

# New Jersey

# Vector Surveillance

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## NEW JERSEY AGRICULTURAL EXPERIMENT STATION

### MOSQUITO RESEARCH AND CONTROL

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#### Introduction

EEE virus remains very much in evidence in New Jersey with 17 equine cases reported to date. Culiseta melanura populations are beginning to decline but the numbers still remain high at some of the study sites that are being monitored. EEE virus has been detected at all 3 of the permanent study sites and special surveillance has located virus from a number of ancillary sites that were monitored in conjunction with equine cases. Virus was also detected near Ocean City shortly after the possible exposure of a Massachusetts resident on vacation at the New Jersey shore. Sentinel chicken flocks have failed to sero-convert at any of the locations that are being monitored even though a number of flocks are located immediately adjacent to areas where EEE virus has been isolated from Cs. melanura.

#### INFORMATION ON THE EQUINE CASES

Table 1 lists the equine cases that have been attributed to EEE virus by county and date of onset. The data indicate that EEE was active at a number of separate foci with multiple deaths at several of the locations. Mosquito trapping showed a variety of species with Cs. melanura being common to every farm and Cq. perturbans at nearly all of locations. Unlike previous years, however, Cq. perturbans was a minor species at many of the locations at the time the collections were made. Virus isolations have been obtained from mosquitoes collected from some of the areas. Five pools of Cs. melanura collected from the Glassboro Wildlife Management Area (Williamstown) tested positive for EEE virus. The management area was the probable source of mosquitoes for the first 2 horse cases reported in Gloucester County. A single pool of Culex restuans collected from Monmouth Junction yielded EEE virus shortly after surveillance was initiated in that area. The isolation was important since no brain tissue had been acquired from that animal. The horse was considered a presumptive case since the diagnosis was based solely on antibody titer from a single blood sample taken just prior to the animal's death.

**KEY**

- Landing Rates
- Resting Boxes
- ◆ Sentinel Flocks
- ▼ Bird Bleeding

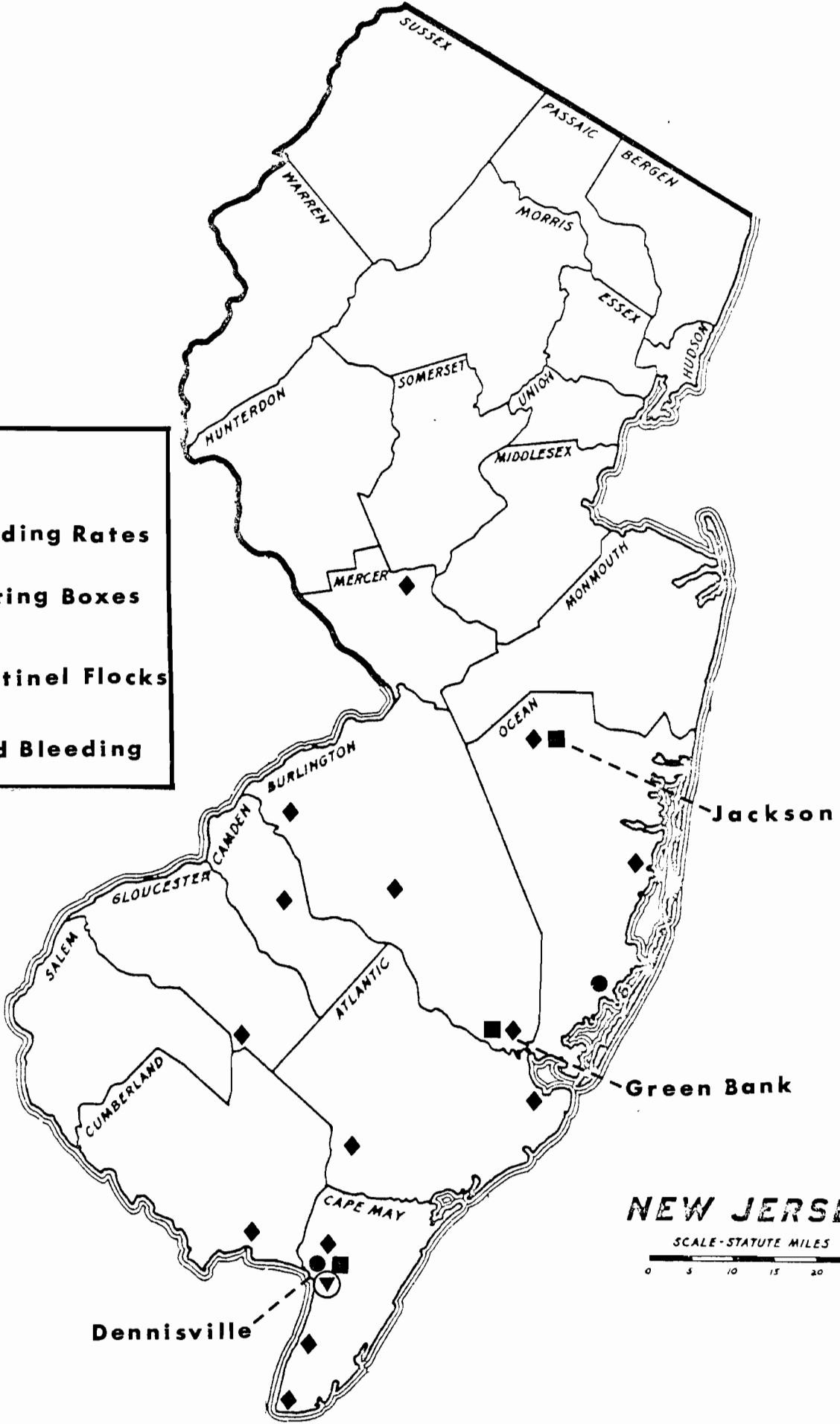


Table 1. Equine deaths due to EEE virus in New Jersey.

County	Date	Area	Outcome
Middlesex	July 28	Monmouth Junction	Presumptive
Gloucester	July 31	Williamstown	Confirmed
	Aug. 16	Williamstown	Confirmed
	Aug. 17	Williamstown	Confirmed
	Aug. 21	Williamstown	Presumptive
Cumberland	Aug. 23	Vineland	Confirmed
	Sept. 6	Port Elizabeth*	Confirmed
Atlantic	Aug. 24	Egg Harbor	Presumptive
Salem	Aug. 28	Woodstown	Suspect
	Aug. 31	Woodstown	Confirmed
	Aug. 31	Alloways**	Suspect
	Sept. 2	Alloways	Confirmed
	Sept. 2	Alloways	Confirmed
	Sept. 6	Alloways	Confirmed
Somerset	Aug. 31	North Branch	Pending
Burlington	Sept. 6	Medford	Confirmed
	Sept. 10	Tabernacle	Confirmed

\*Exact area unknown since the animal spent time at several locations immediately prior to onset.

\*\*Much information lacking on this case.

#### ADDITIONAL INFORMATION ON THE HUMAN CASE

Data collected during a special surveillance effort in the vicinity of Ocean City showed that EEE virus was active in the area where a visitor from Massachusetts contracted the disease following a visit to the New Jersey shore. Special collections were initiated by the Cape May County Mosquito Extermination Commission and the Atlantic County Mosquito Control Agency following the announcement of the Massachusetts case. The date of onset indicated that the infective bite could have been acquired at either New Jersey or Massachusetts since virus activity had been reported from both states at the time the infection occurred. A series of approximately 500 Ae. sollicitans collected from Ocean City failed to yield virus but EEE was isolated from a pool of 51 Cs. melanura collected from the Great Egg Harbor drainage, approximately 5 mi from the resort area where the child had been staying. An isolation was also made from a juvenile yellow-shafted flicker that was netted from the same area the following day.

#### THE CURRENT STATUS OF EEE AND ITS MOSQUITO VECTORS

Cool weather has reduced the numbers of Cs. melanura in the resting box collections at the study site but the numbers are still relatively high for this time of year. Table 2 lists the collections for the second week of September from the 3 sites that are being monitored. The figures for Jackson represent the highest levels of the season. EEE

virus has now appeared at each of the sites with the Jackson area being the last to show evidence of activity. A complete list of isolations for the season is included in Table 3.

Table 2. Number of Cs. melanura per resting box at the 3 sites being monitored in New Jersey.

STUDY SITE	PRESENT POPULATION	7 YR. AVE.
Green Bank	5.0	2.9*
Dennisville	9.0	8.6
Jackson	3.6	-

\*7 Year average compiled from New Gretna data.

Not one of the sentinel chicken flocks has shown evidence of sero-conversion even though several of the flocks are located immediately adjacent to the study sites. The last equine case occurred within several miles of a sentinel flock and the flock in Gloucester County is very close to the 4 equine fatalities in that area. No explanation can be offered for the ineffectiveness of the sentinel system. Similar flocks in Delaware have produced good information in the past.

Aedes sollicitans populations along the coast have been sporadic with high counts in some areas and very low landing rates in others. This clustering effect appears to be common late in the season according to data from previous years. The brood that emerged early in September has reached 90% parity at most of the locations that are being monitored, thus, the biting population that is present is fully capable of making contact with the virus that is currently present.

Table 3. Virus isolations from mosquitoes collected at the three study sites in New Jersey\*

GREEN BANK		DEHHSVILLE	
HJ Virus			
1. 7/15/84	Cs. mel.	32 Engorged	1. 7/02/84
2. 7/23/84	Cs. mel.	60 Engorged	2. 7/02/84
3. 8/02/84	Cs. mel.	117 Empty	3. 7/05/84
4. 8/02/84	Cs. mel.	63 Engorged	4. 7/05/84
5. 8/06/84	Cs. mel.	100 Empty	5. 7/09/84
6. 8/06/84	Cs. mel.	56 Empty	6. 7/09/84
7. 8/06/84	Cs. mel.	19 Gravid	7. 7/09/84
8. 8/27/84	Cs. mel.	22 Gravid	8. 7/09/84
EEE Virus			
1. 8/09/84	Cs. mel.	7 Black-blooded	9. 7/12/84
2. 8/13/84	Cs. mel.	89 Empty	10. 7/12/84
3. 8/13/84	Cs. mel.	36 Engorged	11. 7/16/84
4. 8/13/84	Cs. mel.	32 Black-blooded	12. 7/16/84
5. 8/20/84	Cs. mel.	100 Empty	13. 7/19/84
6. 8/20/84	Cs. mel.	120 Empty	14. 7/19/84
7. 8/20/84	Cs. mel.	83 Engorged	15. 7/23/84
8. 8/23/84	Cs. mel.	119 Unengorged	16. 7/26/84
JACKSON			
HJ Virus			
1. 8/07/84	Cs. mel.	52 Empty	21. 7/30/84
2. 8/07/84	Cs. mel.	51 Engorged	22. 8/02/84
3. 8/07/84	Cs. mel.	16 Black-blooded	23. 8/02/84
4. 8/14/84	Cs. mel.	19 Empty	24. 8/02/84
5. 8/14/84	Cs. mel.	10 Gravid	25. 8/02/84
EEE Virus			
1. 8/24/84	Cs. mel.	69 Empty	26. 8/06/84
2. 8/24/84	Cs. mel.	21 Gravid	27. 8/09/84
HJ Virus			
1. 8/02/84	Cs. mel.	100 Empty	28. 8/09/84
2. 8/02/84	Cs. mel.	100 Empty	29. 8/09/84
3. 8/06/84	Cs. mel.	100 Empty	30. 8/13/84
4. 8/09/84	Cs. mel.	100 Engorged	31. 8/13/84
5. 8/13/84	Cs. mel.	100 Empty	32. 8/14/84
6. 8/16/84	Cs. mel.	40 Empty	33. 8/20/84
7. 8/16/84	Cs. mel.	45 Engorged	EEE Virus
8. 8/20/84	Cs. mel.	100 Empty	1. 8/02/84
9. 8/20/84	Cs. mel.	100 Empty	2. 8/02/84
10. 8/20/84	Cs. mel.	100 Empty	3. 8/06/84
11. 8/23/84	Cs. mel.	112 Empty	4. 8/09/84
12. 8/23/84	Cs. mel.	61 Engorged	5. 8/13/84
13. 8/27/84	Cs. mel.	50 Empty	6. 8/16/84
			7. 8/16/84
			8. 8/20/84
			9. 8/20/84
			10. 8/20/84
			11. 8/23/84
			12. 8/23/84
			13. 8/27/84

\* Tested Through 8/27/84

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