VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE and LAC

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CDC WEEK 31: 27 July to 2 August, 2014

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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**	1.05	0.00	4	3		
Green Bank (Burlington Co.)/25	**Coastal**	4.05	0.16	64 (68)	8 (9)		
Corbin City (Atlantic Co.)/25	**Coastal**	1.00	0.72	155	9		
Dennisville (Cape May Co.)/50	**Coastal**	6.67	0.12	207	9	1	4.831
Winslow (Camden Co.)/40	**Inland**	1.77	0.94	757	19		
Centerton (Salem Co.)/48	**Inland**	1.58	0.28	286	11		
Turkey Swamp (Monmouth Co.)/50	**Inland**	1.38	0.20	73 (83)	9 (10)		
Glassboro (Gloucester Co.)/49	**Inland**	0.38	0.18	329	11		

*Current week (in parentheses) results pending.

Remarks: EEE activity has been detected in two *Cs. melanura* mosquito pools in New Jersey, one at the traditional resting box sites and one in an additional county resting box site. Statewide, for all mosquitoes tested, MFIR is 0.270. *Cs. melanura* activity has increased moderately at some sites but populations continue to remain low (see page 3 population graphs).

Traditional Resting Box Sites: No new detections of EEE at the traditional resting box sites. First detection of EEE in *Cs. melanura* occurred 21 July at the Dennisville site, a long-standing endemic focal site. This site has an MFIR value of 4.831. To date, 1875 *Cs. melanura* from 79 pools have been tested for EEE at these sites. Overall MFIR for these traditional sites is 0.533. Two additional pools containing 14 *Cs. melanura* remains to be tested.

Additional *Cs. melanura* trapped by counties *traps with positives indicated in **BOLD.**				
County	**Trap types***	**Number collected (pools)**	**Number of positive pools**	**MFIR**
Atlantic	CO_2	4 (3)		
Burlington	CO_2	2876 (61)		
Cape May	RB	106 (7)		
Cumberland	CO_2, RB	64 (10)		
Gloucester	**RB**	553 (39)	1	2.165
Monmouth	Other	2 (1)		
Ocean	CO_2, RB	18 (5)		
Salem	CO_2	6 (3)		
TOTAL		**3630 (130)**		

Additional *Cs. melanura*: Counties submit additional pools of *Cs. melanura* caught in other trap types as well as resting boxes. Currently, virus has been detected in one pool of *Cs. melanura,* sampled from a resting box on 23 July in Gloucester County.

Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes canadensis canadensis	3	81		
Aedes mitchellae	1	1		
Aedes sollicitans	1	8		
Aedes taeniorhynchus	2	20		
Aedes vexans	1	14		
Anopheles bradleyi	5	167		
Anopheles punctipennis	22	406		
Anopheles quadrimaculatus	12	324		
Coquillettidia perturbans	26	594		
Culex erraticus	4	46		
Culex restuans	1	1		
Culex salinarius	14	214		
Culex spp.	3	24		
Culiseta morsitans	1	1		
State Total	**96**	**1901**		

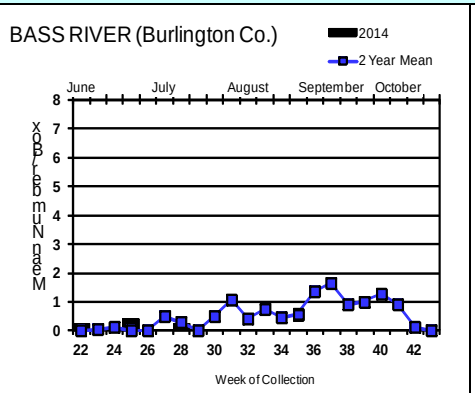
Additional Species: Counties submit additional pools of species other than *Cs. melanura* for EEE virus testing. Currently, no detection of EEE in other species has occurred.

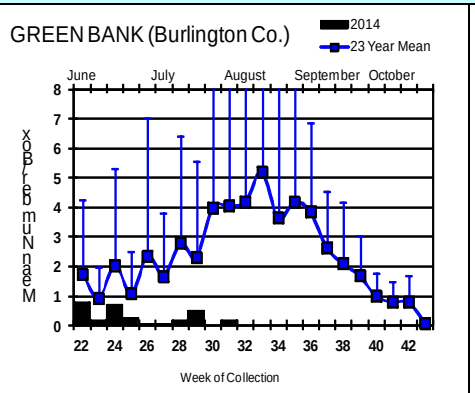
Horses and Humans: Currently there is no reported horse or human cases

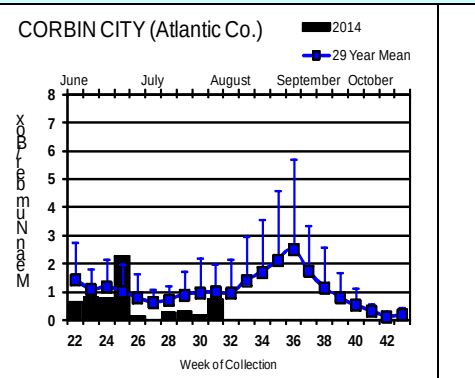
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

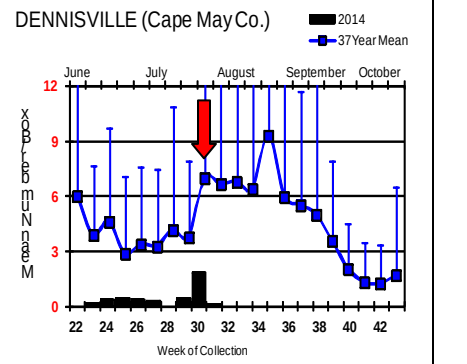
Culiseta melanura Population Graphs

Coastal

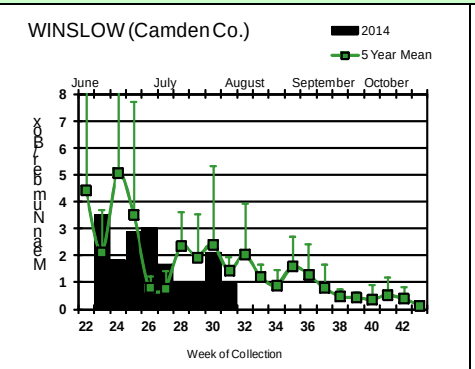


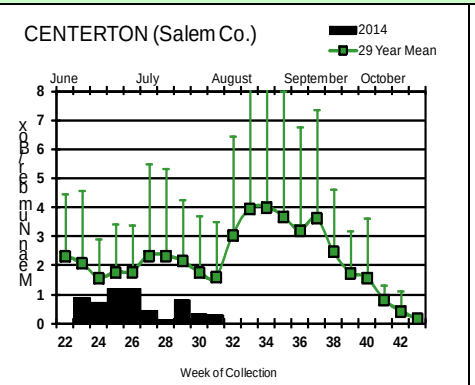


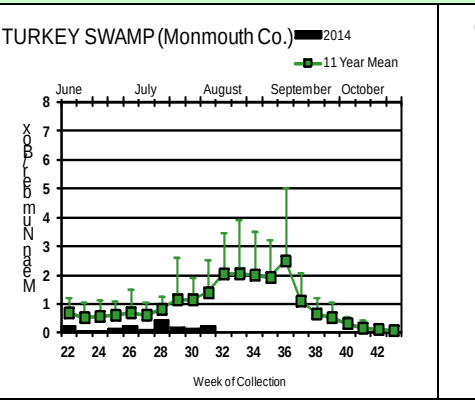


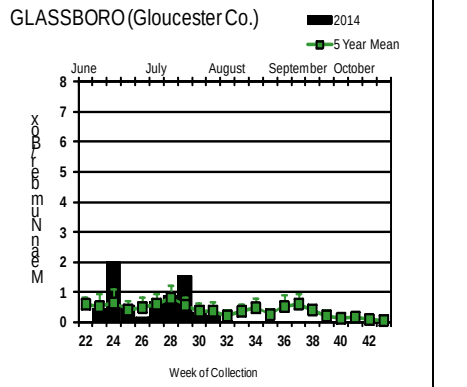


Inland









Culiseta melanura populations continue to be generally low at most sites.

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

EEE in US (2014 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: AL(1) FL (32 +2 deer) GA(2) LA(1)
- mosquito pools: GA(1) MA(4) NJ(2) NY(10) VA(1) VT(1)
- sentinel: AL(3) GA(1) FL(113)
- human:

West Nile Virus Positive Organisms in US

West Nile in US (2014 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	
Alaska					
Arizona	1	1			2/4
Arkansas					1
California	872/1014	978/1268	39/56		19
Colorado	1	16/37		1	2/5
Connecticut		1			0
Delaware					
DC					
Florida			6/8		1
Georgia					1
Hawaii					
Idaho		16/27			
Illinois	7	58/91			
Indiana		17/22			
Iowa		1			3
Kansas		0			0
Kentucky					
Louisiana		226/339	3/8		9/15
Maine		0		0	0
Maryland		1		0	0
Mass.		5/9		0	0
Michigan		1			
Minnesota	1	2/5			1
Mississippi		8/15		0	3/5
Missouri		4		0	1

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana		1			
Nebraska	26	14/23		0	3/4
Nevada					
New Hampshire		0		0	0
New Jersey	5	36/90		0	0
New Mexico					
New York		24/52			1
North Carolina					
North Dakota	0	1/4		0	0
Ohio		19			
Oklahoma					1
Oregon	0	5	0	0	0
Pennsylvania	2/3	218/307			
Rhode Island		0			
South Carolina					
South Dakota		18			9
Tennessee	0	22/35		0	1
Texas	14/19	443/462		0	1/9
Utah	2	10			
Vermont		0		0	0
Virginia					
Washington	0	3/16		0	0
West Virginia	0			0	0
Wisconsin	15	0		0	1
Wyoming	0	1/2		0	0

* 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 Testing through 4 August 2014

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	117	744		
Aedes canadensis canadensis	24	475		
Aedes cantator	8	183		
Aedes japonicus	226	1311		
Aedes mitchellae	1	1		
Aedes sollicitans	3	14		
Aedes sticticus	3	7		
Aedes taeniorhynchus	6	216		
Aedes triseriatus	59	271		
Aedes trivittatus	9	16		
Aedes vexans	29	215		
Anopheles bradleyi	13	364		
Anopheles punctipennis	49	553		
Anopheles quadrimaculatus	32	813		
Coquillettidia perturbans	54	975		
Culex erraticus	12	69		
Culex pipiens	301	9648	7	0.726
Culex restuans	124	3377	4	1.184
Culex salinarius	18	225		
Culex spp.	1553	64177	79	1.231
Culiseta melanura	227	5538		
Culiseta morsitans	1	1		
Psorophora columbiae	3	7		
Psorophora ferox	6	17		
State Total	**2878**	**89217**	**90**	**1.009**

Remarks: To date, 2878 pools of 89,217 mosquitoes from 23 species have been tested, with 90 positive pools detected, all *Culex*. First positive was detected in a Mixed *Culex* pool collected on 20 May in Camden County. Second positive in Mixed *Culex* collected on 25 June in Bergen County and third positive Mixed *Culex* pool collected 2 July in Camden County. Sixteen counties have now detected positive pools, including Atlantic, Bergen, Burlington, Camden, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Union and Warren counties. Overall MFIR for the state is 0.864, up from 0.467 of last week.

Humans, Horses and Wild Birds: To date, no human cases have been reported. For further information, see http://www.state.nj.us/health/cd/westnile/techinfo.shtml.

Bird testing began in mid-April. First positive bird (Fish Crow in Mercer County collected 8 July) has been reported. To date, 66 birds have been tested, with 5 positives. Species includes: Fish Crow (*Corvus ossifragus* 4/20), Blue Jay (*Cyanocitta cristata* 0/7), Hawk/Raptor (1/5) and other avian species (0/34). Counties (positives) submitting birds are Atlantic, Bergen, Burlington, Cape May, Essex, Hunterdon, Mercer, Monmouth, Morris, Ocean, Salem, Sussex and Warren.

WNV Results by County through 4 August 2014

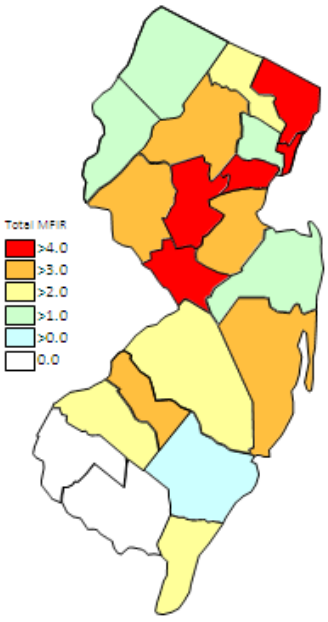
County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**75**	**2118**	**8**	**3.777**
	Aedes albopictus	3	9		
	Aedes canadensis canadensis	3	26		

	Aedes cantator	2	5		
	Aedes japonicus	2	16		
	Aedes sollicitans	1	5		
	Aedes sticticus	1	1		
	Aedes taeniorhynchus	4	196		
	Aedes vexans	4	24		
	Anopheles bradleyi	1	2		
	Anopheles punctipennis	2	4		
	Coquillettidia perturbans	4	23		
	Culex spp.	33	1633	8	4.899
	Culiseta melanura	13	162		
	Psorophora ferox	2	12		
Bergen		**90**	**6750**	**20**	**2.963**
	Culex spp.	90	6750	20	2.963
Burlington		**194**	**6295**	**4**	**0.635**
	Aedes canadensis canadensis	1	75		
	Aedes japonicus	15	182		
	Aedes mitchellae	1	1		
	Aedes taeniorhynchus	2	20		
	Aedes triseriatus	2	28		
	Aedes vexans	3	62		
	Anopheles bradleyi	1	45		
	Anopheles punctipennis	3	13		
	Anopheles quadrimaculatus	1	21		
	Coquillettidia perturbans	2	117		
	Culex erraticus	1	3		
	Culex salinarius	8	116		
	Culex spp.	82	2668	4	1.499
	Culiseta melanura	72	2944		
Camden		**229**	**7049**	**9**	**1.277**
	Aedes albopictus	8	10		
	Aedes japonicus	58	224		
	Culex spp.	144	6058	9	1.486
	Culiseta melanura	19	757		
Cape May		**168**	**2561**		
	Aedes japonicus	1	8		
	Aedes triseriatus	5	29		
	Anopheles bradleyi	4	122		
	Anopheles quadrimaculatus	11	374		
	Coquillettidia perturbans	1	50		
	Culex erraticus	3	44		
	Culex pipiens	90	1212		
	Culex restuans	33	353		
	Culex salinarius	4	56		
	Culiseta melanura	16	313		
Cumberland		**72**	**1109**		
	Aedes albopictus	1	1		
	Aedes canadensis canadensis	1	2		
	Aedes japonicus	2	2		
	Aedes sollicitans	1	8		

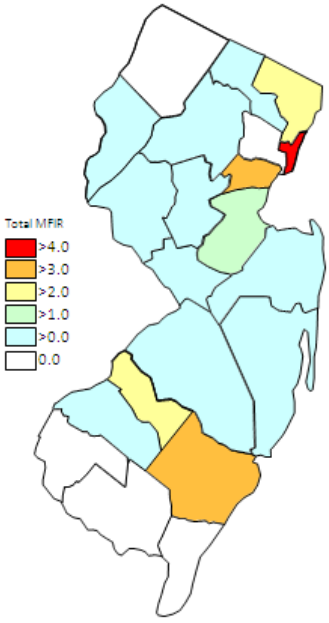
	Aedes vexans	4	40		
	Anopheles bradleyi	6	194		
	Anopheles punctipennis	4	19		
	Anopheles quadrimaculatus	1	9		
	Coquillettidia perturbans	8	245		
	Culex pipiens	1	5		
	Culex salinarius	2	42		
	Culex spp.	28	468		
	Culiseta melanura	11	68		
	Psorophora columbiae	1	5		
	Psorophora ferox	1	1		
Essex		**160**	**1824**		
	Aedes albopictus	9	23		
	Aedes japonicus	21	54		
	Aedes triseriatus	1	3		
	Aedes trivittatus	4	9		
	Aedes vexans	1	4		
	Culex spp.	122	1729		
	Psorophora ferox	2	2		
Gloucester		**281**	**10049**	**7**	**0.697**
	Aedes albopictus	8	142		
	Aedes japonicus	9	150		
	Aedes triseriatus	4	45		
	Aedes vexans	1	4		
	Anopheles punctipennis	19	428		
	Anopheles quadrimaculatus	11	323		
	Coquillettidia perturbans	2	26		
	Culex pipiens	177	8049	7	0.870
	Culiseta melanura	50	882		
Hudson		**40**	**2175**	**9**	**4.138**
	Culex spp.	40	2175	9	4.138
Hunterdon		**150**	**7383**	**1**	**0.135**
	Culex spp.	150	7383	1	0.135
Mercer		**184**	**4282**	**4**	**0.934**
	Aedes albopictus	16	72		
	Aedes canadensis canadensis	2	5		
	Aedes japonicus	23	87		
	Aedes triseriatus	9	21		
	Aedes vexans	3	42		
	Culex pipiens	29	376		
	Culex restuans	88	3020	4	1.325
	Culex salinarius	2	8		
	Culex spp.	12	651		
Middlesex		**143**	**7960**	**11**	**1.382**
	Aedes triseriatus	2	14		
	Culex spp.	141	7946	11	1.384
Monmouth		**190**	**2837**	**1**	**0.352**
	Aedes albopictus	21	77		

	Aedes canadensis canadensis	13	268		
	Aedes cantator	3	43		
	Aedes japonicus	24	118		
	Aedes sollicitans	1	1		
	Aedes triseriatus	11	37		
	Aedes trivitattus	5	7		
	Aedes vexans	6	13		
	Anopheles punctipennis	7	9		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	4	4		
	Culex erraticus	2	6		
	Culex restuans	1	1		
	Culex salinarius	1	1		
	Culex spp.	77	2173	1	0.460
	Culiseta melanura	10	75		
	Culiseta morsitans	1	1		
	Psorophora columbiae	2	2		
Morris		**120**	**5407**	**2**	**0.370**
	Aedes albopictus	2	45		
	Coquillettidia perturbans	4	200		
	Culex spp.	114	5162	2	0.387
Ocean		**167**	**2411**	**2**	**0.830**
	Aedes albopictus	35	275		
	Aedes canadensis canadensis	3	96		
	Aedes cantator	3	135		
	Aedes japonicus	24	87		
	Aedes sticticus	2	6		
	Aedes triseriatus	5	24		
	Aedes vexans	6	23		
	Coquillettidia perturbans	10	46		
	Culex erraticus	2	3		
	Culex salinarius	1	2		
	Culex spp.	54	1668	2	1.199
	Culiseta melanura	21	44		
	Psorophora ferox	1	2		
Passaic		**48**	**1445**	**1**	**0.692**
	Aedes albopictus	2	15		
	Aedes japonicus	13	130		
	Aedes triseriatus	2	5		
	Aedes vexans	1	3		
	Culex spp.	30	1292	1	0.774
Salem		**147**	**1633**		
	Aedes albopictus	4	12		
	Aedes japonicus	15	39		
	Aedes triseriatus	12	26		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	13	78		
	Anopheles quadrimaculatus	6	80		
	Coquillettidia perturbans	18	247		
	Culex erraticus	4	13		
	Culex pipiens	4	6		
	Culex restuans	2	3		

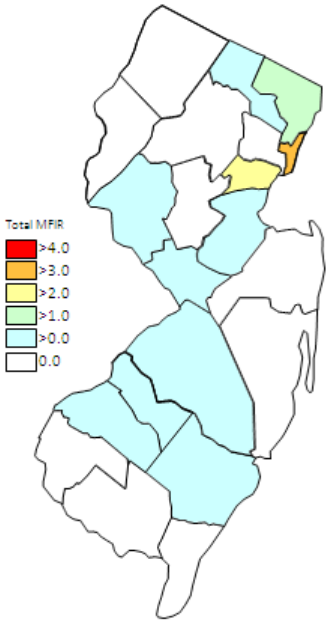
	Culex spp.	53	835		
	Culiseta melanura	15	293		
Somerset		**135**	**3022**	**1**	**0.331**
	Aedes albopictus	5	25		
	Aedes canadensis canadensis	1	3		
	Aedes japonicus	12	129		
	Aedes triseriatus	3	9		
	Anopheles punctipennis	1	2		
	Culex spp.	113	2854	1	0.350
Sussex		**76**	**2450**		
	Aedes japonicus	3	40		
	Aedes triseriatus	3	30		
	Anopheles quadrimaculatus	1	5		
	Coquillettidia perturbans	1	17		
	Culex spp.	68	2358		
Union		**51**	**2447**	**8**	**3.269**
	Aedes albopictus	2	21		
	Aedes japonicus	2	14		
	Culex spp.	47	2412	8	3.317
Warren		**158**	**8010**	**2**	**0.250**
	Aedes albopictus	1	17		
	Aedes japonicus	2	31		
	Culex spp.	155	7962	2	0.251
Grand Total		**2878**	**89217**	**90**	**1.009**



Cumulative WNV activity in 2013.



WNV activity to 4 August 2014.



WNV activity last week, 2014.

Saint Louis Encephalitis (SLE) to 4 August 2014.

New Jersey will be selectively testing for SLE this year. SLE has had previous activity in New Jersey, most notably in 1964 and 1975 (CDC's SLE website), the latter prompting the surveillance reporting by Rutgers. SLE is a flavivirus and has a similar transmission pattern to West Nile, with *Culex* species as the predominant vectors.

No pools have been detected positive for SLE in 2014.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**94**	**2819**		
	Aedes japonicus	14	172		
	Culex spp.	80	2647		
Grand Total		**94**	**2819**		

La Crosse Encephalitis (LAC) through 4 August 2014.

New Jersey will be selectively testing for La Crosse (LAC) virus this year. New Jersey has had 3 cases of this encephalitic disease since 1964 (see CDC's LAC website). The mortality is low but like other encephalitides, LAC can have both personal (lasting neurological sequelae) and economic impacts. LAC is a bunyavirus with a transmission cycle involving mosquitoes such as *Aedes triseriatus* and small mammals such as squirrels and chipmunks. LAC can not only infect *Aedes albopictus* but transovarial transmission was also demonstrated. (Tesh and Gubler 1975 Laboratory studies of transovarial transmission of La Crosse and other arboviruses by *Aedes albopictus* and *Culex fatigans.* American Journal of Tropical Medicine and Hygiene 24(5):876-880).

No pools have been detected positive for LAC in 2014.

County	Species	Pools	Mosquitoes	Positives	MFIR
Burlington		**2**	**28**		
	Aedes triseriatus	2	28		
Cape May		**5**	**29**		
	Aedes triseriatus	5	29		
Salem		**3**	**5**		
	Aedes triseriatus	3	5		
Grand Total		**10**	**62**		