

RECORDS OF NYMPHAL *STENONEMA* (EPHEMEROPTERA: HEPTAGENIIDAE) FROM WEST VIRGINIA¹

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ABSTRACT: Over 3,000 nymphs of the genus *Stenonema* were collected from 395 sites in West Virginia. A total of 12 species revealed two state records: *S. exiguum* and *S. sinclairi*. *Stenonema vicarium* was the most abundant species; *S. sinclairi* was the rarest. *Stenonema mediopunctatum mediopunctatum*, *S. terminatum*, *S. pulchellum*, *S. femoratum*, and *S. vicarium* were distributed statewide. Species restricted to the Appalachian Mountains were *S. meririvulatum*, *S. ithaca*, *S. modestum*, and *S. pudicum*. *Stenonema mexicanum integrum* and *S. exiguum* occurred only in the larger rivers. Range extensions are noted for three species: *S. sinclairi*, *S. exiguum*, and *S. pulchellum*.

Prior to this investigation, Faulkner and Tarter (1977) reported seven *Stenonema* species from West Virginia: *S. bipunctatum* (McDunnough) (= *S. terminatum*), *S. femoratum* (Say), *S. intergrum* (McDunnough), *S. ithaca* (Clemens and Leonard), *S. pudicum* (Hagen), *S. pulchellum* (Walsh), and *S. vicarium* (Walker). Bednarik and McCafferty (1979) recorded *S. modestum* (Banks) and *S. mediopunctatum mediopunctatum* (McDunnough) from West Virginia. Carle and Lewis (1978) reported *S. meririvulatum* from Pocahontas County, West Virginia.

From 395 sites in West Virginia (Figure 1), approximately 3,000 nymphs of the genus *Stenonema* were collected and identified using the nymphal key of Bednarik and McCafferty (1979). Nymphs were collected with a dredge net, seine, Surber sampler, Hester-Dendy multiplate sampler, and by handpicking rocks. Twelve species, including two state records (*), were recorded from these collections. Nymphs are stored in the West Virginia Benthological Survey at Marshall University, and detailed records are found in Fisher (1985).

Range extensions are noted for three species. *Stenonema pulchellum*, previously considered to occur only in the Ohio River basin (Bednarik and McCafferty, 1979), was collected in Monongahela River and Potomac River drainage basins in the extreme eastern portion of the state. *Stenonema mediopunctatum mediopunctatum* was recorded as an Appalachian Mountain species by Bednarick and McCafferty (1979); however, nymphs from this study were found in several western counties. *Stenonema*

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exiguum, previously reported from Minnesota to Michigan southward to Texas and northern Florida (Bednarick and McCafferty, 1979), was collected from the major rivers in the Ohio, Kanawha, Monongahela, and Potomac drainage basins. Prior to this investigation, *S. sinclairi* had been reported only from small, cold streams in a former strip-mined area in southeastern Tennessee (Lewis, 1979). In West Virginia, *S. sinclairi* was collected from the Shennandoah River in Jefferson County.

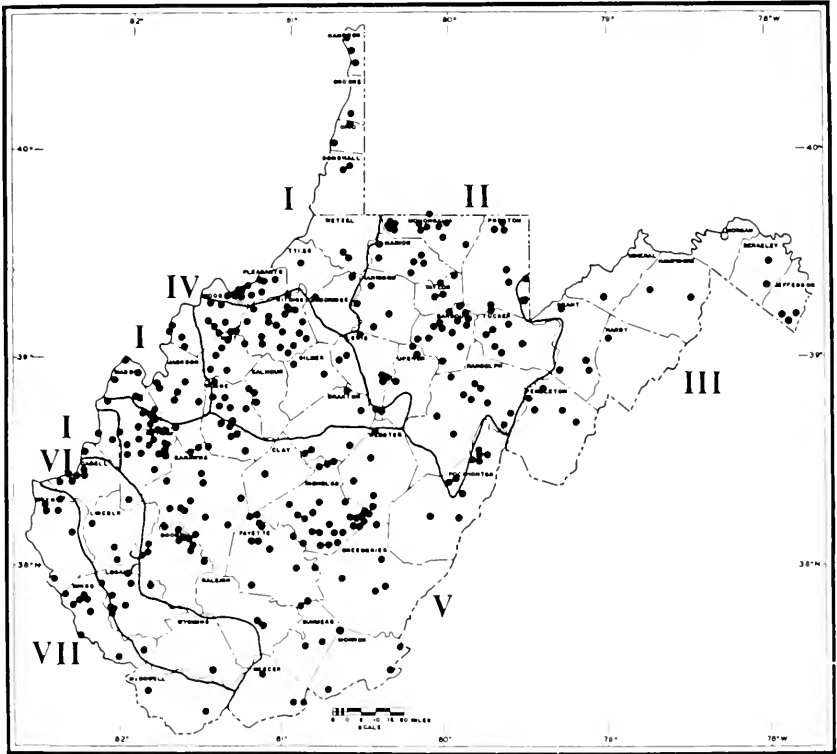


Figure 1. Drainage Basins in West Virginia (Janssen, 1973). I. Ohio River. II. Monongahela River. III. Potomac River. IV. Little Kanawha River. V. Kanawha River. VI. Guyandot River. VII. Big Sandy River. Black dots represent collecting sites.

Species Collected

- **Stenonema exiguum* Traver: Drainages II, III, V, VI
- S. femoratum* (Say): Drainages I-VII
- S. mexicanum integrum* (McDunnough): Drainages I, IV, VI
- S. ithaca* (Clemens and Leonard): Drainages I-VII
- S. mediopunctatum mediopunctatum* (McDunnough): Drainages II-VII
- S. meririvulanum* Carle and Lewis: Drainages II, V-VII
- S. modestum* (Banks): Drainages II-VI
- S. pudicum* (Hagen): Drainages II, V
- S. pulchellum* (Walsh): Drainages II-V
- **S. sinclairi* Lewis: Drainage III
- S. terminatum*
- S. terminatum* (Walsh): Drainages I-III, V-VII
- S. vicarium* (Walker): Drainages I-VII

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LITERATURE CITED

- Bednarik, A.F. and W.P. McCafferty. 1979. Biosystematic revision of the genus *Stenonema* (Ephemeroptera: Heptageniidae). Canad. Bull. Fish. Aquat. Sci. Bulletin 201. 73 pp.
- Carle, F.L. and P.A. Lewis. 1978. A new species of *Stenonema* (Ephemeroptera: Heptageniidae) from eastern North America. Ann. Entomol. Soc. Amer. 71(3): 285-288.
- Faulkner, G.M. and D.C. Tarter. 1977. Mayflies, or Ephemeroptera, of West Virginia with emphasis on the nymphal stage. Entomol. News 88(7-8): 202-206.
- Fisher, J.E. 1985. A taxonomic and distributional study of nymphal *Stenonema* Traver (Ephemeroptera: Heptageniidae) in West Virginia. Unpub. Master's Thesis, Marshall University, Huntington, West Virginia. 97 pp.
- Janssen, R.E. 1973. Earth Science: A handbook on the geology of West Virginia. Educational Marketeers, Inc., Clarksburg, West Virginia. 345 pp.
- Lewis, P.A. 1979. A new species of the mayfly genus *Stenonema* Traver from eastern United States (Ephemeroptera: Heptageniidae). Proc. Entomol. Soc. Wash. 81: 321-325.