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sub-author.*

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THE MAYFLY FAUNA OF GREEN RIVER
IN THE FLAMING GORGE RESERVOIR BASIN

WYOMING AND UTAH

George F. Edmunds

Guy G. Musser

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THE MAYFLY FAUNA OF GREEN RIVER*

INTRODUCTION

The construction of Flaming Gorge dam on the Green River in extreme north-eastern Utah will inundate large areas of lotic water and change the habitat to standing water. Several tributary streams will also be inundated on their lower portions but their fauna, which is largely montane, will be maintained in their exposed upper reaches. The mayfly fauna of the Green River proper is one that is so unique and diverse that its loss by inundation is very regrettable.

The construction of a dam in the gorge will affect the fauna profoundly in two ways. The long, narrow deep lake will be unsuitable for most of the present river fauna. Below the dam, the river will be much cooler than at present as the cold water is released from the bottom of the thermally stratified lake. This will unquestionably materially alter the fauna for a number of miles downstream. It is probable that all of the most interesting and rare elements of the mayfly fauna of the river will become extinct in this section of the river.

The first recorded mayfly collections from the Green River, where it cuts a gorge through the east end of the Uinta Mountains in Utah, were made by O. A. Peterson in 1908 at "Camp Douglas", the campsite of the dinosaur quarry then being worked by personnel of Carnegie Museum. Adults of Traverella albertana and Anepeorus rusticus were reported as collected; no additional specimens of the latter genus have been collected there or at any other locality in the western United States.

In this report, the river mile given (abbreviated R. M.) indicates the distance in miles above Greenriver, Utah as given on USGS Plan and Profile Maps of Green River, sheets H, I, and J. The senior author first collected mayflies at Hideout Forest Camp (R. M. 306.5) and a tributary, Carter Creek, at Carter Creek Forest Camp in early August, 1947. The mayfly fauna at Hideout Canyon was so interesting that a second trip was made early in September for the specific purpose of rearing adults from the nymphs to establish the identity of some of the latter. The senior author made subsequent trips with various parties to Hideout Canyon and nearby tributaries in September, 1948, 1950, 1952, 1954, and June 1960. Collections of mayflies were made below the dam site area at Split Mountain in Dinosaur National Monument in May, 1950 and May, 1959.

During June and July, 1959, an expedition of the University of Utah sampled and surveyed the plant and animal life of the Green River, the lower reaches of its tributaries, and the land along the lower gorge from R. M. 378

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near Green River, Wyoming to the Flaming Gorge dam site at R. M. 291 near Dutch John, Utah. The aquatic insects were sampled principally by the junior author and the terrestrial insects (including some mayfly adults) by Beng C. Ho. The authors made a few additional collections from R. M. 323 to 307 in June, 1960. Only the most important of the records from this trip are reported here.

In the following species accounts all records for which no collector is listed are from collections made by the junior author. All date records for which no year is given were made in 1959 by the University of Utah Expedition. The citation BCH refers to collection by Beng C. Ho and the senior author's collections are indicated by GFE.

The area sampled flows through Sweetwater County, Wyoming (R. M. 387 to 322), Daggett County, Utah (R. M. 322 to 291). Samples which were collected in Uintah County, Utah at Split Mountain and Jensen are also included. Of the tributary streams from which mayflies are herein recorded, Sage Creek enters the Green River at R. M. 360, Blacks Fork enters at R. M. 356, and Upper Marsh Creek at R. M. 337, all in Wyoming. In Utah, Henrys Fork enters at R. M. 316, Sheep Creek at R. M. 309.5, Carter Creek at R. M. 305, and Eagle Creek at R. M. 303. Blacks Fork and Henrys Fork are large warm streams with many of the same faunal elements as the Green River, while Sheep, Carter, and Eagle Creeks are trout streams. Sage Creek and Upper Marsh Creek are small tributaries with a limited baetina mayfly fauna.

ANNOTATIONS

Siphonuridae (family)

Genus et species novum

This remarkable mayfly represents a new genus allied to Acanthametropus. The nymph is a sand dweller with carnivorous-type mouthparts. It is known only from a half specimen collected in 1951 and a well grown nymph collected in 1959. The adult is unknown. The genus and species is being named and described in a separate paper in manuscript.

The nymph was found in a habitat consisting of coarse to fine sand, heavily laden with fine clay, and relatively free from debris and algae. In the majority of streams throughout Utah, this type of habitat is relatively sterile, supporting only small populations of chironomid larvae. It is of interest to note that this habitat on the Green River also contains many nymphs of the dragonfly, Gomphus intricatus, and chironomid larvae. It is probable that the dragonfly and mayfly nymphs are predaceous upon the smaller chironomids and upon each other in the small nymphal stages. Though exhaustive sampling was carried out in this type of habitat, and other similar habitats in the river, the acquisition of only one nymph during several weeks of collecting attests to the relative paucity of this mayfly species.

Record - Wyoming, Sweetwater County: R. M. 350, 1 nymph, July 16. Utah, Daggett County: R.M. 306.5, 1 nymph (part), Sept. 9, 1951 (GFE).

Siphonurus occidentalis Eaton

The adults of this species oviposit in rapids of streams. The young nymphs migrate or else the eggs are washed into side pools during high water. It is uncertain whether the nymphs originate only from tributary streams or also from the Green River. The omnivorous nymphs are often abundant in side pools and occasionally on the edges of streams if they are relatively free from predation. The species is widespread in western North America.

Records - Wyoming, Sweetwater County: R. M. 353, side pool, 1 nymph, July 13; R. M. 343, side channel, 1 nymph, July 16, R. M. 362, side pool, 2 nymphs, July 7; R. M. 387, 1 subimago female, July 29. Utah, Daggett County: Carter Creek at Carter Creek Forest Camp, side pools, several nymphs, August 7, 1949 (GFE).

Ameletus sp.

Record - Utah, Daggett County: R. M. 303, Eagle Creek, 2 nymphs, July 28.

Isonychia sicca campestris McDunnough

The nymphs are filter feeders, straining the food from the current with the legs and mouthparts. They are fairly common among rocks in the Green River and some larger tributaries. The species is an invader from the plains, being fairly common in the Platte Drainage to the east.

Records - Wyoming, Sweetwater County: R. M. 378, 6 nymphs, June 30; R. M. 373, 3 nymphs, July 4; R. M. 372, 4 nymphs, July 3; R. M. 360, 4 nymphs, July 8; Blacks Fork, 1 mi. upstream from mouth, R. M. 356, 20 nymphs, July 9-12; R. M. 350, 8 nymphs, July 16; R. M. 337, 10 nymphs, July 17; R. M. 332, adults, July 20 (BCH); R. M. 323, 10 nymphs, July 20, adults, July 19 (BCH). Utah, Daggett County: R. M. 306.5, 2 nymphs, July 24, 2 nymphs, July 26, several nymphs, Sept. 11, 1952 (GFE), several subimagos, Sept. 11, 1950 (GFE).

Oligoneuriidae (family)

Lachlania powelli Edmunds

This species was described from adults and nymphs collected at Hideout Springs Forest Camp, R. M. 306.5. The slow moving nymphs cling to rocks and sticks where they filter food from the current. During gill-netting operations for fish in slow moving, deeper stretches of the river, all the twigs, brush, etc. entangled in the gill net was literally covered with nymphs. These samples were obtained at an estimated depth of 15 ft. Although extensive collecting for mayflies north of the gorge was carried out, the species was not encountered in the river until R. M. 323, approximately 6 mi. from the actual gorge. In subsequent collections within the gorge area, it was one of the most common organisms of the aquatic insect fauna. The species also occurs in Glen Canyon of the Colorado River in Utah.

Records - Wyoming, Sweetwater County: R. M. 323, 15 nymphs, July 20. Utah, Daggett County: R. M. 318-306.5, 60 nymphs, July 24; R. M. 306.5, 1 female adult and numerous nymphs, Aug. 9, 1947 (GFE), numerous adults and nymphs, Sept. 3-4, 1947 (GFE), several adults and nymphs, September 5, 1948 (GFE), several

Lachlania powelli (continued)

nymphs, Sept. 11, 1950 (GFE), several nymphs, Sept. 9, 1952 (GFE), several adults and nymphs, Sept. 18, 1952 (GFE); R. M. 301.5, 35 nymphs, July 26; R. M. 299, 12 nymphs, July 30, 1959.

Heptageniidae (family)

Heptagenia elegantula Eaton

The nymphs of this species are abundant on rocks in rapids of the Green and Colorado rivers and the warmer tributary streams. It is widespread in the west.

Records - Wyoming, Sweetwater County: R. M. 387, 63 imagos, 8 nymphs, June 29; R. M. 378, 1 subimago, 12 nymphs, June 30, July 2; R. M. 377, 1 male imago, July 1; R. M. 372, 10 nymphs, July 3; R. M. 373, 7 nymphs, July 4; R. M. 366, 10 nymphs, July 6, adults, July 5 (BCH); R. M. 360, 2 nymphs, July 8; R. M. 350, 4 nymphs, July 16; R. M. 356, 12 nymphs, July 12; R. M. 356, Blacks Fork, 1 mi. from mouth, 6 nymphs, July 10; R. M. 356, several adults, July 11 (BCH); Blacks Fork, 20 mi. upstream from mouth, 2 nymphs, July 11; R. M. 339, 1 imago, 1 subimago, 2 nymphs, July 17-18; R. M. 323, 2 nymphs, July 20; R. M. 322, adults, July 24, 1959 (BCH). Utah, Daggett County: R. M. 318-306.5, 1 nymph, July 24; R. M. 316, Henrys Fork, 4 nymphs, July 23, 1959; R. M. 309.5, Sheep Creek, 5 nymphs, July 27, and several nymphs, Sept. 6, 1948 (GFE); R. M. 306.5, many nymphs and adults, Sept. 3, 1947 (GFE), many nymphs, Aug. 9, 1947 (GFE); many nymphs, Sept. 5, 1948 (GFE); many adults and nymphs, Sept. 11, 1950 (GFE); many adults, Sept. 9, 1954 (GFE); many nymphs, Sept. 18, 1954 (GFE); R. M. 301.5, 6 nymphs, July 26, 1959.

Heptagenia sp.

The one nymph collected does not belong to the known species of the area (H. simplicoides, H. criddlei, H. solitaria, H. elegantula). It must represent an undescribed species or one not reported for this area. In Traver's (1935) key, the nymph runs to couplet 8 which terminates in H. simplicoides and H. rosea (as rubroventris). It does not conform with either of these species.

Records - Wyoming, Sweetwater County: R. M. 358, 1 nymph, July 8, 1959.

Cinygmula spp.

Several species of this genus are common in the cool tributary streams flowing from the Uinta Mountains. They do not occur in the Green River except when accidentally washed into the stream. Members of this genus are very common and widespread in cooler streams of the area.

Records - Utah, Daggett County: R. M. 305, mouth of Carter Creek, 4 nymphs, July 28; R. M. 303, mouth of Eagle Creek, 51 nymphs, July 28, 1959.

Rhithrogena undulata Banks

The nymphs are found uncommonly along the Green River on rocks in the current. This species is widespread in the west.

Rhithrogena undulata (continued)

Records - Wyoming, Sweetwater County: R. M. 378, adults, July 1 (BCH); R. M. 339, adults, July 17 (BCH); R. M. 323, adults, July 22 (BCH). Utah, Daggett County: R. M. 306.5, several adults, Sept. 11, 1950 (GFE), several nymphs, Sept. 9, 1952 (GFE), several adults, Sept. 18, 1954 (GFE).

Epeorus longimanus Eaton

This species is abundant in the cooler tributary streams from the Uinta Mountains. The nymphs do not occur in the Green River, except when accidentally washed in from tributaries. The species is widespread and abundant in the west.

Records - Utah, Daggett County: R. M. 306.5, 1 adult, Aug. 9, 1947 (GFE); R. M. 305, mouth of Carter Creek, 3 nymphs, July 28; R. M. 305, Carter Creek at Carter Creek Forest Camp, numerous adults and nymphs, Aug. 6, 1947 (GFE). Uintah County: R. M. 262, Browns Park, several nymphs Aug. 11, 1949 (Collector not indicated).

Epeorus albertae McDunnough

This species is found uncommonly in warmer tributary streams in the Uinta Mountains. Water temperatures in lower Carter Creek are probably barely warm enough for this species. In warmer streams or sections of streams, it is normally an ecological replacement for E. longimanus which is very abundant at Carter Creek Forest Camp, where E. albertae has not been reported. They both occur at the mouth of Carter Creek, but E. albertae may be more abundant, although the small sample (3 E. longimanus, 13 E. albertae) is not adequate to make a conclusion. The species is widespread and common in the west.

Records - Utah, Daggett County: R. M. 305, 13 nymphs, July 28.

Pseudiron sp.

No adult specimens of this genus have been reared from the nymph, so the association of nymphal and adult stages is speculative. A single female subimago collected at Hideout Forest Camp (R. M. 306.5) was assigned to this genus, and three nymphs from Wyoming (R. M. 323) agree with this female in having double reddish bands on the femora. No other records of Pseudiron are known from the western fauna. Similar nymphs have been assigned tentatively to this genus by Burks (1953) and Spieth (1938). The nymphs were found on silted sand and have mouthparts suggesting carnivorous habits. They were collected by means of a seine net. A large area of apparently suitable habitat was investigated, but only three specimens were found. Extensive collecting in other areas of suitable habitat on the river produced no specimens of the species. Intensive collecting of the same area in June, 1960 yielded no additional specimens.

Records - Wyoming, Sweetwater County: R. M. 323, 3 nymphs, July 21, 1959. Utah, Daggett County: R. M. 306.5, 1 subimago female, Sept. 3, 1947 (GFE).

Anepeorus rusticus McDunnough

The nymph tentatively assigned to this genus is a sand-dwelling form with carnivorous-type mouthparts. No nymphs of this type have been collected from the Green River and the only record of the adults is the one cited below. This is the only record of the genus for the western fauna.

Records - Utah, Uintah County: "Camp Douglas", (west bank of the Green River, near south boundary of Dinosaur National Monument), several adults, July 13, 1911, (O. A. Peterson, Carnegie Museum).

Ametropodidae (family)

Ametropus albrighti Traver

The nymphs are found on the surface of sand bars where they are washed by a moderate current. Unique fleshy seta-covered pads on the forecoxae of the nymphs are used to anchor the nymph on the shifting sand bottom, and the short forelegs are held in front of the face. The comb-like foreclaws of the nymph are used to preen the antennae, face, and mouthparts. The elongate claws of the middle and hind legs aid in anchoring the nymph on the shifting substrate. The nymphs are excellent swimmers; for this purpose, they drop the legs back along the ventral surfaces of the body. The freshly caught nymphs have a silt line mark on them suggesting that they bury themselves all except the dorsal surface and the gills. The elevated frontal position of the eyes might be an adaptation for life in this partially buried position.

Records - Wyoming, Sweetwater County: R. M. 373, 1 young nymph, July 4, 1959; R. M. 323, 1 large nymph, June 4, 1960 (GFE and GGM). Utah, Daggett County: R. M. 307, 2 large nymphs, July 5, 1960 (GGM and GFE); R. M. 306.7, 1 young nymph, Sept. 9, 1952 (GFE), 3 broken nymphs from stomach of channel catfish, Sept. 3, 1947 (GFE).

Baetidae (family)

Callibaetis doddsi Traver

The adults recorded below are tentatively assigned to this poorly known species. The species was described from Colorado.

Records - Utah, Daggett County: lower Sheep Creek, R. M. 307.4, Sept. 6, 1948 (GFE).

Callibaetis fuscus Dodds

This pond-inhabiting form is probably common in lakes, ponds, and pools and in beaver dams of tributary streams. The species is common and abundant in the Rocky Mountain region.

Records - Utah, Daggett County: Manila, August 10, 1946, (F. C. Harmston); Green Lakes Resort, August 9, 1947 (GFE).

Callibaetis nigritus Banks

This species is usually abundant in ponds in valleys.

Callibaetis nigritus (continued)

Records - Wyoming, Sweetwater County: R. M. 356, Blacks Fork, 2 dead female imagos on surface, July 10; R. M. 333, Middle Marsh Creek Spring, 6 female imagos, July 19; R. M. 323, ponds near river, 2 female imagos, July 21, 1959.

Callibaetis spp.

Nymphs and adults which were not identifiable to species were commonly collected along the Green River.

Records - Wyoming, Sweetwater County: R. M. 353, side pools, 70 nymphs, July 13; R. M. 333, side pool, 15 nymphs, July 19; R. M. 322.3, side pool, 55 nymphs, July 21. Utah, Daggett County: R. M. 321, 20 nymphs, July 22; R. M. 319, 5 nymphs, July 23; R. M. 309.4, July 27; R. M. 307.4, 1.5 mi. up Sheep Creek, 15 nymphs, July 29; R. M. 306.7, 25 nymphs, July 24, 1959.

Baetis tricaudatus Dodds

This species is probably common in the cool tributary streams. The adults are known to emerge all months of the year.

Record - Utah, Daggett County: R. M. 303, Eagle Creek, 8 nymphs, July 28, 1959.

Baetis intermedius Dodds

This common species probably occurs in all cool tributary streams.

Record - Utah, Daggett County: R. M. 303, Eagle Creek, July 28, 1959.

Baetis bicaudatus Dodds

This species is probably common in most cool tributary streams. It is abundant and widespread in the mountain west.

Records - Utah, Daggett County: Carter Creek at Carter Creek Forest Camp, numerous nymphs, August 6, 1947 (GFE); R. M. 303, Eagle Creek, 10 nymphs, July 28, 1959.

Baetis insignificans McDunnough

Records - Wyoming, Sweetwater County: R. M. 356, Blacks Fork, 16 mi. above mouth, adults, July 11 (BCH). Utah, Daggett County: R. M. 306.5, several adults and nymphs, Sept. 11, 1952 (GFE).

Baetis sp.

The nymph of an apparently undescribed species having peculiar flattened claws with a truncate comb-like distal margin was collected at Hideout Springs Forest Camp. Adults of what is probably this species were also collected at the same time and place. Similar nymphs have been collected from the Colorado and Virgin rivers in Utah, from west-central California, and from Brazil.

Records - Wyoming, Sweetwater County: R. M. 339, 2 nymphs, July 17. Utah, Daggett County: R. M. 306.5, several nymphs and adults, Sept. 11, 1952 (GFE); R. M. 229, 1 nymph, July 30, 1959.

Baetis spp.

At least three additional unidentified species of Baetis nymphs are represented in the collections. One form was found only in Upper Marsh and Sage creeks, and a second type in Sheep and Carter creeks. A third type was found only in the Green River.

Records - Wyoming, Sweetwater County: R. M. 366, 1 nymph, July 12; R. M. 356, 1 nymph, July 6; R. M. 360, Sage Creek, 60 nymphs, July 9; R. M. 337, Upper Marsh Creek, 25 nymphs, July 17. Utah, Daggett County: R. M. 309.4, Sheep Creek, 3 nymphs, July 27; R. M. 305, Carter Creek, 7 nymphs, July 28, 1959.

Caenidae (family)

Brachycercus sp.

This species is known from a very few nymphs in Green River. These represent the only record of the genus in the western United States. If the Green River specimens belong to a described species, it is most likely that they are Brachycercus prudens McDunnough which is known from the Saskatchewan River at Saskatoon. The mayflies Heptagenia elegantula, Traverella albertana and Anepeorus rusticus occur both in the Green River in Utah and the Saskatchewan at Saskatoon.

Records - Wyoming, Sweetwater County: R. M. 378, 2 nymphs, June 30, 1959. Utah, Daggett County: R. M. 306.5, 2 nymphs, Sept. 5, 1945 (GFE).

Tricorythidae (family)

Tricorythodes minutus Traver

This common species is widespread. The nymphs are found on rocks and vegetation in Green River and warmer tributaries. Daily, particularly during the first two weeks in July, 1959, large flights of newly emerged adults swarmed along the edge of the river. The flight began about 7:00 o'clock A. M., reached a maximum density approximately an hour later, and gradually declined until noon, when only a few stragglers remained. The numbers in the swarm gradually decreased during the course of the expedition until, on the first of August, few emerging adults were observed. Large swarms have also been observed in September, so it is possible that there are two fairly distinct broods per year.

Records - Wyoming, Sweetwater County: R. M. 387, 11 nymphs, June 29; R. M. 378, 12 nymphs, over 500 adults, June 30; R. M. 373, 12 nymphs, 20 adults, July 4; R. M. 372, 6 nymphs, 75 adults, July 3; R. M. 366, 50 nymphs, July 6; R. M. 362, 40 nymphs, July 7; R. M. 358, 5 nymphs, July 8; R. M. 356, 79 nymphs, several adults, July 9-12 (ECH); R. M. 356, Blacks Fork, 6 nymphs, July 10; R. M. 343, side channel, 12 nymphs, July 16; R. M. 339, 3 nymphs, July 17. Utah, Daggett County: R. M. 319, Henrys Fork, 3 nymphs, July 23; R. M. 309.5, 27 nymphs, July 27; R. M. 309.5 Sheep Creek, 27 nymphs, July 27; R. M. 306.5, many adults and nymphs, Sept. 11, 1950 (GFE); R. M. 301.5, 5 nymphs, July 24, 1959.

Tricorythodes sp.

Several nymphs with depressed abdomens and flattened femora with a dense row of marginal setae are tentatively placed in this genus. In some features these nymphs resemble those of the genus Leptohyphes, but they lack the scale-like setae and developing hind wing pads characteristic of this genus.

Records - Utah, Daggett County; R. M. 306.5, several nymphs, Sept. 11, 1950 (GFE).

Ephemerellidae (family)

Ephemerella inermis Eaton

Numerous nymphs and adults are herein assigned to this species. It and the closely related E. infrequens McDunnough may be members of a complex of sibling species in the western mayfly fauna, or they may be two highly variable species which may hybridize in some localities. Collections from Green River suggest that this population has a single annual brood emerging in June and July. The Great Basin populations assigned to this species appears to have multiple broods emerging throughout the summer. This suggests that the Great Basin and Green River populations tentatively considered as E. inermis represent separate species, but a more certain answer can be given only after a careful study of the inermis-infrequens complex.

Records - Wyoming, Sweetwater County: R. M. 387, 33 nymphs, 25 subimagos, June 29; R. M. 378, 23 nymphs, 8 subimagos, June 30; R. M. 373, 25 nymphs, several imagos (BCH), July 4; R. M. 372, 26 imagos, July 3; R. M. 366, 15 nymphs, 1 subimago, July 4, imagos, July 5 (BCH); R. M. 362, imagos, July 7 (BCH); R. M. 356, 3 nymphs, July 9, 2 nymphs, July 12; R. M. 352, imagos, July 13 (BCH); R. M. 350, 1 nymph, July 16; R. M. 339, imagos, July 17 (BCH); R. M. 323, imagos, July 22, 1959 (BCH). Utah, Daggett County: R. M. 307, numerous nymphs, June 5, 1960 (GFE and GGM). Uintah County: Split Mountain, many nymphs, May 27, 1950 and May 23, 1959 (GFE and GGM).

Ephemerella tibialis McDunnough

This species is probably widespread in the cool montane tributaries in the Uinta Mountains.

Records - Utah, Daggett County: R. M. 305, Carter Creek, near mouth, 25 nymphs, July 25; Carter Creek at Carter Creek Forest Camp, several nymphs, August 6, 1947 (GFE); R. M. 303, Eagle Creek, 27 nymphs, July 28, 1959.

Ephemerella grandis Eaton

This common species probably occurs in the lower reaches of several cool tributary streams.

Records - Utah, Daggett County, Carter Creek at Carter Creek Forest Camp, several nymphs, August 6, 1947 (GFE).

Leptophlebiidae (family)

Leptophlebia gravastella Eaton

In addition to the records cited below, this species has also been collected from the tributary Uinta River at Fort Duchesne, Utah. The adults emerge mostly in May and June. It is probable that they had been present early in the year all along the collected sections of Green River and the warmer tributaries.

Records - Wyoming, Sweetwater County: R. M. 387, 1 nymph, June 29; R. M. 372, 1 nymph, July 3; R. M. 356, Blacks Fork, 3 nymphs, July 10, 1959. Utah, Daggett County: R. M. 318-306.5, 1 nymph, July 24; Uintah County, R. M. 199.5, Split Mountain, numerous nymphs, May 27, 1950 (GFE); R. M. 182, Jensen, several subimagos, June 13, 1947 (F. C. Harmston).

Paraleptophlebia pallipes Hagen

Record - Utah, Daggett County: R. M. 303, Eagle Creek, 1 nymph, July 28, 1959.

Choroterpes albiannulata McDunnough

Nymphs of this genus have been collected at several points along Green River and in tributary Henrys Fork and Duchesne River. The rarity of this genus from the June and July, 1959 expedition collections probably can be attributed to late seasonal development of this species.

Records - Wyoming, Sweetwater County: R. M. 350, 1 young nymph, July 16. Utah, Daggett County: R. M. 306.5, Hideout Forest Camp, 2 adults, Sept. 11, 1950 (GFE), 2 adults, Sept. 18, 1954 (GFE).

Traverella albertana McDunnough

This is a characteristic species of Green and Colorado rivers and their larger tributaries wherever well-aerated water flows over rocky bottoms. In the gorge, nymphs of this species were most abundant in heavy concentrations of algae on the rocks of the river bottoms. The nymphs appear to be filter feeders.

Records - Wyoming, Sweetwater County: R. M. 339, 25 nymphs, July 17. Utah, Daggett County: R. M. 323, 10 nymphs, July 20; R. M. 306.5, numerous nymphs, Aug. 9, 1947 (GFE), numerous imagos and nymphs, Sept. 3, 1947 (GFE), numerous imagos and nymphs, Sept. 5, 1948 (GFE), numerous nymphs, Sept. 11, 1950 (GFE), numerous nymphs, Sept. 9, 1952 (GFE); R. M. 299, 90 nymphs, July 11; R. M. 182, Jensen, several adults, Sept. 8, 1911 (A. O. Peterson, Carnegie Museum).

Ephemeridae (family)

Hexagenia limbata Serville

The nymphs of this species burrow in silt and silty clay, usually in a less compacted material than Ephoron album. Series of adults are necessary for a subspecific assignment of the population, but the collections from adjacent areas represent intergrades between H. l. limbata and H. l. venusta, with the predponderance of characters of the former.

Hexagenia limbata (continued)

Records - Wyoming, Sweetwater County: R. M. 372, 1 nymph, July 3; R. M. 356, Blacks Fork at mouth, 1 nymphal skin, 1 male imago, July 10-11; Blacks Fork, 1 mi. above mouth, 8 nymphs, July 10; R. M. 350, 2 nymphs, July 11; R. M. 339, 1 nymphal skin, July 17, 1959.

Ephemera simulans Walker

The nymphs burrow in sand and silty sand. This species also occurs in the tributary Uinta River at Fort Duchesne, Utah.

Records - Wyoming, Sweetwater County: R. M. 387, 2 nymphs, June 29; R. M. 378, 6 nymphs and 2 adults, June 30; R. M. 372, 7 nymphs, July 3; R. M. 366, 1 subimago, July 6; R. M. 360, 2 nymphs, July 8; R. M. 356, 1 nymph, July 12, 1959.

Polymitarcidae (family)

Ephoron album Say

The nymphs of this species burrow in semi-compact sand-clay bottoms and cut banks. The adults have only a brief crepuscular-nocturnal life of about one to one and one-half hours. They are often attracted to lights in great numbers. An account of the biology of this species has been given by Edmunds, Nielsen, and Larsen (1956, Wasmann Jour. Biol., 14(1): 145-153, 2 figs.)

Records - Wyoming, Sweetwater County: R. M. 358, numerous nymphs, July 8; R. M. 356, 1 nymph, July 19, 4 nymphs, July 12; R. M. 339, 90 nymphs, July 12; R. M. 306.5, many adults and nymphs, Sept. 3, 1947 (GFE), many adults and nymphs, Sept. 5, 1948 (GFE), many adults and nymphs, Sept. 7 and 9, 1952 (GFE), many adults and nymphs, Sept. 18, 1954 (GFE).

SUMMARY

Of the species of Ephemeroptera known to occur in the Flaming Gorge area of Green River, a new species of Pseudiron and a new genus and species in the family Siphonuridae are known only from this area. The records of Brachycercus sp. and Anepeorus rusticus McDunnough are the only known collections of these genera in the western United States. The only known Utah records of Isonychia sicca campestris, Ametropus albrighti, Choroterpes albiannulata and the peculiar, flattened Tricorythodes sp. are from the Flaming Gorge area. Lachlania powelli and Ametropus albrighti are known only from limited areas in the Colorado River drainage. The other species in Flaming Gorge are generally widespread.

The mayfly fauna of this river constitutes one of the most unusual and interesting ones known to exist in any part of the world. It is unfortunate that a more thorough year-long study of the fauna cannot be undertaken before it is lost.

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