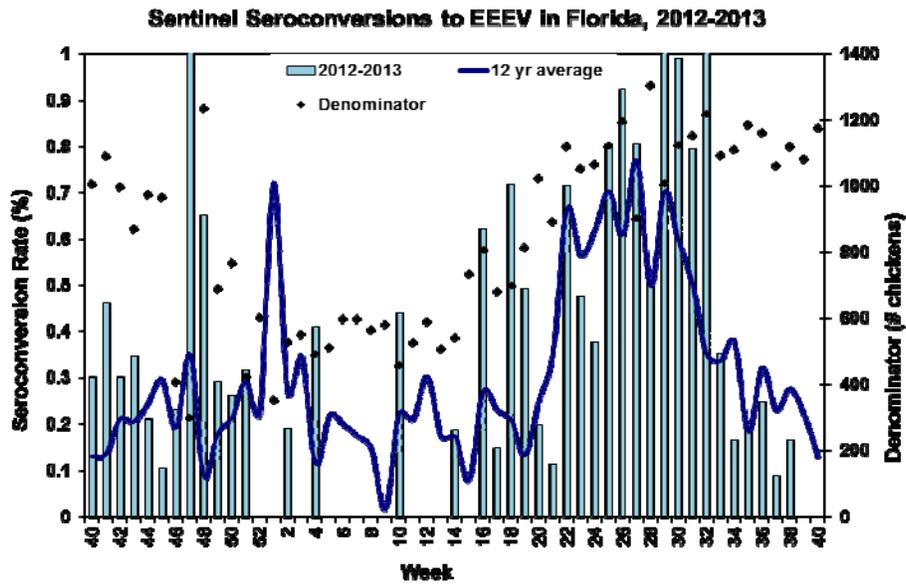


**Sentinel Chickens**

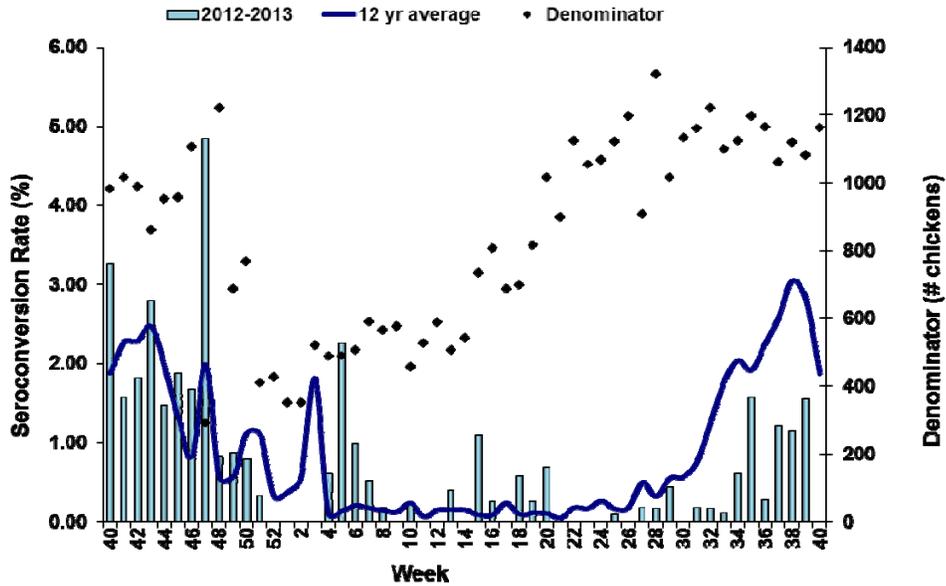
The table below is for the reporting of confirmatory laboratory results from this week. Some of the samples were collected at earlier dates. The date of collection is recorded for samples collected on that day along with the total number of positives and the corresponding seroconversion rate for the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

Twenty six sentinel chickens tested positive this week for antibodies to WNV in Alachua, Duval, Flagler, Leon, Manatee, Nassau, Putnam, Sarasota, St. Johns, and Walton counties. Two sentinel chickens tested positive for antibodies to EEEV this week in Orange County. Eight sentinel chickens tested positive for antibodies to SLEV this week in Hillsborough, Manatee, Martin, and Sarasota Counties. One sentinel chicken tested positive for antibodies to HJV this week in Orange County.

County	Collection Date	Seroconversion Rates (%)				County Totals	
		SLEV	WNV	EEEV	HJV	Collection Week	YTD
Alachua	09/16/13		6.25			1 WNV	5 EEEV, 3 WNV
Duval	09/23/13		8.33			2 WNV	1 EEEV, 14 WNV, 2 HJV
Flagler	09/23/13		8.33			1 WNV	5 EEEV, 2 WNV, 5 HJV
Hillsborough	09/25/13	3.70				3 SLEV	9 SLEV
Leon	09/23/13		2.38			1 WNV	6 EEEV, 6 WNV
Manatee	09/24/13	4.76	4.76			1 WNV, 1 SLEV	1 WNV, 2 SLEV
Martin	09/20/13	14.29				3 SLEV	3 SLEV
Nassau	08/30/13		3.03			1 WNV	12 EEEV, 29 WNV, 3 HJV
	09/09/13		18.18			6 WNV	
	09/20/13		15.15			5 WNV	
	09/23/13		5.88			2 WNV	
Orange	09/16/13			1.82		2 EEE	24 EEEV, 2 HJV
	09/12/13				0.89	1 HJV	
Putnam	09/24/13		11.76			2 WNV	9 EEEV, 4 WNV, 1 HJV
Sarasota	09/10/13		1.32			1 WNV	2 WNV, 2 SLEV
	09/20/13	1.35				1 SLEV	
St. Johns	09/23/13		12.28			7 WNV	24 EEEV, 8 WNV, 4 HJV
							50 EEEV, 60 WNV, 11 HJV
Walton	09/17/13		1.89			2 WNV	HJV
	9/23/2013		0.91			1 WNV	



### Sentinel Seroconversions to WNV in Florida, 2012-2013



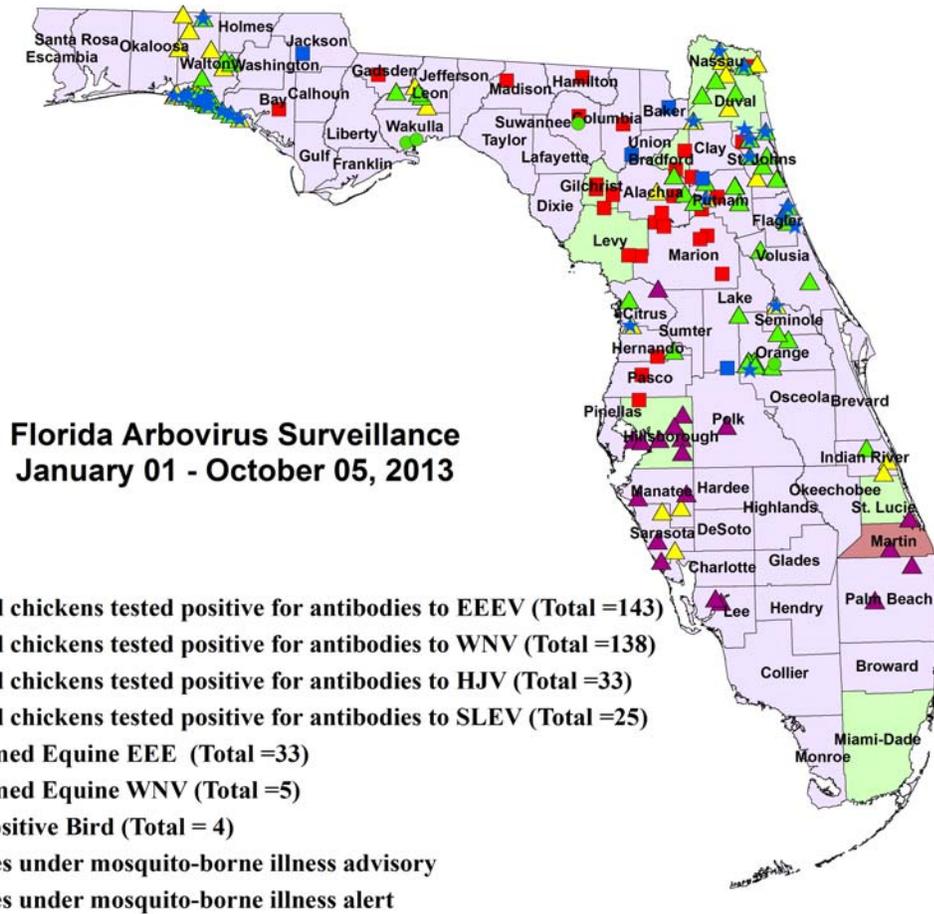
### Dead Birds

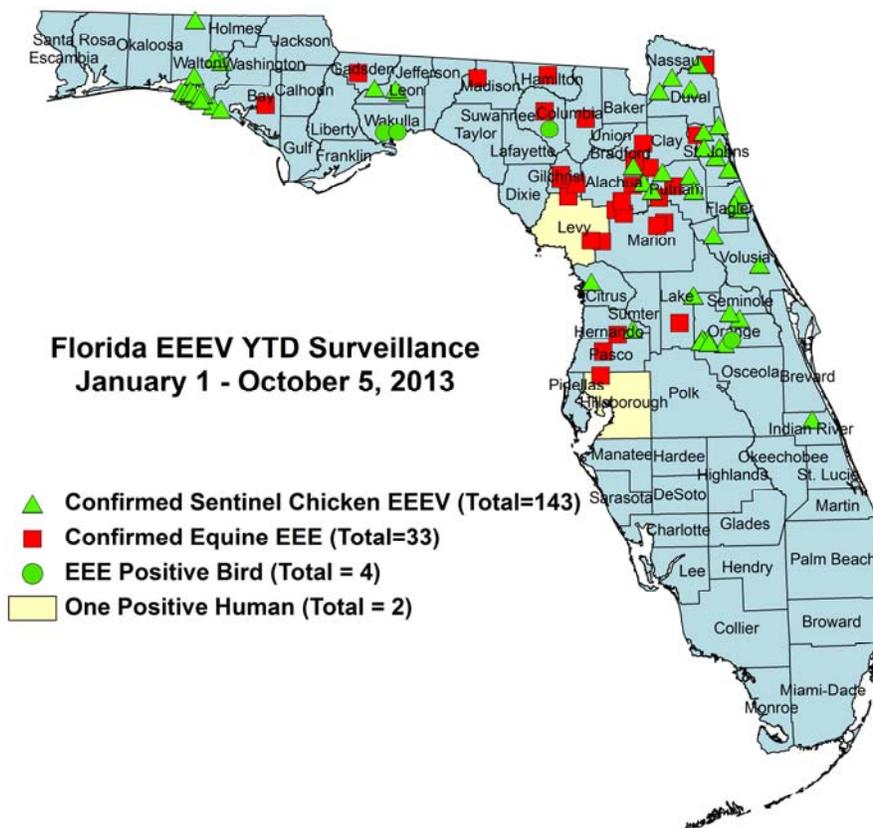
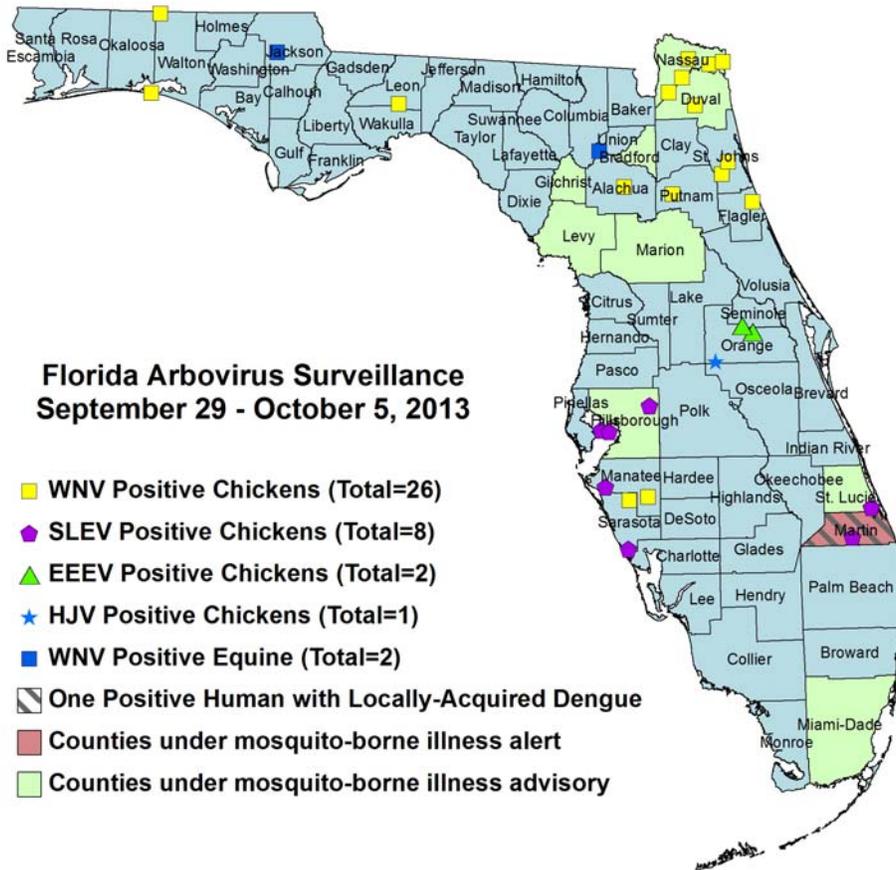
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. This week, 5 reports representing 14 dead birds, including 6 doves were received from 5 counties.

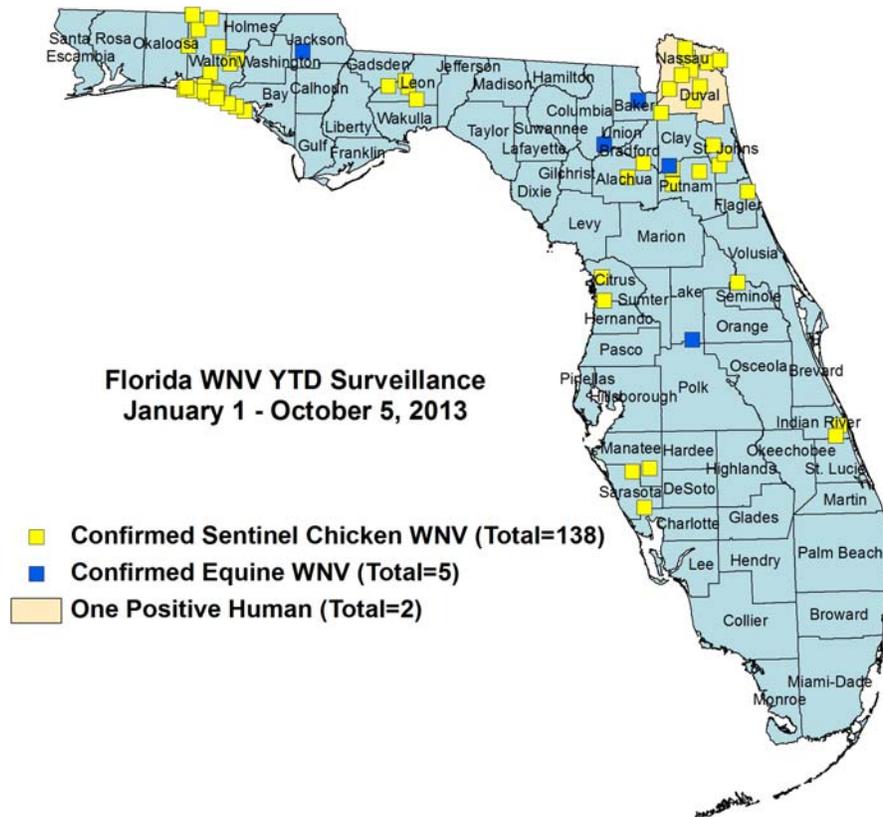
In 2013, 565 reports representing a total of 1820 dead birds (23 crow, 20 jays, 108 raptors, 42 doves) were received from 49 of Florida's 67 counties. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to [www.myfwc.com/bird/](http://www.myfwc.com/bird/)

County	Total Dead Birds	Crows	Jays	Raptors	Dove
Duval	2	0	0	0	0
Lee	1	0	0	0	1
Orange	5	0	0	0	5
Seminole	2	0	0	0	0
St. Johns	4	0	0	0	0

## Maps







### 2013 Arbovirus Activity by County

County	Arbovirus Activity
<b>Alachua</b>	EEEV: 2 horses (2/13, 7/11) ; 5 sentinels (6/17, 6/24, 7/15, 8/5) WNV: 3 sentinels (7/1, 8/19, 9/16)
<b>Baker</b>	WNV: 1 horse (7/9)
<b>Bay</b>	EEEV: 1 horse (8/21) 1 sentinel (5/21) WNV: 3 sentinels (5/7, 8/26) HJV: 2 sentinels (5/7, 5/28)
<b>Bradford</b>	EEEV: 2 horses (5/27, 5/30)
<b>Citrus</b>	EEEV: 1 sentinel (4/15) WNV: 3 sentinels (1/21, 1/28) SLEV: 1 sentinel (1/21) HJV: 2 sentinels (3/25, 4/2)
<b>Clay</b>	EEEV: 1 horse (7/17) WNV: 1 horse (8/7)
<b>Columbia</b>	EEEV: 1 horse (5/4) WNV: 1 horse (9/9)
<b>Duval</b>	EEEV: 1 sentinel (8/22) WNV: 1 Human (August), 14 sentinels (7/1, 7/15, 7/29, 8/26, 8/28, 9/3, 9/10, 9/23) HJV: 2 sentinels (6/17, 7/8)
<b>Flagler</b>	EEEV: 5 sentinels (4/22, 6/24, 7/22, 7/29) WNV: 2 sentinel (8/19, 9/23) HJV: 5 sentinels (6/17, 7/29, 8/5, 9/3)
<b>Gadsden</b>	EEEV: 1 horse (9/3)
<b>Gilchrist</b>	EEEV: 4 horses* (2/6, 6/28, 6/29)

<b>County</b>	<b>Arbovirus Activity</b>
<b>Hamilton</b>	EEEV: 1 horse (5/30)
<b>Hernando</b>	EEEV: 1 horse (6/27) ; 1 sentinel (6/10)
<b>Hillsborough</b>	EEEV: 1 human (March), 1 horse (7/20) SLEV: 9 sentinels (9/3, 9/17, 9/25)
<b>Indian River</b>	EEEV: 2 sentinel (5/9,8/15) WNV: 2 sentinels (7/10, 7/31)
<b>Jackson</b>	WNV: 1 horse (9/24)
<b>Lake</b>	EEEV: 1 horse (1/30) WNV: 1 horse (9/16)
<b>Lee</b>	SLEV: 4 sentinels (9/2, 9/16)
<b>Leon</b>	EEEV: 6 sentinels (6/3, 8/5, 8/12, 8/20) WNV : 6 sentinels (8/27, 9/17, 9/23)
<b>Levy</b>	EEEV : 1 human (January) ; 3 horses (1/7, 7/21, 7/27)
<b>Madison</b>	EEEV : 1 horse (2/16)
<b>Manatee</b>	WNV: 1 sentinel (9/24) SLEV: 2 sentinel (9/17, 9/24)
<b>Marion</b>	EEEV : 6 horses (7/11, 7/12, 7/18, 7/31, 8/7, 9/10)
<b>Martin</b>	Dengue : 13 humans (June, July, August, September) SLEV : 3 sentinels (9/20)
<b>Miami-Dade</b>	Dengue : 1 human (August)
<b>Nassau</b>	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) ; 29 sentinels (7/19, 7/26, 8/3, 8/5, 8/23, 8/30, 9/9, 9/13, 9/16, 9/20, 9/23) HJV : 3 sentinels (6/28, 7/29)
<b>Orange</b>	EEEV : 24 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, 9/16) ; 1 bird (1/1) HJV : 2 sentinel (9/5, 9/12)
<b>Palm Beach</b>	SLEV : 3 sentinels (9/3, 9/16, 9/17) Dengue : 1 human with exposure in Martin (August)
<b>Pasco</b>	EEEV : 1 horse (7/16)
<b>Polk</b>	SLEV : 1 sentinel (9/9)
<b>Putnam</b>	EEEV : 2 horses (6/26, 8/8) ; 9 sentinels (7/16, 7/23, 7/30, 8/6, 9/10) WNV : 4 sentinels (9/17, 9/24) HJV : 1 sentinel (9/10)
<b>Sarasota</b>	WNV : 2 sentinel (5/3, 9/10) SLEV : 2 sentinel (4/5, 9/20)
<b>Seminole</b>	WNV : 1 sentinel (9/10) HJV : 1 sentinel (5/7)
<b>St. Johns</b>	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 : 8 sentinel (9/3, 9/23) HJV : 4 sentinels (6/3, 6/17, 7/1, 9/3)
<b>St. Lucie</b>	Dengue : 4 humans with exposure in Martin (July, August)
<b>Suwannee</b>	EEEV : 1 horse (8/9), 1 bird (8/11)
<b>Volusia</b>	EEEV : 2 sentinel (7/15, 9/3)
<b>Wakulla</b>	EEEV : 2 birds (4/8)
<b>Walton</b>	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 : 60 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, 9/17, 9/23) 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](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.