NEW JERSEY VECTOR SURVEILLANCE

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INTRODUCTION

New Jersey has had an active arbovirus surveillance program since 1960 when the New Jersey State Department of Health began testing mosquitoes and wildlife for evidence of arbovirus infections as a followup to the 1959 outbreak of EEE. In 1976, the New Jersey Agricultural Experiment Station was funded by the N.J. State Mosquito Control Commission to specifically monitor Culiseta melanura and Aedes sollicitans and make the information immediately available to the mosquito control community. Over the years, the State Health Department and the State Mosquito Control Commission conducted separate, supportive programs and shared data on the status of arbovirus activity. The cooperative effort allowed the three organizational units (Health, Environmental Protection and Experiment Station) to maintain close contact and collectively respond to the needs of the State during emergency periods.

In 1986, the three agencies will work even more closely. The Health Department is providing funds to expand the surveillance program to new areas of the State. The New Jersey Agricultural Experiment Station will make all of the field collections and assume the responsibility for speciation and pooling of all field-collected material. As in the past, the State Health Department will conduct all of the virus isolation attempts. The results will be entered into a common data base for computer analysis and the New Jersey Vector Surveillance Report will become a joint publication of the three cooperating agencies.

METHODOLOGY OF THE SURVEILLANCE EFFORT

Mosquito collections will be made twice weekly from resting boxes at the following locations in the State:

STUDY SITE	COUNTY	NO. BOXES
Coastal Sites		
Green Bank	Burlington	50
Bass River	Burlington	50
Corbin City	Ocean	25
Fishing Creek	Cape May	25
Dennisville	Cape May	50
Inland Sites		
Jackson	Ocean	25
Williamstown	Gloucester	25
Centerton	Salem	25

CDC light traps baited with dry ice will be operated once weekly at the following locations:

STUDY AREA	COUNTY	NO. TRAPS
Smithville Vicinity	Atlantic	8
Dennisville Vicinity	Cape May	6
Williamstown Vicinity	Gloucester	3
Centerton Vicinity	Salem	4

All specimens will be frozen on dry ice at the field collection site and transported to the Mosquito Research and Control laboratories for speciation and pooling. Sorting will be conducted on chill tables to maintain living virus and pools will be grouped by Site, Date, Species, Physiological State, and Trapping Method. Specimens will be sent to the State Health laboratories for virus isolation attempts. The results will then be entered into a data base system for collation and rapid retrieval.

Information from the field regarding EEE in horses will be compiled by the New Jersey Department of Agriculture (NJDA). Collection of tissue specimens from suspect cases will also be coordinated through the NJDA. The results of equine testing will be included in this report and related to the data obtained from mosquito specimens.

Surveillance for St. Louis Encephalitis virus (SLE) will be conducted through the weekly bleeding of five sentinel chicken flocks that were placed in the field during late May. The flocks, consisting of five birds each, are located in areas which have historically seen the greatest SLE activity. The areas include: Mt. Ephraim (Camden Co.), Cinnaminson and Mount Holly (Burlington Co.), West Windsor (Mercer Co.) and Edison (Middlesex Co.).

THE CURRENT STATUS OF EEE AND ITS MOSQUITO VECTORS

Culiseta melanura populations remained lower than average during the month of June at all of the study sites that were monitored. Figure 1 compares current populations at the Green Bank study site with the 3 year mean from that area. Dry weather has reduced breeding habitat for Cs. melanura in most areas of the State. In general, the trend at Green Bank is representative for the seven other sites that are being sampled.

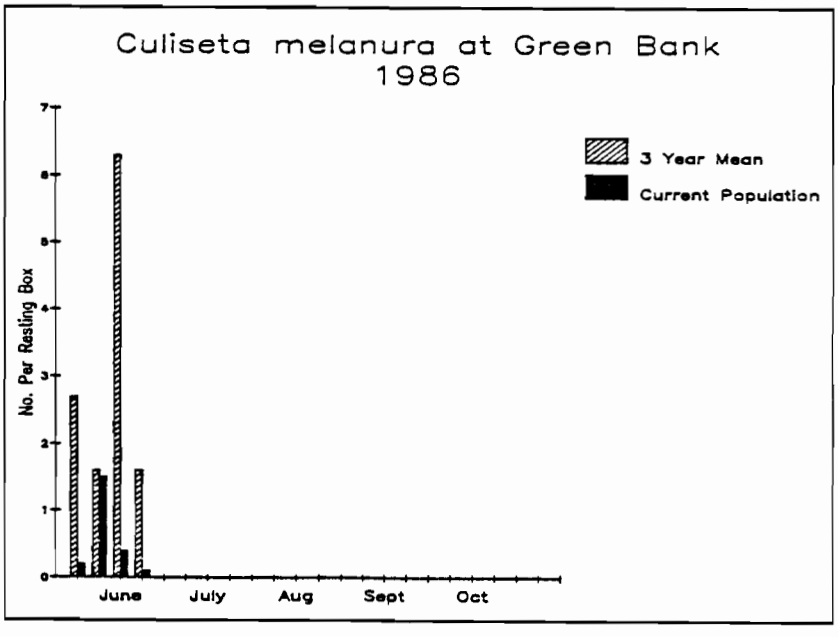

Fig. 1. Resting box populations at Green Bank during June 1986.

Both Aedes canadensis and Coquillettidia perturbans exhibited higher than normal population peaks during the month of June. The trend was most obvious at the Dennisville site where traps collected greater than 1000 of each species in the early part of the month. In contrast Aedes sollicitans populations have been extremely low at the coastal sites where the species is being monitored. None of the tidal floodings have yet produced a brood of significance.

During the month of June 21,149 specimens were processed in 752 pools. The tables at the end of this report list the data by site and species. No isolations were obtained from any of the specimens.

EASTERN EQUINE ENCEPHALITIS IN HORSES

Brains from two suspect equine cases were analysed for the presence of EEE virus during the month of June. The first specimen tested was obtained from a 10-11 year old grade horse from Bamber Lake (Ocean Co.) on May 31. On or about June 1, the brain from a 19-year old pony from Marlton (Burlington Co.) was submitted for analysis. Although both horses exhibited some clinical signs consistent with EEE, virus isolation attempts were negative.

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Report Prepared by:

Dr. Wayne J. Crans
Mosquito Research & Control
Cook College, P.O. Box 231
New Brunswick, NJ 08903

Dr. Terry L. Schulze
Office of the State Epidemiologist
State Department of Health
John Fitch Plaza
CN 360
Trenton, NJ 08625

Dr. Kenneth W. Bruder
State Mosquito Control Commission
383 West State Street
Trenton, NJ 08618

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TABLE 1. VECTOR SURVEILLANCE SUMMARY FOR THE GREEN BANK SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	249	27	0	0
Cq. perturbans	30	3	0	0
Ae. canadensis	85	4	0	0
Ae. cantator	73	4	0	0
Cx. restuans	2	2	0	0
Cx. salinarius	67	4	0	0
An. bradleyi	6	2	0	0

TABLE 2. VECTOR SURVEILLANCE SUMMARY FOR THE BASS RIVER SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	523	33	0	0
Cx. pipiens	1	1	0	0
Cx. restuans	6	6	0	0
Cx. territans	4	3	0	0

TABLE 3. VECTOR SURVEILLANCE SUMMARY FOR THE SMITHVILLE SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	4	3	0	0
Cq. perturbans	67	4	0	0
Ae. sollicitans	150	3	0	0
Ae. canadensis	101	5	0	0
Ae. cantator	409	5	0	0
Ae. taeniorhynchus	5	3	0	0
Ae. triseriatus	10	3	0	0
Ae. vexans	14	2	0	0
Cx. salinarius	54	5	0	0
An. quadrimaculatus	1	1	0	0

TABLE 4. VECTOR SURVEILLANCE SUMMARY FOR THE OCEAN CITY SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	158	24	0	0
Ae. canadensis	1	1	0	0
Cx. restuans	3	2	0	0
Cx. territans	1	1	0	0

TABLE 5. VECTOR SURVEILLANCE SUMMARY FOR THE FISHING CREEK SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	3	3	0	0
Cq. perturbans	28	5	0	0

TABLE 6. VECTOR SURVEILLANCE SUMMARY FOR THE DENNISVILLE SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	2243	103	0	0
Cq. perturbans	6731	168	0	0
Ae. sollicitans	479	12	0	0
Ae. canadensis	4582	71	0	0
Ae. cantator	928	16	0	0
Ae. taeniorhynchus	1	1	0	0
Cx. pipiens	5	2	0	0
Cx. restuans	334	14	0	0
Cx. salinarius	2705	39	0	0
Cx. territans	112	11	0	0
An. bradleyi	66	5	0	0
An. punctipennis	21	8	0	0
An. quadrimaculatus	48	12	0	0

TABLE 7. VECTOR SURVEILLANCE SUMMARY FOR THE JACKSON SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	16	8	0	0
Cx. restuans	2	2	0	0
Cx. territans	3	2	0	0

TABLE 8. VECTOR SURVEILLANCE SUMMARY FOR THE WILLIAMSTOWN SITE DURING THE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	166	22	0	0
Cq. perturbans	121	5	0	0
Ae. canadensis	71	7	0	0
Ae. cantator	1	1	0	0
Ae. triseriatus	1	1	0	0
Ae. vexans	3	1	0	0
Cx. restuans	4	4	0	0
Cx. salinarius	8	3	0	0
An. quadrimaculatus	2	2	0	0

TABLE 9. VECTOR SURVEILLANCE SUMMARY FOR THE CENTERTON SITE DURING THEE MONTH OF JUNE.

MOSQUITO SPECIES	TOTAL TESTED	NO. POOLS	POSITIVE POOLS HJ	EEE
Cs. melanura	328	24	0	0
Cq. perturbans	19	4	0	0
Ae. canadensis	11	4	0	0
Ae. cantator	1	1	0	0
Ae. vexans	1	1	0	0
Cx. pipiens	9	1	0	0
Cx. restuans	10	5	0	0
Cx. salinarius	8	2	0	0
Cx. territans	2	1	0	0
An. punctipennis	9	5	0	0
An. quadrimaculatus	6	5	0	0