

NOTES ON SOME FRESHWATER *Aedes* MOSQUITOES IN MARYLAND*

WM. E. BICKLEY AND J. T. WHITLAW, JR.
University of Maryland, College Park, Md.

In the metropolitan areas of Prince George's and Montgomery Counties, Maryland during recent years *Aedes vexans* (Meig.) has been the most important mosquito from the standpoint of annoyance to man. *A. canadensis* (Theob.) is also a noteworthy pest, and occasionally *A. trivittatus* (Coq.) constitutes a nuisance. Observations on the bionomics of these species with emphasis on seasonal distribution are reported here.

In the College Park area larvae of *Aedes canadensis* can be found in late February but they are not abundant until April. In 1953, 1954, and 1955 examinations of numerous breeding places showed that the peak of the larval population was reached during the second week in April. The greatest number of pupae are seen from mid-April to mid-June. Adults are active beginning about May 15 although biting records have been obtained as early as

May 1. *A. canadensis* is followed by *A. vexans* in the spring, very often in the same breeding places. Our earliest record for *A. vexans* larvae is March 20. Maximum numbers of pupae appear about June 1. Pupation in the spring appears to take place during a short period of time, unlike pupation of *A. canadensis* which extends throughout many weeks. Biting records of *A. vexans* begin on May 16, but adult activity is greatest during the first two weeks of June. It is at this time that mosquito annoyance is severe in the College Park area because in addition to large numbers of *A. vexans*, many *A. canadensis* females are biting.

Examinations of suitable breeding places at six locations were made each week from March 17 through October 25, 1955. During June and July larvae disappeared, and in most cases the breeding places dried up completely. The last of the early larvae of *A. vexans* were taken on June 30; then about the middle of August they were found at four of the six locations. These larvae matured rapidly. Adults were ac-

* Misc. Publication No. 254, Contribution No. 2670 of the Maryland Agricultural Experiment Station, Department of Entomology (Project H-59).

tive from the last of August until the first of October. It is our opinion that two generations of *A. vexans* were produced in 1955, but there is no proof that larvae found in August hatched from eggs deposited in the same year. It is possible that the August population resulted from a delayed hatching of eggs. Headlee (1945) reported repeated hatchings extending into the third year after eggs were brought into the insectary.

At the six locations mentioned previously, larvae of *Aedes canadensis* disappeared after May 12. Later at one of the locations they were collected only once, on August 22. Horsfall (1955) reported that eggs of this species hatch in the fall in New Jersey and Illinois. It appears that eggs which hatch in August are the progeny of adults which emerge in May or June, but this has never been proved by actual experiments.

On May 12, 1953 mosquitoes were reported in annoying numbers in a small subdivision near Kensington. A light trap was operated from May 15 to July 15 and on June 1 one female *Aedes trivittatus* was collected. Six specimens were trapped through June 9, but none thereafter. On June 4 vast swarms of *A. trivittatus* were biting viciously in the daytime, and in this case it appeared that the New Jersey type light trap was not a reliable index of the abundance of this species. During the last of May and first part of June 1953 *A. trivittatus* was the only species that reached pest proportions in the Kensington area. In College Park a few biting collections were made during the same period, but *A. trivittatus* was greatly outnumbered by *A. canadensis* and *A. vexans*. An intensive

search for larvae on June 4, 1953 was unsuccessful. In 1954 concentrated efforts to find larvae at Kensington were made on April 28, May 5, May 13, and May 22. No larvae of *A. trivittatus* were located, and adults did not constitute a nuisance in that year. Careful studies in 1955 indicated that this species had almost disappeared from the area where the adults were so abundant in 1953. One adult was collected on August 29. The decrease in numbers was attributed to a considerable amount of grading and filling.

Some dipping was done in 1954 in College Park in several places which appeared to be suitable habitats for *Aedes trivittatus* larvae, and these spots were checked carefully during 1955. Only one larva was found. It was taken from a small temporary pool on April 28. The shallow pool contained water in which *A. canadensis* larvae were abundant from March 17 to April 21, but it dried up completely on April 22. A few days later the area was flooded with rain water. The single third instar larva of *A. trivittatus* had apparently developed rapidly, a known characteristic of the species (Abdel-Malek, 1948): *A. trivittatus* was not a pest in College Park in 1955, but adults were collected attempting to bite on five occasions from August 29 to October 7.

Literature Cited

- ABDEL-MALEK, A. 1948. The biology of *Aedes trivittatus*. Journ. Econ. Ent. 41:951-954.
HEADLEE, T. J. 1945. The mosquitoes of New Jersey and their control. New Brunswick: Rutgers Univ. Press. Pp. 1-326.
HORSFALL, W. R. 1955. Mosquitoes, their bionomics and relation to disease. New York: The Ronald Press. Pp. 1-723.