

A List of the Mayflies of Iowa

(Ephemeroptera)

BY THOMAS B. THEW

DURING the past three years, the author has been engaged in a study of the mayflies of the state of Iowa. Although this area has a great variety of natural waters offering excellent and interesting collecting, little attention has been given to the species of this order occurring within the state. Indeed, the only records, up to the present time, have been scattered throughout the literature of the order. The purpose of this paper, therefore, is to correlate the work of previous authors and to add new data on various species.

The classification used in this report is, in general, that of Edmunds and Traver (1954) for the suprageneric nomenclature and that of Burks (1953) for the generic and specific nomenclature. In addition, most determinations have been compared with those of Dr. B. D. Burks, whose material is housed in the collections of the Illinois Natural History Survey.

The symbol M denotes that the specimen is in the collection of the Davenport Public Museum, Davenport, Iowa, while P denotes that it is in the personal collection of the author. All specimens were collected by the author.

RECORDS OF IOWA MAYFLIES

Superfamily HEPTAGENIOIDEA

Family Isonychiidae

Isonychia sicca (Walsh)

Iowa Records:

Iowa (Burks 1953:112); Davenport (McDunnough 1931a:159); Fairport (Needham, Traver, Hsu 1935:498); Pleasant Valley (McDunnough 1931a:159).

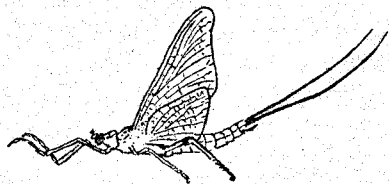
Isonychia rufa McDunnough

Iowa Records:

Iowa (Burks 1953:112); Bettendorf, Aug. 12, 1955, 2 ♀ ♀ (P); Davenport, June 20, 1955, 1 ♂ (M), (McDunnough 1931a:162); DeWitt, July 6, 1954, 1 ♀ (M); Fairport (Needham, Traver, Hsu 1935:496); Montpelier, June 28, 1955, 1 ♂ (M); Pleasant Valley (McDunnough 1931a:162).



MAYFLY NYMPHS



MAYFLY ADULT

Isonychia bicolor (Walker)

Iowa Records:

Davenport, July 31, 1954, 2 ♀ ♀ (M), (McDunnough 1931a:161); Fairport (Needham, Traver, Hsu 1935:484).

Family Heptageniidae

Stenonema canadense (Walker)

Iowa Records:

Davenport, June 8, 1954, 1 ♂ (M); Buffalo, June 21, 1954, 1 ♂ (M).

Stenonema interpunctatum (Say)

Iowa Records:

Iowa (Burks 1953:166); Bettendorf, June 11, 1954, 1 ♂ (M).

Stenonema tripunctatum (Banks)

Iowa Records:

Iowa (Burks 1953:169); Bettendorf, May 6, 1955, 1 ♂ (P); Iowa City (Needham, Traver, Hsu 1935:333).

Stenonema femoratum (Say)

Iowa Records:

Arnold's Park, Aug. 7-8, 1955, adults (M&P).

Stenonema bipunctatum (McDunnough)

Iowa Records:

Iowa (Daggy 1945:374); Buffalo, May 22, 1955, 3 ♂ ♂ (P); Davenport, June 20, 1955, 1 ♂ (P); Muscatine, June 21, 1955, 3 ♂ ♂ (M); Pleasant Valley, June 18, 1955, 2 ♂ ♂ (M).

Stenonema metriotes Burks

Iowa Records:

LeClaire, July 12, 1954, 2 ♂ ♂ (M).

This is the first time that this species has been recorded from a state other than Illinois.

Stenonema terminatum (Walsh)

Iowa Records:

Davenport, July 31, 1954, 4 ♂ ♂ (M).

Stenonema pulchellum (Walsh)

Iowa Records:

Iowa (Burks 1953:169); Bettendorf, June 11, 1954, 1 ♂ (M); Davenport, June 8-July 31, 1954-55, adults (M&P); Pleasant Valley (McDunnough 1933:23; Needham, Traver, Hsu 1935:328).

Heptagenia persimplex McDunnough

Iowa Records:

Iowa (Burks 1953:184); Ames (McDunnough 1929:179); Clinton (McDunnough 1929:179); Pleasant Valley (McDunnough 1929:179).

Heptagenia diabasias Burks

Iowa Records:

Iowa (Burks 1953:185); Auburn, May 7, 1955, nymphs (P); Farnhamville, April

21, 1955, nymphs (P); Fort Dodge, May 6-7, 1955, nymphs, from Des Moines River (P); Montpelier, July 5, 1955, nymphs, from Pine Creek, Wildcat Den State Park (M).

Heptagenia flavescens (Walsh)

Iowa Records:

Iowa (Burks 1953:185); Fairport (Needham, Traver, Hsu 1935:347).

Heptagenia hebe McDunnough

Iowa Records:

Iowa (Burks 1953:191); Bettendorf, Aug. 12, 1955, 1 ♂ (P); Fairport (Needham, Traver, Hsu 1935:347).

Heptagenia maculipennis Walsh

Iowa Records:

Muscatine, June 21, 1955, 3 ♂ ♂ (M).

Heptagenia elegantula Eaton

Iowa Records:

Iowa (Daggy 1945:382).

Rhithrogena sp.

Iowa Records:

Fort Dodge, May 6, 1955, 2 nymphs, from Des Moines River (P).

This is the first time that this genus has been recorded for the state. It is not possible to determine the specimens to species because our knowledge of the nymphs of the genus is incomplete.

Anepeorus simplex (Walsh)

Iowa Records:

Iowa (Burks 1953:149); Davenport (McDunnough 1929:178).

Pseudiron centralis McDunnough

Iowa Records:

Iowa (Burks 1953:149); Fairport (Needham, Traver, Hsu 1935:437).

Family Baetidae

Callibaetis fluctuans (Walsh)

Iowa Records:

Iowa (Burks 1953:116).

Callibaetis ferrugineus (Walsh)

Iowa Records:

Iowa (Burks 1953:118); Fairport (Needham, Traver, Hsu 1935:665).

Callibaetis sp.

Iowa Records:

Arnold's Park, Aug. 5, 1955, 1 ♀ (P); Buffalo, May 22, 1955, 2 ♀ ♀ (P); Fairport (Needham 1920:274).

As it is impossible at the present time to classify the females of this genus to species, the only value of the above records is the fact that they extend the range of this genus over a much greater area of the state.

Centroptilum walshi McDunnough

Iowa Records:

Iowa (Burks 1953:120); Clinton (McDunnough 1929:173).

Centroptilum sp.

Iowa Records:

Auburn, May, 7, 1955, 1 nymph (P).

Again, as the nymphs of this genus cannot be classified to species level as yet, the only value of this record lies in the extension of the range of this genus to the middle of the state.

Baetis sp.

Iowa Records:

Fort Dodge, May 6, 1955, 1 nymph, from the Des Moines River (P); Fairport (Needham 1920:274); Lake City, May 7, 1955, 2 nymphs (P).

Although the nymphs of this genus are known somewhat better than average, still, many important gaps occur. For this reason, the author prefers not to classify the specimens to species until adult material can be definitely associated with them.

Superfamily CAENOIDEA

Family Caenidae

Caenis hilaris (Say)

Iowa Records:

Ames (McDunnough 1931*b*:256).

Caenis sp.

Iowa Records:

Ames (McDunnough 1931*b*:256); Lake City, May 7, 1955, 1 nymph (P); Pleasant Valley, July 2, 1955, 1 nymph, from the Mississippi River (M).

The nymphs of this genus cannot be classified to species level; this data, however, extends the range of the genus within the state to the eastern edge.

Superfamily EPHEMEROIDEA

Family Potamanthidae

Potamanthus myops (Walsh)

Iowa Records:

Iowa (Burks 1953:31); Bettendorf, June 18, 1955, 3 ♀ ♀ (P); Davenport, June 18, 1955, 2 ♀ ♀ (P).

Potamanthus verticis (Say)

Iowa Records:

Bettendorf, June 20, 1955, 1 ♀ (M), June 18, 1955, 1 ♀ (P); Buffalo, June 21, 1954, 4 ♂ ♂ (M), July 31, 1955, 1 ♂ (M); Davenport, June 20-July 31, 1954-55, adults (M&P); Fairport (Needham 1920:274 *flaveola*); Keokuk (Needham 1920:288 *flaveola*); Muscatine, June 21, 1955, adults (M).

Family Ephemeridae

Pentagenia vittigera (Walsh)

Iowa Records:

Iowa (Burks 1953:36; Ide 1955:15); Buffalo, June 21, 1954, 1 ♂ (M); Davenport,

June 25, 1954, 2♂♂ (M); Fairport (Needham 1920:273 *quadrupunctata*; Needham, Traver, Hsu 1935:258); Fort Madison (Needham 1920:273 *quadrupunctata*); Muscatine (Needham, Traver, Hsu 1935:258).

Hexagenia bilineata (Say)

Iowa Records:

Bettendorf, June 18, 1955, adults (P); Buffalo, July 31, 1954, adults (M&P); Burlington (Needham 1920:272; Spieth 1941:244); Davenport, June 15-July 31, 1954-55, adults (M&P); Dubuque (Spieth 1941:244); Fairport (Needham 1920:271; Needham, Traver, Hsu 1935:264; Spieth 1941:244); LeClaire, July 12, 1954, adults (M); Muscatine, June 21, 1955, adults (M), (Spieth 1941:244); Pleasant Valley, June 27-July 12, 1954-55, adults (M&P), (Spieth 1941:244).

Hexagenia limbata (Serville)

Iowa Records:

Arnold's Park, Aug. 5 & 8, 1955, adults (M&P); Buffalo, May 22-July 31, 1954-55, adults (M&P); Bettendorf, Aug. 12, 1955, adults (P); Davenport, June 8-July 31, 1954-55, adults (M&P); Iowa Co. (Spieth 1941:249 intergrade of *limbata-venusta*); McCausland, June 8, 1955, 1♂ (M); Muscatine, July 21, 1955, 1♀ (M); Pleasant Valley, June 27, 1955, 1 nymph, from the Mississippi River (M); Spirit Lake, Aug. 6, 1955, adults (M&P).

Although Spieth (1941) has recorded intergrades between *H. limbata* and *H. venusta* for Iowa, I have counted *H. limbata* as new to the state as this is the first time it has been recorded as a typical species.

Hexagenia rigida McDunnough

Iowa Records:

Iowa (Burks 1953:42); Fairport (Needham, Traver, Hsu 1935:273; Spieth 1941:269).

Hexagenia venusta(Eaton)

Iowa Records:

Ames (Needham, Traver, Hsu 1935:275); Arnold's Park, Aug. 5-8, 1955, adults (M&P); Bettendorf, June 18, 1955, 1♂ (P); Iowa Co. (Spieth 1941:249 intergrade of *limbata-venusta*); Spirit Lake, Aug. 6, 1955, 1♂ (P).

Hexagenia munda Eaton

Iowa Records:

Iowa Co.? (Spieth 1941:258 *munda affiliata*).

Family Polymitarciidae

Ephoron album (Say)

Iowa Records:

Fairport (Needham 1920:286; Needham, Traver, Hsu 1935:244).

Tortopus primus (McDunnough)

Iowa Records:

Buffalo, July 31, 1954, 8♀♀ (M&P).

This genus is new to the state.

SUMMARY

The above data may be summarized as follows:

- A. Fifteen genera are recorded for the state; two of these are listed as new to the area.
- B. Thirty-three species are listed herein; seven of these are reported as new to the state and four others are related to exact localities (instead of merely Iowa) for the first time.
- C. Various extensions of range for different species are noted.
- D. All previous records of mayflies taken in Iowa are given.

ACKNOWLEDGEMENTS

The author would like to express his appreciation to Dr. H. H. Ross of the Illinois Natural History Survey and his staff for the many helpful suggestions they have given and, also, for allowing the author to use the Survey's collection of Ephemeroptera. In addition, the many services rendered by A. Lang Baily, Curator, and the staff of the Davenport Public Museum, by Dr. L. J. Stannard of the Illinois Natural History Survey, and by Thomas Morrissey of St. Ambrose College, Davenport, Iowa, in the preparation of this paper are gratefully acknowledged.

Burks, B. D.

LITERATURE CITED

- 1953 — The mayflies or Ephemeroptera of Illinois. Bull. Ill. Nat. Hist. Surv. 26: Article 1.
- Daggy, R. H.
1945 — New species and previously undescribed naiads of some Minnesota mayflies (Ephemeroptera). Ann. Ent. Soc. Am. 38:373-396.
- Edmunds, George F., Jr. and Jay R. Traver
1954 — An outline of a reclassification of the Ephemeroptera. Proc. Ent. Soc. Wash. 56:236-240.
- Ide, F. P.
1955 — Two species of mayflies representing southern groups occurring at Winnipeg, Manitoba (Ephemeroptera). Ann. Ent. Soc. Am. 48:15-16.
- McDunnough, J.
1929 — Notes on North American Ephemeroptera with descriptions of new species II. Can. Ent. 61:169-180.
1931a — The genus *Isonychia* (Ephemeroptera). Can. Ent. 63:157-163.
1931b — New North American Caeninae with notes (Ephemeroptera). Can. Ent. 63:254-268.
1933 — Notes on the Heptagenine species described by Clements from the Georgian Bay Region, Ont. (Ephemeroptera). Can. Ent. 65:16-24.
- Needham, James G.
1920 — Burrowing mayflies of our larger lakes and streams. Bull. Bur. Fisheries 36:269-292, 7 pls.
- Needham, James G., Jay R. Traver, Yin-Chi Hsu, et al.
1935 — The Biology of Mayflies. Comstock Publishing Co., Ithaca, N. Y.
- Spieth, H. T.
1941 — Taxonomic studies on the Ephemeroptera II. The Genus *Hexagenia*. Am. Mid. Nat. 26:233-280. Submitted November 9, 1955

To Wm. L. Peters,
with kind regards.

Thomas S. Shew
September 22, 1956



PRIVATE LIBRARY
OF WILLIAM L. PETERS

MUSEUM QUARTERLY

Published by the
DAVENPORT PUBLIC MUSEUM
DAVENPORT, IOWA

JULY · 1956

VOLUME I · NUMBER 3