

# New Jersey Vector Surveillance

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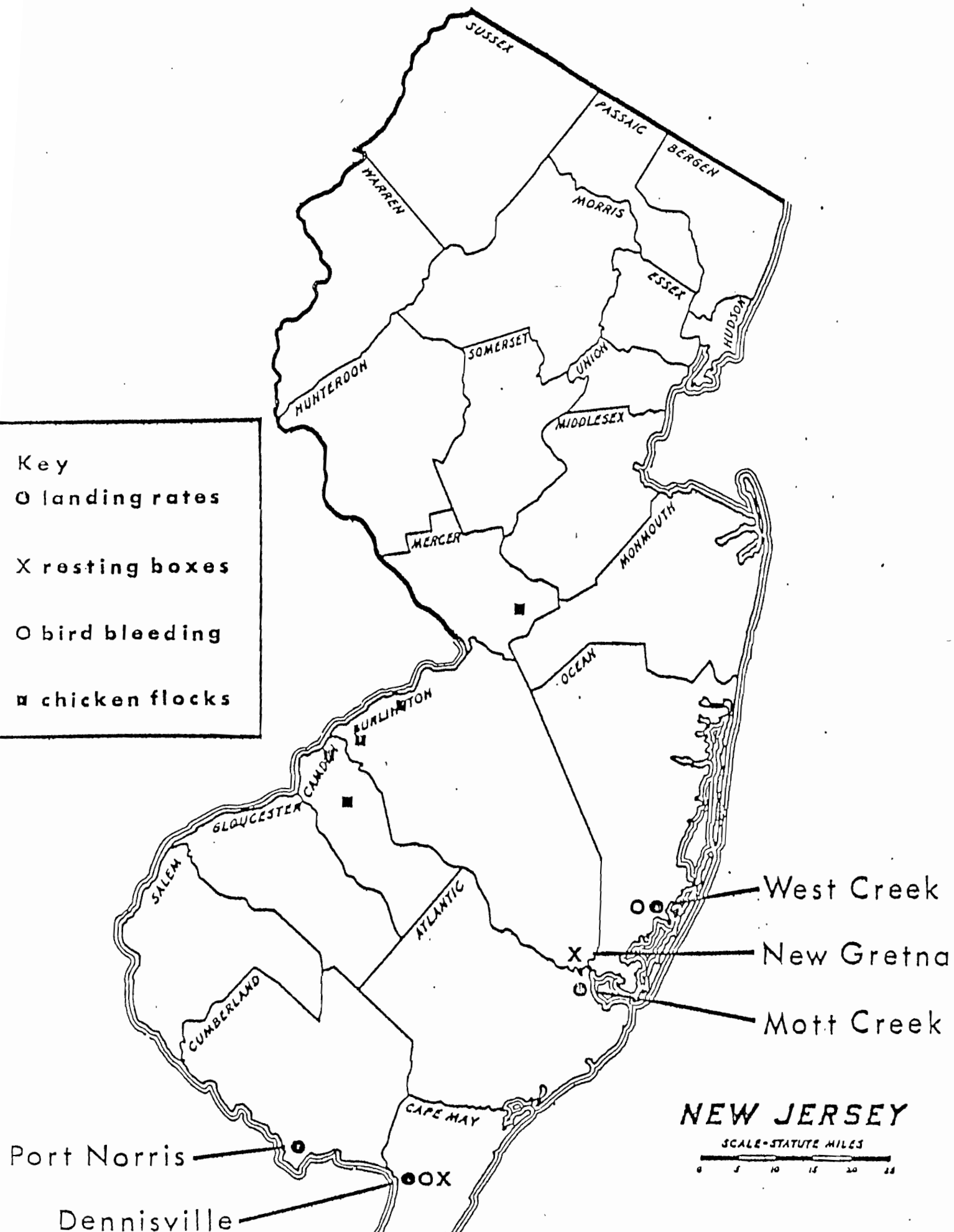
## Introduction

Eastern encephalitis virus (EE), which reached epizootic proportions during the second week of August, is still very much in evidence in the southern part of New Jersey. Four equine cases have been confirmed, thus far, and a fifth case still remains as a suspect. Through August 9, a total of 10 EE isolations and 10 HJ isolations have been made from Cs. melanura at the study sites monitored by this project. The results of specimens collected later in the month are expected to yield further evidence of virus activity. A concerted effort is being made to monitor Ae. sollicitans for virus with special collections from Cape May and Atlantic Counties. A portion of the Ae. sollicitans will be processed at Yale University with special funds made available by the NJAES. A number of State airsprays were directed toward the remnants of the Ae. sollicitans broods that emerged earlier in the month. Adults from the moontide of August 19 are now receiving attention and will be closely monitored during the current epizootic. The bird migration is now underway, thus numerous susceptible birds were passing through the areas where virus is known to be active. News releases from the State Department of Health, State Department of Agriculture and NJ Agricultural Experiment Station have made the public aware of the situation. No human cases had been reported at the time of this writing.

## The Status of Equine Involvement at Inland Areas

All of the 4 confirmed horse cases to date occurred at the point where Gloucester, Salem and Cumberland Counties join. The horses were located on 3 separate farms within several miles of one another. Two of the horses had not been vaccinated; the remaining 2 had been owner vaccinated. The first horse was from Franklinville, Gloucester County, and is reported as dying on August 9. A second horse died on this same farm several days later and the owner stated that one additional animal had died earlier but was not available for documentation of virus. The third and fourth horse deaths due to confirmed EE took place in Pittsgrove Township in Salem County on 2 separate farms in close proximity. EE virus was isolated from the brains in all cases; one remaining case from Yorkville in Salem County has not been confirmed. The State Department of Agriculture released the information to the press on August 18 and urged all horse owners to have their animals vaccinated. No additional cases have been reported to date, but there are (unconfirmed) reports of additional horse cases in the area that are not being reported.

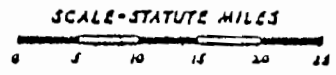
A survey of the farms revealed a sizeable cedar swamp that was breeding Cs. melanura as well as a network of several small adjoining lakes. Coquillettidia perturbans was the dominant species coming to bite at the time of the survey and dissections revealed a +90% parous rate in the mosquitoes that were collected. The situation closely parallels the epidemiological pattern detected in Michigan last year where Cq.



**Key**

- landing rates
- × resting boxes
- with dot bird bleeding
- chicken flocks

**NEW JERSEY**



perturbans was implicated as the primary vector to horses. Specimens from the vicinity are being tested for virus with the hope of obtaining isolations that will help define the inland cycle of EE in New Jersey. Ground ULV diminished mosquito activity in the collection area and aerial control was later instituted to minimize the risk to the human population.

#### The Status of EE Virus and its Mosquito Vectors in Coastal Areas

Culiseta melanura populations showed an abrupt increase during the first 2 weeks of August at both of the study sites that are being monitored (Fig. 1). Since that time, the populations have dropped and are well below the average expected at this time of year. The sharp drop in numbers collected in the resting boxes is probably the result of exceptionally cool evening temperatures rather than a real reduction in numbers. A similar drop in Cs. melanura was noticed in mid-August during 1979 when unseasonal temperatures accompanied an EE epizootic. In 1979, the numbers of Cs. melanura increased as soon as the temperatures returned to normal. A human case was contracted during the cool spell that year, indicating that virus activity progressed regardless of temperature.

Vector potential in Ae. sollicitans peaked during the second week of August as the major brood from the July 20 moontide neared 100% parity. A rather sizeable rain brood emerged at about the same time on the Atlantic coast and required aerial control in most coastal counties. The moontide of August 19 produced a sizeable hatch throughout the Delaware Bay region but minimal breeding was noted along the Atlantic due to West winds which prevented tidal flooding on much of the high marsh. Rains, some days later, did flood the marsh on the Atlantic coast, thus asynchronous emergence can be expected from opposite sides of the State. Vector potential should peak over Labor Day on the Delaware Bay coast unless airsprays significantly reduce the biting population prior to the anticipated peak. The populations along the Atlantic coast are so mixed that an extended period of vector potential will probably be seen throughout most of September.

#### The Status of Other Arthropod-borne Diseases in the Northeast

The media in the Northeast is very aware of the mosquito situation this year and has reported a number of accounts on encephalitis and other arthropod-borne infections that could be misleading. Information from Florida, Georgia, South Carolina, Maryland, New Jersey and New York have been pooled to suggest that human cases are the general rule. The inclusion of Lyme Disease (which is tick-borne) has further clouded the picture. EE has only been reported in humans from Georgia (2 cases) and Florida (1 confirmed and 1 suspected case). The human cases of encephalitis reported from New York State (7 in total) have all been California encephalitis (CE) and were contracted during June and July. Ae. triseriatus is the probable vector in the single LcCrosse case (a member of the CE Complex) and members of the Ae. communis complex (snowpool mosquitoes) are suspected in the remaining 6 cases attributed to Jamestown Canyon virus (another member of the CE Complex). A similar CE outbreak in Georgia during May-June has added to the confusion in the media and have nothing to do with the current EE activity in New Jersey. Equine involvement, however, has been widespread this year with documented EE activity in horses in Florida, Georgia, South Carolina, Maryland, New Jersey and Massachusetts (presumptive). St. Louis encephalitis (SLE), which is transmitted by urban Culex, has been relatively inactive this year and none of the NJ sentinel chicken flocks have sero-converted to date.

Lyme disease, transmitted by the Fall tick, Ixodes damenni, has been publicized in New York State with a sizeable focus on Long Island. New Jersey has reported ±50 human cases of Lyme Disease this year with an additional influx expected during the month of September.

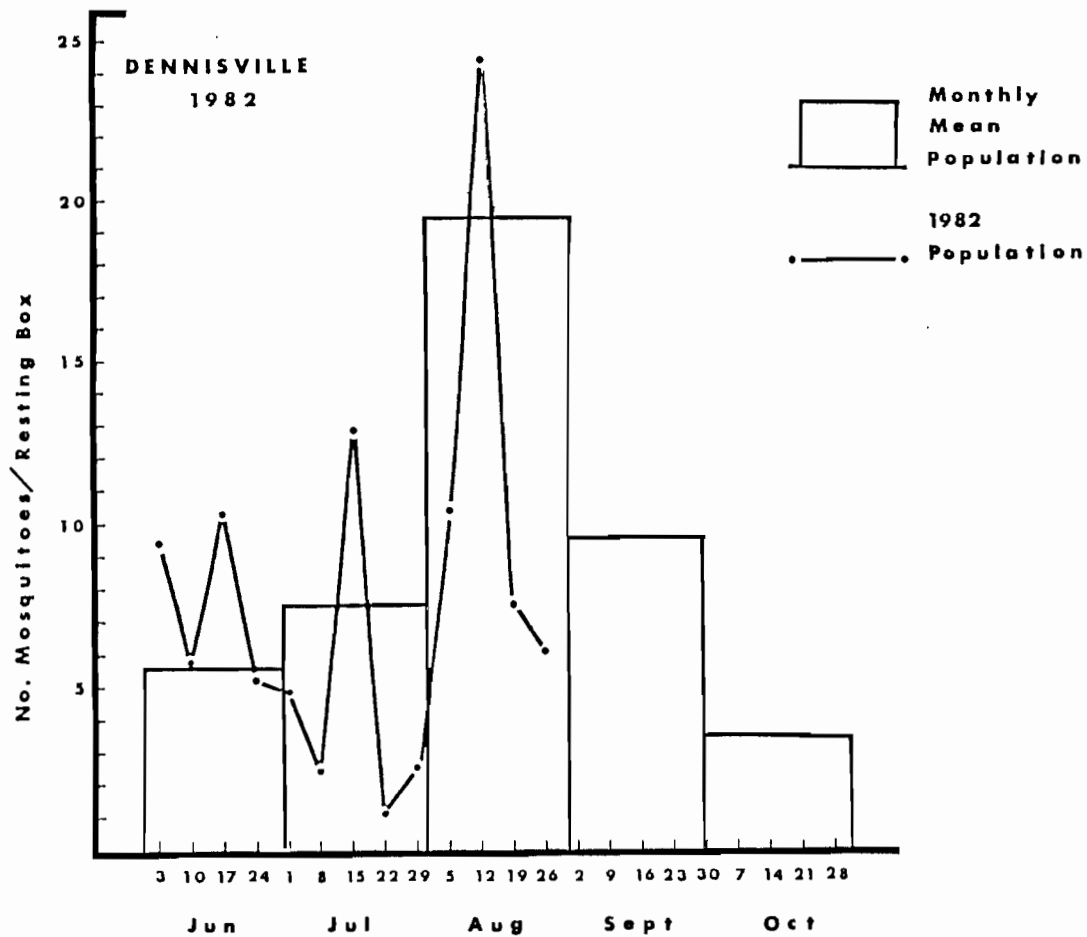
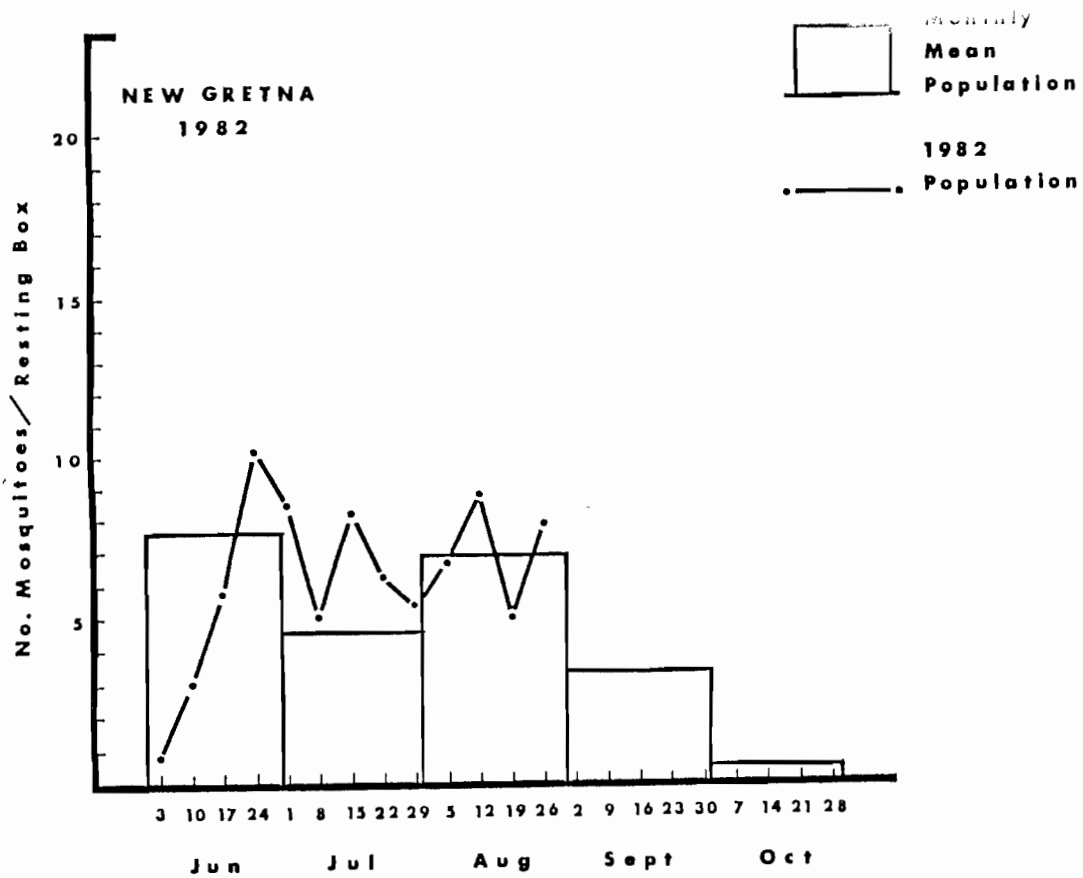


Fig. 1. *Culiseta melanura* populations at the New Gretna (east coast, top graph) and at the Dennisville (west coast, bottom graph) study sites as measured by resting box collections.

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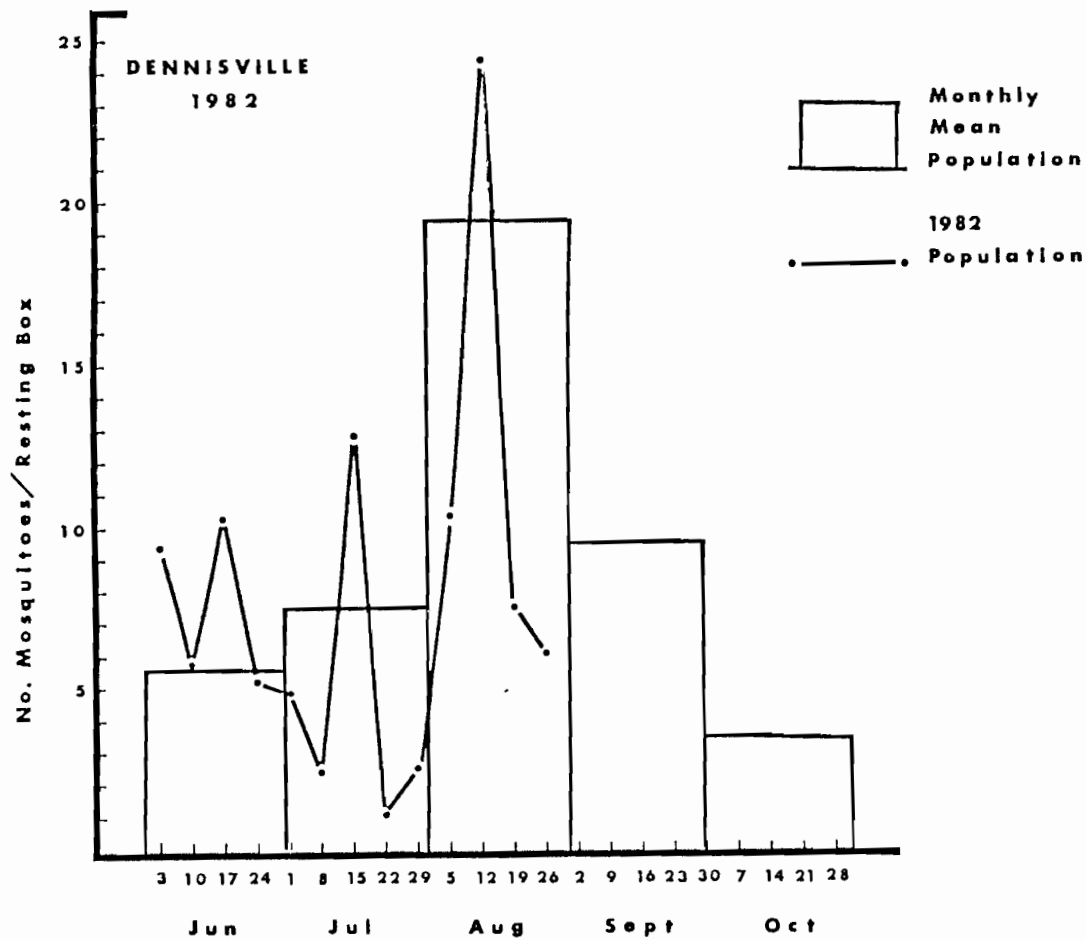
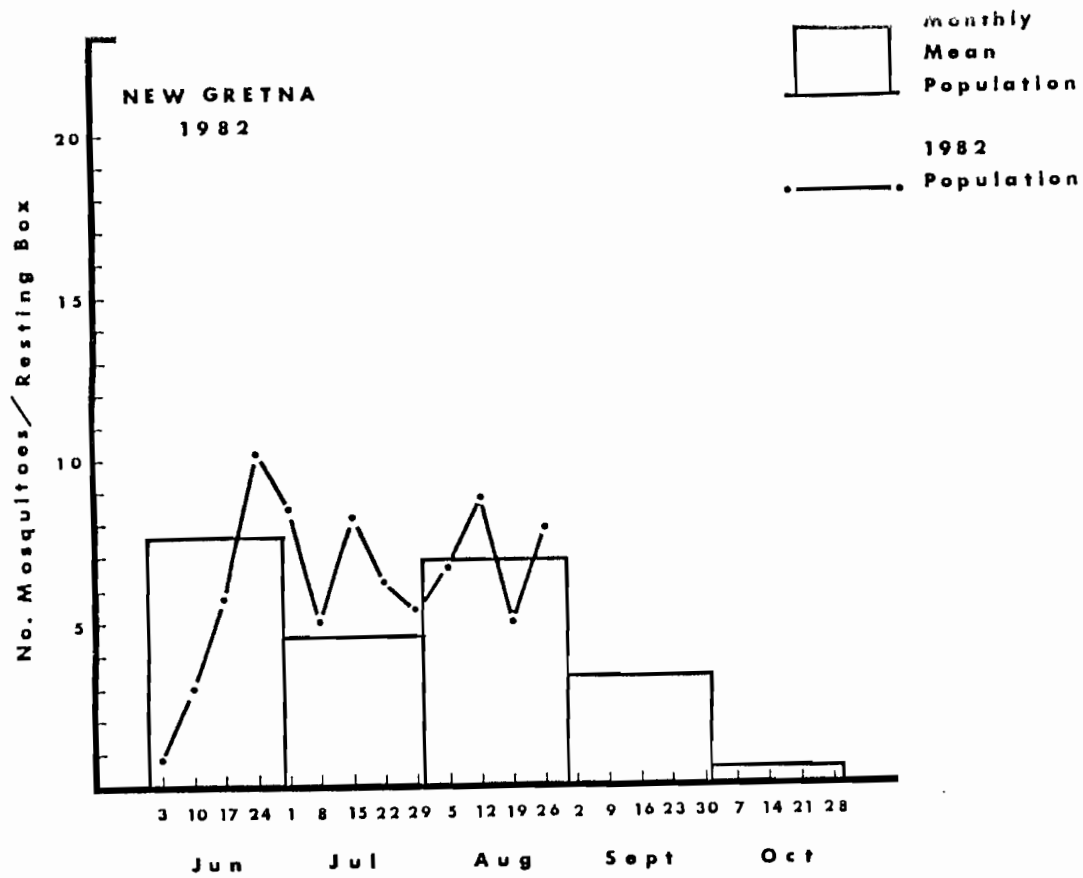


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