VECTOR SURVEILLANCE SUMMARY SHEET

EEE and WNV in New Jersey

WEEK 16: September 16 to September 22, 2007

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

Culiseta melanura and Eastern Equine Encephalitis

Coastal Resting Boxes						Inland Resting Boxes					
Sites	Mean From Previous Years	No. Per Box For This Collection	Total Collected to Date*	Total Pools Submitted to Date*	EEE Isolations To Date	Sites	Mean From Previous Years	No. Per Box For This Collection	Total Collected to Date*	Total Pools Submitted to Date*	EEE Isolations To Date
Green Bank (Burlington Co.)	3.3	1.5	596	54	1	Waterford (Camden Co.)	2.1	2.2	669	47	-
Corbin City (Atlantic Co.)	1.9	< 0.1	356	49	-	Centerton (Salem Co.)	4.5	1.2	733	58	1
Dennisville (Cape May Co.)	6.1	0.3	1230	68	-	Turkey Swamp (Monmouth Co.)	1.1	1.1	1498	75	-

*Including trial run last week in May.

Remarks: The Waterford site was the only monitoring site to report an increase in the population of *Culiseta melanura*, the enzootic vector of eastern equine encephalitis. Now is the time of year when this species is expected to decline, which is what we see at four of the other monitoring sites. There was no change in population size at Green Bank.

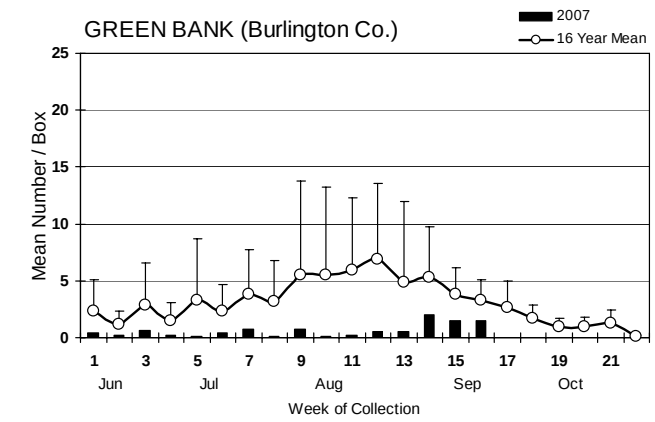
As we near the end of the mosquito season, virus activity is picking up, with an additional positive mosquito pool and transmission continuing to sentinel birds. To date, 351 pools from 5072 mosquitoes have been tested for EEE with one positive pool at Green Bank, one positive pool at Centerton and one positive pool in Cumberland County. Two out of three chickens were found positive for EEE in a flock maintained and tested by the Cape May County Division of Mosquito Control. This flock was located in Belleplain State Park, not far from the Dennisville site. In the past, an increase of avian transmission has been observed prior to horse cases, but this has also been associated with wetter weather and a corresponding larger *Cs. melanura* populations. Parity data, particularly if there were positive bridge vectors, would be valuable to determine the age structure and thus the relative infectiousness of the age classes comprising the biting population.

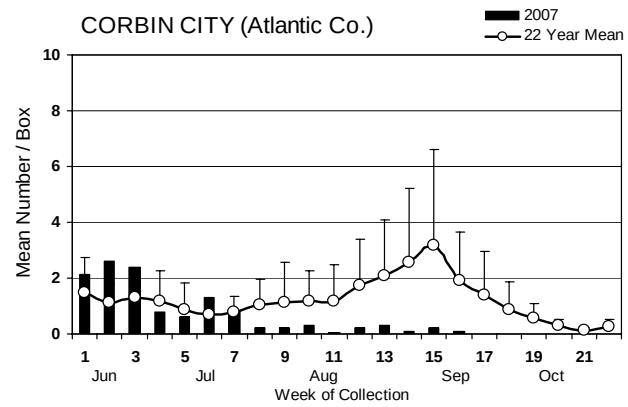
There have been no reported human or horses cases to this date, nor reports of pending cases.

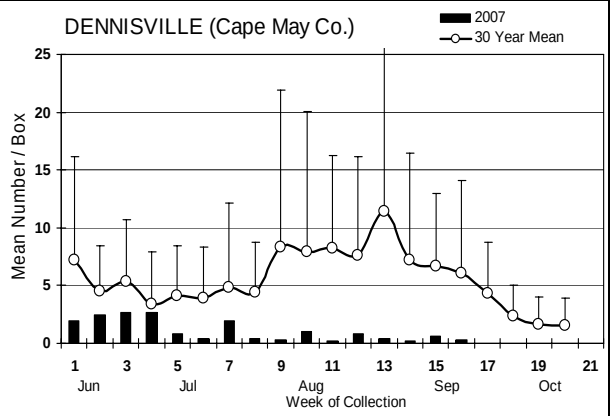
Summary Prepared by Lisa M. Reed, Scott Crans and Dina Fonseca at the Center for Vector Biology, Rutgers University. Supported by funding from the NJ State Mosquito Control Commission.

Culiseta melanura Population Graphs

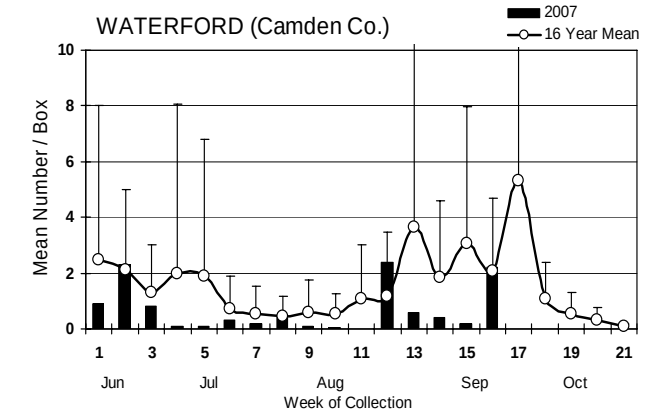
Coastal

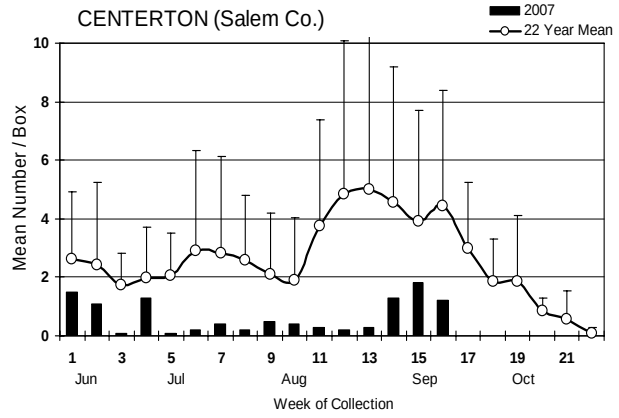


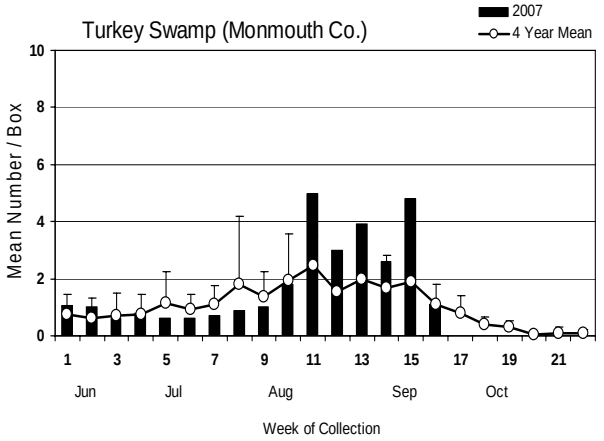




Inland







Figures: Inland and coastal resting box sites showing current weekly population levels (in bars) against historical trends (lines with standard deviation). The number of years for historical population levels varies by site.

EEE in US (2007 cumulative cases): New Reports are in red.

- equine: 7(AL) 1(AR) 15(FL) 5(GA) 13(LA) 2(MI) 26(MS) 1(NH) 1(SC) 5(TX) 2(VA)
- mosquito: 3(CT) 2(LA) 24(MA) 1(MD) 2+(NH) 2(NJ) 1(NY) 18(VA)
- sentinel: 6(AL) 4(DE live wild bird) 62(99live wild bird)(FL) 11(NC) 13(VA)
- human: 1(AL) 2(NH)

Mosquito Species Submitted for West Nile Virus Testing through 21 September 2007

Species	Pools	Mosquitoes	Positives	MFIR
Aedes abserratus	1	2		
Aedes albopictus	564	6560	3	0.46
Aedes atlanticus	3	3		
Aedes atropalpus	7	10		
Aedes canadensis canadensis	48	1185		
Aedes cantator	14	62		
Aedes cinereus	3	18		
Aedes grossbecki	1	1		
Aedes japonicus	303	1656	2	1.27
Aedes sollicitans	28	442		
Aedes sticticus	11	273		
Aedes stimulans	1	3		
Aedes taeniorhynchus	10	115		
Aedes thibaulti	3	4		
Aedes triseriatus	156	447		
Aedes trivittatus	13	91		
Aedes vexans	144	1291		
Anopheles barberi	6	6		
Anopheles bradleyi	48	449		
Anopheles crucians	2	3		
Anopheles punctipennis	116	509		
Anopheles quadrimaculatus	147	2466		
Anopheles walkeri	8	13		
Coquillettidia perturbans	93	1462		
Culex erraticus	70	1104		
Culex pipiens	479	7720	47	6.09
Culex restuans	201	2829	6	2.12
Culex salinarius	129	2152	6	2.79
Culex sp.	1829	66374	194	2.92
Culex territans	43	288		
Culiseta melanura	419	5707	1	0.18
Orthopodomyia signifera	5	8		
Psorophora ciliata	3	7		
Psorophora columbiae	26	178		
Psorophora ferox	25	573		
Psorophora howardii	4	4		
Uranotaenia sapphirina	15	78		
Grand Total	**4976**	**104093**	**259**	**2.49**

Remarks: To date, there have been 104,093 mosquitoes submitted for testing in 4,976 pools. Submissions are from 36 different species, including mixed *Culex* pools and are from 21 counties. The relatively high MFIR values for the bird-biting *Culex* suggest that the enzootic cycle is continuing. The MFIR values for the potential bridge vectors *Ae. albopictus*, *Ae. japonicus* and *Cx. salinarius* should be noted in that all three are very efficient vectors and are occurring primarily through the high human density zones of the state. Despite this, we have neither human cases nor any reports of pending cases. There has also been no horse cases reported.

At this point in time, there have been 156 dead birds submitted for West Nile virus testing. Thirty-two have been found positive (20.5%). At this time last year, there were 181 tested with 40 positive birds (22.1%).

2007 Positive Mosquito pools to date / Total Mosquito Pools Submitted	This time last year
259/5091	244 / 4454

West Nile in US (2007 cumulative cases): Old/New reports

	Birds	Mosqs.	Sentinels	Horses	Humans
Alabama	1				13
Alaska					
Arizona	4/5	214/238	24/25	8/9	27/35
Arkansas	32/35	15/24	6		6/8
California	915/1070	891/918	273/330	22	198/257
Colorado	46	609		17/19	373/440
Connecticut		49/54			4
Delaware	4/7 (~24 live)		7/13		
Florida	11 live		17/21		3
Georgia	7/8	51/67			20/25
Hawaii					
Idaho	13/14	17 cnty		13/15	84/92
Illinois	31/33	949/1015		2	28/34
Indiana	6	103/104		1	7/8
Iowa		3	6	2	12
Kansas				4	21/26
Kentucky	2/3	5		1	2/3
Louisiana	58 (wild live)	38		5	4
Maine					
Maryland		1			1
Mass.	33/39	51/56			1/3
Michigan	4	2/3		2 ?	2/4
Minnesota		94/96		9/12	75/83
Mississippi	4	18		9/10	76
Missouri		227/253		13/14	18/30
Montana		110		24/26	100/149
Nebraska	42	176/178		7	82/98

	Birds	Mosqs.	Sentinels	Horses	Humans
Nevada	7	21/24		1	8/9
New Hampshire	2				
New Jersey	27/31	229/256			
New Mexico		68/72		12	27/42
New York	54/60	229/247			4/6
North Carolina					
North Dakota	9	4	5	4	260/296
Ohio	10	264/272			5/8
Oklahoma		40/41		6	51/61
Oregon	32	28	14	8	13
Pennsylvania	7	166/187			1/3
Rhode Island		5 county			
South Carolina	4	40		1	3/4
South Dakota	5	96		8	161/175
Tennessee	5/6	491/517		1	3/4
Texas	60/63	189		15	47/83
Utah	11	166/184	46/52	12/60	28/43
Vermont	2				
Virginia		447	1	1	2
Washington				7/8	
West Virginia		1			
Wisconsin	27/35			7/8	3
Wyoming		1			155

Protocol: New Jersey Department of Health and Senior Services tests mosquito pools using RT-PCR Taqman techniques.

Submission for West Nile Testing by County through 21 September 2007

County	Species	Pools	Mosquitoes	Positives	MFIR
Atlantic		**203**	**2662**	**7**	**2.63**
	Aedes albopictus	34	357		
	Aedes canadensis canadensis	2	27		
	Aedes cantator	3	21		
	Aedes grossbecki	1	1		
	Aedes japonicus	4	6		
	Aedes sollicitans	10	312		
	Aedes taeniorhynchus	6	91		
	Aedes triseriatus	3	6		
	Aedes vexans	12	73		
	Anopheles bradleyi	2	3		
	Anopheles quadrimaculatus	2	2		
	Coquillettidia perturbans	4	10		
	Culex erraticus	3	28		
	Culex restuans	2	2		
	Culex salinarius	2	60		
	Culex sp.	49	1248	**7**	**5.61**
	Culex territans	5	5		
	Culiseta melanura	53	376		
	Orthopodomyia signifera	1	1		
	Psorophora columbiae	2	2		
	Psorophora ferox	2	32		
	Psorophora howardii	1	1		
Bergen		**236**	**12399**	**68**	**5.48**

	Aedes albopictus	12	114		
	Aedes japonicus	6	79		
	Aedes triseriatus	3	74		
	Aedes vexans	5	23		
	Anopheles barberi	1	1		
	Anopheles bradleyi	4	8		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	1	1		
	Coquillettidia perturbans	6	23		
	Culex pipiens	28	886	**9**	**10.16**
	Culex restuans	5	6		
	Culex salinarius	24	961	**3**	**3.12**
	Culex sp.	138	10220	**56**	**5.48**
	Culex territans	1	1		
	Orthopodomyia signifera	1	1		
Burlington		**337**	**2984**	**0**	
	Aedes albopictus	42	550		
	Aedes atropalpus	4	7		
	Aedes canadensis canadensis	8	23		
	Aedes cantator	1	12		
	Aedes japonicus	22	140		
	Aedes sollicitans	3	9		
	Aedes sticticus	1	1		
	Aedes taeniorhynchus	1	4		
	Aedes triseriatus	18	58		
	Aedes vexans	20	157		
	Anopheles barberi	2	2		
	Anopheles bradleyi	4	13		
	Anopheles crucians	2	3		
	Anopheles punctipennis	14	43		
	Anopheles quadrimaculatus	12	54		
	Coquillettidia perturbans	20	135		
	Culex erraticus	4	37		
	Culex pipiens	19	98		
	Culex restuans	13	185		
	Culex salinarius	8	29		
	Culex sp.	33	588		
	Culex territans	3	11		
	Culiseta melanura	70	787		
	Orthopodomyia signifera	1	3		
	Psorophora ciliata	2	5		
	Psorophora columbiae	4	14		
	Psorophora ferox	2	2		
	Psorophora howardii	2	2		
	Uranotaenia sapphirina	2	12		
Camden		**426**	**4470**	**16**	**3.58**
	Aedes albopictus	91	1571		
	Aedes atlanticus	1	1		
	Aedes canadensis canadensis	1	1		
	Aedes japonicus	40	116	**1**	**8.62**
	Aedes triseriatus	16	27		
	Aedes trivittatus	6	9		
	Aedes vexans	23	158		
	Anopheles bradleyi	1	1		

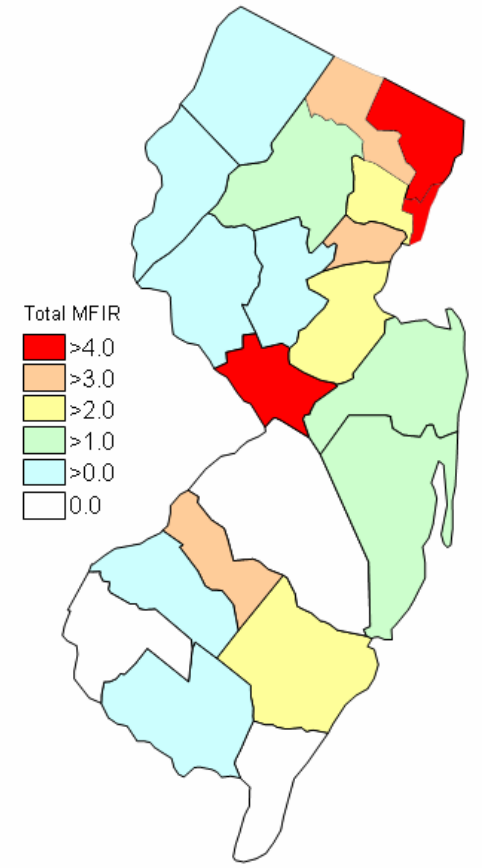
	Anopheles punctipennis	27	81		
	Anopheles quadrimaculatus	24	38		
	Coquillettidia perturbans	9	13		
	Culex erraticus	3	3		
	Culex pipiens	49	839	**13**	**15.49**
	Culex restuans	20	60	**1**	**16.67**
	Culex salinarius	14	30		
	Culex sp.	49	1147	**1**	**0.87**
	Culex territans	3	4		
	Culiseta melanura	47	669		
	Psorophora columbiae	1	1		
	Uranotaenia sapphirina	1	1		
Cape May		**265**	**4242**	**0**	
	Aedes albopictus	4	12		
	Aedes cantator	1	2		
	Aedes japonicus	4	8		
	Aedes sollicitans	2	4		
	Anopheles bradleyi	14	235		
	Anopheles punctipennis	1	1		
	Anopheles quadrimaculatus	34	1731		
	Coquillettidia perturbans	1	2		
	Culex erraticus	4	18		
	Culex pipiens	50	510		
	Culex restuans	25	73		
	Culex salinarius	9	34		
	Culex sp.	39	335		
	Culex territans	6	18		
	Culiseta melanura	70	1257		
	Uranotaenia sapphirina	1	2		
Cumberland		**140**	**2574**	**2**	**0.78**
	Aedes abserratus	1	2		
	Aedes albopictus	20	147		
	Aedes japonicus	7	18		
	Aedes sollicitans	3	29		
	Aedes taeniorhynchus	1	16		
	Aedes triseriatus	1	2		
	Anopheles bradleyi	6	105		
	Anopheles quadrimaculatus	6	45		
	Culex erraticus	9	37		
	Culex pipiens	10	284		
	Culex restuans	3	54		
	Culex salinarius	3	102		
	Culex sp.	53	1530	**2**	**1.31**
	Culiseta melanura	16	171		
	Psorophora columbiae	1	32		
Essex		**115**	**1364**	**4**	**2.93**
	Aedes albopictus	12	52		
	Aedes canadensis canadensis	2	4		
	Aedes japonicus	7	24		
	Aedes sticticus	3	24		
	Aedes stimulans	1	3		
	Aedes triseriatus	10	14		
	Aedes trivittatus	5	74		

	Aedes vexans	6	64		
	Anopheles punctipennis	3	3		
	Anopheles quadrimaculatus	7	25		
	Coquillettidia perturbans	3	3		
	Culex sp.	39	538	**4**	**7.43**
	Psorophora ciliata	1	2		
	Psorophora ferox	16	534		
Gloucester		**208**	**2578**	**1**	**0.39**
	Aedes albopictus	12	70		
	Aedes japonicus	23	53		
	Aedes triseriatus	2	11		
	Aedes vexans	2	38		
	Anopheles punctipennis	4	5		
	Anopheles quadrimaculatus	7	7		
	Anopheles walkeri	5	9		
	Coquillettidia perturbans	1	7		
	Culex pipiens	133	2212		
	Culex restuans	1	4		
	Culex salinarius	1	2		
	Culiseta melanura	15	157	**1**	**6.37**
	Uranotaenia sapphirina	2	3		
Hudson		**330**	**10906**	**58**	**5.32**
	Aedes albopictus	101	729		
	Aedes atropalpus	1	1		
	Aedes triseriatus	5	10		
	Aedes trivittatus	1	1		
	Culex sp.	222	10165	**58**	**5.71**
Hunterdon		**191**	**8753**	**6**	**0.69**
	Aedes japonicus	3	66		
	Aedes triseriatus	1	8		
	Aedes vexans	2	100		
	Anopheles punctipennis	1	2		
	Culex pipiens	9	380		
	Culex restuans	12	643		
	Culex sp.	161	7545	**6**	**0.80**
	Culex territans	2	9		
Mercer		**394**	**5696**	**29**	**5.09**
	Aedes albopictus	94	1893	**1**	**0.53**
	Aedes atropalpus	2	2		
	Aedes canadensis canadensis	2	9		
	Aedes japonicus	23	51		
	Aedes sticticus	1	3		
	Aedes triseriatus	16	34		
	Aedes vexans	13	26		
	Anopheles punctipennis	8	27		
	Anopheles quadrimaculatus	4	7		
	Coquillettidia perturbans	6	102		
	Culex erraticus	21	560		
	Culex pipiens	108	1601	**19**	**11.87**
	Culex restuans	45	509	**3**	**5.89**
	Culex salinarius	14	92	**1**	**10.87**
	Culex sp.	30	768	**5**	**6.51**

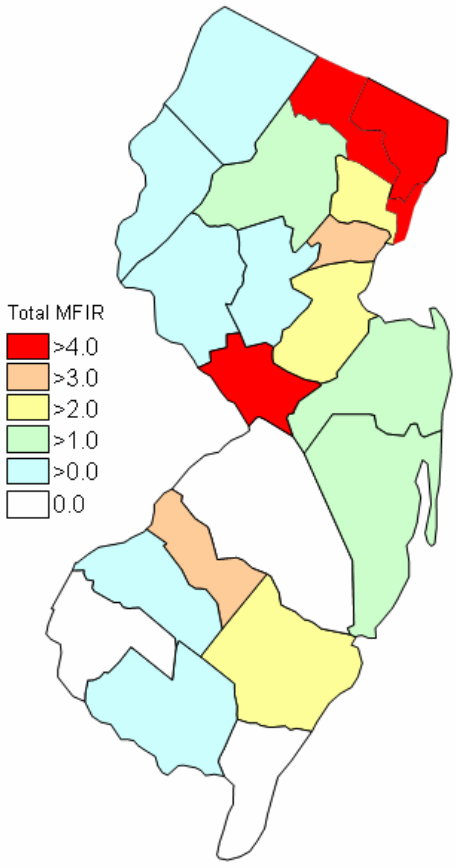
	Culex territans	2	2		
	Psorophora columbiae	3	8		
	Psorophora ferox	1	1		
	Psorophora howardii	1	1		
Middlesex		**299**	**7862**	**22**	**2.80**
	Aedes albopictus	18	129	**1**	**7.75**
	Aedes canadensis canadensis	5	35		
	Aedes japonicus	23	133		
	Aedes sollicitans	1	1		
	Aedes triseriatus	6	22		
	Aedes vexans	10	85		
	Anopheles barberi	1	1		
	Anopheles bradleyi	3	29		
	Anopheles punctipennis	3	14		
	Anopheles quadrimaculatus	4	9		
	Coquillettidia perturbans	9	377		
	Culex pipiens	14	258		
	Culex restuans	16	475		
	Culex salinarius	10	86		
	Culex sp.	169	6191	**19**	**3.07**
	Culex territans	1	2		
	Culiseta melanura	3	11		
	Psorophora columbiae	3	4		
Monmouth		**387**	**4287**	**6**	**1.40**
	Aedes albopictus	34	84		
	Aedes atlanticus	2	2		
	Aedes canadensis canadensis	5	244		
	Aedes cantator	8	26		
	Aedes japonicus	23	85	**1**	**11.76**
	Aedes sollicitans	5	30		
	Aedes sticticus	1	7		
	Aedes taeniorhynchus	2	4		
	Aedes triseriatus	17	29		
	Aedes vexans	19	172		
	Anopheles barberi	2	2		
	Anopheles bradleyi	1	1		
	Anopheles punctipennis	16	29		
	Anopheles quadrimaculatus	7	14		
	Coquillettidia perturbans	3	31		
	Culex erraticus	1	3		
	Culex pipiens	25	282	**2**	**7.09**
	Culex restuans	23	279		
	Culex salinarius	11	88		
	Culex sp.	88	1133	**3**	**2.65**
	Culex territans	13	216		
	Culiseta melanura	77	1522		
	Psorophora ferox	2	2		
	Uranotaenia sapphirina	2	2		
Morris		**158**	**2999**	**5**	**1.67**
	Aedes canadensis canadensis	13	485		
	Aedes cinereus	1	13		
	Aedes japonicus	34	164		
	Aedes triseriatus	3	6		

	Aedes vexans	1	1		
	Anopheles punctipennis	4	13		
	Anopheles quadrimaculatus	3	3		
	Anopheles walkeri	1	1		
	Coquillettidia perturbans	9	339		
	Culex pipiens	5	37		
	Culex restuans	5	254		
	Culex salinarius	2	7		
	Culex sp.	72	1625	**5**	**3.08**
	Psorophora columbiae	4	50		
	Psorophora ferox	1	1		
Ocean		**237**	**5414**	**10**	**1.85**
	Aedes albopictus	38	495		
	Aedes canadensis canadensis	8	347		
	Aedes japonicus	26	192		
	Aedes sollicitans	2	55		
	Aedes sticticus	1	17		
	Aedes triseriatus	19	62		
	Aedes vexans	7	24		
	Anopheles punctipennis	4	17		
	Coquillettidia perturbans	5	9		
	Culex pipiens	5	152	**3**	**19.74**
	Culex restuans	10	218	**2**	**9.17**
	Culex salinarius	9	17		
	Culex sp.	89	3767	**5**	**1.33**
	Culiseta melanura	10	37		
	Orthopodomyia signifera	1	2		
	Psorophora columbiae	2	2		
	Psorophora ferox	1	1		
Passaic		**91**	**2497**	**10**	**4.00**
	Aedes albopictus	6	52		
	Aedes japonicus	4	34		
	Aedes triseriatus	1	8		
	Culex sp.	80	2403	**10**	**4.16**
Salem		**247**	**2931**	**0**	
	Aedes albopictus	13	38		
	Aedes canadensis canadensis	1	3		
	Aedes japonicus	6	17		
	Aedes thibaulti	3	4		
	Aedes triseriatus	8	12		
	Aedes vexans	9	263		
	Anopheles bradleyi	13	54		
	Anopheles punctipennis	23	254		
	Anopheles quadrimaculatus	28	522		
	Anopheles walkeri	1	1		
	Coquillettidia perturbans	1	3		
	Culex erraticus	25	418		
	Culex pipiens	13	105		
	Culex restuans	8	15		
	Culex salinarius	14	324		
	Culex sp.	9	93		
	Culex territans	6	19		
	Culiseta melanura	58	720		

	Psorophora columbiae	1	8		
	Uranotaenia sapphirina	7	58		
Somerset		**203**	**4266**	**3**	**0.70**
	Aedes albopictus	5	6		
	Aedes canadensis canadensis	1	7		
	Aedes cinereus	2	5		
	Aedes japonicus	31	364		
	Aedes sticticus	4	221		
	Aedes triseriatus	17	50		
	Aedes trivittatus	1	7		
	Aedes vexans	5	58		
	Anopheles punctipennis	6	17		
	Anopheles quadrimaculatus	2	3		
	Anopheles walkeri	1	2		
	Coquillettidia perturbans	2	12		
	Culex pipiens	1	3		
	Culex restuans	3	21		
	Culex salinarius	1	2		
	Culex sp.	120	3487	**3**	**0.86**
	Culex territans	1	1		
Sussex		**188**	**5599**	**1**	**0.18**
	Aedes japonicus	1	2		
	Coquillettidia perturbans	8	388		
	Culex salinarius	2	8		
	Culex sp.	177	5201	**1**	**0.19**
Union		**146**	**2530**	**10**	**3.95**
	Aedes albopictus	28	261	**1**	**3.83**
	Aedes cantator	1	1		
	Aedes japonicus	13	48		
	Aedes sollicitans	2	2		
	Aedes triseriatus	10	14		
	Aedes vexans	10	49		
	Anopheles quadrimaculatus	4	5		
	Coquillettidia perturbans	5	7		
	Culex pipiens	7	69	**1**	**14.49**
	Culex restuans	5	8		
	Culex salinarius	5	310	**2**	**6.45**
	Culex sp.	50	1698	**6**	**3.53**
	Orthopodomyia signifera	1	1		
	Psorophora columbiae	5	57		
Warren		**175**	**6778**	**1**	**0.15**
	Aedes japonicus	3	56		
	Anopheles punctipennis	1	2		
	Coquillettidia perturbans	1	1		
	Culex pipiens	3	4		
	Culex restuans	5	23		
	Culex sp.	162	6692	**1**	**0.15**
Grand Total		**4976**	**104093**	**259**	**2.49**



Last Week



This Week