NEW JERSEY AGRICULTURAL EXPERIMENT STATION

MOSQUITO RESEARCH AND CONTROL

Vector Surveillance Report*

Vol. 3 **No.** 3 **Period.** August 15-28, 1978

Introduction

Data from the Vector Surveillance Program in New Jersey show that 1978 has been an atypical year in terms of the mosquito vectors of encephalitis. The population dynamics of Culiseta melanura and Aedes sollicitans have differed considerably from trends seen in other years. Aedes vexans and various members of the Culex complex have also shown population peaks in response to the abnormally wet summer.

The amoun. of western encephalitis virus recovered during the season shows that vector populations have been fully capable of amplifying virus in coastal areas of the state. No EE virus has been recovered from any of the samples that have been tested to date, thus, epizootic activity beyond the avian cycle appears unlikely unless the situation changes markedly in the next several weeks.

The Current Status of Culiseta melanura populations

Cs. melanura, which have been abnormally high all season, increased abruptly in the past week. At the New Gretna site, resting box collections increased from 8 Cs. melanura per box to 58/box over the 7 day period. Collections at this time of year generally remain close to one mosquito per box, thus, the potential of the present Cs. melanura population for amplifying virus is obvious.

The Cs. melanura at Dennisville show a similar trend even though control was attempted to reduce the population. In the past week, the resting box collections climbed from 9 to 85 Cs. melanura/box and the numbers of males in the collections indicate that emergence is still occurring. The numbers of females are presently higher than the Aug. 7 peak of 63/box which prompted the original control effort.

Cs. melanura are not normally controlled by mosquito commissions in New Jersey and the secretive habits of both larvae and adults make any control effort more difficult. The result of the experimental work in Cape May County suggests that current techniques are not adequate to significantly reduce this mosquito for long periods of time. Data suggest that recommendations are needed before control can be used to prevent amplification of virus during critical periods.

The Current Status of Aedes sollicitans Populations

The brood of Ae. sollicitans which emerged from coastal marshes during the week of Aug. 14 has dispersed and is now reaching maximum vector potential. Data indicate

*Supported by the New Jersey State Mosquito Control Commission.

a minor influx of fresh mosquitoes in most areas as a result of the recent moon tide and most populations contain mosquitoes of mixed age.

The vector potential values at West Creek and Port Norris are the highest of the season. This agrees with data from previous years which show that vector potential usually increases late in the summer. The August emergence of Ae. sollicitans at Tuckahoe and Dennisville was minimal two weeks ago, and vector potential will probably remain low at these sites until fresh mosquitoes are added to the population.

The Results of Virus Studies

Virus tests by the N. J. State Department of Health continue to reveal WE in a large proportion of the Cs. melanura samples. Since early August, 62% of the pools from New Gretna and 33% of the pools from Dennisville have been positive for WE. No EE virus has been recovered from any of the samples. The results can be found in the tables at the end of this report.

Late season populations of Ae. sollicitans have been collected since Aug. 18 for inclusion in the test series. A number of extra sampling sites have been added to obtain information from a wider geographic area. The specimens are collected by sweep net, speciated and pooled before being sent to Trenton. No evidence of virus has been found in any of the samples to date.

Summary

Vector populations are presently exceptionally high at most of the study sites. Cs. melanura have increased abruptly in the past week and Ae. sollicitans are presently reaching maximum vector potential. Virus tests show that WE is epizootic among avians. There is no indication of EE at this time.

List of Personnel:

Project Leader:	Wayne J. Crans
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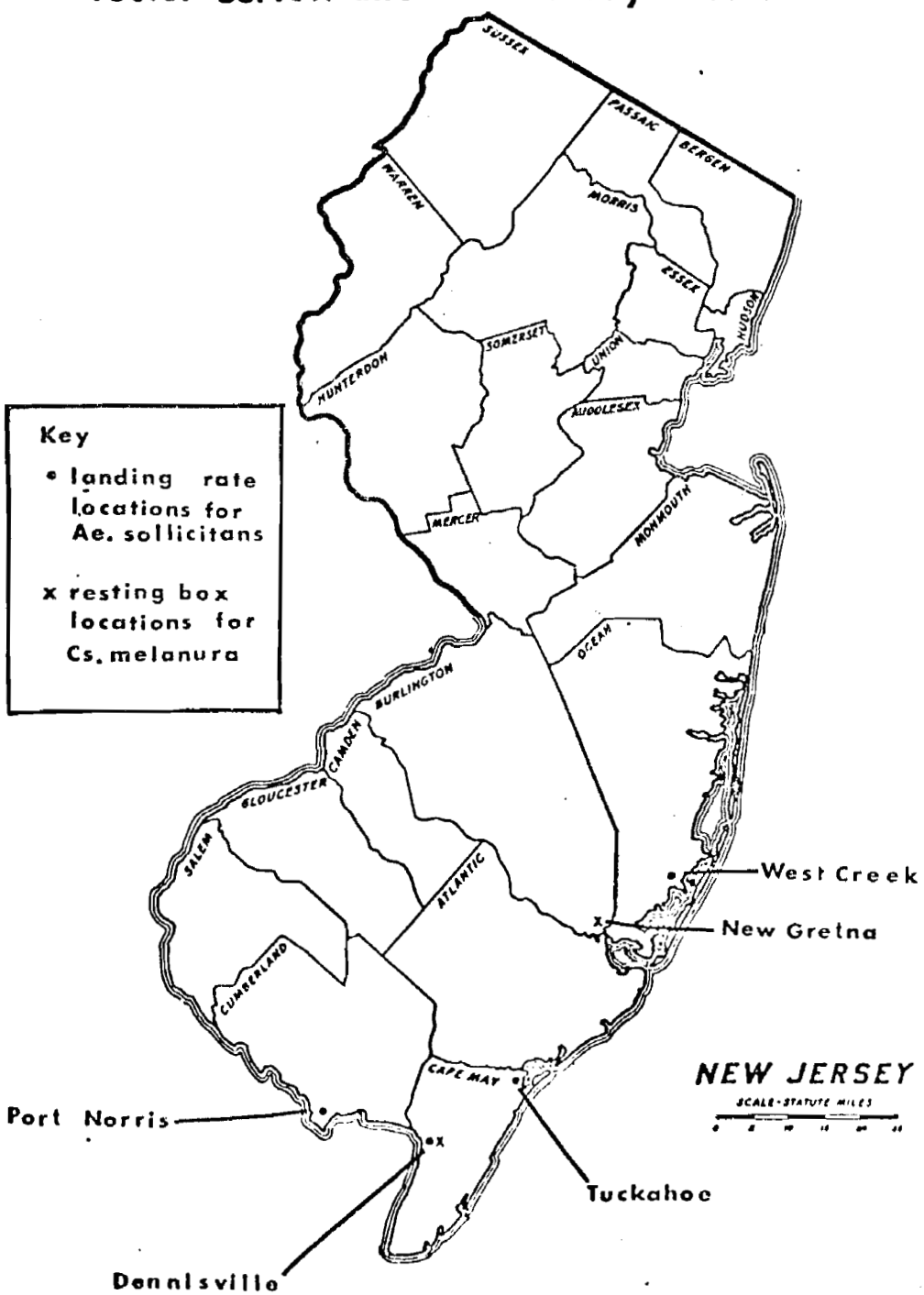
Coperating County Mosquito Control Superintendents:	Frederick Lesser, Ocean County Brian Gooley, Burlington County Judy Hansen, Cape May County David Risley, Atlantic County Patrick Slavin, Cumberland County William Fisher, Salem County
State Mosquito Control Coordinator:	Kenneth W. Bruder

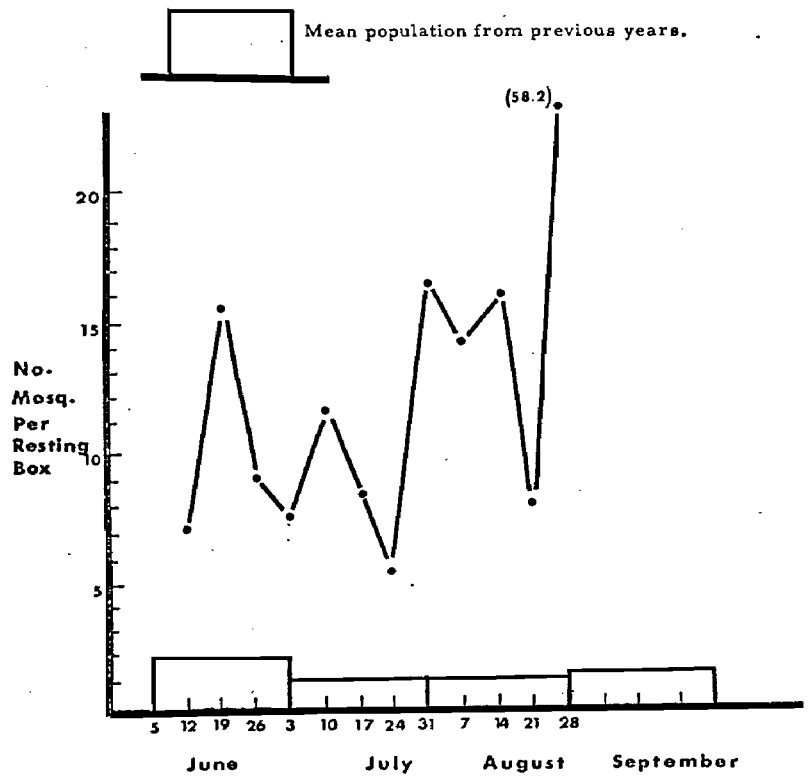
Vector Surveillance Study Sites



Culiseta melanura

SITE New Gretna
COUNTY Burlington

CUMULATIVE POPULATION RECORD

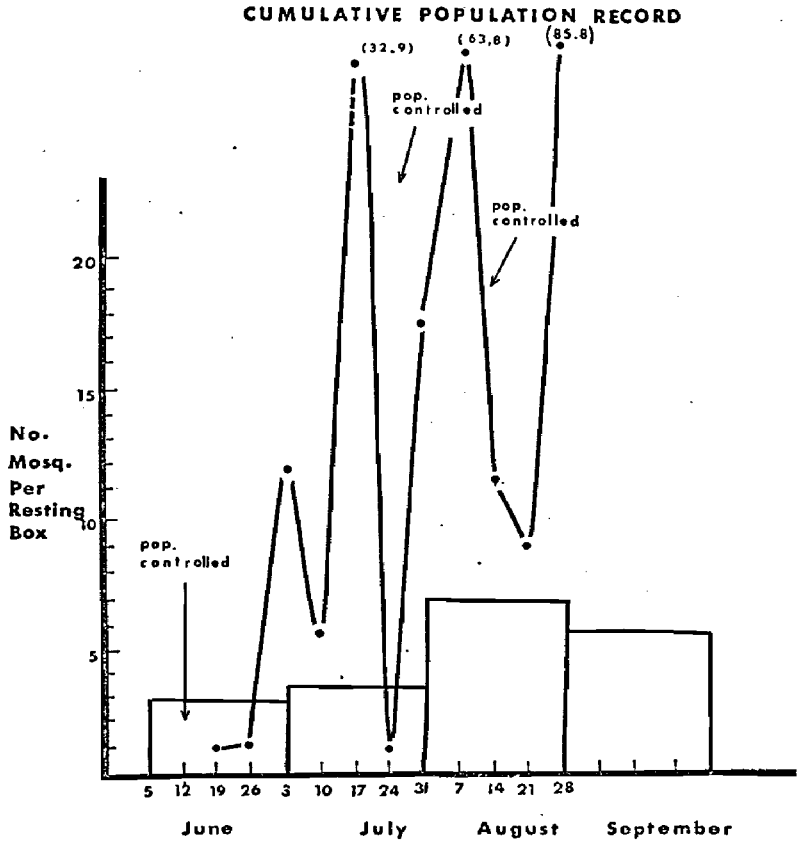


REMARKS: After a slight depression in the population on August 21, Cs. melanura has increased to 58.2 mosquitoes per box. WE has been epizootic at this site since early August with 62% of the pools containing virus.

Culiseta melanura

SITE Dennisville
COUNTY Cape May

CUMULATIVE POPULATION RECORD

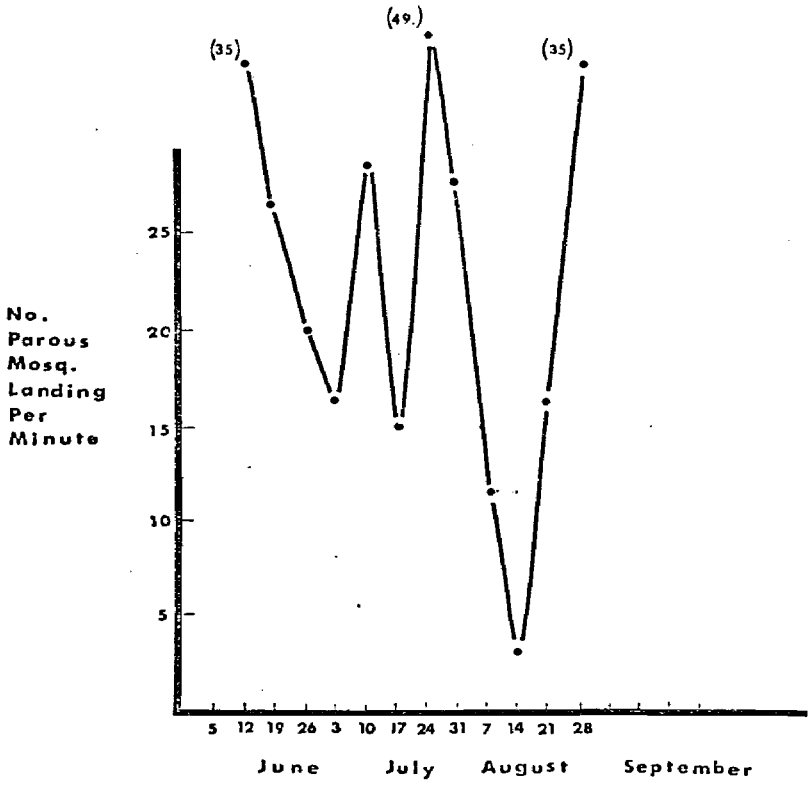


REMARKS: Cs. melanura populations have recovered dramatically since the control effort in mid August. The 85.8 mosquitoes per box is the highest of the season and more than 10 times above the average as measured by mean populations from previous years. WE is also epizootic at this site with 33% of the pools containing virus since early August.

Aedes sollicitans

SITE West Creek
COUNTY Ocean

CUMULATIVE VECTOR POTENTIAL RECORD

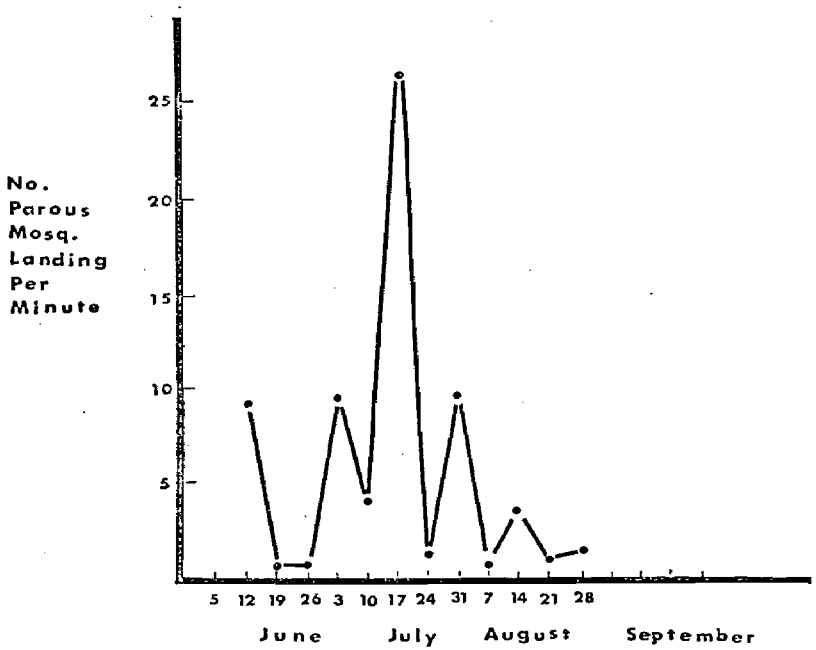


REMARKS: Vector potential has risen steadily since the emergence in mid August. Landing rates of 50+ were recorded Aug. 28 with a parous rate of 70%.

Aedes sollicitans

SITE Tuckahoe
COUNTY Cape May

CUMULATIVE VECTOR POTENTIAL RECORD

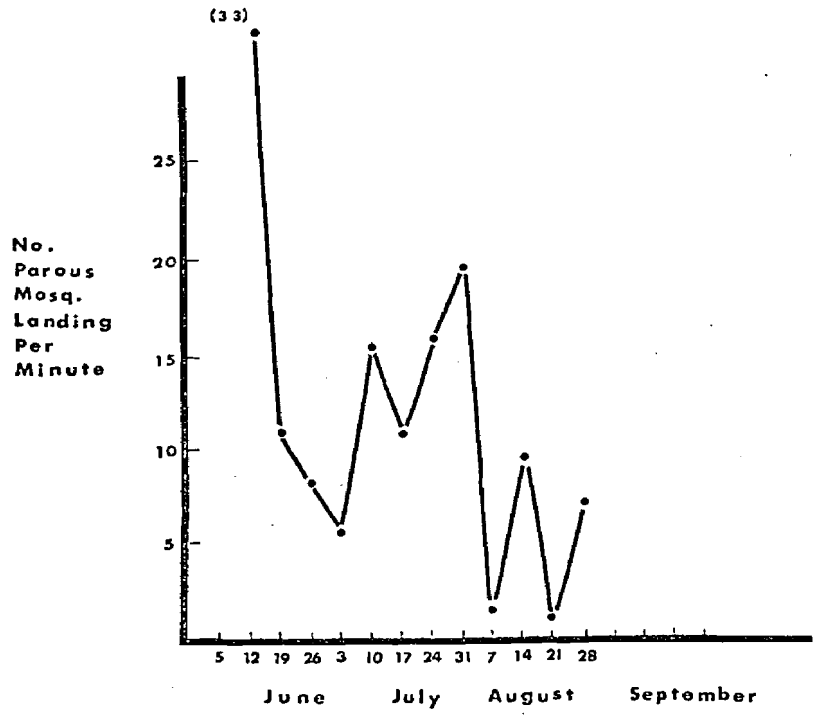


REMARKS: Vector potential remains very low at this site as a result of minimal biting populations. Landing rates of 3 per minute were recorded August 28 with a parous rate of 50%.

Aedes sollicitans

SITE Dennisville
COUNTY Cape May

CUMULATIVE VECTOR POTENTIAL RECORD

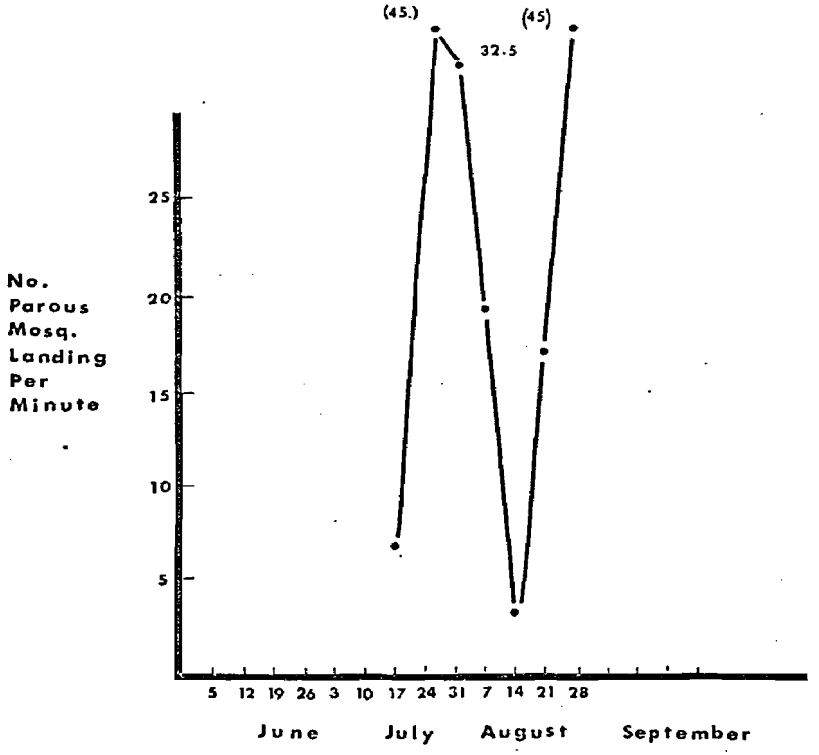


REMARKS: Vector potential has not increased significantly at this site since the emergence in mid August. Landing rates of 15 per minute were recorded August 28 with a parous rate of 50%.

Aedes sollicitans

SITE Port Norris
COUNTY Cumberland

CUMULATIVE VECTOR POTENTIAL RECORD



REMARKS: Vector potential is extremely high at this hay meadow site and has risen significantly since the emergence in mid August. Landing rates of 50+ were recorded August 28 with a parous rate of 95%.

Culiseta melanura tested for EE Virus during 1978

Key:
NG - New Gretna Study Site
DV - Dennisville Study Site
U- Unengorged specimens
E- Engorged (blooded) specimens

Pool No.	Date Collected	Study Area	No. Tested	Initial Screening	Confirmation
1	6/12/78	N.G.	100-U	Neg	
2	6/12/78	N.G.	120-U	Neg	
3	6/12/78	N.G.	100-E	Neg	
4	6/12/78	N.G.	44-E	Neg	
5	6/19/78	N.G.	100-U	Neg	
6	6/19/78	N.G.	100-U	Neg	
7	6/19/78	N.G.	100-U	Neg	
8	6/19/78	N.G.	112-U	Neg	
9	6/19/78	N.G.	100-E	Neg	
10	6/19/78	N.G.	100-E	Neg	
11	6/19/78	N.G.	123-E	Neg	
12	6/19/78	D.V.	15-U	Neg	
13	6/19/78	D.V.	3-E	Neg	
14	6/26/78	N.G.	100-U	Neg	
15	6/26/78	N.G.	100-U	Neg	
16	6/26/78	N.G.	72-U	Neg	
17	6/26/78	N.G.	100-E	Neg	
18	6/26/78	N.G.	35-E	Neg	
19	6/26/78	D.V.	12-U	Neg	
20	6/26/78	D.V.	11-E	Neg	
21	7/06/78	D.V.	100-E	Neg	
22	7/06/78	D.V.	95-E	Neg	
23	7/06/78	D.V.	97-U	Neg	
24	7/06/78	N.G.	100-E	Neg	
25	7/06/78	N.G.	52-E	Neg	
26	7/06/78	N.G.	100-U	Neg	
27	7/06/78	N.G.	119-U	Neg	
28	7/10/78	D.V.	100-E	Neg	
29	7/10/78	L.V.	72-E	Neg	
30	7/10/78	D.V.	49-U	Neg	
31	7/10/78	N.G.	100-E	Neg	
32	7/10/78	N.G.	42-E	Neg	
33	7/10/78	N.G.	100-U	Neg	
34	7/10/78	N.G.	100-U	Neg	
35	7/10/78	N.G.	56-U	Neg	
36	7/17/78	D.V.	100-U	Neg	
37	7/17/78	D.V.	100-U	Neg	
38	7/17/78	D.V.	100-U	Neg	
39	7/17/78	D.V.	81-U	Neg	
40	7/17/78	D.V.	100-E	Neg	
41	7/17/78	D.V.	100-E	Neg	
42	7/17/78	D.V.	55-E	Neg	
43	7/17/78	N.G.	100-U	Neg	
44	7/17/78	N.G.	45-U	Neg	
45	7/17/78	N.G.	115-E	Neg	
46	7/24/78	N.G.	90-U	Neg	
47	7/24/78	N.G.	93-E	Neg	
48	7/24/78	D.V.	7-U	Neg	
49	7/24/78	D.V.	27-E	Neg	
50	7/31/78	D.V.	100-U	Neg	
51	7/31/78	D.V.	119-U	Neg	
52	7/31/78	D.V.	100-E	Neg	
53	7/31/78	D.V.	89-E	Neg	
54	7/31/78	N.G.	125-U	Positive	WE
55	7/31/78	N.G.	119-U	Positive	WE
56	7/31/78	N.G.	100-E	Neg	
57	7/31/78	N.G.	50-E	Neg	
58	8/07/78	D.V.	100-U	Neg	
59	8/07/78	D.V.	100-U	Neg	
60	8/07/78	D.V.	100-U	Neg	
61	8/07/78	D.V.	100-U	Neg	
62	8/07/78	D.V.	100-U	Neg	
63	8/07/78	D.V.	103-U	Neg	
64	8/07/78	D.V.	100-E	Neg	
65	8/07/78	D.V.	100-E	Positive	WE
66	8/07/78	D.V.	100-E	Positive	WE
67	8/07/78	D.V.	100-E	Positive	WE
68	8/07/78	D.V.	100-E	Neg	
69	8/07/78	D.V.	100-E	Neg	
70	8/07/78	D.V.	48-E	Neg	
71	8/07/78	N.G.	100-U	Positive	WE
72	8/07/78	N.G.	59-U	Positive	WE
73	8/07/78	N.G.	100-E	Positive	WE
74	8/07/78	N.G.	91-E	Positive	WE
75	8/14/78	N.G.	100-U	Neg	
76	8/14/78	N.G.	115-U	Positive	WE
77	8/14/78	N.G.	100-E	Neg	
78	8/14/78	N.G.	48-E	Positive	WE
79	8/14/78	D.V.	100-U	Neg	
80	8/14/78	D.V.	47-U	Positive	WE
81	8/14/78	D.V.	114-E	Positive	WE
82	8/21/78	N.G.	100-U	Positive	
83	8/21/78	N.G.	100-U	Positive	
84	8/21/78	N.G.	87-U		
85	8/21/78	N.G.	58-E		
86	8/21/78	D.V.	100-U		
87	8/21/78	D.V.	55-U		
88	8/21/78	D.V.	76-E		
111	8/28/78	D.V.	100-U		
112	8/28/78	D.V.	100-U		
113	8/28/78	D.V.	100-U		
114	8/28/78	D.V.	100-U		
115	8/28/78	D.V.	100-U		
116	8/28/78	D.V.	100-U		
117	8/28/78	D.V.	100-U		
118	8/28/78	D.V.	100-U		
119	8/28/78	D.V.	100-U		
120	8/28/78	D.V.	100-U		
121	8/28/78	D.V.	100-U		
122	8/28/78	D.V.	100-U		
123	8/28/78	D.V.	100-U		
124	8/28/78	D.V.	100-U		
125	8/28/78	D.V.	100-U		
126	8/28/78	D.V.	100-U		
127	8/28/78	D.V.	31-U		
128	8/28/78	D.V.	100-E		
129	8/28/78	D.V.	100-E		
130	8/28/78	D.V.	100-E		
131	8/28/78	D.V.	100-E		
132	8/28/78	D.V.	82-E		
133	8/28/78	N.G.	100-U		
134	8/28/78	N.G.	100-U		
135	8/28/78	N.G.	100-U		
136	8/28/78	N.G.	100-U		
137	8/28/78	N.G.	100-U		
138	8/28/78	N.G.	100-U		
139	8/28/78	N.G.	100-U		
140	8/28/78	N.G.	100-U		
141	8/28/78	N.G.	100-U		
142	8/28/78	N.G.	100-U		
143	8/28/78	N.G.	122-U		
144	8/28/78	N.G.	34-U		
145	8/28/78	N.G.	100-E		
146	8/28/78	N.G.	100-E		
147	8/28/78	N.G.	78-E		

Virus Data From the New Jersey State Department of Health

Aedes sollicitans tested for EE Virus during 1978

Key:
WC - West Creek
PN - Port Norris
LP - Leeds Point
T - Tuckahoe
E - Eldora
DV - Dennisville
E- Engorged (blooded) specimens
U - Unengorged specimen

Pool No.	Date Collected	Study Area	No. Tested	Initial Screening	Confirmation
89	8/18/78	W.C.	100-U		
90	8/18/78	W.C.	100-U		
91	8/18/78	W.C.	100-U		
92	8/18/78	W.C.	100-U		
93	8/18/78	W.C.	100-U		
94	8/18/78	W.C.	100-U		
95	8/18/78	W.C.	100-U		
96	8/18/78	W.C.	100-U		
97	8/18/78	W.C.	104-U		
98	8/18/78	T	100-U		
99	8/18/78	T	77-U		
100	8/21/78	P.N.	100-U		
101	8/21/78	P.N.	100-U		
102	8/21/78	P.N.	69-U		
103	8/22/78	W.C.	100-U		
104	8/22/78	W.C.	100-U		
105	8/22/78	W.C.	125-U		
106	8/22/78	L.P.	80-U		
107	8/22/78	T	66-U		
108	8/22/78	D.V.	53-U		
109	8/22/78	E	55-U		
110	8/22/78	L.P.	24-U		
148	8/29/78	W.C.	100-U		
149	8/29/78	W.C.	100-U		
150	8/29/78	W.C.	109-U		
151	8/29/78	L.P.	100-U		
152	8/29/78	L.P.	61-U		
153	8/29/78	T	55-U		
154	8/29/78	D.V.	60-U		
155	8/29/78	E	31-U		
156	8/25/78	T	49-U		
157	8/25/78	P.N.	100-U		
158	8/25/78	P.N.	82-U		
159	8/25/78	P.N.	2-U		
160	8/25/78	W.C.	100-U		
161	8/25/78	W.C.	100-U		
162	8/25/78	W.C.	89-U		
163	8/25/78	W.C.	14-E		
164	8/25/78	D.V.	64-U		
165	8/28/78	W.C.	115-U		
166	8/28/78	W.C.	5-E		
167	8/28/78	T	37-U		
168	8/28/78	T	1-E		
169	8/28/78	D.V.	66-U		
170	8/28/78	D.V.	1-E		
171	8/28/78	P.N.	100-U		
172	8/28/78	P.N.	56-U		