VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE, LAC, DENV, CHIK, ZIKV, and JCV

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18 August to 24 August, 2019, CDC Week 34
Data download 3:30 pm 23 August

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of the Department of Health, Department of Agriculture and of the 21 county mosquito control agencies of New Jersey. Data is held in JerseySurv, a subset of the CalSurv system.

NOTE: County/species tables for arboviruses are now in a supplemental file here

Arbovirus Summary

- **35 EEE positive pools, 5 horse cases, 1 alpaca case, 1 human case (Somerset County)**
- **135 WNV positive pools, 0 horses, 1 human case (Hunterdon County)**
- **1 LAC positive pool**
- **3 JCV positive pools**
- **0 SLE, DENG, CHIK, ZIKA positive pools**
- **Note: Data downloads times are noted and do not necessarily reflect all pools submitted and analyzed to that point in time. This report may vary from other reports from the same dataset as they are snapshots in time.**

Culiseta melanura and Eastern Equine Encephalitis

SITE/Boxes	Inland or Coastal	Historic Population Mean	Current Weekly Mean	Total Tested* (Collected)	Total Pools Tested* (Submitted)	EEE Isolation Pools	MFIR
Bass River (Burlington Co.)/5	**Coastal**	0.39	0.20	6 (7)	3 (4)		
Green Bank (Burlington Co.)/25	**Coastal**	3.03	0.16	61 (65)	8 (9)		
Corbin City (Atlantic Co.)/25	**Coastal**	1.55	0.48	127 (129)	11 (12)		
Dennisville (Cape May Co.)/50	**Coastal**	8.18	0.00	45	8		
Winslow (Camden Co.)/50	**Inland**	1.62	**3.12**	549	16	4	7.286
Centerton (Salem Co.)/50	**Inland**	3.52	0.22	126	9	1	7.937
Turkey Swamp (Monmouth Co.)/50	**Inland**	1.63	**6.32**	341 (723)	13 (20)	4	11.730
Glassboro (Gloucester Co.)/50	**Inland**	0.32	0.14	145	10	2	13.793

*Current week (in parentheses) results pending. ‡ corrected from previous week NC=no collection

Remarks: ***EEE activity in the state is ramping up and due diligence is needed***. Currently in 2019, there are 35 detections of EEE virus: 30 pools of *Culiseta melanura* (11 collected at traditional resting box sites, and 19 collected at county trap sites) and five pools in *Aedes albopictus, Ae. triseriatus,* and *Culex* Mix. The first positive pool was collected on 3 July at Turkey Swamp, Monmouth County. There are five animal cases and one human case (Somerset County).

Statewide, 7,703 *Cs. melanura* from 475 pools have been tested, with an overall *Cs. melanura* MFIR of 3.895. 120,757 specimens in 5,209 pools from 37 other species have also been tested, with five positive pools detected (*Aedes albopictus, Ae. triseriatus,* and *Culex* Mix pools). Overall MFIR for all species statewide is 0.272.

Traditional Resting Box Sites: 1,400 *Cs. melanura* from 78 pools have been tested, with 11 positive pools detected – 1 at Centerton, 2 at Glassboro, 4 at Turkey Swamp, and 4 at Winslow. An additional 333 *Cs. melanura* in nine pools are at labs to be tested.

	Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD UNDERLINED.**				
County	**Trap types***	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Atlantic	BGS, **CO_2**, GR, **RB**	64	2099	4	1.906
Bergen	CO_2, RB	4	13		
Burlington	**ULVT**	39	1520	7	4.605
Cape May	GR, RB	120	291		
Cumberland	AGO, RB	17	126		
Gloucester	CO_2, **RB**	33	1086	3	2.762
Middlesex	RB	11	65		
Monmouth	CO_2, **Other**	18	162	1	6.173
Morris	**CO_2,RB**	23	440	2	4.545
Ocean	**CO_2**, GR, RB	44	307	1	3.257
Salem	CO_2, GR, **RB**	17	64	1	15.625
Sussex	CO_2, GR	6	120		
Union	NJLT	1	10		
TOTAL		**397**	**6303**	**19**	**3.014**

Additional County-set *Cs. melanura*: Counties maintain trap sites for *Cs. melanura* in other areas, using a variety of traps. Last year, half of the EEE detection came from such trappings. In 2019, 19 pools of *Cs. melanura* have been found positive – the latest with 2 positive pools in Morris County, illustrating the advantage of northern counties to survey for EEE during this time of increased activity. Earliest positive pools were found in Salem County, collected 9 July, and Ocean County collected 10 July.

Horses and Humans: Two additional animal EEE cases were detected. The sixth animal was an 18 year old gelding in Morris County with date of onset 15 Aug, and euthanized 16 Aug. Vaccination history unknown. The fifth animal case was detected in a 2 year old gelding from Ocean County. Date on onset was 15 Aug and the horse was euthanized the following day. Vaccination history is unknown. See the Department of Agriculture press release here cases 1-5 and other information: https://www.nj.gov/agriculture/news/press/2019/approved/press190812a.html . The fourth animal case involved a 7 year old alpaca in Camden County. This alpaca had an onset date of 2 August, and was euthanized on 3 August. There is an unknown vaccination history. The third horse was a Monmouth County yearling male with an onset date of 5 Aug, and was euthanized the same day. Vaccinations included an April date. The second horse case reported was a 20 year old gelding in Ocean County with date of onset 26 July, euthanized the same day. Vaccination history is unknown. The first horse case involved a 12-year-old mare in Ocean County, with onset date of 23 July, was euthanized the same day. This horse was about 11-14 miles from two active sites. There appears to be an incomplete vaccination history, with the first dose of EEE vaccine administered in April, but no follow up vaccination 4-6 weeks later was reported. Over the past ten years, first onset dates for horses have been in August or October except for 2012, where an onset date was 22 July. Last year five horses were reported with EEE. All had either an incomplete or no vaccination history. ***Horse owners are urged to make sure their horses are up to date on their vaccinations. Horse cases are known to occur through October and sometimes into November (see link below).*** Other sensitive species are non-native birds, such as Ostriches/Emus and Gallinaceous birds such as pheasants of Eurasian origins.

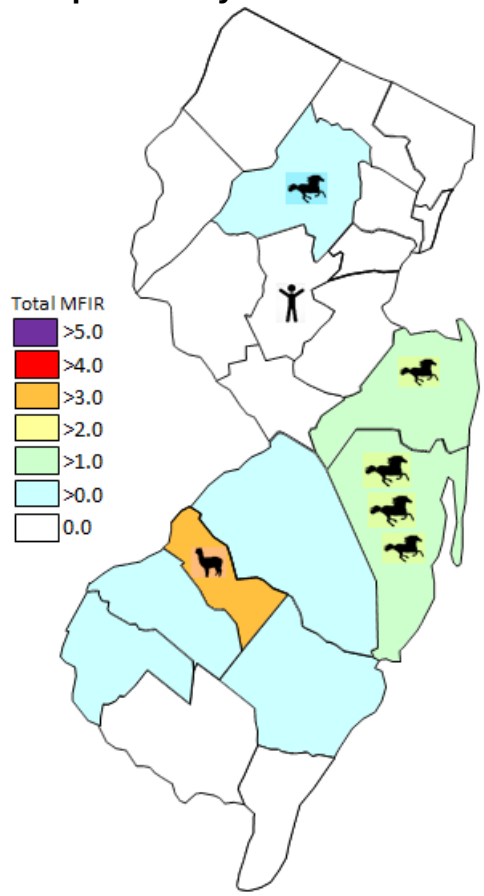
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

There is one human case from Somerset County. For more information, see DOH press release: https://www.nj.gov/health/news/2019/approved/20190816a.shtml

Species other than *Cs. melanura*	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	13	258		
Aedes albopictus	451	3874	2	0.516
Aedes atlanticus	12	125		
Aedes aurifer	3	14		
Aedes canadensis canadensis	106	2172		
Aedes cantator	16	292		
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	520	3600		
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	16	386		
Aedes sticticus	4	95		
Aedes stimulans	2	10		
Aedes taeniorhynchus	7	225		
Aedes thibaulti	2	27		
Aedes triseriatus	79	307	1	3.257
Aedes trivittatus	24	464		
Aedes vexans	65	592		
Anopheles barberi	2	2		
Anopheles bradleyi	68	296		
Anopheles crucians	10	147		
Anopheles punctipennis	61	344		
Anopheles quadrimaculatus	102	707		
Anopheles walkeri	1	18		
Coquillettidia perturbans	172	3567		
Culex Mix	2272	94802	2	0.021
Culex erraticus	76	553		
Culex pipiens	435	4369		
Culex restuans	352	1055		
Culex salinarius	223	1448		
Culex territans	35	96		
Orthopodomyia signifera	5	5		
Psorophora ciliate	1	1		
Psorophora columbiae	13	184		
Psorophora ferox	37	667		
Psorophora howardii	1	1		
Uranotaenia sapphirina	14	32		
State Total	**5209**	**120757**	**5**	**0.041**

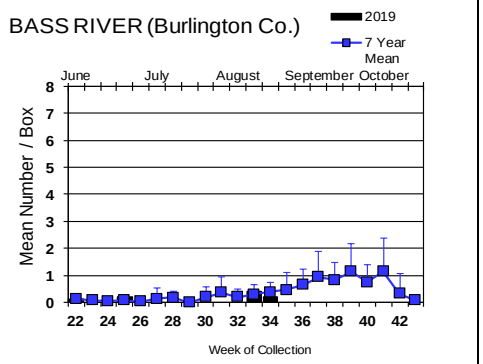
Additional Species: 35 additional species were tested for EEE. Five positive pools have been detected in three species, the latest species being *Ae. triseriatus* in Morris County, collected 9 Aug. (One positive pool in *Aedes albopictus*, collected in Ocean County on 9 July was found. On 16 July, a positive pool of *Culex* Mix was detected in Camden County. A second *Culex* pool was detected in Ocean County 31 July. Note: *Culex pipiens* is refractory for EEE virus).

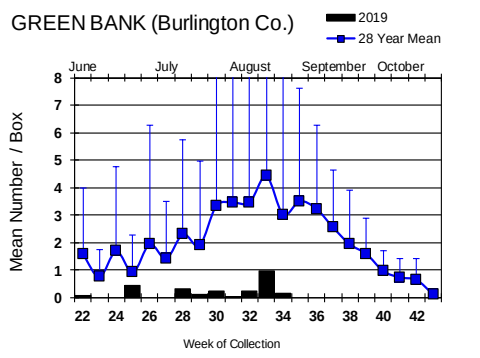
Overall MFIR rates, human and animal cases per county:

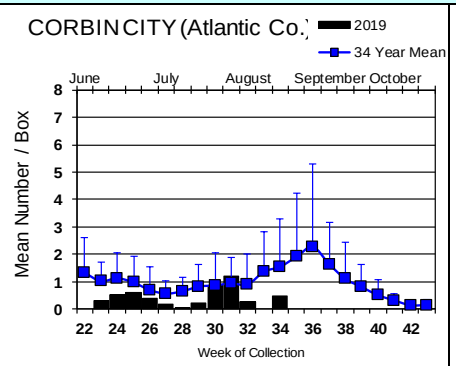


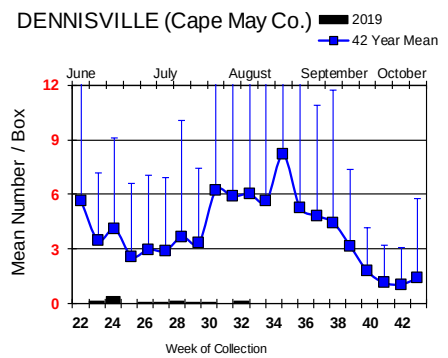
Culiseta melanura Populations

Coastal

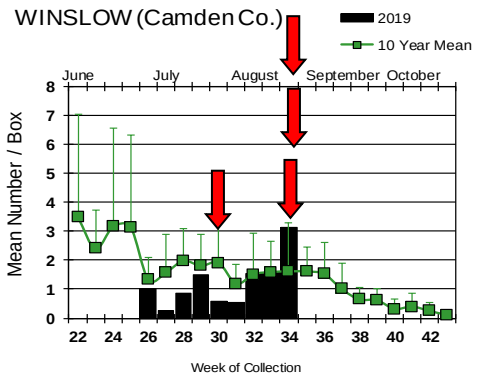


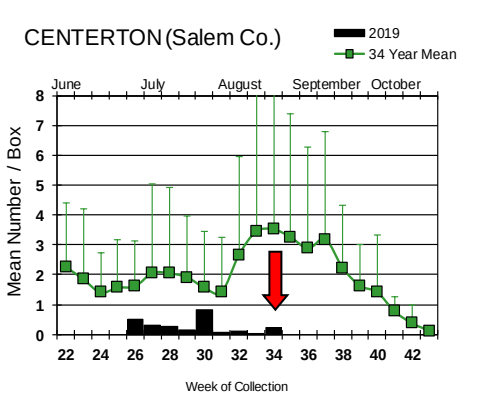


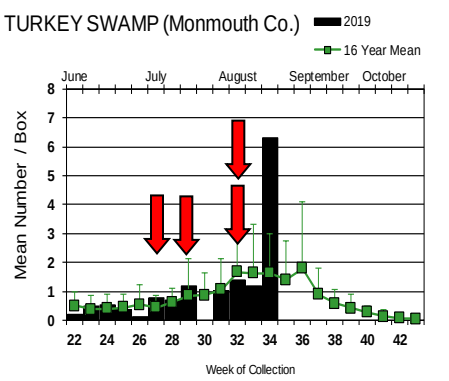


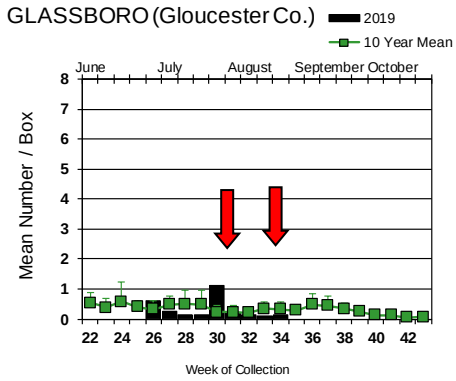


Inland









Culiseta melanura populations at Winslow and Turkey Swamp developed rapidly during the current week, with positives found in the Winslow site. The latest pools from Turkey Swamp are currently being tested. Positive pools continue to be detected at both traditional resting box sites and county-maintained sites and transmission is evident with animal detection continuing.

= Positive pool(s) detected (red = melanura, purple = other species).

EEE in US (2019 cumulative cases): (Black or Red = previous + new reported cases occurring)

- **equine:** 2(CT) 25(FL) 1(GA) 18(LA) 1(MA) 5(MI) 1(MN) 7(MS) 1(NC) 5(+1 alpaca, NJ) 2(NY) 3(SC) 4(TX) 2(WI) 1(CAN-ON)
- **mosquito pools:** 12(CT) 1(LA) 333(MA) 3(MD) 5(NH) 35(NJ) 30(NY) 2(RI)
- **sentinel:** 95(+1 emu 1 BAEA, FL) 3(DE)
- **human:** 2(MA) 1(NJ)

West Nile Virus Positive Organisms in US, 2019

West Nile in US (2019 cumulative cases): Single black values indicate no change from previous week. Black values / red values equals previous week/New totals.
Note: Data reported by all states should be considered provisional and subject to change. Sources for this table can be found here.

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Alabama				1	0
Alaska					
Arizona	0	318	1	1	126
Arkansas					2
California	67	1985	26	4	14/45
Colorado		7/32			1/3
Connecticut		13/28		0	3
Delaware					
Florida	1		69/100	1	
Georgia					1
Hawaii					
Idaho	0	16/19		2	2
Illinois	2	263/408		0	1/2
Indiana	0	50/59		0	0
Iowa				2	2/3
Kansas					0
Kentucky					1
Louisiana		103		1	9
Maine		0			0
Maryland(+DC)					1/3(2DC)
Mass.		46/54		0	0
Michigan	8	12/18			1
Minnesota					1
Mississippi		21		5	6/7
Missouri		0		0	1

	Birds	Mosquito Pools	Sentinels	Horses*	Humans
Montana					
Nebraska	0	13/14		0	4/7
Nevada					4/13
New Hampshire					
New Jersey		103/135		0	1
New Mexico					1/4
New York		132/220		0	0
North Carolina					
North Dakota	0	2		0	4/5
Ohio		78/172		0	0
Oklahoma					3/4
Oregon	0	18/57	0	1	1
Pennsylvania	1	133/196			
Rhode Island		0			
South Carolina	1	3			
South Dakota		9			3/4
Tennessee					1
Texas		74/80		1	1/3
Utah		83/125			1/2
Vermont		1			
Virginia					1
Washington	0	11/18		0	0
West Virginia					
Wisconsin	1	7/10		0	0
Wyoming	0	6/7		0	2

* Can include other species (e.g., dogs, cows) reported positive.

Protocol: New Jersey Department of Health (NJDH Public Health Environmental and Agricultural Laboratories, PHEAL) and the Cape May County Department of Mosquito Control tests mosquito pools using RT-PCR Taqman techniques.

Mosquito Species Submitted and Tested for West Nile Virus through 23 August 2019

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	13	258		
Aedes albopictus	827	4816	1	0.208
Aedes atlanticus	12	125		
Aedes aurifer	3	14		
Aedes canadensis canadensis	106	2172		
Aedes cantator	16	292	1	3.425
Aedes grossbecki	5	12		
Aedes infirmatus	1	1		
Aedes japonicus	537	4147	1	0.241
Aedes mitchellae	1	1		
Aedes provocans	2	8		
Aedes sollicitans	16	386		
Aedes sticticus	4	95		
Aedes stimulans	2	10		
Aedes taeniorhynchus	7	225		
Aedes thibaulti	2	27		
Aedes triseriatus	345	1294	1	0.773
Aedes trivittatus	24	464		
Aedes vexans	65	592		
Anopheles barberi	2	2		
Anopheles bradleyi	68	296		
Anopheles crucians	10	147		
Anopheles punctipennis	62	345	1	2.899
Anopheles quadrimaculatus	102	707		
Anopheles walkeri	1	18		
Coquillettidia perturbans	176	3780		
Culex spp.	2272	94802	115	1.213
Culex erraticus	76	553		
Culex pipiens	436	4370	3	0.686
Culex restuans	355	1058		
Culex salinarius	223	1448		
Culex territans	35	96		
Culiseta melanura	475	7703	12	1.558
Orthopodomyia signifera	5	5		
Psorophora ciliata	1	1		
Psorophora columbiae	13	184		
Psorophora ferox	37	667		
Psorophora howardii	1	1		
Uranotaenia sapphirina	14	32		
Grand Total	**6352**	**131154**	**135**	**1.029**

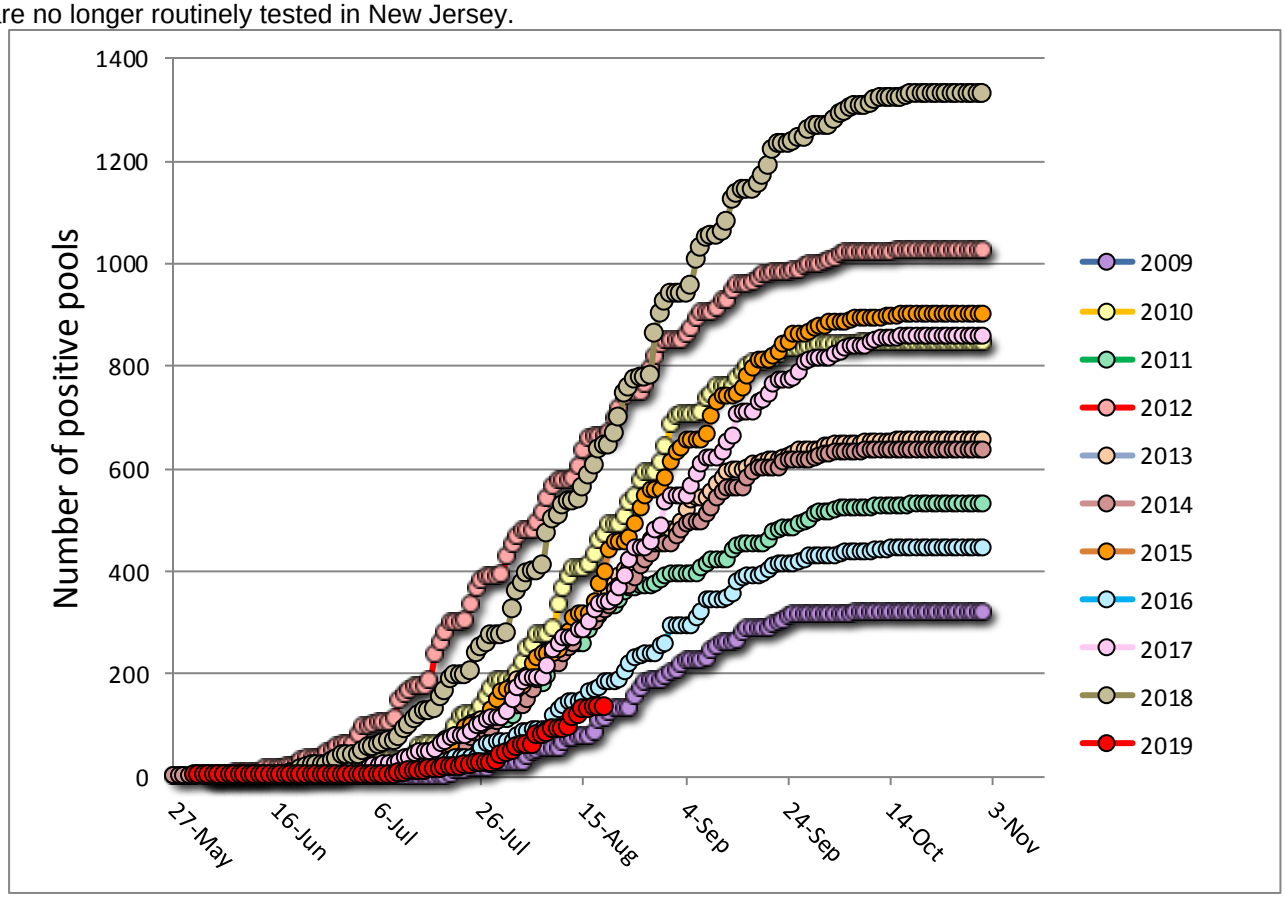
Remarks: To date, 6,352 pools of 131,154 mosquitoes from 38 species have been tested. A total of 135 positive WNV pools have been detected throughout the state beginning with a pool of *Aedes triseriatus*, collected on 31 May, 2019 in Passaic County. This pool was also co-infected with LAC (see table below). 118 (87%) of the positives are in *Culex* species pools. Also positive are *Aedes cantator*, *Ae. japonicus, Anopheles punctipennis,* and *Culiseta melanura.* Last year

was a year of significant activity, with over 1300 positive pools detected. Currently, the statewide MFIR rate for all mosquitoes increased from 0.854 to 1.029.

Humans, Horses and Wild Birds: There has been one human case of West Nile virus from Hunterdon County reported, with an onset date of 21 June. This represents the earliest typical case reported in New Jersey. (A few years ago, there was one case reported in May from a long-term hospitalized patient making date of infection difficult to determine.) For more information, see NJ arboviral reports from the Department of Health: https://www.nj.gov/health/cd/statistics/arboviral-stats/ . Last year we have over 60 cases reported, the highest to date.

Currently, there are no reported horse cases for WNV. Last year only one WNV horse case has been reported, occurring in Burlington County. This seemed rather unusual, given all the other indicators of high virus activity. For further information, see http://www.nj.gov/health/cd/statistics/arboviral-stats/.

Birds are no longer routinely tested in New Jersey.



Above is a graph showing cumulative number of positive pools for the previous 10 years, inclusive of the most active (2018) and least active (2009) years. The red series represents this year, starting with the first positive pool.

Go here for the table supplement of arbovirus by county by mosquito species.