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**ADULT CADDISFLIES (TRICHOPTERA) FROM HOUGHTON
CREEK, OGEMAW COUNTY, MICHIGAN**

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As part of a biological inventory to appraise the effect of watershed development, I collected adult caddisflies and studied their seasonal and spatial distribution along Houghton Creek, Ogemaw County, Michigan, from September 1950 through December 1953. Data from these studies form the basis for this report. Also, notes on relative abundance of the different species as well as on incidental observations that seem worth recording are included here. This report plus other studies on the abundance and distribution of the bottom fauna at the time of watershed development¹ was to provide basic information on original stream conditions before anticipated physical changes such as stabilization of stream flow, alteration of substrate, and lowering of temperature of water in summer. Houghton Creek is a major tributary of the Rifle River. An extensive watershed development program was initiated on the Rifle River drainage in 1950 (Tody and Clark, 1951; Clark, 1953).

ACKNOWLEDGMENTS

The field work was done and laboratory identifications were made while I was employed on a research fellowship with the Institute for Fisheries Research of the Michigan Department of Conservation. The early planning and field work were done under the guidance of Dr. J. W. Leonard of the Michigan Conservation Department and the late Dr. J. S. Rogers of The University of Michigan Museum of Zoology. Later phases were supervised by Dr. F. F. Hooper of the Institute and

¹ Ellis, Robert J. 1959. An inventory of physical and chemical conditions and bottom fauna in Houghton Creek, Ogemaw County, during watershed improvement. Inst. Fish. Res., Rept. No. 1538 (unpublished).

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IDENTIFICATION OF MATERIAL

Most of the species represented in the present study are described and illustrated in the monograph by Ross (1944), on the caddisflies of Illinois. The nomenclature here used is that of Ross (1944 and 1956). The work of Leonard and Leonard (1949*a* and *b*) supplied additional information on the caddisflies in Michigan trout streams, and was used for evaluating and correcting previous county records.

Samples of all the species which I recognized were submitted to Dr. and Mrs. J. W. Leonard, who either verified my identifications or themselves named the specimens. Responsibility for correct identification of all remaining material not seen by them is, of course, my own.

THE STUDY AREA

Houghton Creek is a trout stream 10.4 miles long. It originates from springs and seepage in white cedar swamps and (October, 1953) gradually increased in volume from approximate flows of 6 c.f.s. at Site 1 to 15 c.f.s. at Site 5, 16 c.f.s. at Site 6, and 35 c.f.s. below the junction with Wilkins Creek (Fig. 1).² Water temperatures varied only about 3°F. between the headwaters and the mouth of the stream; the summer maximum during this study was about 67°F. and the winter minimum was slightly below 32°F. The pH of 8.4 and methyl orange alkalinity of about 180 p.p.m. were essentially the same from Site 1 to Site 15. Organic enrichment from a sewer just below Site 6 increased the soluble and total phosphorus (but not total nitrogen) from Site 7 to the mouth of the stream.

From its origin, through Site 10, the stream is essentially a series of gravelly riffles and pools. Below Site 10, quiet, deep water with sand

²During the extensive field work on Houghton Creek, new site designations were added serially when needed without regard to location along the section of stream studied. For convenience in referring to Figure 1 and in orienting collection localities, the original site designations (those appearing on collection labels, field notes, and in previous reports) have been changed so that sites are numbered consecutively from the farthest upstream site (No. 1) to the mouth (No. 15). In the following list of changes, the new site number (used in this paper) is followed by its original designation: 1 = 1, 2 = 14, 3 = 2, 4 = 3, 5 = 4, 6 = 15 (Rose City bridge), 7 = 5, 8 = 6, 9 = 7, 10 = 13, 11 = 8, 12 = 9, 13 = 10, 14 = 12, 15 = 11.

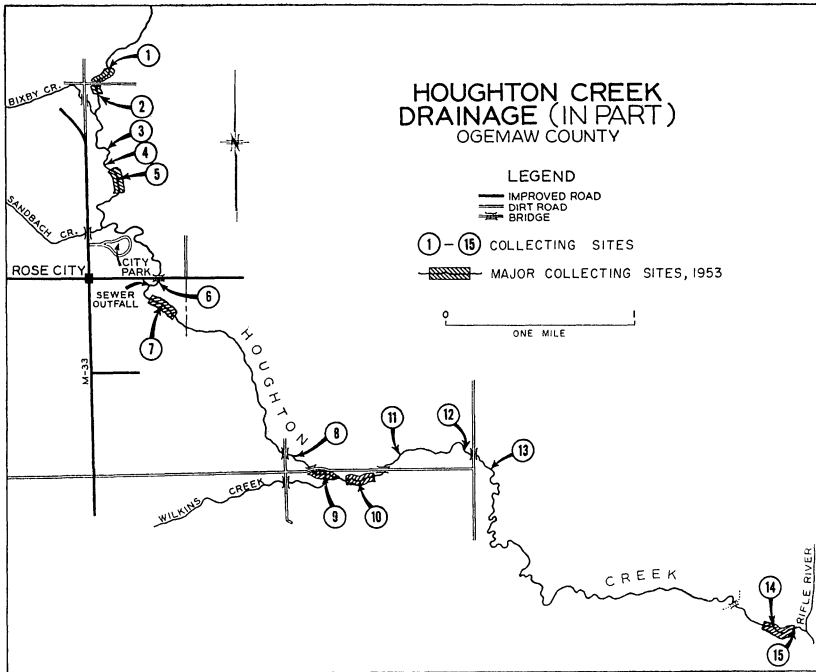


FIG. 1. Map of Houghton Creek showing collection sites and localities of special interest in this study.

or clay bottom predominates. Vascular aquatic plants were much more prevalent below than above Site 10.

In addition to the major tributaries indicated in Figure 1, several temporary or permanent spring seepages and ponds occurred within insect flight range of stream collecting sites and undoubtedly some specimens which were collected originated from these extraneous sources.

For additional details concerning physical and chemical conditions and the stream fauna see Ellis and Gowing (1957) and Ellis (1961 and reference in footnote 1).

METHODS

From September 1950 to January 1953 the collecting of adult insects was incidental to other work. In 1953, after the spring emergences began, a sampling schedule was established which called for collecting 6 days a week at 2 locations each day, from a total of 6 locations. (Sites 1 to 2, 5, 7, 9, 10, and 14 to 15—see Fig. 1 for loca-

tions.) Sampling on a given day was done at adjacent pairs of sites, such as 1 to 2 and 5, or 7 and 9, to minimize travel between sites. These six sites were chosen and their extent determined with the objective of including the typical stream habitats of that general section of stream.

The collecting methods included daytime and evening sweeping of the streamside vegetation with an air net; air-net collecting from observable flights; hand picking with flash light; hand picking of forms attracted to a gasoline lantern and lighted windows; and operation of electric light traps powered with portable generators.

Systematic light-trap operation was initiated on May 14, 1953, at sites 2 and 5. The minimum air temperature recorded along the stream that night was 29°F. Systematic light-trap operations were discontinued after September 10 because of low evening air temperatures and the resulting lack of insect flights. The base of operations in 1952 and 1953 was Site 5, where a light trap was generally operated when not in use elsewhere.

About 300 collections of adult aquatic insects were made by all methods from 1950 through 1952. In 1953 about 240 collections were made with a light trap and 480 by other means. These totals for both collecting periods include a few adults which were reared from nearly mature nymphs and pupae.

The collection is presently housed at The Academy of Natural Sciences of Philadelphia.

In all, 9055 specimens of Trichoptera were examined. These represented 12 families, 39 genera, and 85 species. Included are four species not definitely identified but given letter designations as a convenience in recording. The seasonal distribution of the species is shown in Figure 2.

ANNOTATED LIST

In the following list of the species found, the collection sites are those of Figure 1. The figure in parentheses following the site number is the number of collections which contained that species. An asterisk following a species name indicates a new county record. The species are numbered consecutively, and the number arbitrarily assigned to each species is identical with that given in the listing of seasonal occurrence in Figure 2.

FAMILY RHYACOPHILIDAE

1. *Rhyacophila acropedes* Banks*
1953, June 2, 1 male: Site 2 (1).
2. *Rhyacophila manistee* Ross
1951, June 17, 2 males: Site 11 (1).

Individuals of the genus *Rhyacophila* were rare in light-trap collections. Of 35 collections containing this genus, only 3 were from light traps and only 4 (from Site 10) were from below Site 9.

FAMILY GLOSSOSOMATIDAE

7. *Glossosoma intermedium* (Klapálek)*

1953, May 14, 1 male with air net: Site 1.

8. *Glossosoma nigrior* Banks

1951-52, March 15-September 15, 44 males and 53 females:

Sites 1(4), 2(16), 3(2), 5(9), 6(4), 8(2), 10(3), 11(1), 15(1).

1953, April 1-October 12, 418 males and 570 females: Sites 1(20), 2(33), 5(29), 6(2), 7(20), 9(30), 10(20), 14(7), 15(13).

This species was well distributed over the entire study area and season, with a possible peak in abundance in 1953 from June 20 to July 20. Males and females seemed to be attracted about equally to the light trap, but both sexes were more frequent in collections made with the air net than the light trap. In April this species was collected commonly from stones along the water's edge.

9. *Protophila tenebrosa* (Walker)

1952, June 28, 1 male: Site 6(1).

1953, June 17-September 8, 69 males and 40 females: Sites 1(2), 5(5), 7(7), 9(1), 10(4), 15(3).

P. tenebrosa was never taken in light traps. The peak of abundance in 1953 was from July 6 to July 23. Egg counts for 4 females collected on July 6 were: 100, 105, 110, and 140.

FAMILY PHILOPOTAMIDAE

10. *Sortosa distincta* (Walker)*

1950-52, January 17-December 15, 341 males and 23 females: Sites 1(5), 2(30), 3(2), 4(3), 5(12), 6(11), 10(1), 12(1), unspecified (3).

1953, February 3-December 7, 577 males and 62 females: Sites 1(21), 2(30), 3(2), 4(1), 5(31), 6(8), 7(6), 9(4), 10(18), 11(1), 14(2), 15(1).

Adults of this species were collected in every month of the year, and in about equal numbers each month. Although collected from all sites, the species was most abundant at and upstream from Site 10. Air net and light traps seemed about equally effective during the period when the latter were operated. The species commonly produces wingless females during the winter months (Ross, 1944). The numbers of wingless individuals in my collections, by month, were: March (9), April (1), May (1), July (1), and December (1).

11. *Chimarra aterrima* Hagen*

1952, June 23-September 9, 1 male and 1 female: Sites 5(1), 6(1).

1953, July 6-July 16, 2 males: Site 1(2).

FAMILY PSYCHOMYIIDAE

12. *Phylocentropus placidus* (Banks)*

1953, June 19-21, 2 males with light trap: Site 5(1).

13. *Neureclipsis crepuscularis* (Walker)
 1952, September 9, 1 male: Site 15(1).
 1953, June 11–September 2, 4 males and 6 females: Sites 2(1), 14(1), 15(4).
 This species occurred only in the upper and lower ends of the study area, and was taken only once in light-trap collections.
14. *Polycentropus aureolus* (Banks)*⁴
 1953, June 19–July 14, 5 males and 4 females: Sites 5(1), 9(2).
 This species occurred only in light-trap collections.
15. *Polycentropus cinereus* Hagen
 1951–52, June 17–August 11, 1 male and 2 females: Sites 11(1), 12(1), 15(1).
 1953, June 15–July 18, 5 females: Sites 1(1), 5(2), 10(1), 14(1).
 This species occurred in air-net and light-trap collections.
16. *Polycentropus confusus* Hagen*
 1951–52, June 30–August 3, 3 males and 3 females: Sites 9(1), 10(1), 12(1), 14(1).
 1953, June 6–August 25, 19 males and 14 females: Sites 5(1), 7(2), 9(7), 10(4), 14(4), 15(1).
 All but 4 individuals taken in 1953 were in light traps. One female contained 379 eggs. Only 5 individuals were collected upstream from Site 9.
17. *Polycentropus crassicornis* Walker*
 1953, June 30, 2 males in light trap: Site 9(1).
18. *Polycentropus flavus* (Banks)*
 1953, July 4–15, 2 females in light traps: Sites 10(1), 14(1).
19. *Polycentropus interruptus* (Banks)*
 1953, June 24–30, 1 male and 4 females: Sites 5(1), 7(1), 9(1).
 All specimens were from light traps. One female yielded 224 eggs.
20. *Polycentropus pentus* Ross*
 1952, June 28, 1 male: Site 6(1).
 1953, June 3–29, 8 males and 1 female: Sites 2(1), 5(2), 10(1).
 All collections were at or upstream from Site 10, and all 1953 collections were from light traps.
21. *Polycentropus sabulosus* Leonard and Leonard*
 1951–52, June 3–September 9, 1 male and 4 females: Sites 5(1), 6(1), 8(1), 14(1), 15(1).
 1953, June 3–August 3, 15 males and 15 females: Sites 1(1), 2(4), 5(3), 7(1), 9(4), 10(4), 14(2), 15(1).
 Light traps were much more effective than the air net in capturing this species. The identification of the females is only tentative.
22. *Polycentropus* sp. B
 1953, July 14–31, 2 males and 1 female: Sites 7(1), 9(1).
 Both collections were from light traps. This may be a new species, it is similar to *P. remotus*.

⁴ Identification tentative.

23. *Nyctiophylax vestitus* (Hagen)

1952, June 26–July 21, 1 male and 3 females: Sites 6(1), 10(1), 15(1).

1953, June 19–August 11, 11 males and 55 females: Sites 2(1), 5(3), 7(3), 9(5), 10(3), 14(5), 15(1).

All collections except 1 were from light traps, and all except 1 were taken between June 19 and July 29.

24. *Cynnellus marginalis* (Banks)*

1953, June 30–July 4, 3 males and 1 female: Sites 9(1), 10(1), 14(2).

All collections were from light traps.

25. *Lype diversa* (Banks)

1951–52, June 15–August 5, 18 males and 16 females: Sites 1(2), 2(4), 6(2), 10(5), 12(2), 15(4).

1953, June 2–August 11, 207 males and 94 females: Sites 1(11), 2(8), 5(9), 7(4), 9(12), 10(11), 14(1), 15(9).

About two-thirds of the collection in 1953 were with air net. Collections were distributed evenly over the study area.

26. *Psychomyia flavida* Hagen

1951–52, June 23–September 9, 44 females: Sites 2(2), 5(4), 6(3), 10(1), 12(1), 15(2).

1953, June 11–September 18, 152 females: Sites 1(1), 2(3), 5(9), 7(6), 9(8), 10(6), 14(6), 15(1).

This species was much more abundant in light-trap collections than in air-net collections, and was evenly distributed over the study area. A single female yielded 24 eggs. Leonard and Leonard (1949b) reported a ratio of 1 male to 50 females in their collections from Michigan, and the present collections contained 196 females and no males.

FAMILY HYDROPSYCHIDAE

27. *Parapsyche apicalis* (Banks)*

1952, June 20, 1 male: Site 1(1).

28. *Hydropsyche slossonae* Banks

1951–52, June 13–August 25, 18 males: Sites 1(1), 2(1), 5(1), 10(3), 15(7).

1953, May 24–September 6, 64 males: Sites 1(2), 2(8), 5(4), 7(2), 9(8), 10(5), 14(12), 15(6).

29. *Hydropsyche sparna* Ross

1952, June 30–September 9, 20 males: Sites 5(4), 8(2), 10(2), 12(1).

1953, May 27–August 31, 82 males: Sites 1(4), 2(16), 5(15), 7(4), 9(9), 10(8), 14(1), 15(3).

Although both *Hydropsyche slossonae* and *H. sparna* occurred over the entire study area, *slossonae* was more abundant in the lower half of the stream (below Site 9) and *sparna* was more abundant above Site 9.

30. *Hydropsyche* females

1951–52, June 3–September 9, 199 females: 43 collections.

1953, May 20–September 29, 1,775 females: 150 collections.

Since female *Hydropsyche* could not be separated reliably to species, the specimens were assigned to the genus only. Female *Hydropsyche* appeared in 42 air-net collections and in 193 light-trap collections.

Hydropsyche exhibited a marked positive phototaxis and was the most common caddisfly in the light traps from late May to the first week in September.

31. *Cheumatopsyche analis* (Banks)

1951, August 11, 1 female: Site 15(1).

1953, July 14–September 17, 2 males and 1 female: Sites 1(1), 2(1), 7(1).

32. *Cheumatopsyche gracilis* (Banks)*

1951–52, June 15–September 9, 1 male and 18 females: Sites 5(1), 10(2), 15(4).

1953, June 11–August 31, 12 males and 37 females: Sites 1(1), 2(1), 5(3), 7(4), 9(4), 10(2), 14(5), 15(6).

Eggs counts from 2 females were 226 and 385.

33. *Cheumatopsyche oxa* Ross*

1952, June 19–August 20, 2 males and 5 females: Sites 1(1), 5(1), 10(1), 15(3).

1953, May 27–September 3, 43 males and 46 females: Sites 2(5), 5(9), 7(10), 9(1), 14(8), 15(4).

The *Cheumatopsyche* were similar to the *Hydropsyche* in being strongly attracted to light; 42 of the 63 collections in 1953 were from light traps.

FAMILY HYDROPTILIDAE

34. *Agraylea multipunctata* Curtis*

1951–52, August 11–September 9, 1 male and 1 female: Sites 5(1), 15(1).

1953, July 14, 1 female: Site 9(1).

All collections were from light trap or lantern.

35. *Ochrotrichia arva* (Ross)*

1951–52, June 30–September 5, 4 males and 12 females: Sites 7(1), 8(1), 9(2), 12(1), 15(1).

1953, July 1–October 12, 63 males and 115 females: Sites 1(2), 2(5), 7(7), 9(11), 10(10), 14(1), 15(4).

Only 3 of the 46 collections were from light traps; the remainder were from air net collections or reared (1 male).

36. *Oxyethira* sp. A

1952, June 28, 1 male: Site 15(1).

1953, July 14–August 15, 4 males: Sites 9(1), 10(1).

37. *Hydroptila consimilis* Morton*

1951–52, June 28–September 9, 13 males and 15 females: Sites 2(1), 5(2), 8(1), 15(1).

1953, July 6–September 29, 24 males and 26 females: Sites 1(1), 7(9), 9(5), 10(6), 14(1), 15(5).

Six of the 32 collections were from light traps.

38. *Hydroptilidae* females

1951–52, August 11–19, 31 females: 2 collections.

1953, June 3–September 18, 85 females: 29 collections.

All except 1 of the 31 collections were from light traps. Since female Hydroptilidae are difficult to assign to species, the above specimens were assigned to family only.

FAMILY PHRYGANEIDAE

39. *Agrypnia straminea* Hagen*

1953, August 25, 1 female from a light trap: Site 9(1).

40. *Banksiola selina* Betten*

1952, July 10-13, 1 male and 1 female: Sites 5(1), 10(1).

1953, June 19-August 1, 3 males and 2 females: Sites 5(1), 9(3), 14(1).

All specimens were from light-trap or lantern collections. This species was collected over most of the study area (Sites 5 to 14) but was apparently rare.

41. *Phryganea cinerea* Walker*

1952, June 29-July 11, 3 males and 1 female: Sites 5(3), 6(1).

1953, July 31, 1 male: Site 7(1).

All specimens were from light-trap or lantern collections.

FAMILY LIMNEPHILIDAE

42. *Dicosmoecus quadrinotatus* (Banks)*

1952, September 5-9, 1 male and 2 females: Sites 5(1), 10(1).

1953, September 17-29, 3 males and 1 female: Sites 9(2), 14(1), 15(1).

Leonard and Leonard (1949b) considered this a rare species. The four 1953 collections were made with air net.

43. *Platycentropus plectrus* Ross*

1951-52, August 23-September 6, 4 females: Sites 5(3), 12(1).

1953, August 26-September 3, 2 males: Sites 2(1), 5(1).

Five of the 6 collections were made with lights.

44. *Platycentropus radiatus* (Say)*

1951, August 11, 1 female: Site 15(1).

1953, June 29, 1 female: Site 5(1).

Both collections were from light sources.

45. *Hesperophylax incisus* Banks*

1953, June 12-15, 2 males: Sites 2(1) and 5(1).

Both collections were from light traps.

46. *Limnephilus* sp. B

1951, August 11, 1 male from light source: Site 15(1).

47. *Limnephilus bimaculatus* Walker

1952, July 10-12, 1 male and 1 female: Site 5(2).

Both collections were from light source.

48. *Limnephilus consocius* Walker

1951-52, August 11-31, 4 males: Sites 5(1) and 15(1).

Both collections were from light traps.

49. *Limnephilus indivisus* Walker*

1951-52, June 20-September 5, 5 males: Sites 1(1), 2(1), 5(2), 15(1).

1953, June 30-August 24, 5 males and 4 females: Sites 1(1), 2(1), 5(1), 7(2), 9(2).

Air nets and light traps were about equally effective in collecting this species.

50. *Limnephilus moestus* Banks*
1952, June 20, 1 female with an air net: above Site 1(1).
51. *Limnephilus rhombicus* (Linnaeus)*
1952, June 23, 1 female: Site 5(1).
1953, July 1-13, 2 females: Sites 1(1), 14(1).
Two specimens were from lights and the third from an air net.
52. *Limnephilus sericeus* (Say)*
1953, June 11, 1 male: Site 10(1).
Leonard and Leonard (1949b) found this to be the most prevalent species of *Limnephilus* along the Au Sable River in 1948, but it was found rarely in the present study.
53. *Limnephilus submonilifer* Walker
1953, June 16-August 6, 4 males and 1 female: Sites 1(1), 5(2), 7(1), 9(1).
Four specimens were from light traps and 1 from an air net. A large nematode was found in the abdomen of 1 male.
54. *Pycnopsyche antica* (Walker)*
1951-52, August 4-September 2, 3 males: Sites 5(1), 8(1), 12(1).
1953, August 12, 1 male: Site 2(1).
Three specimens were from light traps and 1 from an air net.
55. *Pycnopsyche guttifer* (Walker)*
1951-52, September 2-9, 6 males and 5 females: Sites 5(1), 10(1), 12(1), 15(1).
1953, September 18, 1 male: Site 4(1).
Three collections were made by light traps, 1 by air net, and 1 method was not recorded.
56. *Pycnopsyche lepida* (Hagen)*
1952, July 1-31, 12 males and 6 females: Sites 2(1), 5(5), 7(1), 8(1), 10(4).
1953, July 8-August 7, 9 males and 7 females: Sites 2(2), 5(2), 9(3), 10(1), 14(5), 15(1).
All but 1 of the 1953 collections were from light traps.
57. *Pycnopsyche* sp. A.
1952, August 23, 1 male from a lighted window: Site 5(1).
58. *Caborius punctatissimus* (Walker)*
1951-52, August 11-September 2, 4 males: Sites 5(1), 12(1), 15(1).
1953, August 7-31, 3 males and 3 females: Sites 2(1), 5(1), 9(2), 14(1), 15(1).
Seven of the 9 collections were from light traps.
59. *Frenesia missa* (Milne)*
1953, September 21-November 17, 34 males and 2 females: Sites 1(1), 5(7), 10(1).
Seven of the 9 collections were from lighted windows at Site 5.
60. *Glyphopsyche irrorata* (Fabricius)*
1950, October 31-November 1, 1 male and 3 females: Site 5(2).
1953, May 8-November 10, 5 males: Sites 5(2), 10(1).
Four of the collections were from lights; the method for one collection was not recorded.

61. *Psychoglypha subborealis* (Banks)*

1950, October 18–November 1, 4 males and 1 female: Sites 1(2), 5(1).

1953, February 5–November 10, 4 males and 1 female: Site 5(3).

The apparent restriction of the distribution to the upper portion of the study area may be due in part to lack of collecting effort in the other areas during the winter months. These specimens were about equally abundant in light-source and air-net collections.

62. *Neophylax autumnus* Vorhies*

1952, August 25–October 30, 61 males and 3 females: Sites 2(8), 5(2), 6(4).

1953, July 20–October 12, 260 males and 66 females: Sites 1(3), 2(5), 5(12), 7(3), 10(1), 14(1), 15(1).

All the females were collected after September 8 in 1952 and 1953. Only 3 of the collections (4 specimens) were made downstream from Site 7. This species was about equally abundant in air-net and light-trap collections.

63. *Neophylax oligius* Ross*

1951–52, August 4–September 9, 11 males and 17 females: Sites 2(1), 5(7), 6(2), 7(1), 8(1), 15(1).

1953, July 14–September 15, 66 males and 76 females: Sites 1(2), 2(1), 5(10), 7(7), 9(6), 10(5), 14(2), 15(5).

Neophylax oligius was more abundant in samples from the middle and lower parts of the study area (Site 5 to Site 15) and *N. autumnus* was more abundant in the upper part (Site 5 and above). *N. oligius* occurred in 30 light-trap collections and in only 8 air-net collections in 1953, while *N. autumnus* was about equally abundant in the two types of collections.

FAMILY MOLLANNIDAE

64. *Molanna tryphena* Betten*

1953, July 18, 1 male from a light trap: Site 10(1).

65. *Molanna uniophila* Vorhies

1951–52, June 26–August 11, 2 males: Site 15(2).

1953, July 31, 1 male: Site 7(1).

Two collections were from lights; the method for the third collection was not recorded.

66. *Molanna* sp.

1953, June 17–24, 2 females with an air net: Sites 5(1), 10(1).

FAMILY LEPTOCERIDAE

67. *Leptocerus americanus* (Banks)*

1953, June 30–July 21, 3 males and 93 females: Sites 7(4), 9(3), 10(2), 14(3).

All specimens were from light traps. One collection at Site 7 on June 30 produced the 3 males and 69 of the females.

68. *Leptocella albida* (Walker)*

1951–52, July 11–September 9, 2 males and 17 females: Sites 5(2), 15(2).

1953, June 17–September 29, 23 males and 75 females: Sites 1(1), 5(2), 7(2), 9(2), 10(5), 14(6), 15(8).

No males and only 4 females occurred in light-trap collections in 1953.

69. *Athripsodes alagmus* Ross*
1953, July 15, 1 male in light trap: Site 10(1).
70. *Athripsodes cancellatus* (Betten)*
1953, July 1, 1 male in light trap: Site 10(1).
71. *Athripsodes nephus* Ross*
1953, July 1, 4 males and 2 females in light trap: Site 14(1).
72. *Athripsodes resurgens* (Walker)*
1953, June 17, 1 male in air net: Site 15(1).
73. *Athripsodes tarsipunctatus* (Vorhies)*
1953, July 29, 1 male in air net: Site 15(1).
74. *Athripsodes transversus* (Hagen)*
1953, July 1, 1 male in light trap: Site 10(1).
75. *Oecetis avara* (Banks)*
1952, June 20–23, 14 males and 1 female: Sites 1(1), 5(1).
1953, June 11–August 17, 88 males and 17 females: Sites 1(9), 5(13), 7(3), 10(1), 14(2), 15(1).
This species was more abundant in collections from the upper than from the lower half of the study area and was about equally abundant in air-net and light-trap collections.
76. *Oecetis cinerascens* (Hagen)*
1951–52, June 20–August 5, 1 male and 2 females: Sites 1(1), 3(1), 15(1).
1953, June 29–August 1, 4 females: Sites 1(1), 5(1), 7(1), 10(1).
This species was equally abundant in air-net and light-trap collections.
77. *Oecetis inconspicua* (Walker)*
1951–52, August 11–September 9, 1 male and 3 females: Sites 5(1), 15(2).
1953, June 8–August 31, 6 males and 14 females: Sites 2(1), 5(5), 9(4), 10(1), 14(2).
All collections were from light traps or lanterns.
78. *Trianodes injusta* (Hagen)*
1952, June 13, 1 male by lantern: Site 10(1).
79. *Trianodes marginata* Sibley*
1951, August 11, 10 females: Site 15(2).
1953, July 18–August 7, 5 females: Sites 9(1), 10(1), 14(2).
Five of the 6 collections were from light traps and all were from the lower half of the study area.
80. *Trianodes tarda* Milne*
1951, August 11, 2 males and 3 females: Site 15(1).
1953, June 17–August 11, 1 male and 10 females: Sites 7(2), 9(2), 10(1), 14(3).
All collections were from lantern or light traps.
81. *Trianodes* sp.
1953, June 25–August 15, 4 females: Sites 5(1), 7(1), 9(1), 15(1).
Three collections were from light traps and 1 was made with an air net.
82. *Mystacides longicornis* (Linnaeus)*
1951, August 11, 1 female by lantern: Site 15(1).

83. *Mystacides sepulchralis* (Walker)*
 1953, June 17–August 5, 6 males and 1 female: Sites 9(1), 10(1), 15(2).
 All collections were made with air net.
84. *Setodes incerta* (Walker)*
 1953, July 15, 1 female in light trap: Site 10(1).

FAMILY GOERIDAE

85. *Goera stylata* Ross*
 1952, June 19, 1 female: Site 2(1).
 1953, May 27–June 21, 26 males and 62 females: Sites 2(5), 5(6), 14(1), 15(1).
 Twelve of the 14 collections were from light traps, and only 2 collections were from below Site 5.

FAMILY LEPIDOSTOMATIDAE

86. *Lepidostoma bryanti* (Banks)
 1951–52, June 15–August 19, 7 males and 14 females: Sites 1(4), 2(2), 5(1), 6(1), 8(1), 9(1), 11(2), 14 (1), 15(1).
 1953, May 20–June 29, 41 males and 65 females: Sites 1(4), 2(6), 5(11), 7(1), 9(3), 10(4), 14(2), 15(2).
 This species was collected more often with air net than with light traps.
87. *Lepidostoma costalis* (Banks)*
 1951–52, August 11–September 9, 1 male and 3 females: Sites 2(2), 5(1), 15(1).
 1953, July 29–August 24, 67 males and 53 females: Sites 1(5), 2(5), 5(3), 9(1), 10(3), 15(1).
 This species was about equally common in air-net and light-trap collections.
88. *Lepidostoma griseum* (Banks)*
 1951–52, August 5–September 2, 2 males: Sites 1(1), 5(1).
 1953, August 10–24, 10 males and 3 females: Sites 1(1), 2(3), 5(1), 7(1), 15(1).
 This species occurred more often in light-trap than in air-net collections.
89. *Lepidostoma sackeni* (Banks)*
 1952, August 25–26, 1 male in light trap: Site 5(1).
90. *Lepidostoma strophis* Ross*
 1952, August 25–September 10, 13 males and 11 females: Sites 2(5), 5(2), 6(3).
 1953, August 13–September 28, 15 males and 11 females: Sites 1(1), 2(2), 5(3), 7(3), 9(2), 10(2), 15(1).
 This species occurred more often in air-net than in light-trap collections.
91. *Lepidostoma togatum* (Hagen)*
 1952, September 9, 1 female: Site 10(1).
 1953, July 14–17, 4 males and 5 females: Sites 7(2), 9(1).
 Three collections were from light traps and 1 from an air net.
92. *Lepidostoma* sp.
 1952, September 9, 1 female: Site 10(1).
 1953, July 20–30, 1 male and 5 females: Sites 2(1), 7(1), 9(1).
 All collections were from light traps.

FAMILY BRACHYCENTRIDAE

93. *Micrasema rusticum* (Hagen)*
1951-52, June 15-August 4, 20 males and 12 females: Sites 1(5), 5(2), 11(1),
12(1), 13(2), 14(1), 15(1).
1953, June 11-August 21, 345 males and 184 females: Sites 1(12), 2(5), 5(13),
7(11), 9(10), 10(9), 14(4), 15(7).

This species was about equally abundant in light-trap and air-net collections.

94. *Brachycentrus americanus* (Banks)*
1951-52, June 16-September 10, 83 males and 63 females: Sites 1(7), 2(16), 3(1),
4(1), 5(10), 6(6), 7(1), 8(1), 9(1), 10(5), 11(1), 12(2), 13(3), 14(1).
1953, June 3 to September 21, 764 males and 238 females: Sites 1(16), 2(19),
5(43), 7(14), 9(21), 10(23), 14(8), 15(10).

This species was about as common in light-trap as in air-net collections.

95. *Brachycentrus numerosus* (Say)*
1953, May 12-June 11, 21 males and 6 females: Site 15(3).

No larval *B. numerosus* were found in collections from Houghton Creek. The adults in these collections were all taken with air net, but may have flown into the area from the Rifle River.

FAMILY HELICOPSYCHIDAE

96. *Helicopsyche borealis* (Hagen)*
1951-52, June 26-August 11, 1 male and 1 female: Site 15(2).
1953, June 19-August 5, 7 males and 7 females: Sites 5(2), 9(2), 14(6).

All collections were from light traps or lanterns. Larvae of this species were not found in collections of bottom fauna from Houghton Creek, but adults were taken from near both ends of the study area.

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