

J. Ky. Acad. Sci. 60(1):1-3, 1999.

New Caddisfly (Trichoptera) Records from Kentucky with Implications for Water Quality

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ABSTRACT

Adult and larval caddisfly collections from ambient monitoring and candidate reference streams across Kentucky have yielded 20 new state records representing 7 families and 12 genera: *Hydropsyche bidens*, *H. cuanis*, *H. patera*, *H. rossi*, *H. aerata*; *Hydroptila talladega*, *H. waskesia*; *Ochrotrichia arva*, *O. eliaga*, *O. riesi*; *Leucotrichia pictipes*; *Stactobiella martynovi*; *Ceraclea ophioderus*, *C. diluta*; *Oecetis scala*; *Triaenodes perna*; *Molanna blenda*; *Micrasema charonis*; *Polycentropus neiswanderi*; and *Rhyacophila vibox*. The number of Trichoptera recorded from Kentucky now totals 226 species.

INTRODUCTION

The caddisfly fauna in Kentucky was largely undocumented prior to Ross (1944), who reported 46 species from the state. Resh (1975) compiled a list that increased the number to 175 species. Since then, Haag and Hill (1983) added 4 records; Thoeny and Batch (1983), 2; Phillippi and Schuster (1987), 6; Picazo and DeMoss (1980) added 2; Floyd and Schuster (1990), 13; and Floyd (1992), 1. From these publications and others, Lauder milk (1995) compiled a list of Kentucky Trichoptera that totaled 201 species. More recently, Schuster (1997) described a new species from Kentucky and West Virginia, and Houp et al. (1998) described two new species from Kentucky.

The routine use of aquatic organisms as indicators of water quality has enhanced the need to establish control or reference streams so that biological data from other streams can be better used in assessing impacts to water quality. Consequently, the Kentucky Division of Water (DOW) initiated a "Reference Reach" program to document the biotic communities from undisturbed or least-disturbed

streams. The species reported herein were collected as part of that endeavor.

METHODS

Adult collections were made using a Coleman lantern, ultra violet bulbs (UV), and a 12-volt battery. A plastic tray containing 250 ml of 70% ethyl alcohol was placed at the base of the lantern at dusk; the lantern was turned off 1 hour after dark. A 2-liter Nalgene jug was used to house and transport collections to the DOW laboratory. Specimens are deposited in the DOW Invertebrate Voucher Collections and the Branley A. Branson Zoological Museum at Eastern Kentucky University.

NEW RECORDS OF KENTUCKY TRICHOPTERA

Most of these records are from adult collections. However, four species (*Hydropsyche aerata*, *H. bidens*, *Leucotrichia pictipes*, and *Molanna blenda*) were collected as larvae. The larvae of these species have been described (Moulton and Stewart 1996; Ross 1944; Schuster and Etnier 1978), and all have distinctive morphological features and/or unique

cases that make their identifications possible and reliable.

HYDROPSYCHIDAE

Hydropsyche aerata Ross: Carlisle Co., Mayfield Creek, at Hwy 121 bridge (unchannelized segment), 11 Jul 1990.

Hydropsyche bidens Ross: Warren Co., Barren River, at boat ramp below Lock and Dam 1, Greencastle Road, 27 Jul 1997.

Hydropsyche cuanis Ross: Adair Co., Russell Creek, off Ky 768 at Milltown ford, 13 Jul 1992.

Hydropsyche patera Schuster and Etnier: Franklin Co., South Elkhorn Creek, Forks of Elkhorn, at Scruggs Lane, 13 Jun 1984.

Hydropsyche rossi Flint, Voshell, and Parker: Warren Co., Barren River, at boat ramp below Lock and Dam 1, Greencastle Road, 27 Jul 1997.

HYDROPTILIDAE

Ochrotrichia arva (Ross): Woodford Co., Clear Creek, Hifner Mill Road at bridge, 14 Jun 1995; Woodford Co., Lee's Branch, Midway College Campus, 3 Jun 1997.

Ochrotrichia eliaga (Ross): Edmonson Co., Beaverdam Creek, at Ky 101-259 bridge, 12 Apr 1992; Barren Co., Caney Fork, Hwy 3179, Oil Well Road, 6 May 1994; Woodford Co., Clear Creek, Hifner Mill Road at bridge, 16 May 1995; Simpson Co., Lick Creek, Hwy 265 at bridge, 6 May 1994; Barren Co., Peter Creek, Hwy 3179, Oil Well Road, 6 May 1994; Warren Co., Trammel Fork, Red Hill Road at bridge, 6 May 1994; Logan Co., Whippoorwill Creek, Ky 2395 at bridge, 8 May 1994.

Leucotrichia pictipes (Banks): Edmonson Co., Beaverdam Creek, Ky 101-259 at bridge, 10 May 1994.

Ochrotrichia riesi Ross: Jessamine Co., Fayette Co., Mercer Co., Wolfe Co., and Woodford Co., (5 Apr; 14 May, 1983–1996), various unnamed tributaries, all from vertical walls of spring seeps.

Hydroptila talladega Harris: Breathitt Co., Coles Fork, in Robinson Forest, 22 Apr 1993.

Hydroptila waskesia Ross: Allen Co., Trammel Fork, Red Hill Road at bridge, 14 May 1992.

Stactobiella martynovi Blickle and Denning:

Woodford Co., Clear Creek, Hifner Mill Road at bridge, 26 Apr 1995.

LEPTOCERIDAE

Ceraclea diluta (Hagen): Marion Co., Salt Lick Creek, off Salt Lick Road, 16 Jun 1997.

Ceraclea ophioderus (Ross): Warren Co., Barren River, at boat ramp below Lock and Dam 1, Greencastle Road, 24 Jul 1997.

Oecetis scala Milne: McCreary Co., Big South Fork Cumberland River, Hwy 742, at Blue Heron parking lot above riffle, 17 Jul 1996.

Triaenodes perna Ross: Warren Co., Barren River, at boat ramp below Lock and Dam 1, Greencastle Road, 24 Jul 1997.

POLYCENTROPODIDAE

Polycentropus neiswanderi Ross: Marion Co., Salt Lick Creek, off Salt Lick Road, 24 Apr 1993.

MOLANNIDAE

Molanna blenda Sibley: Breathitt Co., Clemons Fork, in Robinson Forest, 20 May 1992.

BRACHYCENTRIDAE

Micrasema charonis Banks: Woodford Co., Clear Creek, Hifner Mill Road at bridge, 8 May 1995.

RHYACOPHILIDAE

Rhyacophila vibox Milne: Elliott Co., Arabs Fork, Hwy 1620 above bridge, 22 Apr 1994.

WATER QUALITY IMPLICATIONS

In any stream system there are species that have strict microhabitat requirements related to functional feeding capabilities and life history strategies. In my collections, there were species with multivoltine and/or multiple cohort populations with no specific microhabitat requirements. While other species—e.g., *Hydroptila talladega*, *Leucotrichia pictipes*, *Micrasema charonis*, *Molanna blenda*, *Ochrotrichia eliaga*, *O. arva*, *O. waskesia*, *Rhyacophila vibox*, and *Stactobiella martynovi*—reflected univoltine (early spring) single populations, a life history feature necessary to exist in the tenuous and often temporary microhabitats of headwater streams across Kentucky. The species listed above and others are indicative of maximal habitat/microhabitat partitioning, a

result of long-term habitat stability, which is a key component of unaltered streams. In benthic surveys and evaluations, efforts should include spring collections so that univoltine species (some with special habitat requirements) are more likely to be included. That inclusion allows a more accurate interpretation of the biotic community, habitat conditions, and stream quality.

ACKNOWLEDGMENTS

I acknowledge help from Terry Anderson, John Brumley, Greg Pond, and Karen Smathers, Division of Water, Kentucky Department for Environmental Protection; Dr. G. A. Schuster, Eastern Kentucky University, Richmond; Dr. K. H. Hays, Midway College, Midway, Kentucky; Dr. M. A. Floyd, Commonwealth Technology Inc.; Ellis Lauder milk, Kentucky State Nature Preserves Commission; and the Division of Water.

LITERATURE CITED

- Floyd, M. A., and G. A. Schuster. 1990. The caddisflies (Insecta: Trichoptera) of Buck Creek system, Pulaski County, Kentucky. *Trans. Kentucky Acad. Sci.* 51:127–134.
- Floyd, M. A. 1992. New microcaddisfly (Trichoptera: Hydropsychidae) records for Kentucky. *Trans. Kentucky Acad. Sci.* 53:50.
- Haag, K. H., and P. L. Hill. 1983. Additions to the distributional list of Kentucky Trichoptera: Big Sandy River (Boyd County); Pond Creek and Scenic Lake (Henderson County). *Trans. Kentucky Acad. Sci.* 44:21–23.
- Houp, R. E., K. H. Houp, and S. C. Harris. 1998. Two new species of microcaddisflies (Trichoptera: Hydropsychidae) from Kentucky. *Entomol. News* 109(2):99–102.
- Laudermilk, E. 1995. The Caddisflies (Trichoptera) of Kentucky (unpublished list). Kentucky Nature Preserves commission, Frankfort, KY.
- Moulton, S. R., and K. W. Stewart. 1996. Caddisflies (Trichoptera) of the Interior Highlands of North America. *Mem. Am. Entomol. Inst.* 56.
- Phillippi, M. A., and G. A. Schuster. 1987. New records of caddisflies (Trichoptera) from Kentucky. *Entomol. News* 98:113–116.
- Picazo, E. D., and G. L. DeMoss. 1908. The aquatic insects, exclusive of Diptera, of Hays Branch, Rowan County, Kentucky. *Trans. Kentucky Acad. Sci.* 41:99–104.
- Resh, V. H. 1975. A distributional study of the caddisflies of Kentucky. *Trans. Kentucky Acad. Sci.* 36:6–16.
- Ross, H. H. 1944. The caddisflies or Trichoptera of Illinois. *Bull. Illinois Nat. Hist. Sur.* 23:1–326.
- Schuster, G. A. 1997. Description of a new species of terrestrial limnephilid caddisfly (Trichoptera) from Kentucky and West Virginia (USA). *Proceedings of the 8th International Symposium on Trichoptera*, 417–424.
- Schuster, G. A., and D. A. Etnier. 1978. A manual for the identification of the larvae of the caddisfly genera *Hydropsyche* Pictet and *Symphitopsyche* Ulmer in eastern and central North America (Trichoptera: Hydropsychidae). EPA-600/4-78-060. U.S. Environmental Protection Agency, Cincinnati, OH.
- Thoeny, W. T., and D. L. Batch. 1983. New species records of caddisflies (Trichoptera: Hydropsychidae) in Kentucky. *Trans. Kentucky Acad. Sci.* 44:74.



Houp, Ronald E. 1999. "New Caddisfly (Trichoptera) Records from Kentucky with Implications for Water Quality." *Journal of the Kentucky Academy of Science* 60(1), 1–3.

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