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DESCRIPTION OF THE LARVA OF THE CAUCASIAN SPECIES, *PROTONEMURA BIFIDA* MARTYNOV (PLECOPTERA, NEMOURIDAE)

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ABSTRACT
The larval stage for *Protonemura bifida* Martynov is described from material collected in the Caucasus. This description represents the first of 17 known *Protonemura* species from this region.

Keywords: *Protonemura*, larval description, Nemouridae, Caucasus

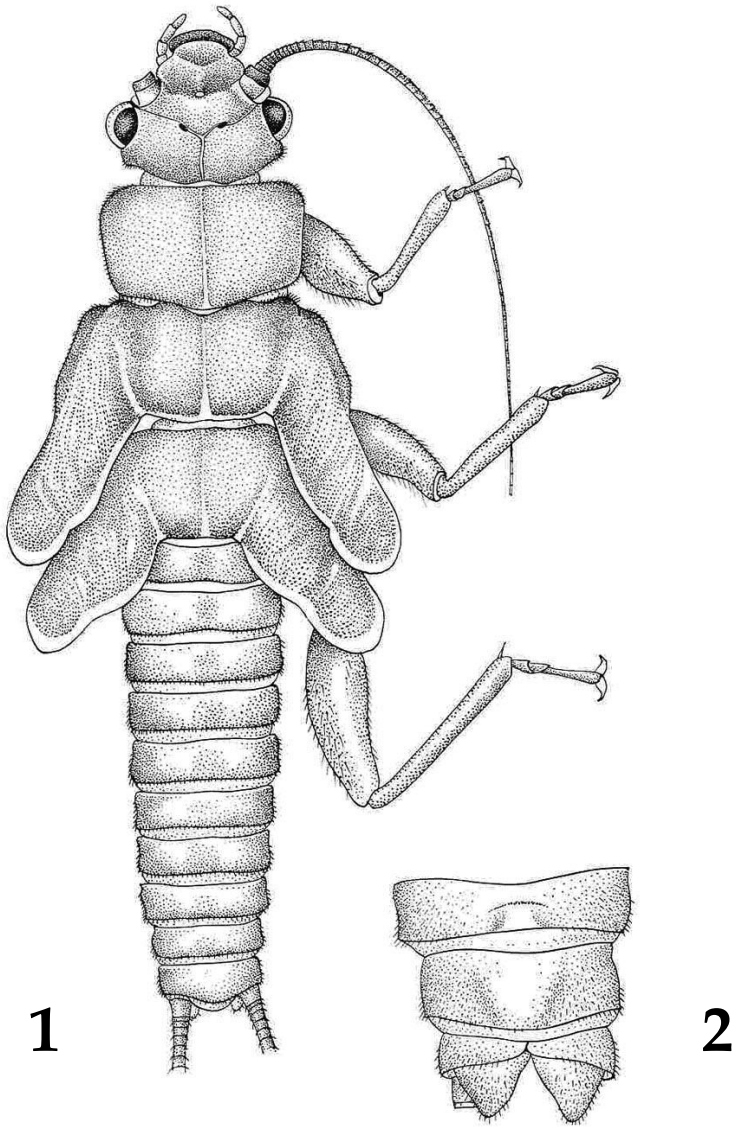
INTRODUCTION

At present 17 species of the genus *Protonemura* are known from the Caucasus (Zhiltzova, 1956, 1957, 1958, 1964, 1967, 1981; Martynov, 1928; Balinsky, 1950; Joost, 1977; Cherchesova & Zhiltzova, 2003). These species were described only from imagos, consequently their larvae are unknown. In this article the larva of the Caucasian species *Protonemura bifida* Martynov is described for the first time.

Protonemura bifida Martnov is widely distributed over the Caucasus with populations known from Krasnodarsky krai, Karachaevo-Cherkesia, North Ossetia, Kabardino-Balkaria, Abkhazia, Georgia and Armenia and the species is also known from Turkey and North Iran. Adult flight period for *P. bifida* extends from the end of May to August at altitudes between 600 – 2300 m.

Larvae of the genus *Protonemura* are very uniform in appearance. Specific distinctions are observed mainly in mature larvae; through their exoskeleton details of imaginal structures are seen including subgenital plate of female, epiproct and paraprocts of male. Among European species, differences are recognized in pronotal marginal setation and in posterior marginal setal fringes of abdominal tergites. Additional differences occur in chaetotaxy of femora and tibiae, in paraprocts from male larvae, and in proportion of cercal segments and their bristles (Rauser, 1956; Lillehammer, 1988). Identification of species requires treatment in KOH followed by examination on glass in glycerin for preparation of drawing under microscope.

Diagnostic characters of *Protonemura* larvae include, according to Raušer (1956): 1) glossa and paraglossa well developed and similar in length, 2) quadrangular labrum, 3) sternite 1 of abdomen reduced, 4) second segment of tarsus shorter than first, 5) hind leg extending beyond tip of abdomen, and 6) gills of prosternum with 3 finger-shaped branches.



Figs. 1-2. Larva of *Protonemura bifida* Martynov. 1. Habitus, from above, 2. Apex of female abdomen, ventrally.

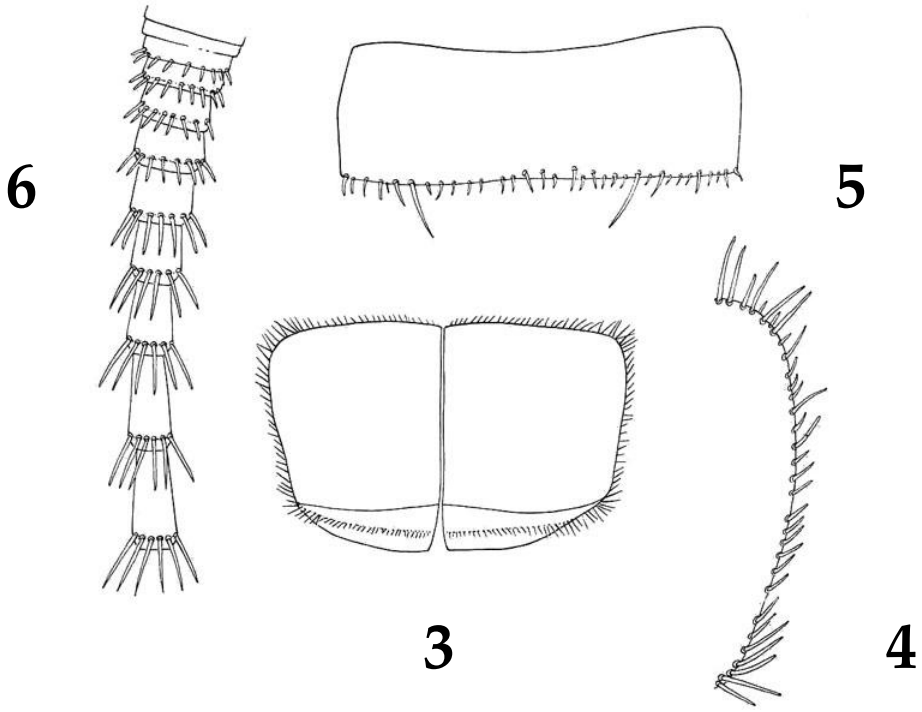
RESULTS AND DISCUSSION

Protonemura bifida Martynov, 1928
(Figs. 1-6)

Protonemura bifida Martynov, 1928:22. Holotype ♂ (Zoological Institute, Russian Academy of Science, St. Petersburg), Caucasus, Gvilety.

Material examined. North Ossetia, river Kharves basin (Uruch basin), 17 VII 2006, 4 larvae of male, 3 larvae of female (L. Haseeva leg); North Ossetia, river Unaldon (Ardon basin), 25 V 2000, 5 larvae (S. Cherchesova, M. Shioloshvili leg); Borshomy reservation, river Likanis - chevi; 7 V 1986, 3 larvae (L. Zhiltzova leg.).

Larva. Length of body (maximal) 7.5-9 mm, length of cercus equal to length of abdomen and postnotum. Larva stocky, blackish – brown, mat, head darker than pronotum. Pronotum slightly wider than head; temporal part of head slightly projecting behind eyes and bearing a cluster of setae (Fig. 1).



Figs. 3-6. Larva of *Protonemura bifida* Martynov. 3. Pronotum of larva, from above,4. Setae of lateral border of pronotum, 5. Setae of hind margin of abdominal tergite, 6. Basal part of cercus (1 – 9 segments) of larva.

Pronotum trapezoid, slightly narrowed backwards, with rounded angles; margins with dense row of rather long sharp setae (Figs. 3-4); setae longer and more numerous on angles; some setae shorter and more blunt on anterior margin.

Pronotal gills rather long, with contraction in apical part.

Legs: femur margined with coarse setae along upper border; tibia with dense strong bristles along upper and lower edge.

Abdominal segments 1–4 (or 1–5) divided on tergite and sternite (division unclear).

Setae on tergal surface are very short, dense (Fig. 5). Two long setae protrude on hind margin of abdominal tergites; other setae are very short and dense.

Sternite 9 of mature nymph of male medially triangularly elongated. Male paraprocts elongated and narrowed apically.

Sternite 8 in female larvae with small arched excavation (Fig. 2). In mature larva, contour of subgenital plate is seen.

Cerci with 22 – 23 segments armed with dense short and stout apical setae (Fig. 6); surface of segments densely covered with clothing setae. Length of segments 5 – 7 equals their width. Basal segments of cerci very short and wide, distal segments slender and very elongated.

Diagnosis. The larva of *P. bifida* differs most conspicuously from the three European species described by Lillehammer (1988) in cercal setation. Each of those species [*P. hrabei* Rauser, *P. intricata* (Ris), *P. meyeri* (Pictet)] have mixed setal types in the terminal segmental whorls for basal cercal segments whereas these setae are rather uniform in length in *P.bifida* (Fig. 6).

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