

A First List of Indiana Stoneflies (Plecoptera)¹

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For about 20 years there has lived within a hundred miles of Indiana America's leading student of Plecoptera, Dr. T. H. Frison, of the Illinois Natural History Survey. Dr. Frison and his colleagues have not only collected stoneflies intensively in their home state, but have conducted numerous forays into adjacent territory and far afield. Naturally Indiana has been included in these expeditions, and many specimens from this state now rest in the INHS collection. To a considerable extent these records have not appeared in print, though it is to be hoped that a detailed list will be published. In some instances, however, particularly with new or rare species, Indiana locality records have appeared in Dr. Frison's papers.

More important than these actual published records, to a study of the Indiana stonefly fauna, has been the clarification of the status of the mid-western species in such difficult genera as *Acroneuria* and *Isoperla*. Without the numerous rearings of adults from nymphs which Dr. Frison has carried out, it would be an extremely difficult if not impossible task to separate the adults into specific groups, in these genera.

Though the writer has had an interest in Plecoptera for some years, he has not as yet found time to make systematic collections in Indiana. The new records given below are largely from two sources: the research and teaching collections at Purdue University, and the teaching collection at Indiana University. These provide a cross-section of most of the commoner and more conspicuous species in the state, while Dr. Frison's records add some of the rarities. In this way a list of 38 species has been assembled. This number will doubtless be substantially increased by future collecting, possibly by as much as half. The northeastern lake district, with its occasional spring streams, should be particularly searched for outlying population of a rich northern fauna; while along the Ohio River a number of southern species may creep into the state. Even in the central region new additions may be expected, particularly among the tiny species of the genus *Allocapnia*.

Of the species listed below, the only one which was entirely unanticipated, in the light of earlier work, is *Nemoura vallicularia*. Taken by casual collectors at both Lafayette and Bloomington, it can scarcely be uncommon in Indiana, but it is unknown in Illinois.

In what follows, specimens from Bloomington, and all those collected by the writer, are at Indiana University; those collected at Lafayette or in Tippecanoe County are from the Purdue Collection. For all others the collection is indicated as "IU" or "PU." In considering the dates on

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which specimens were taken, it should be remembered that both at Bloomington and at Lafayette student collectors have been active principally from March to May. The classification for the most part follows that outlined in the writer's 1943 paper.

List of Species Family Pteronarcidae

Pteronarcys pictetii Hagen, BLOOMINGTON. v.12.08, ♂; v.14.08, ♀, LAFAYETTE. v.7-11.14, ♀; iv.20.15, ♀; iv.21.25, ♂, J. J. Davis; iv.24.25, ♂; v.14.25, ♂; iv.30.28, ♂; also 22 ♂ 32 ♀, from iv.8 to viii.12, in various years. MORGAN CO. iv.25.31, ♂, Musgrave (PU). TIPPECANOE CO. v.3.38, ♂, G. E. Gould. TIPPECANOE RIVER STATE PARK—Tippecanoe river, exuviae, D. C. Scott.

Family Nemouridae Subfamily Taeniopteryginae

Taeniopteryx maura Pictet, ALLEN CO. iii.30.41, ♀ (PU). BLOOMINGTON. iii.2-3.37, 2 ♀. ii.26.38, ♀, J. L. Stewart. CARROLL CO. iii.5.39, ♀ (PU). HAMILTON CO. v.3.36, ♀ (PU). JAY CO. iv.3.39, ♀ (PU). LAFAYETTE—chiefly or entirely from the Wabash river. 10 ♂ 54 ♀, i.19 to vi.1, in various years, but principally in March and April. LAKE WAWASEE—creek at SE end. iii.10.42, ♂, W. E. Ricker. MILL CREEK at Cataract falls, Owen Co. v.3.41, dead ♀, W. E. Ricker. NASHVILLE—Salt creek. iv.13.41, 4 ♀, W. E. Ricker. NEWTON CO. v.21.38, ♀ (PU). NORWAY—Tippecanoe river. iv.39, ♂ ♀, W. E. Ricker. VINCENNES—Wabash river. iii.9.41, 5 ♂ 4 ♀, C. H. Schockley (IU). WARSAW—Tippecanoe river. iii.9.41, ♂, W. E. Ricker. WINONA LAKE—Cherry creek. iii.9.41, 6 ♂ 4 ♀, W. E. Ricker.

Taeniopteryx lita Frison, ROGERS—White river. iii.14.36, 4 ♂ (Frison, 1942). ST. ANTHONY. ii.13.38, ♂ (Frison, 1942). WINSLOW—Patoka river. ii.14.38, 2 ♂ (Frison, 1942).

Taeniopteryx fasciata (Burmeister), BASS LAKE—Hatchery outlet. iv.25.41, ♂, W. E. Ricker. BLOOMINGTON. iii.2.39, ♂. BENTON CO. v.9.39, ♀ (PU). CARROLL CO. iv.4.39, ♀ (PU). CASS CO. iii.29.40, ♂ (PU). LAFAYETTE—chiefly or wholly from Wabash river. 24 ♂ 29 ♀, ii.25 to v.21, in various years; chiefly late March and April. MORGAN CO. iv.2.29, ♂ (PU). NORWAY—Tippecanoe river. iv.39, ♂ ♀, W. E. Ricker. SEYMOUR. iii.20.34, ♀, R. Bugbee (IU). SPENCER. iv.39, ♂ (IU). VINCENNES. iii.9.41, 3 ♂ 1 ♀, C. H. Shockley (IU).

Subfamily Nemourinae

Nemoura vallicularia Wu, BLOOMINGTON. iii.26.22, ♀, A. C. Kinsey. ii.20.37, ♀. iii.7.37, ♀. LAFAYETTE. v.5.29, ♀. v.21.31, ♀, L. A. Schultz.

Nemoura venosa Banks, BLOOMINGTON. v.18.33, ♀, Pearson. MCCORMICKS CREEK STATE PARK. v.10.38, ♀, A. Hale (IU); iv.28.41, 19 ♂

7 ♀, W. E. Ricker. WINONA LAKE—creek 5 miles E. v.43, ♂♂ ♀♀, W. E. Ricker.

Subfamily Leuctrinae

Leuctra claasseni Frison, BLOOMINGTON. iii.29.38, ♂, J. L. Stewart. BLOOMINGTON—Griffy creek. v.18.40, ♂, W. E. Ricker. MARTINSVILLE—small creek S. iv.20.41, ♂ ♀, W. E. Ricker. MORGAN Co.—small creek. iv.20.41, ♂♂ ♀♀, W. E. Ricker. TURKEY RUN STATE PARK—Newby gulch. Nymph—Trib. of Sugar creek. iv.9.40, 11 ♂ 5 ♀, nymph (Frison, 1942).

Subfamily Capniinae

Allocapnia granulata (Claassen), LAFAYETTE—Wabash river. iv.18.37, 2 ♀. WINONA LAKE—Cherry creek. iii.9.41, 148 ♂ 97 ♀, W. E. Ricker.

Allocapnia pygmaea (Burmeister), BACON—creek SW. ii.14.38, 10 ♂ (Frison, 1942). MARENGO—creek E. ii.14.38, 2 ♂ (Frison, 1942). SPRINGVILLE. ii.14.38, 2 ♂ (Frison, 1942).

Allocapnia rickeri Frison, BACON—creek SW. ii.14.38 ♂♂ ♀♀, —Patoka river. ii.14.38, ♂♂ ♀♀ (Frison, 1942). BLOOMINGTON. iv.5.37, ♀, Denham. ENGLISH—creek N. ii.14.38, ♂♂ ♀♀ (Frison, 1942). MCCORMICKS CREEK STATE PARK. iii.14.36, ♂♂ ♀♀ (Frison, 1942) MCCORMICK'S CREEK STATE PARK—McC. creek. iv.12.41, 5 ♂ 14 ♀; iv.2.42, ♂ 9 ♀; W. E. Ricker. MARENGO—creek W. ii.14.38, ♂♂ 2 ♀ (Frison, 1942). MEDORA—Creek NW. ii.14.38, 2 ♂ (Frison, 1942). MILLTOWN—creek W. ii.14.38, 8 ♂ 1 ♀ (Frison, 1942). NEEDMORE—creek. iii.14.36, ♂♂ ♀♀ (Frison, 1942). PALMYRA—Blue river. ii.14.38, ♂♂ ♀♀ (Frison, 1942). PAOLI—S. ii.14.38, ♂♂ ♀♀ (Frison, 1942). SALEM—river S. ii.14.38, 6 ♂ 4 ♀ (Frison, 1942). SPRINGVILLE. ii.14.38, ♂♂ ♀♀ (Frison, 1942). TURKEY RUN STATE PARK. iii.18.33, ♀.—Sugar creek. iv.19.33, 2 ♀ (Frison, 1942). WILLOW VALLEY. iii.14.36, ♂♂ 1 ♀ (Frison, 1942).

Allocapnia vivipara (Claassen), ADAMS Co. iv.1938, ♀ (PU), BLOOMINGTON. iv.17.37, 2 ♀, Nestman. OWEN Co.—Mill creek at Cataract falls. v.3.41, dead ♂, W. E. Ricker.

Nemocapnia carolina Banks, ROGERS—White river. iv.16-21.36, ♂ ♀; iv.14-17.40, 3 ♀ (Frison, 1942). SHOALS—White river. iv.5.40, ♀ (Frison, 1942).

Family Perlidae

Subfamily Perlinae

Neophasganophora capitata (Pictet), LAFAYETTE. v.11.41, ♂. OWEN Co.—Mill creek at Cataract falls. v.3.41, exuvia, W. E. Ricker.

Togoperla kansensis (Banks), BLOOMINGTON. ix.27.39, ♀. LAFAYETTE. vi.14.44, ♀. WHITE RIVER (probably near Petersburg). "In numbers" (Frison, 1937).

Subfamily Neoperlinae

Neoperla clymene (Newman), BEDFORD. vii.6.28, ♀, L. F. Steiner (PU). BLOOMFIELD. vii.22.39, ♀, Bates (IU). BLOOMINGTON. vii.2.38, ♀, Hancock. vii.1.40, ♀, Thompson. vii.30.40, ♀. viii.10.42, ♀. CLARK Co. STATE FOREST. vi.26.38, ♂, Brackman (PU). LAFAYETTE. vii.29.22, ♀, G. M. Stirrett. vii.2.23, ♀. TIPPECANOE Co. vi.20.39, ♀. VINCENNES. vi.17.32, ♂ (PU). vi.28.30, 2 ♀, E. M. Becton (Canadian National Collection). WARREN Co. vi.30.35, ♂, D. W. LaHue (PU).

Subfamily Acroneuriinae

Acroneuria abnormis (Newman), BLOOMINGTON. v.30.37, ♂. LAFAYETTE. v.19.30, ♂; v.10.41, ♂; v.21.41, ♀; v.25.41, ♂; ix. 16.41, ♀; vii.5.42, ♀; ix.17.42, ♀; vi.14.44, ♀. TIPPECANOE Co. vi.7.39, ♂ ♀; vi.16.39, ♂, D. W. LaHue; vii.2.39, ♀. TIPPECANOE RIVER STATE PARK—Tippecanoe river, vi.15.44, ♂; vi.20.44, ♀; D. C. Scott (IU).

Acroneuria evoluta Klapálek, BLOOMINGTON. v.19.22, ♂; v.21.38, ♂ ♀; vi.29.40, 2 ♀; vi.18-19.42, 2 ♂. CLARK Co. STATE FOREST. vi.15.38, ♂ ♀ (PU). HARRISON Co. vi.20.34, ♂, D. W. LaHue (PU). LAFAYETTE. iv.28.25, ♀; vi.14.44, ♂ (PU). MCCORMICK'S CREEK STATE PARK. v.10.38, ♂ ♀, A. Hale (IU). OWEN Co. v.30.36, ♀, Deay & Gould (PU). WINONA LAKE. vi.20.42, ♂, W. E. Ricker.

Acroneuria internata (Walker), HARRISON Co. vii.1.34, ♀, D. W. La Hue (PU). LAFAYETTE. vii.11.36, ♂; iv.14.42, ♂.

Acroneuria mela Frison, BLOOMINGTON. vi.29.43, ♀, Best. CLARK Co. STATE FOREST. vii.6.35, ♀ (PU). EVANSVILLE. v.26.21, ♂ (PU). LAFAYETTE. v.6.30, ♂. PETERSBURG—White river. vi.3-vii.6.36, 5 ♂ 19 ♀ reared from nymphs (Frison, 1942; also as *A. evoluta*, Frison, 1937).

Acroneuria perplexa Frison, BLOOMINGTON. vi.20-29.39, 2 ♀, Rellinger; vi.23.40, ♀; vi.10.43, ♂, W. Coggeshall; vi.24.43, ♀, Best. CLARK Co. STATE FOREST. vii.36, ♀ (PU). EVANSVILLE. v.26.21, ♂ (PU). LAWRENCE Co. iv.31.33, ♀, Musgrave (PU). PETERSBURG—White river. vi.4-24.36, 2 ♂, 5 ♀, nymphs (Frison, 1937). PORTERSVILLE—White river, nymphs (Frison, 1937). ROGERS—White river. v.26.27, 3 ♀, nymphs (Frison, 1937) TIPPECANOE Co. vi.19.37, ♂. VINCENNES. vi.22.31, ♀ (PU). vi.28.30, ♀, E. M. Becton (Canadian National Collection)

Acroneuria ruralis (Hagen), BLOOMINGTON. vi.18.44, ♂, S. Lockett. LAFAYETTE. vi.14.44, ♀. An unlabelled ♂ probably belongs here. TIPPECANOE Co. vi.16.39, ♀, D. W. LaHue.

Atoperla ephyre (Newman), BLOOMINGTON. v.14.08, ♂ ♀.

Perlesta placida (Hagen), BEDFORD. vii.6.28, 2 ♂ 1 ♀, L. F. Steiner (PU). BLOOMINGTON. v.26.38, 2 ♀, Hall, Minton; vii.9.38, ♀, Sherrill; vi.18.39, ♀, Davis; vii.24.40, ♂; viii.2.40, ♂; vi.6.44, ♂, E. Naugle. CLARK Co. STATE FOREST. vii.5.33, ♂; vi.5-19.37, ♂ 2 ♀; vi.10.40, 2 ♀;

(PU). FORT WAYNE. vi.17.21, ♂ (PU). GREENE CO. vii.11.01, ♂ (PU). HENRYVILLE. vi.14.32, ♀ (PU). KOSCIUSKO CO. vi.17.33, ♀, G. E. Gould (PU). LAFAYETTE. vi.17.32, ♂; v.24.40, ♂; v.20-24.41, ♂ 2 ♀; vi.20.42, ♀; vii.8.43, ♂ ♀. MORGAN CO. vi.28.32, ♀; vi.18.33, ♀; Musgrave (PU). POSEY CO. vi.16.33, ♀, B. E. Montgomery (PU). SPENCER—White river. vi.5.44, 2 ♂ 1 ♀, 8 nymphs, W. E. Ricker. TIPPECANOE CO. vi.16-20.39, 2 ♂ 3 ♀, G. E. Gould & D. W. LaHue. WARSAW. vi.26.24, ♀, K. M. Richter (IU). WINONA LAKE. Summer, 1926, ♀; viii.17.34, ♂, R. J. Kulasavage (IU). WINONA LAKE—Cherry creek. vi.21.42, ♀, W. E. Ricker.

Perlinella drymo (Newman), BLOOMINGTON. v.08, ♀. v.6.39, ♀, W. E. Ricker. TURKEY RUN STATE PARK. v.7.22, ♀ (IU).

Family Perlodidae Subfamily Isogeninae

Diploperla duplicata (Banks), TURKEY RUN STATE PARK—Newby gulch. v.11-12, adults reared from nymphs (*Isoperla duplicata*, Frison, 1935).

Hydroperla crosbyi (Needham & Claassen), GOSPORT—White river. iv.9.34, ♀, R. Bugbee (IU). LAFAYETTE. v.3.38, ♂. MORGAN CO. vi.10.33, ♀, Musgrave (PU).

Hydroperla harti Frison, LAFAYETTE. iv.25.36, ♀; v.10.37, ♀ (PU).

Hydroperla varians (Walsh), LAFAYETTE. iv.30.29, ♂; v.10.33, ♀; v.31.33, ♀; v.11.39, ♀; v.14.39, ♀; v.18.40, ♀. PETERSBURG—White river. Exuviae (Frison, 1937). PORTERSVILLE—East Fork White river. Exuviae (Frison, 1937). ROGERS—White river. ♂ ♀ from nymphs, exuviae (Frison, 1937).

Subfamily Isoperlinae

Isoperla bilineata (Say), BLOOMINGTON. 34 ♂ 20 ♀, from iv.11 to v.21, in various years. Also, ii.18.38, 2 ♂ 1 ♀; vi.21.38, ♀. The February occurrence is unexpected, but perhaps not impossible. CLARK CO. STATE FOREST. vii.2-20.38, 2 ♂ (PU). GOSPORT. iv.17.38, ♀, R. Bugbee (IU). LAFAYETTE. 28 ♂ 10 ♀, iv.26 to v.26, in various years. NEW ALBANY. iv.17.38, ♀, Minton (IU). WASHINGTON CO. v.7.36, ♀ (PU).

Isoperla burski Frison, BLOOMINGTON. iv.30.33, ♀, H. Rainwater.

Isoperla confusa Frison, BLOOMINGTON. iv.9.21, ♀. iv.20.22, ♀, A. C. Kinsey. LAFAYETTE. vi.41, ♀. MONTEZUMA. iv.13.33, ♂—Leatherwood creek, nymphs (Frison, 1935). THE SHADES. Nymphs (Frison, 1935). TURKEY RUN STATE PARK—Sugar creek. iv.19.33, ♂; v.7.33, ♀; nymphs. Newby gulch. v.11.33, ♀, nymphs (Frison, 1935). VEEDERSBURG—Coal creek. Nymphs (Frison, 1935). WARREN CO. iv.23.33, ♀, G. E. Gould (PU).

Isoperla decepta Frison, BLOOMINGTON. v.28.37, 2 ♀. v.3.38, ♀, Tinsley. v.16.41, ♀, Pitman. LAFAYETTE. v.12.39, ♂.

Isoperla dicala Frison, KNOX—Yellow river. v.24.37, ♂ (Frison, 1942).

Isoperla marlynia Needham and Claassen, ROGERS—White river. iv.19.36, ♀ reared; iv.24.36, ♀; iv.10-21.40, 2 ♂ 2 ♀ reared (Frison, 1942).

Isoperla minuta Banks, LAFAYETTE. v.11.41, ♀. TIPPECANOE CO. vi.2.33, ♂ ♀; Musgrave. WARSAW—Tippecanoe river. v.27.43, ♂ ♀, D. C. Scott (IU).

Isoperla namata Frison, BLOOMINGTON. v.19.08, ♀. MCCORMICK'S CREEK STATE PARK. iv.16-23.38, 3 ♂ 1 ♀, from nymphs (Frison, 1942). iv.28.41, 2 ♂, W. E. Ricker.

Isoperla truncata Frison, KNOX—Yellow river. v.24.37, 21 ♂ 4 ♀ (Frison, 1937).

Family Chloroperlidae
Subfamily Chloroperlinae

Hastaperla brevis (Banks), TURKEY RUN STATE PARK. v.30.30, ♀; v.22.32, ♀. Newby gulch. v.11-12.33, ♂ ♂ ♀ ♀, also nymphs.—Sugar creek. Nymphs (Frison, 1942; also mentioned as *Chloroperla cydippe*, Frison, 1935).

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