

# VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE, LAC, DEN and CHIK

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CDC WEEK 26: 28 June to 4 July, 2015

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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	0.00	0.20	4 (5)	3 (4)		
Green Bank (Burlington Co.)/25	Coastal	2.25	0.00	22	4		
Corbin City (Atlantic Co.)/25	Coastal	0.77	0.44	75 (86)	3 (4)		
Dennisville (Cape May Co.)/50	Coastal	3.28	0.00	100	4		
Winslow (Camden Co.)/50	Inland	1.24	1.34	545	13		
Centerton (Salem Co.)/50	Inland	1.76	1.02	286	9		
Turkey Swamp (Monmouth Co.)/50	Inland	0.66	nd	17 <sup>†</sup>	4		
Glassboro (Gloucester Co.)/36	Inland	0.42	0.24	78	4		

\*Current week (in parentheses) results pending. <sup>†</sup>site totals adjusted.

**Remarks:** No detection of EEE in the samples tested to date.

**Traditional Resting Box Sites:** No EEE positive *Cs. melanura* pools were detected at the state resting box sites since the season began. To date, 1139 *Cs. melanura* from 45 pools have been tested for EEE with an additional 2 pools containing 12 *Cs. melanura* to be tested.

Additional <i>Cs. melanura</i> trapped by counties *traps with positives indicated in <b>BOLD</b> .				
County	Trap types*	Number collected (pools)	Number of positive pools	MFIR
Atlantic	CO <sub>2</sub>	21 (3)		
Burlington	CO <sub>2</sub>	460 (10)		
Cape May	GR, RB	8 (3)		
Cumberland	CO <sub>2</sub> , RB	44 (5)		
Middlesex	RB	18 (2)		
Ocean	CO <sub>2</sub> , GR, RB	29 (6)		
<b>TOTAL</b>		<b>580 (29)</b>		

**Additional *Cs. melanura*:** Counties maintain trap sites for *Cs. melanura* in other areas. Additional pools from these sites were not positive.

Species other than <i>Cs. melanura</i>	Pools	Mosquitoes	Positives	MFIR
<i>Aedes cantator</i>	2	8		
<i>Aedes sollicitans</i>	2	45		
<i>Anopheles crucians</i>	1	1		
<i>Anopheles punctipennis</i>	1	2		
<i>Coquillettidia perturbans</i>	19	461		
<i>Culex pipiens</i>	19	143		
<i>Culex salinarius</i>	1	2		
<i>Culex</i> sp.	3	5		
State Total	<b>48</b>	<b>667</b>		

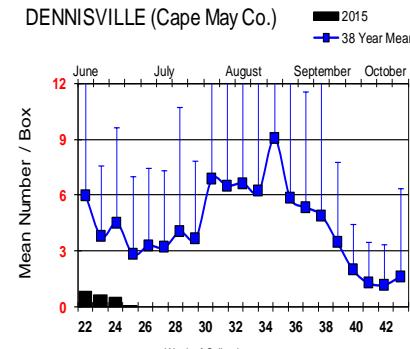
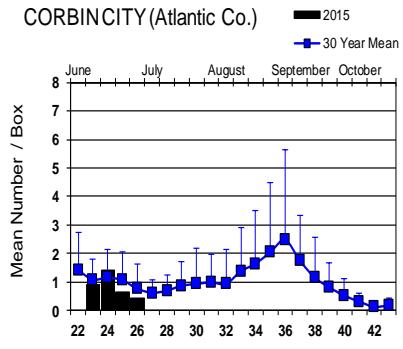
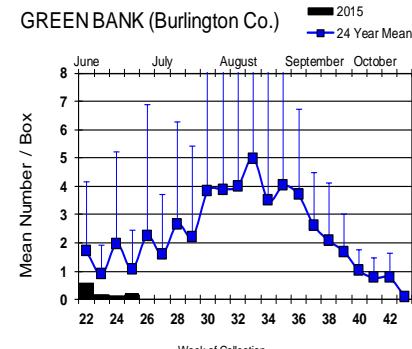
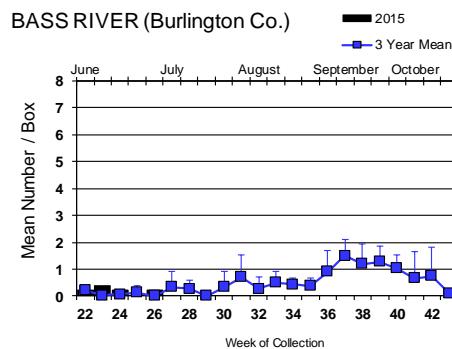
**Additional Species:** Seven (+) additional species were tested for EEE and no positives were detected.

**Horses and Humans:** No horses or humans have been reported with EEE.

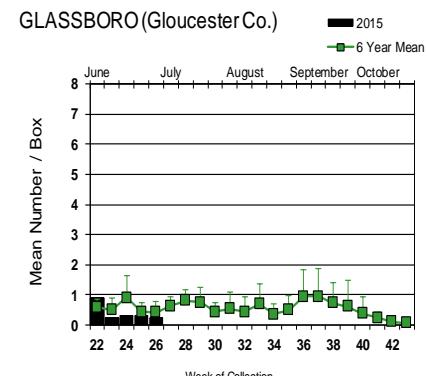
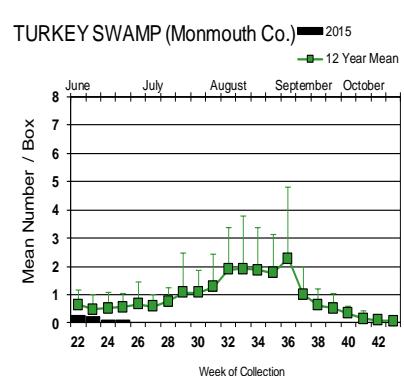
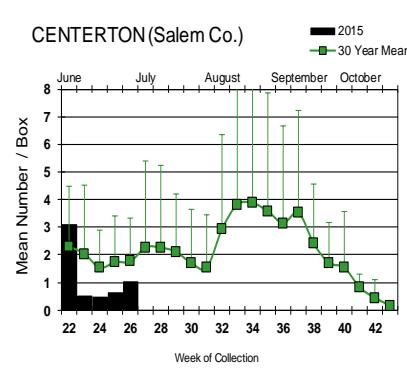
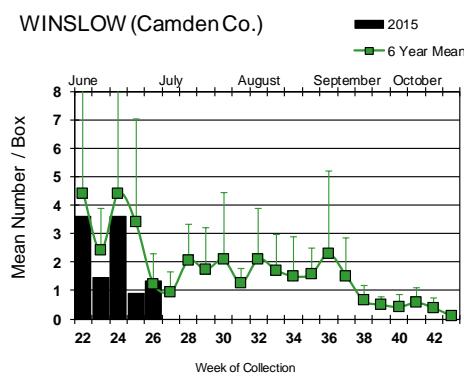
**Horses and Vaccinations:** The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: [http://www.aaep.org/vaccination\\_guidelines.htm](http://www.aaep.org/vaccination_guidelines.htm)

# Culiseta melanura Population Graphs

## Coastal



## Inland



For the third week, no populations of *Cs. melanura* at the traditional resting box sites were significantly above historical averages in the past week.



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

**EEE in US** (2015 cumulative cases): (Black or Red = previous + new reported cases occurring)

- equine: FL(7/1goat)
- mosquito pools:
- sentinel: FL(35), TX (5)
- human:

## West Nile Virus Positive Organisms in US, 2015

West Nile in US (2015 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					
Alaska					
Arizona	0	2		0	0
Arkansas				0	0
California	101/112	180/234	3		0
Colorado		0			0
Connecticut		0			0
Delaware					1
DC					0
Florida			8/10		
Georgia	0	0		0	0
Hawaii					
Idaho	0	2		0	0
Illinois	0	3		0	0
Indiana	0	1/3			0
Iowa					
Kansas		0			1/2
Kentucky				0	
Louisiana					
Maine					
Maryland					
Mass.		0		0	0
Michigan	3				
Minnesota					
Mississippi		1		0	0
Missouri		1		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana					
Nebraska	0	1		0	1
Nevada		7			
New Hampshire					
New Jersey	0	1/2		0	0
New Mexico					1
New York		3			
North Carolina					
North Dakota	0	0		0	0
Ohio		2			
Oklahoma					2/3
Oregon	0	0	0	0	0
Pennsylvania	1	7/11			
Rhode Island		0		0	0
South Carolina					
South Dakota		1			
Tennessee		6			
Texas		19/49			3
Utah					
Vermont					
Virginia					
Washington	2	1/5		0	0
West Virginia					
Wisconsin	3	0		0	0
Wyoming					

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

### Mosquito Species Submitted and Tested for West Nile Virus Testing through 6 July 2015

Species	Pools	Mosquitoes	Positives	MFIR
<i>Aedes albopictus</i>	33	66		
<i>Aedes atlanticus</i>	1	6		
<i>Aedes canadensis canadensis</i>	7	40		
<i>Aedes cantator</i>	5	108		
<i>Aedes japonicus</i>	47	191		
<i>Aedes sollicitans</i>	2	45		
<i>Aedes triseriatus</i>	6	58		
<i>Aedes trivittatus</i>	1	2		
<i>Aedes vexans</i>	8	161		
<i>Anopheles crucians</i>	1	1		
<i>Anopheles punctipennis</i>	2	4		
<i>Anopheles quadrimaculatus</i>	8	102		
<i>Coquillettidia perturbans</i>	20	462		
<i>Culex erraticus</i>	3	6		
<i>Culex pipiens</i>	57	1903		
<i>Culex restuans</i>	59	750		
<i>Culex salinarius</i>	3	38		
<i>Culex</i> sp.	343	11645	2	0.172
<i>Culiseta melanura</i>	75	1724		
<i>Psorophora ciliata</i>	2	8		
<i>Psorophora ferox</i>	3	7		
<b>Grand Total</b>	<b>686</b>	<b>17327</b>	<b>2</b>	<b>0.115</b>

**Remarks:** To date, 686 pools of 17,327 mosquitoes from 20 species have been tested, with 2 positive pools detected. First positive of the season occurred in Middlesex County, in a pool of mixed *Culex*, collected on the 22<sup>nd</sup> of June and second positive also in mixed *Culex* was collected in Somerset County on 24 June. Overall state MFIR is 0.115.

**Humans, Horses and Wild Birds:** No human cases of WNV have been reported. For further information, see <http://www.state.nj.us/health/cd/westnile/techinfo.shtml>.

No horse cases have been detected.

Bird testing began in mid-April. No positive birds have been reported. To date, 11 birds have been tested. Species includes: American Crow (*Corvus brachyrhynchos* 0/1) Fish Crow (*Corvus ossifragus* 0/3), Blue Jay (*Cyanocitta cristata* 0/1), Hawk/Raptor (0/1) and other avian species (0/5). Counties (**positives**) submitting birds are Atlantic, Essex, Hunterdon, Mercer, Morris, Ocean, Salem and Warren.

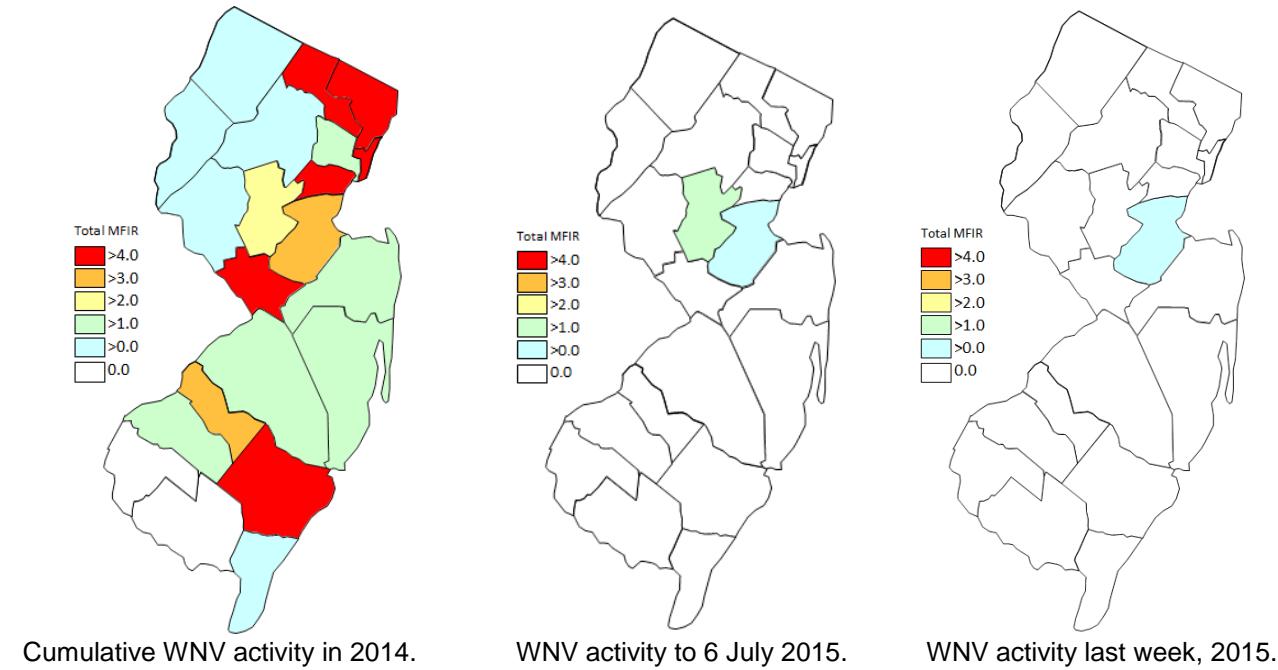
### WNV Results by County through 6 July 2015

County	Species	Pools	Mosquitoes	Positives	MFIR
<b>Atlantic</b>		<b>32</b>	<b>890</b>		
	<i>Aedes japonicus</i>	4	6		
	<i>Aedes vexans</i>	1	4		
	<i>Coquillettidia perturbans</i>	7	233		
	<i>Culex</i> spp.	13	550		
	<i>Culiseta melanura</i>	6	96		
	<i>Psorophora ferox</i>	1	1		

<b>Burlington</b>	<b>28</b>	<b>875</b>		
<i>Coquillettidia perturbans</i>	1	1		
<i>Culex</i> spp.	10	388		
<i>Culiseta melanura</i>	17	486		
<b>Camden</b>	<b>44</b>	<b>1672</b>		
<i>Aedes albopictus</i>	2	7		
<i>Aedes japonicus</i>	5	20		
<i>Culex</i> spp.	23	1099		
<i>Culiseta melanura</i>	13	545		
<i>Psorophora ferox</i>	1	1		
<b>Cape May</b>	<b>89</b>	<b>686</b>		
<i>Aedes canadensis canadensis</i>	2	2		
<i>Aedes cantator</i>	2	8		
<i>Aedes japonicus</i>	20	65		
<i>Aedes triseriatus</i>	1	1		
<i>Anopheles quadrimaculatus</i>	4	75		
<i>Coquillettidia perturbans</i>	5	154		
<i>Culex pipiens</i>	19	143		
<i>Culex restuans</i>	27	126		
<i>Culex salinarius</i>	1	2		
<i>Culex</i> spp.	1	2		
<i>Culiseta melanura</i>	7	108		
<b>Cumberland</b>	<b>26</b>	<b>364</b>		
<i>Aedes albopictus</i>	1	1		
<i>Aedes atlanticus</i>	1	6		
<i>Aedes cantator</i>	1	2		
<i>Aedes japonicus</i>	1	6		
<i>Aedes sollicitans</i>	2	45		
<i>Aedes triseriatus</i>	1	4		
<i>Aedes trivittatus</i>	1	2		
<i>Aedes vexans</i>	2	150		
<i>Anopheles quadrimaculatus</i>	3	23		
<i>Coquillettidia perturbans</i>	3	50		
<i>Culex restuans</i>	1	1		
<i>Culex</i> spp.	2	22		
<i>Culiseta melanura</i>	5	44		
<i>Psorophora ciliata</i>	2	8		
<b>Essex</b>	<b>26</b>	<b>291</b>		
<i>Aedes albopictus</i>	1	1		
<i>Aedes japonicus</i>	4	14		
<i>Culex</i> spp.	20	271		
<i>Psorophora ferox</i>	1	5		
<b>Gloucester</b>	<b>34</b>	<b>1640</b>		
<i>Culex</i> spp.	29	1550		
<i>Culiseta melanura</i>	5	90		
<b>Hudson</b>	<b>14</b>	<b>694</b>		
<i>Culex</i> spp.	14	694		

<b>Hunterdon</b>	<b>38</b>	<b>1900</b>		
<i>Culex</i> spp.	38	1900		
<b>Mercer</b>	<b>47</b>	<b>857</b>		
<i>Aedes albopictus</i>	2	8		
<i>Aedes vexans</i>	5	7		
<i>Coquillettidia perturbans</i>	1	10		
<i>Culex pipiens</i>	9	210		
<i>Culex restuans</i>	30	622		
<b>Middlesex</b>	<b>38</b>	<b>1670</b>	<b>1</b>	<b>0.599</b>
<i>Aedes albopictus</i>	10	11		
<i>Culex</i> spp.	26	1641	1	0.609
<i>Culiseta melanura</i>	2	18		
<b>Monmouth</b>	<b>56</b>	<b>955</b>		
<i>Aedes albopictus</i>	7	10		
<i>Aedes canadensis canadensis</i>	4	35		
<i>Aedes cantator</i>	2	98		
<i>Aedes japonicus</i>	1	7		
<i>Anopheles crucians</i>	1	1		
<i>Anopheles punctipennis</i>	2	4		
<i>Anopheles quadrimaculatus</i>	1	4		
<i>Coquillettidia perturbans</i>	1	1		
<i>Culex erraticus</i>	3	6		
<i>Culex salinarius</i>	2	36		
<i>Culex</i> spp.	27	731		
<i>Culiseta melanura</i>	5	22		
<b>Morris</b>	<b>45</b>	<b>1545</b>		
<i>Culex</i> spp.	45	1545		
<b>Ocean</b>	<b>39</b>	<b>434</b>		
<i>Aedes albopictus</i>	8	26		
<i>Aedes canadensis canadensis</i>	1	3		
<i>Aedes japonicus</i>	6	30		
<i>Culex</i> spp.	18	346		
<i>Culiseta melanura</i>	6	29		
<b>Salem</b>	<b>22</b>	<b>428</b>		
<i>Aedes albopictus</i>	2	2		
<i>Aedes japonicus</i>	2	4		
<i>Coquillettidia perturbans</i>	2	13		
<i>Culex restuans</i>	1	1		
<i>Culex</i> spp.	6	122		
<i>Culiseta melanura</i>	9	286		
<b>Somerset</b>	<b>40</b>	<b>781</b>	<b>1</b>	<b>1.280</b>
<i>Aedes japonicus</i>	1	10		
<i>Aedes triseriatus</i>	1	4		
<i>Culex</i> spp.	38	767	1	1.304
<b>Sussex</b>	<b>38</b>	<b>887</b>		
<i>Aedes japonicus</i>	3	29		
<i>Aedes triseriatus</i>	3	49		

<i>Culex</i> spp.	32	809		
<b>Warren</b>	<b>30</b>	<b>758</b>		
<i>Culex</i> spp.	30	758		
<b>Grand Total</b>	<b>686</b>	<b>17327</b>	<b>2</b>	<b>0.115</b>



## **Saint Louis Encephalitis (SLE) 2015.**

New Jersey will be testing for SLE this year only when adjacent states show human activity. 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.

County	Species	Pools	Mosquitoes	Positives	MFIR
<b>Grand Total</b>					

## **La Crosse Encephalitis (LAC) 2015.**

New Jersey will be testing for LAC this year only when adjacent states show human activity. 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).

County	Species	Pools	Mosquitoes	Positives	MFIR
<b>Grand Total</b>					

## Dengue (DENV) to 6 July 2015.

New Jersey will be selectively testing for DENV (including serotypes) this year. Dengue has not had a history of local transmission here in New Jersey, but each year, travelers can bring virus back from areas in the world with virus activity. This is significant as humans are NOT dead-end hosts and thus there is the potential for local transmission (i.e., New Jersey mosquitoes biting a sick person and then biting and transmitting the disease to someone else) to be established. DENV is a flavivirus but unlike WNV, *Aedes* mosquitoes are predominant vectors. In New Jersey, *Aedes albopictus* is a candidate for local transmission. There are 4 serotypes tested for Dengue. There are currently 40 imported human cases in New Jersey, no local transmission.

\*Note\* Same pools of *Ae. albopictus* are tested for the four serotypes of Dengue as well as Chikungunya.

No pools have tested positive in 2015. Currently, there are 13 imported human cases reported in New Jersey.

<b>Mercer</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>8</b>	
	2	8	2	8	2	8	2	8	
<b>Middlesex</b>	<b>10</b>	<b>11</b>	<b>10</b>	<b>11</b>	<b>10</b>	<b>11</b>	<b>10</b>	<b>11</b>	
	10	11	10	11	10	11	10	11	
<b>Monmouth</b>	<b>7</b>	<b>10</b>	<b>7</b>	<b>10</b>	<b>7</b>	<b>10</b>	<b>7</b>	<b>10</b>	
	7	10	7	10	7	10	7	10	
<b>Salem</b>	<b>2</b>								
	2	2	2	2	2	2	2	2	
<b>Grand Total</b>		<b>23</b>	<b>37</b>	<b>23</b>	<b>37</b>	<b>23</b>	<b>37</b>	<b>23</b>	<b>37</b>

### Chikungunya (CHIK) to 6 July 2015.

New Jersey will be selectively testing for CHIK this year. Chikungunya is similar in symptoms to Dengue, a "breakbone" fever and has a low mortality rate. But this virus has had recent worldwide activity, and in the past year has come to the Western Hemisphere. As with Dengue, transmission can occur when a mosquito bites an infected human, then bites an uninfected human who subsequently becomes ill. CHIK is an alphavirus with *Aedes* mosquitoes as potential vectors. In New Jersey, *Aedes albopictus* is the mosquito of interest.

No pools have tested positive in 2015. Currently, there are 13 imported human cases reported in New Jersey.

County	Species	Pools	Mosquitoes	Positives	MFIR
<b>Camden</b>		1	5		
	<i>Aedes albopictus</i>	1	5		
<b>Cumberland</b>		1	1		
	<i>Aedes albopictus</i>	1	1		
<b>Mercer</b>		<b>2</b>	<b>8</b>		
	<i>Aedes albopictus</i>	2	8		
<b>Middlesex</b>		<b>10</b>	<b>11</b>		
	<i>Aedes albopictus</i>	10	11		
<b>Monmouth</b>		<b>7</b>	<b>10</b>		
	<i>Aedes albopictus</i>	7	10		
<b>Salem</b>		<b>2</b>	<b>2</b>		
	<i>Aedes albopictus</i>	2	2		
<b>Grand Total</b>		<b>23</b>	<b>37</b>		