VECTOR SURVEILLANCE IN NEW JERSEY

EEE, WNV, SLE, LAC, DENV and CHIK

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CDC WEEK 28: 12 July to 18 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**	0.27	0.40	5 (7)	4 (5)		
Green Bank (Burlington Co.)/25	**Coastal**	2.67	0.28	22 (29)	4 (5)		
Corbin City (Atlantic Co.)/25	**Coastal**	0.70	0.56	89 (103)	5 (6)		
Dennisville (Cape May Co.)/50	**Coastal**	4.03	0.76	120 (158)	5 (6)		
Winslow (Camden Co.)/50	**Inland**	2.06	1.48	649 (723)	16 (18)		
Centerton (Salem Co.)/50	**Inland**	2.26	1.52	336 (412)	10 (12)		
Turkey Swamp (Monmouth Co.)/50	**Inland**	0.57	0.70	72 (107)	6 (7)		
Glassboro (Gloucester Co.)/50	**Inland**	0.81	0.20	103 (113)	6 (7)		

*Current week (in parentheses) results pending.

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. To date, 1396 *Cs. melanura* from 54 pools have been tested for EEE with an additional 10 pools containing 256 *Cs. melanura* 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	56 (7)		
Burlington	CO_2	852 (23)		
Cape May	GR, RB	15 (8)		
Cumberland	CO_2, RB	68 (8)		
Middlesex	RB	25 (3)		
Ocean	CO_2, GR, RB	30 (7)		
TOTAL		**1046 (56)**		

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

Species other than *Cs. melanura*	**Pools**	**Mosquitoes**	**Positives**	**MFIR**
Aedes cantator	9	15		
Aedes sollicitans	5	182		
Anopheles bradleyi	1	1		
Anopheles crucians	1	1		
Anopheles punctipennis	2	5		
Anopheles quadrimaculatus	2	51		
Coquillettidia perturbans	29	717		
Culex erraticus	1	1		
Culex pipiens	44	379		
Culex restuans	1	1		
Culex salinarius	7	268		
Culex sp.	3	5		
State Total	**105**	**1626**		

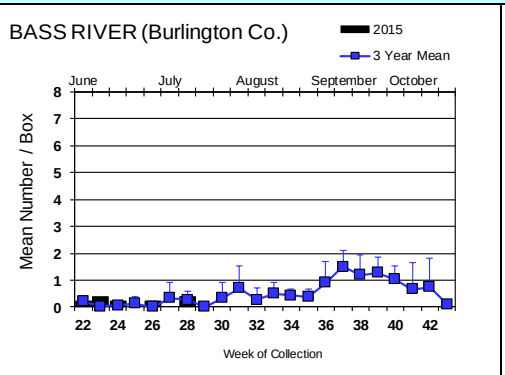
Additional Species: Eleven additional species were tested for EEE and no positives were detected.

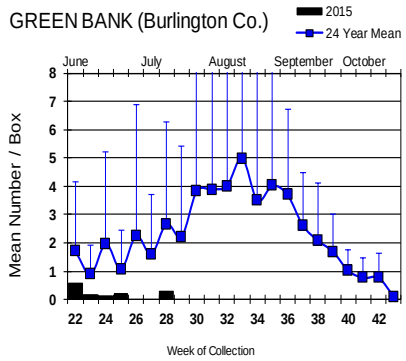
Horses and Humans: No horses or humans have been reported with EEE.

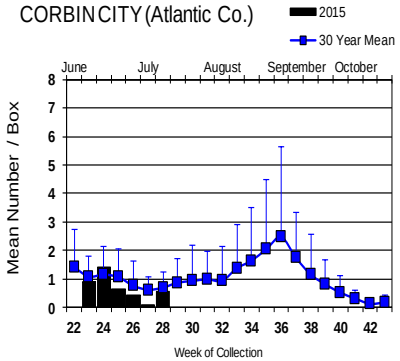
Horses and Vaccinations: The fate of unvaccinated equids reinforces the necessity of maintaining a vaccination schedule for arboviruses. For vaccination schedules recommended by the American Association of Equine Practices, see: http://www.aaep.org/vaccination_guidelines.htm

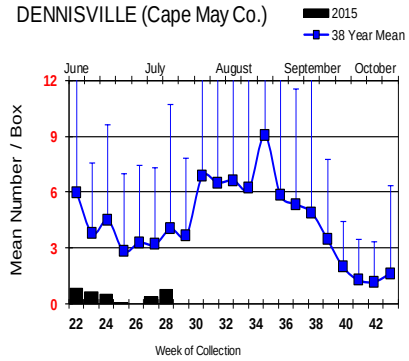
Culiseta melanura Population Graphs

Coastal

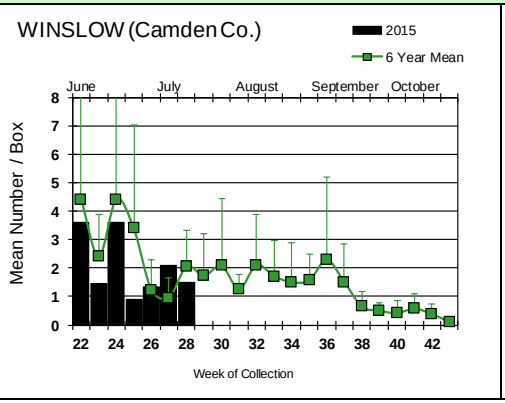


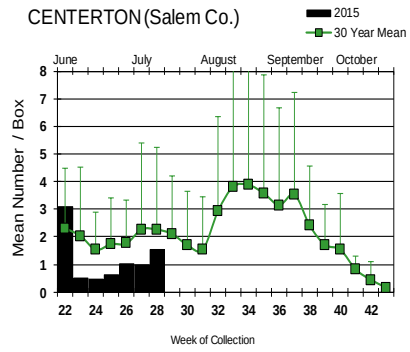


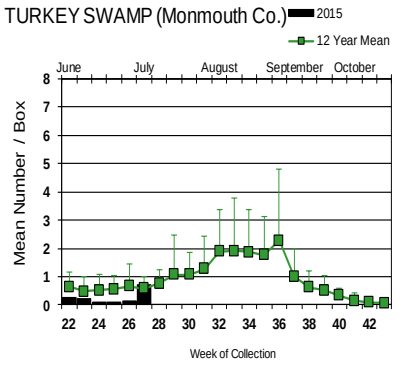


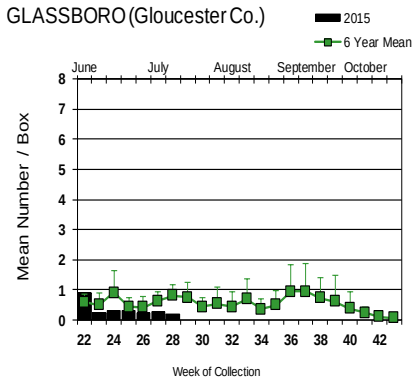


Inland









Populations of *Cs. melanura* at the traditional resting box sites continued to be near or well below historical averages. No positive pools detected to date.

= 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(14/1goat) NC(1) SC(1) TX(2) VA(1)
- mosquito pools: NY(2)
- sentinel: FL(38), TX(5)
- human: LA (1)

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	1
Arkansas				0	0
California	152/215	348/497	3/5		0
Colorado		2			1
Connecticut		0			0
Delaware					1
DC					0
Florida			10/13		
Georgia	0	0		0	0
Hawaii					
Idaho	0	8/10		0	0
Illinois	1/2	7/9		0	0
Indiana	0	5			0
Iowa		0		0	0
Kansas		0			2
Kentucky				0	
Louisiana					3
Maine					
Maryland					
Mass.		1		0	0
Michigan	3				
Minnesota		1			
Mississippi		1/2		0	1
Missouri		1		0	0

	Birds	Mosquito Pools	Sentinels	Horses	Humans
Montana					1
Nebraska	0	1		0	1
Nevada		7			
New Hampshire		0		0	0
New Jersey	2	6/13		0	0
New Mexico					1
New York		3			
North Carolina					
North Dakota	0	2		0	1
Ohio		5/11			
Oklahoma		2			4/6
Oregon	0	3	0	0	0
Pennsylvania	1/2	24/95			
Rhode Island		0		0	0
South Carolina					
South Dakota		1			1
Tennessee		6			
Texas		64/141			3
Utah	1	1/6			
Vermont					
Virginia					
Washington	2	16/32		0	1
West Virginia					
Wisconsin	3/6	0		0	0
Wyoming					

* 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 20 July 2015

Species	Pools	Mosquitoes	Positives	MFIR
Aedes albopictus	137	622	1	1.608
Aedes atlanticus	1	6		
Aedes canadensis canadensis	12	111		
Aedes cantator	15	185		
Aedes grossbecki	5	25		
Aedes japonicus	93	538		
Aedes sollicitans	5	182		
Aedes taeniorhynchus	1	16		
Aedes triseriatus	19	82		
Aedes trivittatus	1	2		
Aedes vexans	12	219		
Anopheles bradleyi	1	1		
Anopheles crucians	1	1		
Anopheles punctipennis	11	41		
Anopheles quadrimaculatus	12	159		
Coquillettidia perturbans	30	718		
Culex erraticus	6	56		
Culex pipiens	116	3874		
Culex restuans	104	1122		
Culex salinarius	9	304		
Culex sp.	669	25436	12	0.472
Culiseta melanura	114	2448		
Psorophora ciliata	3	20		
Psorophora columbiae	2	21		
Psorophora ferox	4	8		
Grand Total	**1383**	**36197**	**13**	**0.359**

Remarks: To date, 1383 pools of 36,197 mosquitoes from 24 species have been tested, with 13 positive pools detected, all in mixed *Culex* pools. First positive of the season occurred in Middlesex County, in a pool of mixed *Culex*, collected on the 22nd of June. First positive pool in non-*Culex* was in an *Aedes albopictus* pool, collected in Monmouth County on 10 July. Overall state MFIR is 0.359, up from the previous week of 0.228.

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. Two positive birds have been reported, both corvids. To date, 19 birds have been tested. Species includes: American Crow (*Corvus brachyrhynchos* 0/1) Fish Crow (*Corvus ossifragus* 1/7), Blue Jay (*Cyanocitta cristata* 1/3), Hawk/Raptor (0/1) and other avian species (0/7). Counties (positives) submitting birds are Atlantic, Burlington, Essex, Gloucester, Hunterdon, Mercer, Monmouth, Morris, Ocean, Salem and Warren.

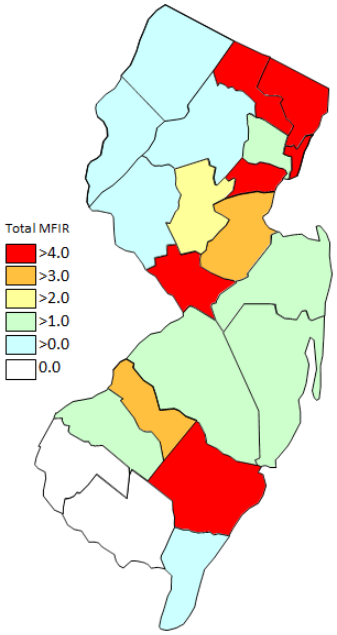
WNV Results by County through 20 July 2015

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**55**	**1453**		
	Aedes albopictus	4	41		
	Aedes japonicus	5	13		

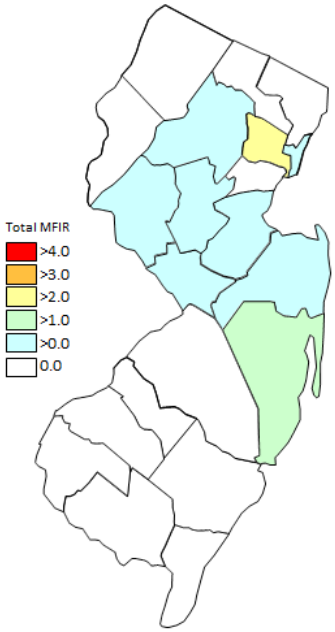
	Aedes vexans	1	4		
	Coquillettidia perturbans	12	410		
	Culex spp.	20	839		
	Culiseta melanura	12	145		
	Psorophora ferox	1	1		
Bergen		**10**	**705**		
	Aedes japonicus	1	30		
	Culex spp.	9	675		
Burlington		**55**	**1884**		
	Coquillettidia perturbans	1	1		
	Culex salinarius	4	152		
	Culex spp.	19	852		
	Culiseta melanura	31	879		
Camden		**83**	**2664**		
	Aedes albopictus	4	12		
	Aedes canadensis canadensis	2	12		
	Aedes cantator	1	1		
	Aedes japonicus	17	196		
	Anopheles punctipennis	1	1		
	Culex spp.	40	1791		
	Culiseta melanura	17	650		
	Psorophora ferox	1	1		
Cape May		**192**	**1176**		
	Aedes albopictus	2	2		
	Aedes canadensis canadensis	3	3		
	Aedes cantator	9	15		
	Aedes japonicus	32	92		
	Aedes triseriatus	6	6		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	2	2		
	Anopheles quadrimaculatus	8	132		
	Coquillettidia perturbans	5	154		
	Culex erraticus	1	1		
	Culex pipiens	44	379		
	Culex restuans	64	250		
	Culex salinarius	1	2		
	Culex spp.	1	2		
	Culiseta melanura	13	135		
Cumberland		**56**	**826**		
	Aedes albopictus	4	8		
	Aedes atlanticus	1	6		
	Aedes cantator	1	2		
	Aedes grossbecki	5	25		
	Aedes japonicus	1	6		
	Aedes sollicitans	5	182		
	Aedes taeniorhynchus	1	16		
	Aedes triseriatus	1	4		
	Aedes trivitattus	1	2		
	Aedes vexans	5	207		
	Anopheles punctipennis	1	13		

	Anopheles quadrimaculatus	3	23		
	Coquillettidia perturbans	4	52		
	Culex restuans	1	1		
	Culex salinarius	2	114		
	Culex spp.	7	56		
	Culiseta melanura	8	68		
	Psorophora ciliata	3	20		
	Psorophora columbiae	2	21		
Essex		**56**	**865**	**2**	**2.312**
	Aedes albopictus	1	1		
	Aedes japonicus	6	18		
	Culex spp.	47	840	2	2.381
	Psorophora ferox	2	6		
Gloucester		**86**	**3351**		
	Aedes albopictus	21	105		
	Aedes japonicus	3	31		
	Culex spp.	56	3112		
	Culiseta melanura	6	103		
Hudson		**41**	**1954**	**1**	**0.512**
	Culex spp.	41	1954	1	0.512
Hunterdon		**68**	**3400**	**1**	**0.294**
	Culex spp.	68	3400	1	0.294
Mercer		**77**	**2315**	**1**	**0.432**
	Aedes albopictus	2	8		
	Aedes vexans	5	7		
	Coquillettidia perturbans	1	10		
	Culex pipiens	16	383		
	Culex restuans	36	868		
	Culex spp.	17	1039	1	0.962
Middlesex		**98**	**4050**	**3**	**0.741**
	Aedes albopictus	25	64		
	Culex spp.	70	3961	3	0.757
	Culiseta melanura	3	25		
Monmouth		**134**	**2239**	**1**	**0.447**
	Aedes albopictus	51	196	1	5.102
	Aedes canadensis canadensis	6	93		
	Aedes cantator	4	167		
	Aedes japonicus	1	7		
	Anopheles crucians	1	1		
	Anopheles punctipennis	3	7		
	Anopheles quadrimaculatus	1	4		
	Coquillettidia perturbans	1	1		
	Culex erraticus	5	55		
	Culex restuans	1	1		
	Culex salinarius	2	36		
	Culex spp.	51	1594		
	Culiseta melanura	7	77		

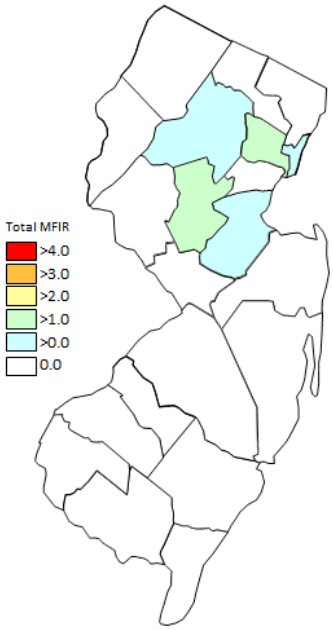
Morris		**77**	**2920**	**2**	**0.685**
	Aedes albopictus	2	72		
	Culex spp.	75	2848	2	0.702
Ocean		**67**	**907**	**1**	**1.103**
	Aedes albopictus	17	109		
	Aedes canadensis canadensis	1	3		
	Aedes japonicus	10	48		
	Coquillettidia perturbans	1	70		
	Culex spp.	31	647	1	1.546
	Culiseta melanura	7	30		
Passaic		**9**	**149**		
	Aedes japonicus	2	5		
	Aedes triseriatus	2	3		
	Aedes vexans	1	1		
	Culex spp.	4	140		
Salem		**42**	**574**		
	Aedes albopictus	4	4		
	Aedes japonicus	6	10		
	Aedes triseriatus	2	2		
	Coquillettidia perturbans	5	20		
	Culex restuans	2	2		
	Culex spp.	13	200		
	Culiseta melanura	10	336		
Somerset		**57**	**1140**	**1**	**0.877**
	Aedes japonicus	4	42		
	Aedes triseriatus	3	10		
	Anopheles punctipennis	1	4		
	Culex spp.	49	1084	1	0.923
Sussex		**61**	**1168**		
	Aedes japonicus	5	40		
	Aedes triseriatus	5	57		
	Anopheles punctipennis	3	14		
	Culex spp.	48	1057		
Union		**14**	**1020**		
	Culex spp.	14	1020		
Warren		**45**	**1437**		
	Culex spp.	45	1437		
Grand Total		**1383**	**36197**	**13**	**0.359**



Cumulative WNV activity in 2014.



WNV activity to 20 July 2015.



WNV activity last week, 2015.

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
Grand Total					

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
Grand Total					

Dengue (DENV) to 20 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 16 imported human cases reported in New Jersey.

County	Species	DENV1		DENV2		DENV3		DENV4		Positives	MFIR
		Pool	Mos.	Pool	Mos.	Pool	Mos.	Pool	Mos.		
Atlantic		**4**	**41**	**4**	**41**	**4**	**41**	**4**	**41**		
		4	41	4	41	4	41	4	41		
Camden		**3**	**10**	**3**	**10**	**3**	**10**	**3**	**10**		
		3	10	3	10	3	10	3	10		
Cumberland		**4**	**8**	**4**	**8**	**4**	**8**	**4**	**8**		
		4	8	4	8	4	8	4	8		
Gloucester		**21**	**105**	**21**	**105**	**21**	**105**	**21**	**105**		
		21	105	21	105	21	105	21	105		
Mercer		**2**	**8**	**2**	**8**	**2**	**8**	**2**	**8**		
		2	8	2	8	2	8	2	8		
Middlesex		**25**	**64**	**25**	**64**	**25**	**64**	**25**	**64**		
		25	64	25	64	25	64	25	64		
Monmouth		**51**	**196**	**51**	**196**	**51**	**196**	**51**	**196**		
		51	196	51	196	51	196	51	196		
Morris		**2**	**72**	**2**	**72**	**2**	**72**	**2**	**72**		
		2	72	2	72	2	72	2	72		
Salem		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**		
		4	4	4	4	4	4	4	4		
Grand Total		**116**	**508**	**116**	**508**	**116**	**508**	**116**	**508**		

Chikungunya (CHIK) to 20 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 14 imported human cases reported in New Jersey.

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**4**	**41**		
	Aedes albopictus	4	41		
Camden		**3**	**10**		
	Aedes albopictus	3	10		
Cape May		**2**	**2**		
	Aedes albopictus	2	2		
Cumberland		**4**	**8**		
	Aedes albopictus	4	8		
Gloucester		**21**	**105**		
	Aedes albopictus	21	105		
Mercer		**2**	**8**		
	Aedes albopictus	2	8		
Middlesex		**25**	**64**		
	Aedes albopictus	25	64		
Monmouth		**51**	**196**		
	Aedes albopictus	51	196		
Morris		**2**	**72**		
	Aedes albopictus	2	72		
Salem		**4**	**4**		
	Aedes albopictus	4	4		
Grand Total		**118**	**510**		