

DESCRIPTION OF THE MALE IMAGO OF *AMELETUS PRIMITIVUS* TRAVER (EPHEMEROPTERA: AMELETIDAE) WITH NOTES ON ITS RELATIONSHIP WITH OTHER *AMELETUS* SPECIES

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ABSTRACT

The male imago of *Ameletus primitivus* (Ephemeroptera: Ameletidae) is described and illustrated for the first time from material collected from northern India. Diagnostic features are provided and comparison is made with adults and larvae of other *Ameletus* species.

INTRODUCTION

Ameletus primitivus was described by Traver (1939) from the female imago, female subimago and the larva from northern India. The persistent mouth-parts (labial and maxillary palps) of the winged stages are unique in the Ephemeroptera and led to the suggestion that the species is one of the most primitive of all mayflies (Traver, 1939). Lestage (1940) created a new genus *Paleoameletus* for *A. primitivus* and Edmunds and Traver (1954) synonymised *Paleoameletus* with *Ameletus*, without giving any explanation. Recently, I located a single male imago (in the collection of George F. Edmunds, Jr.; recently transferred to Purdue University, West Lafayette, Indiana) that was collected from the same area as Traver's (1939) types. The specimen has clearly visible mouth parts, and other morphological characters (e.g. size, wing coloration, emergence time) are also in accordance with Traver's (1939) description. There seems little reason to doubt that this male is *A. primitivus*. In this paper, I describe and illustrate the male imago of *A. primitivus*, and I also discuss its relationship with other *Ameletus* species in both adult and larval stages. Information on the interpretation of morphological characters used in the description may be found in Zloty (1996a) and Zloty and Pritchard (1997).

Description of the Male Imago of *Ameletus primitivus*

Ameletus primitivus Traver, 1939: 46; Lestage, 1940: 124; Edmunds and Traver, 1954: 237.

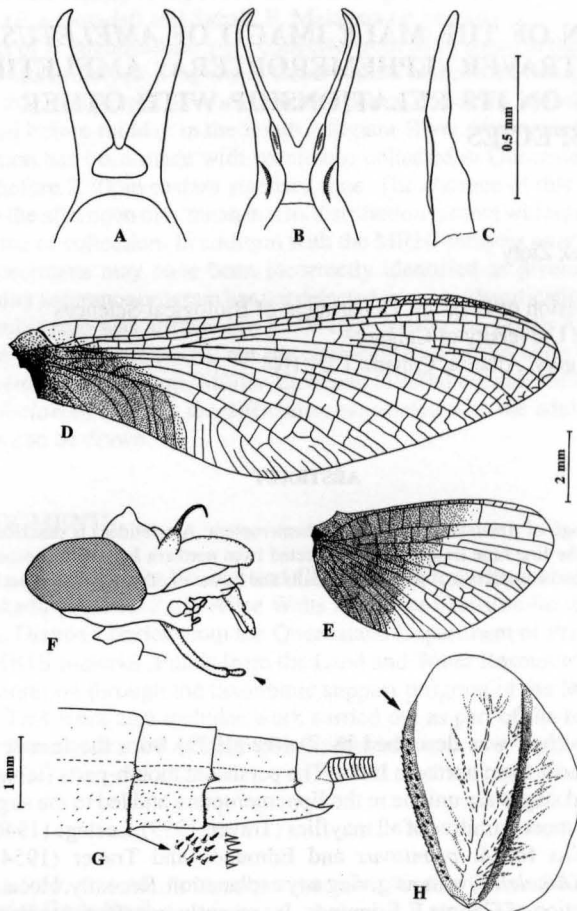


Fig. 1. Morphological characters of *Ameletus primitivus*. A- dorsal view of penes, B- ventral view of penes, C- right lateral view of penes, D- right fore wing, E- right hind wing, F- adult head in lateral view (after Traver 1939), G- larval abdominal segments 7-10, H- gill of abdominal segment 4 (modified from Traver 1939).

Type material: Female holotype, female subimago and larval paratypes: Kyam, North India, 22 June, 1932, Yale North Indian Expedition; in Purdue University, Indiana (examined).

Description: Male imago (in alcohol): body length 16 mm, fore wings 16 mm. Head dark brown; upper portion of compound eyes gray, lower portion brown. Labial and maxillary palps present (Fig. 1F). Pronotum, mesonotum, scutellum and infrascutellum dark brown; thoracic pleura dark brown with light brown between plates, at the centre of the katepimeron, and at the base of the legs and wings. Wings transparent with brown veins and light brown cross-veins and with pronounced suffusion at the base (Fig. 1D-E). First abdominal tergite brown; tergites 2-9 brown to dark brown with light brown along anterior margins; tergite 10 light brown. Abdominal sternite 1 light brown; sternites 2-8 opaque white with some light brown laterally. Ganglionic markings on sternites 2-8. Genitalia (Figs. 1A-C) with elongated lateral lobes (length of lateral lobes about 2X the width of the penes; as in Fig. 1A), ventral plates absent (Fig. 1C). Caudal filaments yellow.

DISCUSSION

The presence of labial and maxillary palps in adult mayflies is currently known only in this species. It is uncertain whether two other species (*A. alexandrae* Brodsky and *A. asiacentralis* Soldán) that are closely related to *A. primitivus* (Zloty, 1996b), also have these mouth-parts in the winged stages. Penes lack ventral plates (Fig. 1C), a characteristic shared only with *A. inopinatus* Eaton (widely distributed in Asia, Europe and northern part of North America) and *A. velox* Dodds (known only from western North America). However, the apical ends of the lateral lobes of the penes are straight in *A. primitivus*, are inwardly twisted in *A. inopinatus* (Zloty, 1996a: Fig. 9C) and are curved mesally in *A. velox* (Zloty, 1996a: Fig. 10A). Larvae of *A. primitivus* have numerous small spine-like bristles on the abdominal sternites and tergites (Fig. 1G), and on the dorsal surface of the lateral band on the abdominal gills (Fig. 1H). These characteristics are shared with three other Asian species, *A. alexandrae*, *A. asiacentralis* (Soldán, 1978: Plate II, Figs. 16-18) and an undescribed species from Talas River, Kirgizstan (in N.J. Kluge collection). Only one Nearctic species, *A. edmundsi* Zloty, has numerous spine-like bristles on the abdominal sternites and tergites, but none of the North American species has spines on the dorsal surface of the lateral band on the abdominal gills. Eggs of *A. primitivus* are ovoid (similar to Fig. 32B in Zloty and Pritchard, 1997).

Distribution - Northern India; June-July. The single male, from which the above description is made, was collected at Lhamo Tso Lake, extreme NE Sikkim, elevation 5,090 m, 25 June 1959, by F. Schmid.

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