



New Jersey Vector Surveillance

NEW JERSEY AGRICULTURAL EXPERIMENT STATION

MOSQUITO RESEARCH AND CONTROL

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Introduction

Eastern encephalitis (EE) activity continues in New Jersey with additional equine involvement over a wide geographic area. Culiseta melanura populations remain low for this time of year with no documentation of EE virus from this indicator species. EE virus was isolated from Coquillettidia perturbans at one of the horse farms, providing strong evidence that this mosquito is a key vector in the cycle. A major brood of Aedes sollicitans is anticipated to emerge in mid-August which could pose a serious health threat if EE activity extends to coastal foci.

The Current Status of EE and its Mosquito Vectors

Two additional horse cases have been confirmed in New Jersey bringing the total count to 3 thus far this season. Approximate locations can be ascertained from the map in Fig. 1. The first, a 14 month Arabian stallion, was reported on July 15 from an Ocean County farm located 15 mi from the coast. The second was a 4 mo. foal stabled at the same farm which had to be euthanized July 23. EE virus was quickly isolated from this animal, leaving no doubt that the disease was being amplified in the immediate vicinity. Special surveillance with CDC light traps was initiated shortly after the first case was reported, and trap data revealed that Cq. perturbans was the dominant mosquito in the collections. One of the Cq. perturbans pools collected July 25 yielded EE virus, strongly incriminating this species as a vector at the upland site where the cases occurred.

The mosquito vector to horses has long been the subject of speculation with numerous collections yielding a series of negative results. In most cases, surveillance could only be initiated long after the horse(s) exhibited symptoms, thus, the mosquito populations being tested were probably quite different from those that were present at the time that transmission took place. In this case, collections were initiated well after the first case but prior to the second horse death on the same farm. Detection of EE virus in Cq. perturbans during an outbreak in horses has greatly added to our picture of the epidemiology of equine encephalitis in localized areas that are far removed from the major activity that is so common along New Jersey's coast.

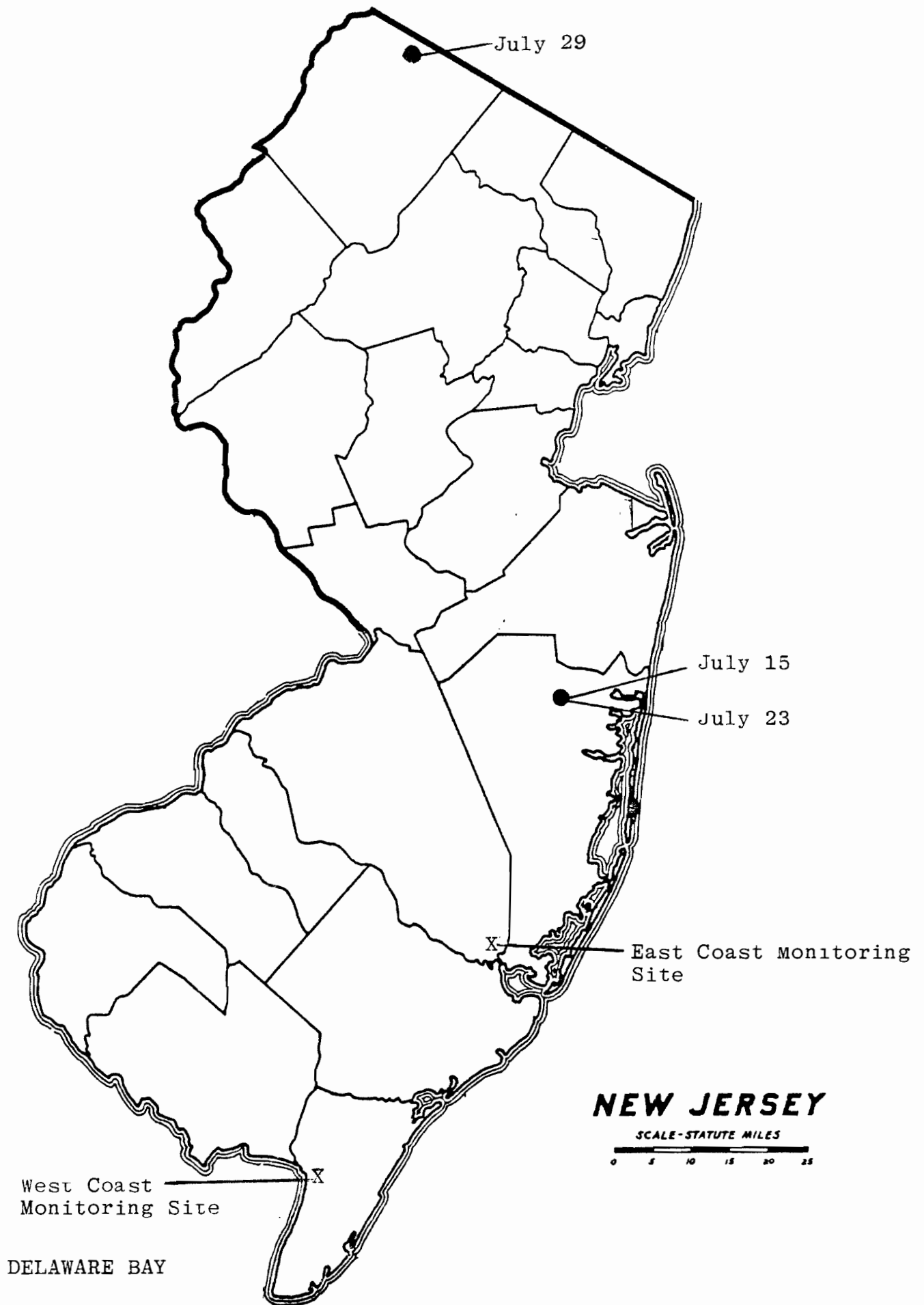


Fig. 1. CONFIRMED HORSE CASES IN 1983.

The third horse case of the season was confirmed from a farm in Sussex County, in the extreme Northwest corner of the State. The area is far removed from what might be considered the "normal" EE setting in New Jersey but an equine case was documented from Sussex County in 1959. Special surveillance revealed Cq. perturbans to be among the dominant mosquitoes coming to CO₂-baited traps. Tests have not yet been completed on any of the specimens collected from this area.

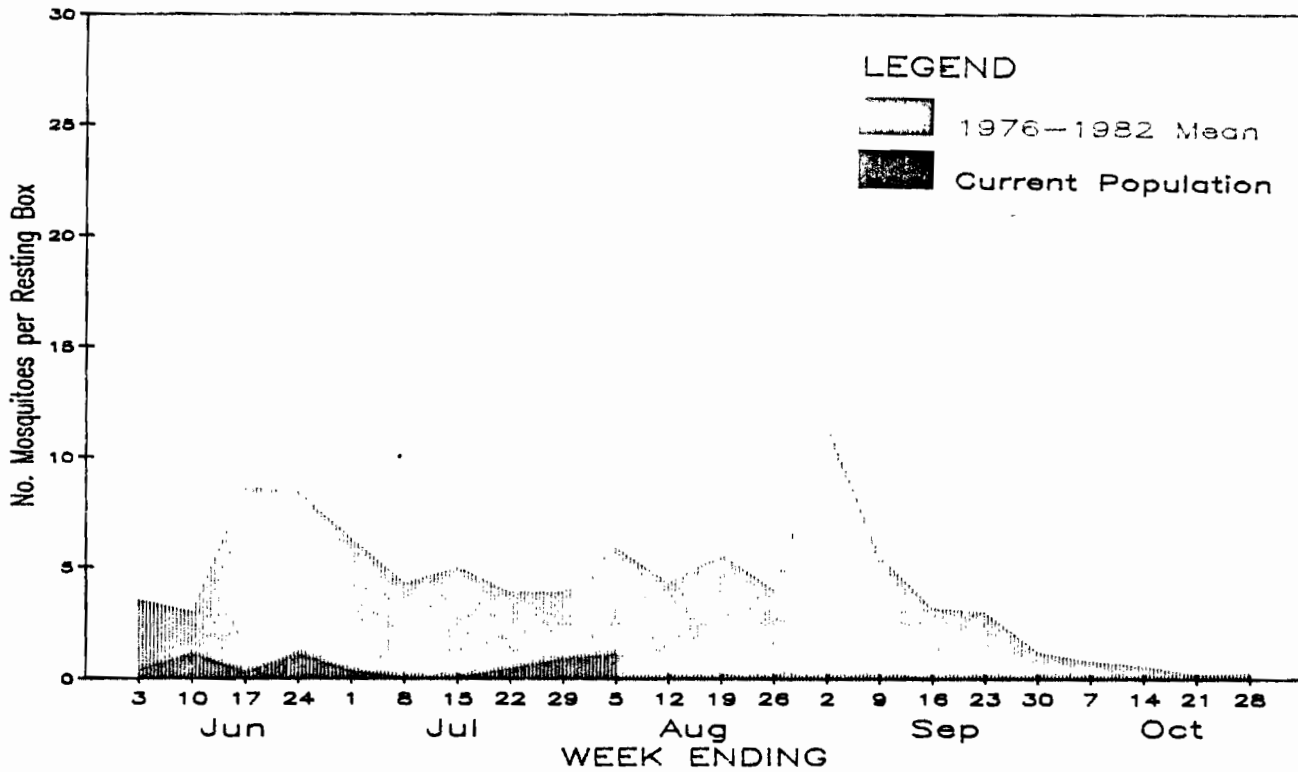
Cs. melanura populations remain low at standard monitoring sites with no evidence of EE in this species to date. Fig. 2 shows that Cs. melanura at New Gretna (East Coast) remain well below the 7 yr mean with little indication of immediate recovery. Cs. melanura at Dennisville (West Coast) exhibited a sharp increase during the latter part of July but returned to low levels in the first days of August. Parity dissections at Dennisville showed that the increase was the result of a rather small emergence that has since blood-fed and deposited eggs. No explanation can be offered on the paucity of virus in Cs. melanura during a documented epizootic period. With 3 horse cases having been confirmed this year, the single isolation from Cq. perturbans represents the only proven mosquito involvement, to date.

Aedes sollicitans populations have been erratic with large areas of salt marsh reflooding before eggs have been properly conditioned. As a result, emergences have been minimal in many areas during the mid-summer period. Surveillance has revealed populations where very large (but local) emergences have been successful. The new moon tide of August 8 could produce severe annoyance if the flooding reaches areas of the marsh where eggs from 3 generations have been deposited.

The Current Status of SLE

Sentinel chicken flocks are being closely watched for SLE activity with no evidence of sero-conversion to date. Surveillance will continue in view of the dry weather conditions and building Culex populations as the summer advances.

NEW GREटना



DENNISVILLE

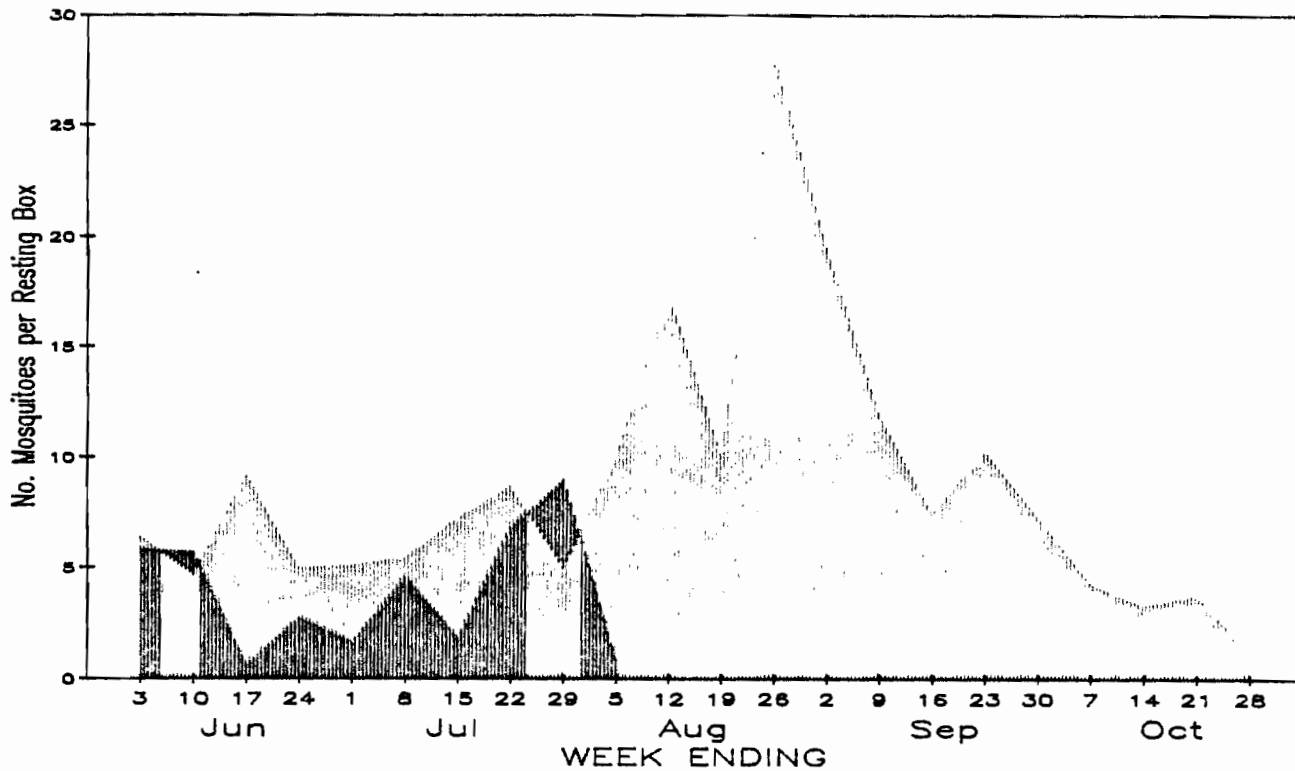


Fig. 2. *Culiseta melanura* populations at New Greटना (East Coast) and the Dennisville (West Coast) study sites as measured by resting box collections. Monthly means are based on data from the previous 7 years.

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