

New Jersey Vector Surveillance

New Jersey Agricultural Experiment Station
Mosquito Research and Control

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Introduction

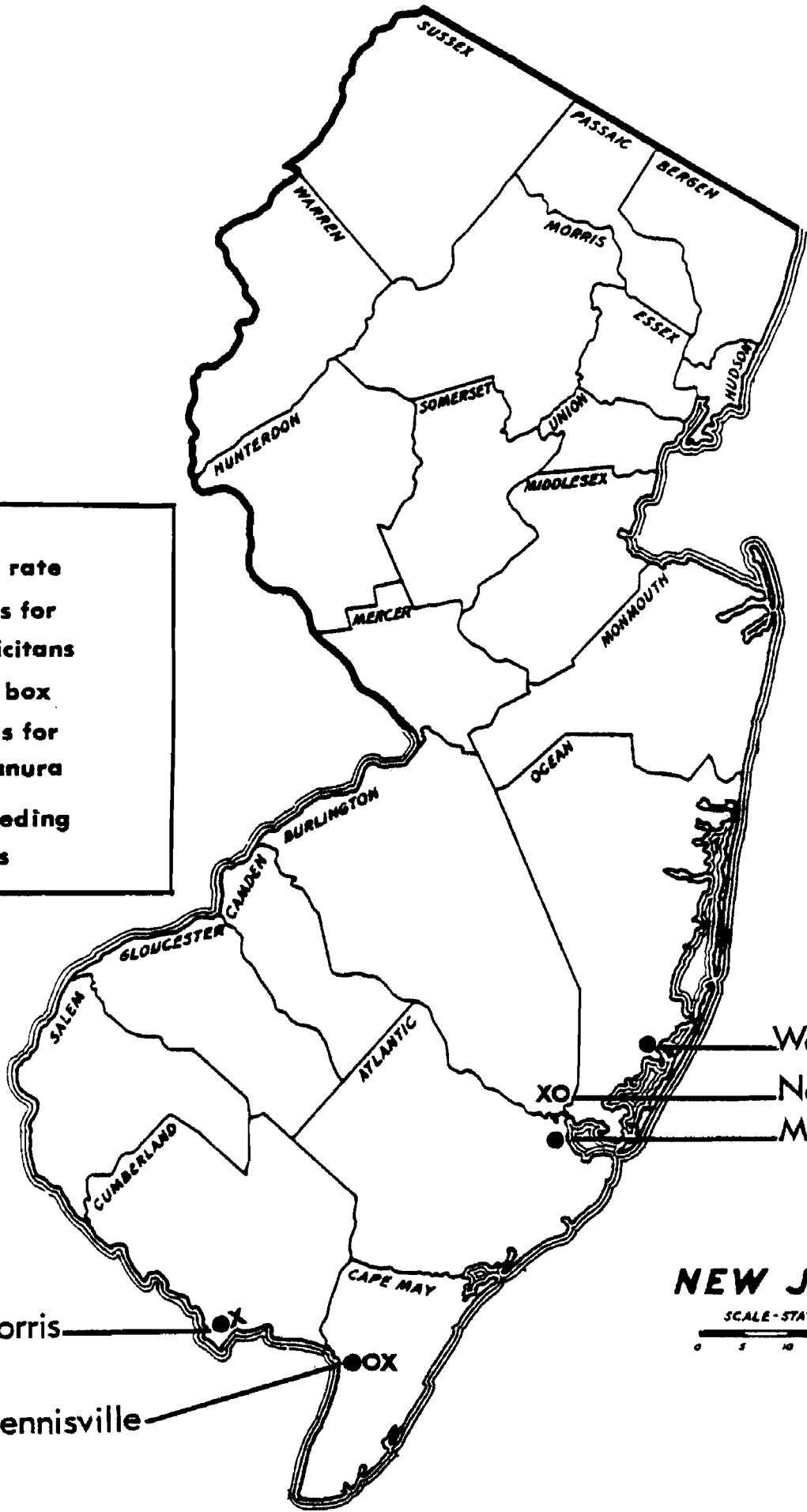
The Eastern encephalitis epizootic that began during the first week of August in New Jersey is apparently being maintained at both of the study sites where the cycle is being monitored. Additional viremic birds were captured during the month of August and EE virus is quite common in the Cs. melanura that are being tested. Cs. melanura populations remain high and appear capable of sustaining epizootic activity in local bird populations. Viremic birds have been collected in other parts of the state during "spot check" netting operations, thus it would appear that the epizootic is quite wide-spread.

Migrating birds are now passing through each of the sites and provide an additional source for virus amplification along the eastern coast of the U. S. The N. J. State Department of Health reported the first confirmed horse death due to EE as well as a confirmed equine case of Highlands J (HJ) virus*. Aedes sollicitans populations (the suspected epidemic vector of EE) are currently of sufficient age to transfer virus from the avian cycle. There is no evidence of human involvement at the present time.

Results from the Bird Bleeding Program

Approximately 500 bird bloods have now been collected from the study sites where Cs. melanura populations are being monitored and the results show an interesting trend. The larger Passerine birds (Robin, Blue Jay, Grackle, Wood Thrush) appear to be sustaining the epizootic within the current focus of the infection. Each of these species had a high incidence of antibody early in the spring indicating a history of past infection coupled with survival and antibody production. Large Passerines with a viremia (birds with a current infection capable of infecting local mosquitoes) have also been captured this year, further implicating these species in the cycle. The smaller Passerines (Warblers, Chickadees, Flycatchers) showed no evidence of antibody early in the season, but a low incidence of antibody once the epizootic began as well as an active viremia in a few species indicate that the smaller birds are contracting the virus. Data suggest that most bird species become infected, but the smaller birds may succumb to the virus once it becomes epizootic in the area. Several species (Catbird, Ovenbird, Titmouse) appear to be intermediates. Antibody was detected in a low percentage of the spring adults but the virus also appears to be affecting survival of the juveniles.

*Highlands J Virus (HJ) is now considered to be the acceptable term for the virus that was formerly reported as Western Encephalitis (WE) in this area. True WE appears to be limited to states West of the Mississippi River and is pathogenic to both humans and horses. HJ is common in the East but is considered to be nonpathogenic. Finding HJ virus in an equine with clinical symptoms raises several questions regarding the actual pathogenicity of this virus.



Key

- landing rate locations for *Ae. sollicitans*
- X resting box locations for *Cs. melanura*
- bird bleeding locations

West Creek
 New Gretna
 Mott Creek

Port Norris
 Dennisville

NEW JERSEY
 SCALE - STATUTE MILES
 0 5 10 15 20 25

Current Status of Cs. melanura Populations

Cs. melanura populations remain above average at each of the study sites that are being monitored and appear capable of sustaining epizootic activity into the fall.

CUMULATIVE POPULATION RECORD

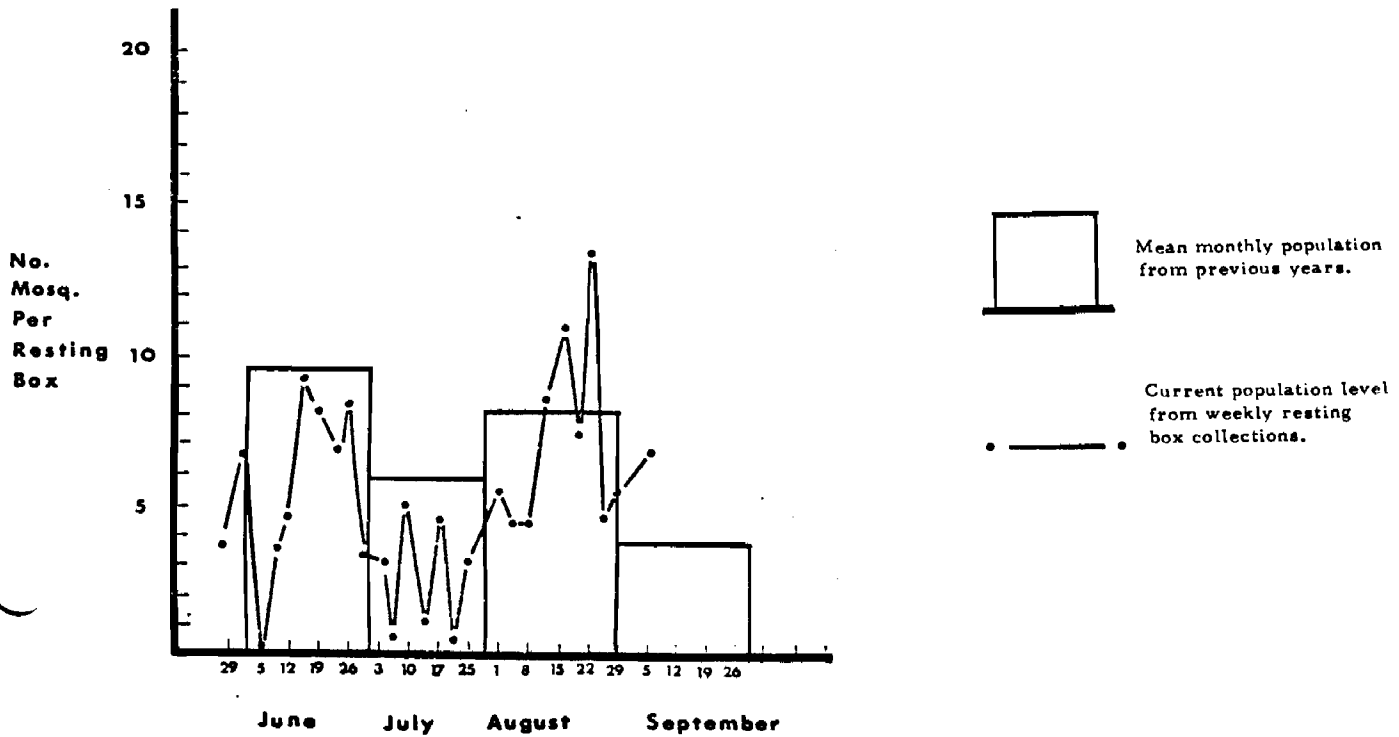


Fig. 1. Culiseta melanura populations at the New Gretna (east coast) study site as measured by resting box collections.

Figure 1 shows that the Cs. melanura populations at New Gretna (East Coast) have not been affected by the extremely dry weather and have sustained a breeding population that should assure a relatively large overwintering generation. Virus has been isolated from this population since August 7 and remains epizootic at the present time.

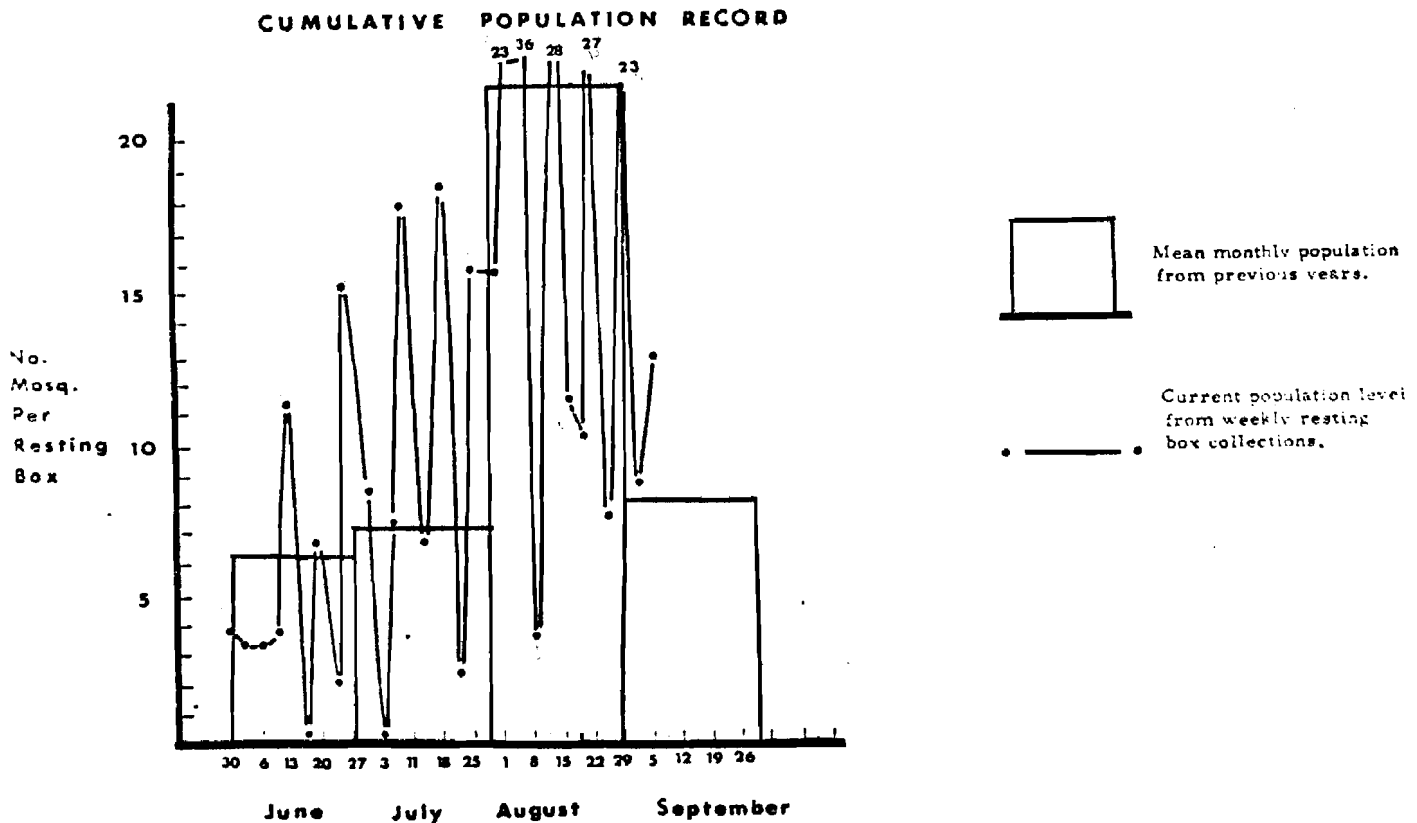


Fig. 2. Culiseta melanura populations at the Dennisville (Delaware Bay Coast) study site as measured by resting box collections.

Figure 2 shows that the Cs. melanura from Dennisville (Delaware Bay Coast) were well above average during most of August and remain high into September. Virus is very common in the mosquitoes that are being tested from this site. Under these conditions, epizootic transmission of EE to the local as well as migrant birds appears inevitable.

Current Status of Aedes sollicitans Populations

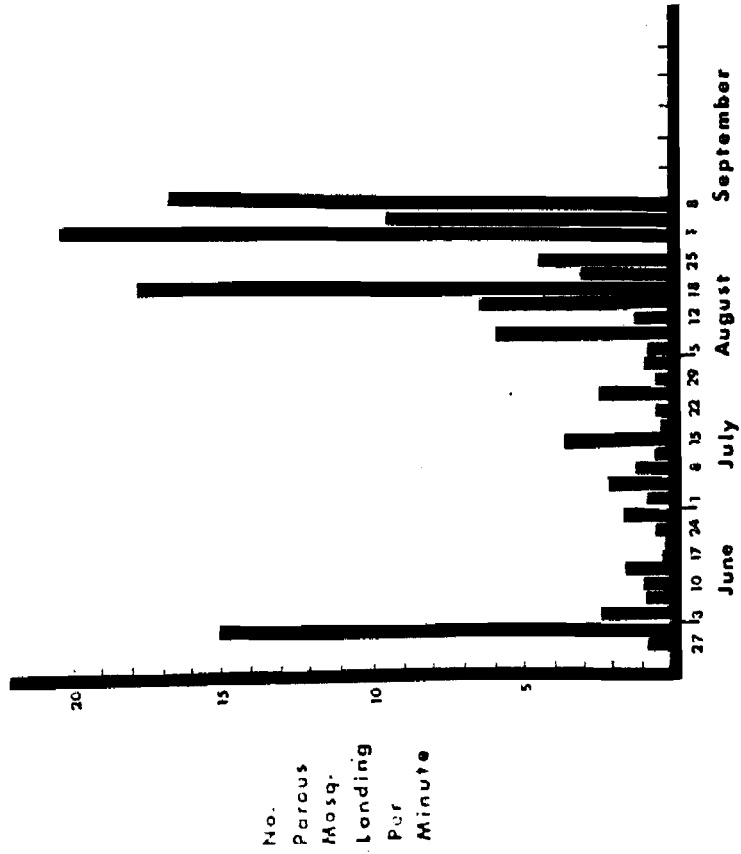
An average brood of Aedes sollicitans emerged from New Jersey's coastal marshes during the first days of September. Landing rates rose sharply during the first week of September and parous rates increased steadily to the middle of the month. Vector potential appeared to peak on September 8, but the cool nights may have favored survival of the older mosquitoes and reasonably large biting populations from this brood could remain along the coast for several weeks. Large numbers of mosquitoes are being collected for virus assay but there is no evidence of "spillover" to date.

Aedes sollicitans

1980

SITE WEST CREEK
COUNTY OCEAN

CUMULATIVE VECTOR POTENTIAL RECORD



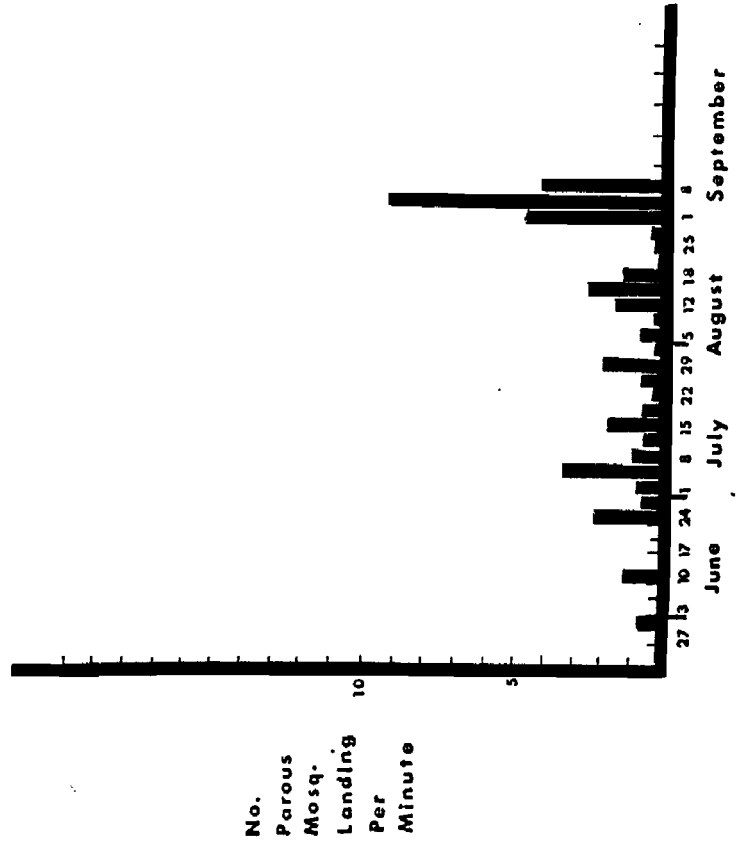
REMARK

Aedes sollicitans

1980

SITE DENNISVILLE
COUNTY CAPE MAY

CUMULATIVE VECTOR POTENTIAL RECORD



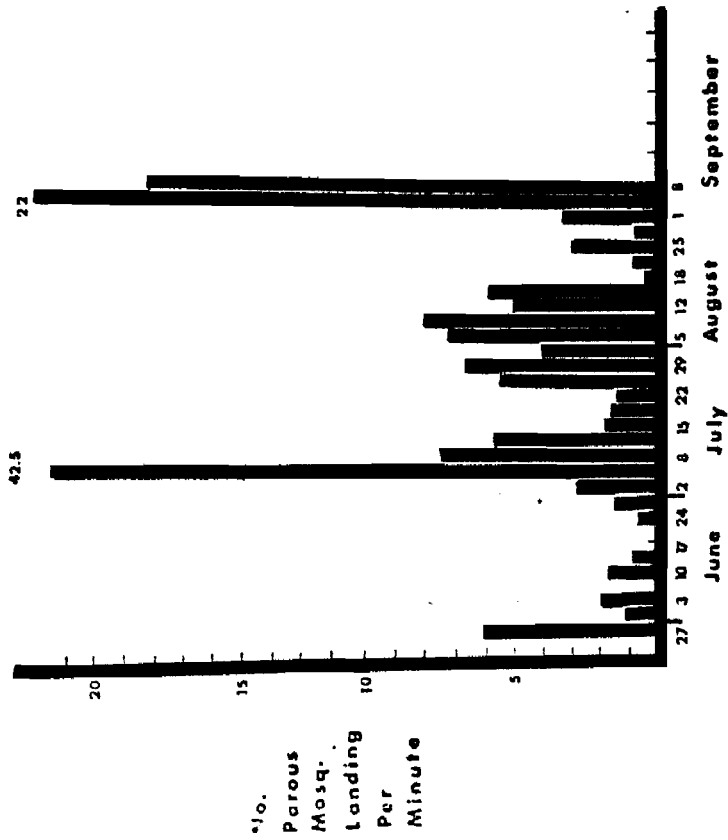
REMARK

Aedes sollicitans

1980

SITE FORT NORRIS
COUNTY CUMBERLAND

CUMULATIVE VECTOR POTENTIAL RECORD



REMARK

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