

## **STENONEMA MEXICANA (HEPTAGENIIDAE: EPHEMEROPTERA) IN SOUTHERN CENTRAL AMERICA<sup>1</sup>**

R.W. Flowers, William L. Peters<sup>2</sup>

**ABSTRACT:** *Stenonema mexicana* (Ulmer) is reported from the Canal Zone in Panamá and its taxonomic status is clarified.

A single mature nymph of *Stenonema mexicana* (Ulmer) was collected in the Canal Zone of Panamá by one of us (WLP) and C.M. Keenan and this nymph was reported by Edmunds, Jensen and Berner (1976) in their stated distribution of *Stenonema* as "... as far south as Panama." The specimen was found in the Río Sardinillo on the Gamboa Road, 10-IX-1963 and is deposited in the collections of Florida A&M University. Allen and Cohen (1977) described a *Stenonema* nymph from Guatemala which they assigned to *Heptagenia mexicana* Ulmer (1920) and tentatively transferred *mexicana* to *Stenomema*. Bednarik and McCafferty (1979) assigned the same nymph to *S. integrum* McD and stated that there were not sufficient grounds for linking the nymph in question to *H. mexicana*.

We have examined type material of Ulmer's *Heptagenia mexicana* consisting of 2 ♂ and 1 ♀ syntypes. Although somewhat distorted in drying, the male penes are those of a *Stenonema*. Subimagos of the same species in the University of Utah collection collected in Costa Rica clearly show *Stenonema*-type penes (Fig. 1). Ulmer's syntypes somewhat resemble specimens of *Stenonema integrum*, particularly in regard to the mid-dorsal black streak on the abdomen, but differ in the following characters: (1) black diagonal lines are present on the thoracic pleura beneath the wing bases; and (2) spiracular marks on the abdomen are large round dots (not diagonal streaks, as in *S. integrum*) and are distinct on terga 8 and 9. We therefore conclude that Allen and Cohen's transfer of *H. mexicana* to *Stenomema* was correct and that *S. mexicana* and *S. integrum* are distinct species.

The Panamanian nymph agrees closely with Allen and Cohen's nymphal description. In addition, dark color markings of the subimago are visible through the abdominal cuticle of the Panamá nymph and these are consistent with the pattern on the syntypes of *S. mexicana*.

---

<sup>1</sup>Received October 10, 1980

<sup>2</sup>Department of Entomology, Florida A&M University, Tallahassee, Florida 32307

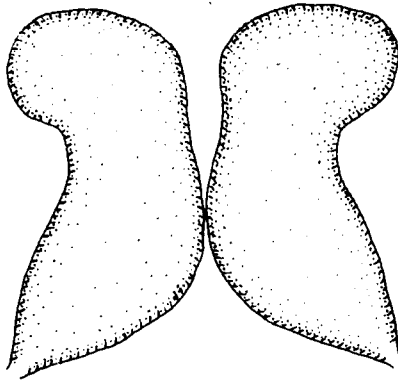


Fig. 1. *Stenonema mexicana*, outline of penes of male subimago.

The Panamanian nymph differs from nymphs of *S. integrum* in having the lateral spine on abdominal segment 8 subequal to that of segment 9 (in *S. integrum*, the spine on segment 8 is distinctly larger than that on 9). The color patterns of the two species are very similar, although the Panamanian nymph has more extensive pale markings than most nymphs of *S. integrum*.

The existence of the Heptageniidae in continental South America is indicated only by two questionable records: an unidentified wing from Brazil (Demoulin 1955) and Eaton's (1871) assignment of *Baetis guttata* (Pictet 1843) from Chile to *Ecdyonurus guttatus*. We have examined a color reproduction of Pictet's figure and are unable to determine the identity of this species, although Eaton's description of the body markings suggests that *Baetis guttata* may be a *Siphonella* (Siphonuridae). The occurrence of *Stenonema mexicana* in the Canal Zone of Panamá represents a southward range extension of over 1500 km and verifies the distributions given by Edmunds, Jensen and Berner (1976). It also represents the closest proximity known to continental South American of an identifiable member of the Heptageniidae.

*Stenonema mexicana* will key to *S. integrum* in Bednarik and McCafferty (1979). The two species may be separated using the following key.

#### Adults

Thoracic pleura with black diagonal streaks; spiracular marks on abdomen round .....	<i>S. mexicana</i>
Thoracic pleura without black diagonal streaks; spiracular marks diagonal .....	<i>S. integrum</i>

### Mature Nymphs

- Lateral projections on segment 8 subequal to those on segment 9 ..... *S. mexicana*
- Lateral projections on segment 8 distinctly longer than those on segment 9 .....  
 ..... *S. integrum*

### ACKNOWLEDGEMENT

We wish to thank Dr. Kurt K. Günther, Humbolt-Universität zu Berlin, for the loan of Ulmer's type material. We also thank Dr. George F. Edmunds, Jr., University of Utah, for loan of additional Central American specimens. This research was supported by a research program (FLAX 79009) from SEA/CR, USDA.

### LITERATURE CITED

- Allen, R.K. and S.D. Cohen. 1977. Mayflies (Ephemeroptera) of Mexico and Central America: new species, descriptions, and records. *Can. Entomol.* 109:399-414.
- Bednarik, A.R. and W.P. McCafferty. 1979. Biosystematic revision of the genus *Stenonema* (Ephemeroptera: Heptageniidae). *Can. Bull. Fish. Aquatic Sci.* no. 201.
- Demoulin, G. 1955. Une mission biologique belge au Bresil. *Ephéméroptères. Bull. Inst. R. Sci. Nat. Belg.* 31:1-32.
- Eaton, A.E. 1871. A monograph on the Ephemeridae. *Trans. Entomol. Soc. London.* 1-164, 6 pls.
- Edmunds, G.F. Jr., S.L. Jensen and L. Berner. 1976. The mayflies of North and Central America. University of Minnesota Press, Minneapolis. 330+xp.
- Pictet, F.J. (1843-1845). *Historie naturelle générale et particulière des insectes nevroptères. Famille des Ephémérines.* Chez J. Keesmann et Ab. Cherbuliez. Geneva. 300pp.
- Ulmer, G. 1920. Neue Ephemeropteren. *Arch. Naturgesch.* 85A:1-80.