

ILLUSTRATION AND LECTOTYPE DESIGNATION FOR *BAETIS*
FEMINALIS EATON (EPHEMEROPTERA : BAETIDAE)¹

R. D. Waltz and W. P. McCafferty
Department of Entomology, Purdue University,
West Lafayette, Indiana 47907, USA

ABSTRACT. *Baetis feminalis* Eaton is atypical for most *Baetis* species in that it lacks hind wings. Larvae of this Asian species remain unknown. A lectotype is designated and described for the species.

The Baetidae of tropical Asia is a diverse but little-studied group. Hubbard and Peters (1978) catalogued the nominal species of the Indian subregion, and some additions have subsequently appeared (Müller-Liebenau, 1982a, b, 1983; Müller-Liebenau and Morihara, 1982). During revisionary research on the two-winged Baetidae we had the opportunity to study the original adult material (and presently the only known specimens) of one of these interesting mayflies, *Baetis feminalis* Eaton, 1885, from Sri Lanka. This material has not been illustrated or redescribed, although Gillies (1949) did confirm diagnosis of the species. In particular, the material was not treated in studies of the Eaton types of Ephemeroptera by either Spieth (1941) or Kimmins (1960).

The species is of further note in that its generic assignment remains provisional with respect to current concepts of baetid higher classification. This is at least indirectly evidenced by an examiner's anonymous inscription of "Pseudocloeon" that has at some time been appended to the material (an obvious allusion to the fact that the species lacks hind wings). The two-winged condition has historically been a greatly misunderstood and misused character state among Baetidae due to its propensity for parallel evolution. The proper combination of the species with any of several Asian genera, including *Baetis* and *Pseudocloeon*, cannot ultimately be resolved without the study of its larval stage. This paper may allow the species to be more easily recognized and its larvae to eventually be discovered.

Material examined: Syntype series (MCZ Type # 11231) - one male, three females, from Sri Lanka (Ceylon): Rainbodde (specimen numbers 34, 49, 50, 51). All specimens pinned. Deposited at the Museum of Comparative Zoology, Harvard. The male specimen is missing the head; one wing has been slide-mounted and pinned with the specimen; the genitalia have been dissected, reconditioned, stored in glycerine, and pinned with the specimen; and the body coloration is somewhat obscured by fungal hyphae. Two females are similarly affected by previous fungal growths, and the third female is in good condition.

Lectotype designation: We designate the male of the above mentioned material as the lectotype of *Baetis feminalis* Eaton, 1885. A red lectotype label is attached to the specimen that reads *Baetis feminalis* Eaton; Male; Des: Waltz and McCafferty, 1984.

¹Purdue Agricultural Experiment Station Journal No. 9838.

Description: The original description (Eaton, 1885) of color patterns agrees well with the current state of the specimens and therefore does not require much further elaboration.

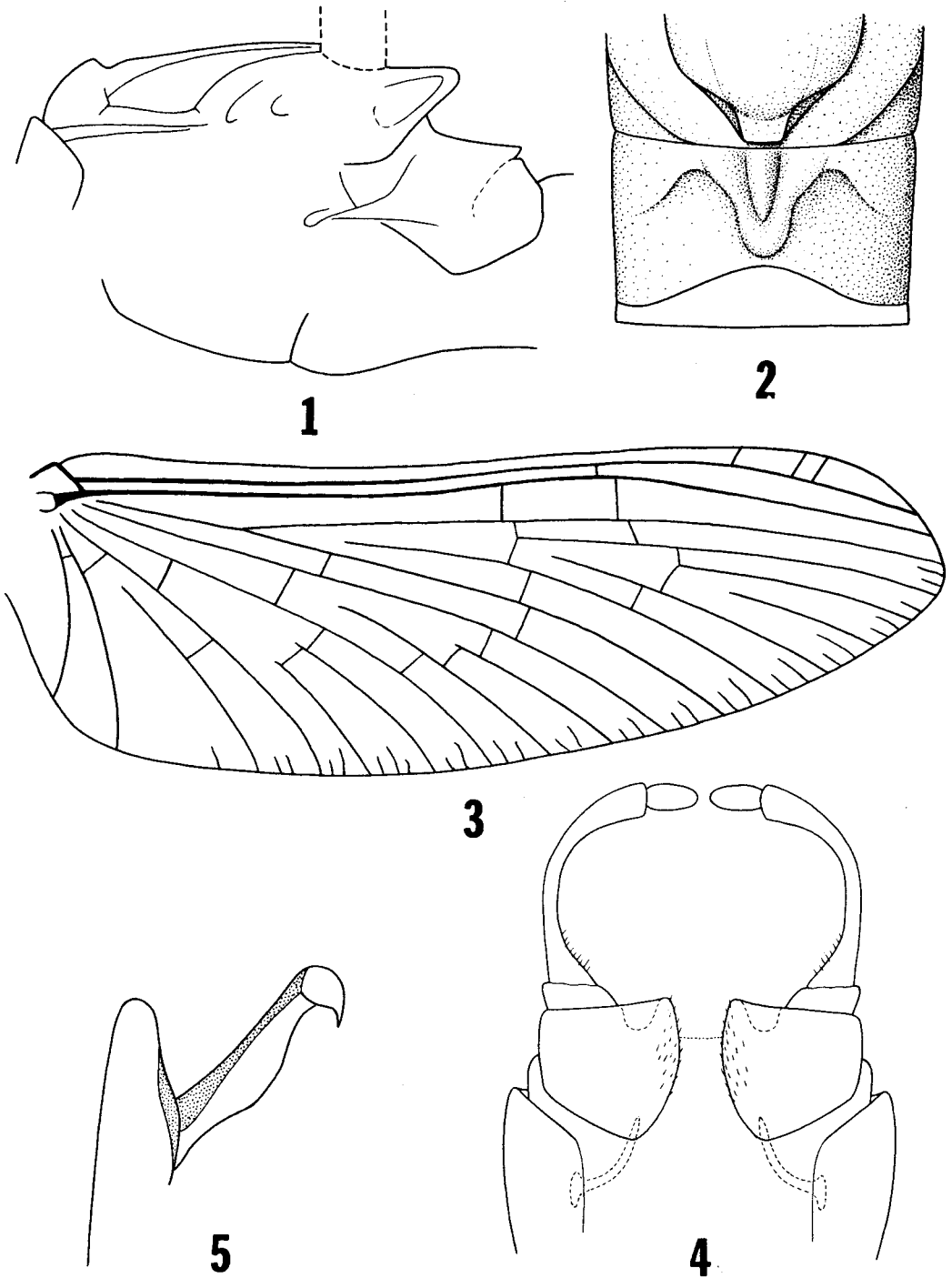
Male: Body length ca. 5 mm. Wing 5.5 mm long. Thorax and metathorax dark red-brown; metathorax dorsally with light inverted "V" shaped area on top of rounded metathoracic prominence as in Fig. 1. Lateral thorax as in Fig. 2. Legs with distinct reddish subapical femoral band. Wing venation as in Fig. 3; membrane without pigment; veins brownish. Abdominal segments 2-6 dorsally lightly fuscate with dark red-brown posterior margins; abdominal segments 7-10 dark red-brown. Genitalia as in Figs. 4 and 5.

Female: Body ca. 5 mm long. Wing 6 mm long. Coloration similar and more pronounced than in male; body bright red-brown; thorax shining, polished; metathorax patterned as in Fig. 1. Femoral subapical bands more developed than in male, apex and base of femur pale colored, remainder of femur red-brown; tibia lightly pigmented with suffused red-brown; Abdomen entirely red-brown except tergum 8; tergum 8 pale, cream. Cerci pale brown, individual segments with darkened apices.

ACKNOWLEDGMENTS. We thank Charles Vogt, Museum of Comparative Zoology, Harvard, for the loan of specimens and A. V. Provonsha for illustrations.

REFERENCES

- EATON, A. E., 1883-88. A revisional monograph of recent Ephemeridae or mayflies. Trans. Linn. Soc. London, (Ser. 2) Zool. 3: 1-352.
- GILLIES, M. T., 1949. Notes on some Ephemeroptera Baetidae from India and Southeast Asia. Trans. R. Ent. Soc. London, 100:161-177.
- HUBBARD, M. D. and PETERS, W. L., 1978. A catalogue of the Ephemeroptera of the Indian subregion. Oriental Ins. Suppl., 9: 1-43.
- KIMMINS, D. E., 1960. Ephemeroptera types of species described by A. E. Eaton, R. McLachlan, and F. Walker. Bull. Brit. Mus. (Nat. Hist.), Ent., 9: 269-318.
- MÜLLER-LIEBENAU, I., 1982a. A new genus and species of Baetidae from Sri Lanka (Ceylon): Indocloen primum gen.n., sp.n. (Insecta: Ephemeroptera). Aquatic Ins., 4: 125-129.
- MÜLLER-LIEBENAU, I., 1982b. Five new species of Pseudocloeon Klapálek, 1905, from the oriental region with some general remarks on Pseudocloeon. Arch. Hydrobiol., 95: 283-298.
- MÜLLER-LIEBENAU, I., 1983. Three new species of Centroptella Braasch and Soldan, 1980, from Sri Lanka (Insecta: Ephemeroptera). Arch. Hydrobiol., 97: 486-500.
- MÜLLER-LIEBENAU, I. and MORIHARA, D. K., 1982. Indobaetis: a new genus of Baetidae from Sri Lanka (Insecta: Ephemeroptera) with two new species. Gewässer & Abwasser, 63/69: 26-34.
- SPIETH, H. T., 1941. The North American Ephemeropteran types of the Rev. A. E. Eaton. Ann. Ent. Soc. Amer., 34: 87-98.



Figs. 1-5. *Baetis feminalis*. 1, Dorsal view of metathorax, female; 2, Lateral view of thorax (with pin insertion), female; 3, Fore wing of Lectotype, male; 4, Ventral view of male Lectotype genitalia; 5, Penis of male Lectotype.