

collections. Dance flies did not appear in connection with the July-August swarms.

SUMMARY AND CONCLUSIONS. Seventy-four swarms of *Aedes punctor* males were observed: (A) in June; and (B) in July-August.

(A) The June series of 38 swarms was characterized by large concentrations of hundreds or even thousands of males flying in 3 loci of an open clearing, copulating at the rate of 1-10 per minute or rarely at very high rates estimated at about 150 per minute. A nuptial flight occurred.

(B) The July-August series of 36 small swarms of less than about 75 males each took place evening after evening in two loci under overhanging branches. Very few instances of copulation were seen.

It is concluded that for *Aedes punctor* in Alaska swarming is a behavior closely connected with copulation, i.e., swarms of males are *mating swarms*, but that males form small swarms later in the season which are largely without function since few or no copulations then occur there.

Males of a dance fly (Empididae), *Rhamphomyia* sp., formed swarms above the June mosquito swarms. They also preyed on the mosquito males and pairs.

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to Dr. Alan Stone of the U. S. National Museum who confirmed the identification of *Aedes punctor* by generously examining 50 specimens collected from eight swarms of both series, and to Dr. Willis Wirth of the same institution for determining the dance fly to be a species, "probably new," of *Rhamphomyia*.

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NOTES ON MOSQUITOES IN NORTH AMERICA: II

COLLECTIONS AT MILITARY INSTALLATIONS IN INDIANA DURING 1944 AND 1945

STANLEY J. CARPENTER¹

Hart (1944) published records of twenty-four species of mosquitoes found in Indiana. Christensen and Harmston (1944) published a preliminary list of the mosquitoes of Indiana which includes all the species found by Hart and records for five additional species.

This paper includes collection records of twenty-one species of mosquitoes taken during 1944 and 1945 at five military installations located in Indiana. Two species, *Aedes (Aedes) cinereus* Meigen and *Culex (Culex) salinarius* Coquillett, were not reported by either Hart (1944) or Christensen and Harmston (1944). The mosquitoes were collected by Army Medical Service personnel assigned to the

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local military establishments and the specimens were forwarded to the Fifth Service Command Medical Laboratory where determinations were made.

The records presented in the following paragraphs include, for each species taken, the months of occurrence, the number of specimens identified, and the localities in which the collections were made, in the order named. The locality name is either the name of the military establishment or the name of the town or city in which the military installation was located. These names are abbreviated as follows: Austin: A; Camp Atterbury: CA; Fort Wayne: FW; Indianapolis: I; Madison: M.

COLLECTION RECORDS

Anopheles barberi, July–Sept., (5), CA, I; *An. punctipennis*, Apr.–Oct., (2167), CA, FW, I, M; *An. quadrimaculatus*, June–Oct., (256), A, CA, FW, I.

Uranotaenia sapphirina, Sept., (24), CA, FW.

Culiseta inornata, Apr.–June, (56), CA, FW, I.

Psorophora ciliata, June 21, 1945, (1), CA; *P. cyanoescens*, July 3, 1945, (1), CA; *P. ferox*, June 27, 1945, (3), I; *P. horrida*, July 3, 1945, (3), CA; *P. confinnis*, May 24, 1945, (3), I.

Aedes canadensis, March–May, (992), CA, FW, M; *A. sticticus*, July 3, 16, 1945, (2), CA; *A. trivittatus*, Sept. 20, 1945, (4), CA; *A. triseriatus*, May–July, Sept., (121), CA, FW, I; *A. vexans*, March–Oct., (466), CA, FW, I, M; *A. cinereus*, Apr., June, (30), FW, I.

Culex pipiens, Jan., March–Oct., (1664), A, CA, FW, I; *C. restuans*, Apr.–Oct., (2221), CA, FW, I; *C. salinarius*, May–Oct., (180), CA, FW, I; *C. erraticus*, Aug., Sept., (44), A, CA, I; *C. territans*, Apr.–Oct., (145), CA, FW, I.

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NOTES ON MOSQUITOES IN NORTH AMERICA: III

COLLECTIONS AT MILITARY INSTALLATIONS IN KENTUCKY DURING 1944 AND 1945

STANLEY J. CARPENTER¹

Dyar (1922) gave locality records for eight species of mosquitoes in Kentucky. Other workers, particularly Quinby (1936, 1937 and 1941) and Quinby *et al.* (1944), contributed much additional information on the mosquito fauna of the State. Quinby *et al.* (1944), cited the earliest known record for each of the forty-two species known to occur in the State and gave their distribution by counties and prevalence. Kitzmiller (1945) reported the occurrence of an additional species,

Orthopodomyia alba Baker, at Fort Knox, Kentucky.

This paper includes collection records of twenty-four species of mosquitoes taken during 1944 and 1945 at six military installations located in Kentucky. The species taken, dates of collection or months of occurrence, number for each species identified and localities in which the collections were made are given in the following paragraphs in the order stated. Either the name of the military establishment or the name of the town or city in which the military establishment was located is given to indicate the locality.

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