

factors on proportion of mosquitoes feeding. Among the factors investigated were type of food, type of membrane, phagostimulants, species characteristics, species mixtures, crowding, and age. A note on egg production and destination of meal in artificially fed mosquitoes is included.

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SEVEN NEW RECORDS OF MOSQUITOES IN ALBERTA

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Forty-one species of mosquitoes, belonging to eight genera are known to occur in Alberta. These include 27 species of the genus *Aedes*, 5 of *Culiseta*, 3 of *Culex*, 2 of *Chaoborus*, and 1 of each of *Anopheles*, *Eucorethra*, *Mansonia*, and *Mochlonyx*. Summary lists of mosquitoes in Alberta were published by Strickland (10) and Twinn (11). Rempel (7, 8) includes information on the distribution of culicine larvae in Alberta and some adults. Information on the Albertan species of the subfamily Chaoborinae can be found in the work of Cook (3). Shemanchuk (9) also mentions Chao-

borinae as well as species of the subfamily Culicinae. The latest published new record for Alberta is *Aedes (Ochlerotatus) melanimon* Dyar collected by Burgess (1) in a mosquito trap at Brooks.

After examining the mosquito collection in the Strickland Museum at the University of Alberta, a part of the mosquito collection at the Entomology Research Institute in Ottawa, as well as unpublished theses and reports of students who have studied mosquitoes in Alberta recently, seven new records for Alberta were found. The keys of Rempel (7, 8), Carpenter and LaCasse (2), and Cook (3)

were used for identification. The new records are: *Aedes* (*Ochlerotatus*) *diantaeus* Howard, Dyar, and Knab, *A. hexodontus* Dyar, *A. idahoensis* (Theobald), *A. increpitus* Dyar, *Culex* (*Culex*) *restuans* Theobald, *Culex* (*Neoculex*) *territans* Walker, and *Mansonia* (*Coquillettidia*) *perturbans* (Walker). Notes on these species follow.

Aedes (*Ochlerotatus*) *diantaeus* HOWARD, DYAR AND KNAB. A female was collected by B. Hocking on the evening of July 10, 1959 at Lady Evelyn Falls, west of Hay River, N.W.T., a few miles north of the Alberta boundary. Other species active, and collected on the same evening were: *A. excrucians*, *A. fitchii*, *A. cinereus*, *A. pionips*, *A. intrudens*, and *A. communis* (Hocking, 1959 unpublished field notes). But in Alberta this species was first recorded by Happold (4) who writes: "*A. diantaeus* . . . is a rare species. A few larvae were found in a forest pool in 1961, and several were found in sedge and semi-permanent habitats in 1962. Three adult females emerged into rearing cages" He found larvae of *A. spencerii* and *A. stimulans* with the larvae of *A. diantaeus*.

Aedes (*Ochlerotatus*) *hexodontus* DYAR. I collected larvae of this species in the area of Flatbush, Alberta during May and June, 1960 and May, 1961 (unpublished report, 6). The larvae were found mainly in shallow pools adjacent to small lakes. The vegetation in these areas consisted mainly of sedge and moss. In these pools the larvae of *A. hexodontus* were found with larvae of the following species: *Aedes pullatus*, *A. punctor*, *A. excrucians*, *A. sticticus*, *A. spencerii*, *A. intrudens*, *A. vexans*, and in one pool with *Culiseta inornata*. During the first half of May, 1960 *A. hexodontus* larvae were abundant, particularly in one of the muskeg pools. In early May of 1961 they were scarce in this particular pool.

Aedes (*Ochlerotatus*) *idahoensis* (THEOBALD). Two female specimens of *A. idahoensis* from Alberta are in the mosquito collection at the Entomology Research Institute, Ottawa. Both were col-

lected at Lethbridge by J. R. McLintock, one on September 7, 1950, and the other on June 20, 1951. McLintock (personal communication) stated: "Both collections were made by hand during the day, in the laboratory corrals and the 1950 collection was made for certain in the afternoon. The collections were made in the course of other work, i.e., we were working on warble flies (1950) and hornflies (1951) and the only reason I picked them up was because I was curious to know what the small mosquitoes were."

Aedes (*Ochlerotatus*) *increpitus* DYAR. Females of this species were collected by Klassen (5) from a rearing cage in the North Saskatchewan River Valley two miles east of Edmonton. Seven females were collected on May 30, 1959, and one on June 17 of the same year (Klassen, 1959 unpublished report, Department of Entomology, University of Alberta). I collected larvae of this species on May 27, 1960 in Flatbush, Alberta.

Culex (*Culex*) *restuans* THEOBALD. To date the only record of this species in Alberta is that of Klassen (5). He states that: "A number of specimens . . . of *Culex restuans* were collected in light traps in mid July, 1958 in the North Saskatchewan River valley, Edmonton." One female specimen, collected by Klassen on July 15, 1958 is in the Strickland Museum.

Culex (*Neoculex*) *territans* WALKER. Hocking collected larvae of this species on July 14, 1959 and adults on July 19, 1959 at Fawcett, Alberta. Females of *Culex territans* were collected by Klassen in July, 1959 in Edmonton (Klassen, 1959 unpublished report). Belur (1963, unpublished report, Department of Entomology, University of Alberta) collected female specimens in mid-September at Oliver, Kingman, and Lac Ste. Anne. I collected larvae of *C. territans* on July 2, 5, 22 and on August 10, 1960; and in July, 1961 at Flatbush.

Mansonia (*Coquillettidia*) *perturbans* (WALKER). This species was recorded from Flatbush, Alberta by Happold (4) who states: "One female of this species

was caught in the hut on June 27th, 1961, but no more were seen until July 1962. Adult females were attracted at night to a kerosene pressure lamp 50 yards from Lake Sara . . . others were captured indoors, presumably after being attracted by the light, and in the forest at ground, 20 foot and 40 foot levels during the night. . . ."

SUMMARY. Forty-one species of mosquitoes from eight genera are known to occur in Alberta. There are no published records for the province of Alberta for: *Aedes* (*Ochlerotatus*) *diantaeus* Howard Dyar and Knab, *A. hexodontus* Dyar, *A. idahoensis* (Theobald), *A. increpitus* Dyar, *Culex* (*Culex*) *restuans* Theobald, *C. (Neoculex) territans* Walker and *Mansonia (Coquillettia) perturbans* (Walker). Brief notes on the new records are given.

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