NEW JERSEY
DEPARTMENT OF AGRICULTURE

NEW JERSEY DEPARTMENT OF HEALTH
A BETTER STATE OF HEALTH

NEW JERSEY VECTOR SURVEILLANCE

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ABSTRACT: For the fourth consecutive year, *Culiseta melanura* populations in New Jersey have been below average at study sites being monitored for eastern equine encephalitis (EEE) virus. Early spring populations were relatively high in some of the study areas but hot, dry weather in July reduced the levels sampled in resting boxes well below the long-term mean. EEE virus did appear at several of the study sites at the very end of July but infection rates have been low indicating that epiornitic transmission has been kept to a minimum. There was no indication of equine involvement in any area of the state through the month of August.

INTRODUCTION

Culiseta melanura populations in New Jersey are lower than average for the fourth consecutive year and virus activity has been minimal at study sites that are being monitored for EEE virus. A moderately wet spring resulted in early populations of *Cs. melanura* that were near the long term mean but near drought conditions during July kept *Cs. melanura* well below average during the middle part of the summer. The population surge that the species normally reaches in early August was minimal at most of the study sites resulting in population peaks much lower than we see in epiornitic years. EEE virus did appear at some of the study sites in late July and early August but virus isolations have been minimal with no evidence of rapid amplification to date.

THE CURRENT STATUS OF *Cs. melanura* POPULATIONS IN NEW JERSEY

The geographic location of the resting box collection sites that are being monitored for *Cs. melanura* population levels and EEE virus cycling are shown in Fig. 1. They include 4 coastal sites (Waretown, Bass River, Ocean City and Dennisville) where epiornitic cycling presents a potential human health risk and 4 inland sites (Turkey Swamp, Hammonton, Centerton and Waterford) where epiornitic cycling normally leads only to equine involvement. The Waretown, Waterford and Turkey Swamp sites are relatively new, thus, data are limited to assess what is the norm for *Cs. melanura* in those areas. The remaining sites have been monitored for at least 6 years and data are available to show deviations from the long-term mean.

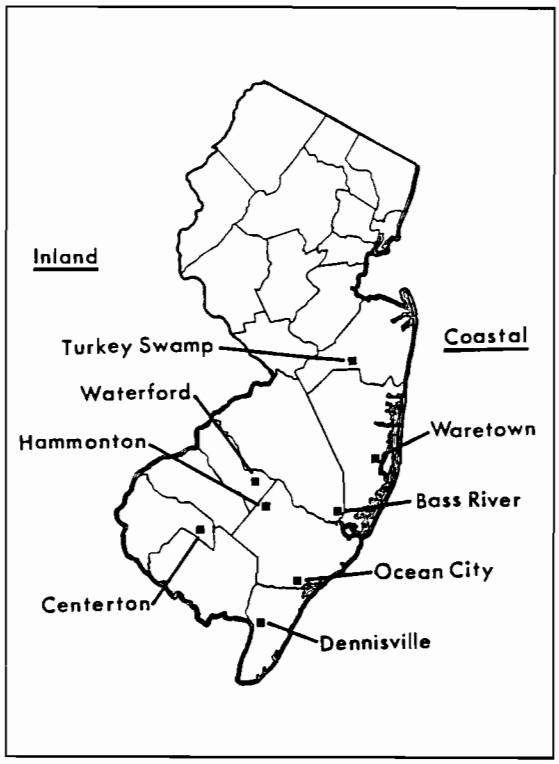

Fig. 1. Resting box sites for arbovirus surveillance in 1993.

Fig. 2 shows the resting box populations of *Cs. melanura* at the Dennisville site in Cape May County in comparison to the 16 yr mean at that coastal site along Delaware Bay. After an aborted population surge in June, the effects of the hot weather New Jersey experienced in July is evident in the reduced numbers collected in resting boxes. Fig. 3 shows similar data over a 6 yr period for the more inland Hammonton site in Atlantic County. In both cases, hot-dry weather coupled with reduced breeding habitat kept *Cs. melanura* below the long -term average during the critical portion of the season. Similar trends have been evident throughout the state with average or below average populations of *Cs. melanura* as the norm. Despite the low levels of *Cs. melanura*, EEE virus did appear at several of the study sites very late in July. To date, virus amplification has been minimal, perhaps due to the lower than average densities of the amplification vector

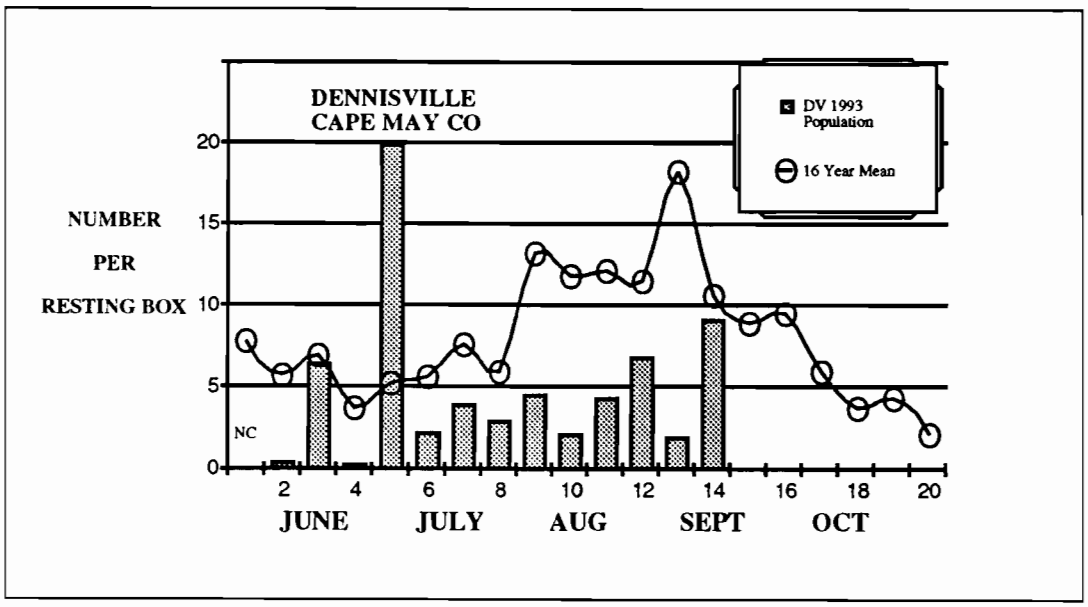

Fig. 2. *Culiseta melanura* populations at the Dennisville study site in Cape May County from June through August, 1993.

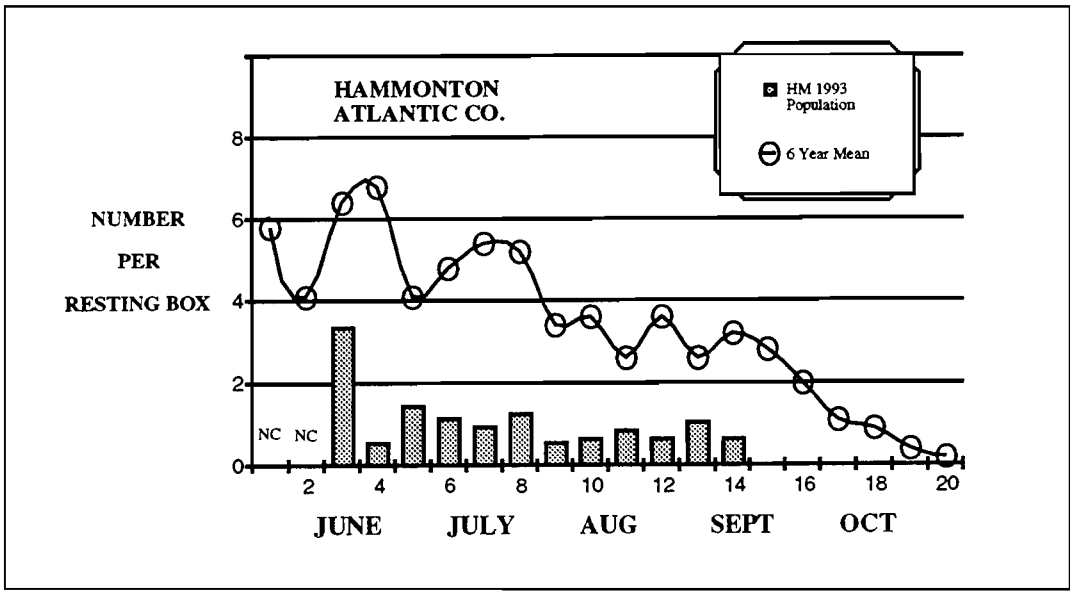

Fig. 3. ***Culiseta melanura*** **populations at the Hammonton study site in Atlantic County from June through August, 1993.**

THE CURRENT STATUS OF EEE VIRUS IN NEW JERSEY

A total of 5919 *Cs. melanura* collected from June through mid-August have been screened for EEE virus by the N.J. State Department of Health laboratories. Table 1 shows that virus has appeared at the Dennisville, Hammonton, Bass River and Centerton sites. The first isolation was made from a pool of 5 gravid *Cs. melanura* collected at Dennisville on July 29. Since that time 3 additional isolations have been made from Dennisville indicating that active transmission is probably occurring between *Cs. melanura* and wild birds along Delaware Bay. In addition, single isolations have been obtained from *Cs. melanura* collected at Hammonton and Bass River, both areas where *Cs. melanura* populations appear too low to sustain epiornitic transmission at the present time. Two isolations, however, have been obtained from the Centerton site where *Cs. melanura* are increasing to the point where epiornitic transmission is likely.

Table 1. ***Cs. melanura*** **submitted for virus assay from June to mid-August, 1993.**

LOCATION	TOTAL TESTED	NO. POOLS	POSITIVE EEE	MFIR VALUE
Coastal Sites				
Waretown	154	40	0	0
Bass River	580	65	1	1.72
Ocean City	341	36	0	0
Dennisville	3166	138	4	1.26
Inland Sites				
Turkey Swamp	48	18	0	0
Waterford	340	35	0	0
Hammonton	405	53	1	2.46
Centerton	885	73	2	2.26

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