

## Description of a New Mayfly Species (Ephemeroptera) from the Soviet Far East

by

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The new species *Neoephemeropsis rarus* is described from the larvae collected in the Ussuri River in the Primorye Territory. This is the first record of the genus *Neoephemeropsis* in the USSR.

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The family Neophemeridae Burks, 1953 has few described species. Traditionally, there are two known genera: *Neoephemeropsis* Ulmer and *Neoephemera* McDunnough. *Neoephemera* includes three subgenera (Demoulin, 1961) with seven species, whereas only two species are known in the genus *Neoephemeropsis*. The position of this family with its few species in the classification of the Ephemeroptera as well as its origin remain obscure. Hence, the discovery of a third species of *Neoephemeropsis* in the Far East is of great interest.

The family *Neophemeridae* was placed into the superfamily Caenoidea by Edmunds and Traver (1954) and Edmunds, Allen and Peters (1963). Demoulin (1958) regarded it as part of the superfamily Ephemeroidea. Tshernova concluded that peculiar characters distinguishing these mayflies from Potamanthidae and Caenidae outweighed resemblances, and therefore recognized a separate superfamily, Neophemeroidea (Tshernova, 1960: 58). Landa and Soldán (1985) in their monograph give a somewhat different higher classification of Ephemeroptera. The family Neophemeridae is again placed in the superfamily Caenoidea Newman, 1853. However, the family Neophemeridae includes three genera: *Neoephemera* McDunnough (*Neoephemera* s.str., *Leucorhoenanthus* Lestage, *Oreiantrus* Traver), *Neoephemeropsis* Ulmer and *Potamanthellus* Lestage.

The first representative of *Neoephemera*, *N. (Leucorhoenanthus) maxima* (Joly), was found in France in 1870 and, later on, in Lithuania where imagines were raised from larvae (Kazlauskas, 1959). The second Palaearctic species, *Neoephemera (Leucorhoenanthus) macedonica* (Ulmer) was described as *Rhoenanthus macedonicus* by Ulmer (1920) from one male imago collected in Yugoslavia; however, Demoulin (1962) subsequently placed the species in *Neoephemera (Leucorhoenanthus)*. The third Palaearctic species, *Neoephemera tshernovae* Kazl., was described from larvae from Middle Asia (Usbekistan, USSR) (Kazlauskas, 1963). Four more species described by Traver, McDunnough and Berner from Nearctica (USA and Canada) are known as larvae and in their winged stages (Berner, 1956). All the known species of the genus *Potamanthellus* were described only from imagines.

*Neophemeropsis* Ulmer presently includes the species *N. caenoides* Ulmer from the Sunda Islands (Ulmer, 1939-1940) and *N. cuaraoensis* Dang from North Vietnam (Dang, 1961). *Neophemeropsis rarus* sp.n. which we describe here is the first record of the genus from the Soviet Far East. The holotype is deposited in the collection of the Zoological Institute of the USSR Academy of Sciences (Leningrad).

***Neophemeropsis rarus* sp.n. (Figs. 1-11).**

Material: Holotype, 1 larva USSR, Primorye Territory, Ussuri River, July 27, 1983 (Ye. Oprishenko). Paratype: 1 larva, collected together with the holotype; 23 larvae, July 29, 1988 (T. Tiunova).

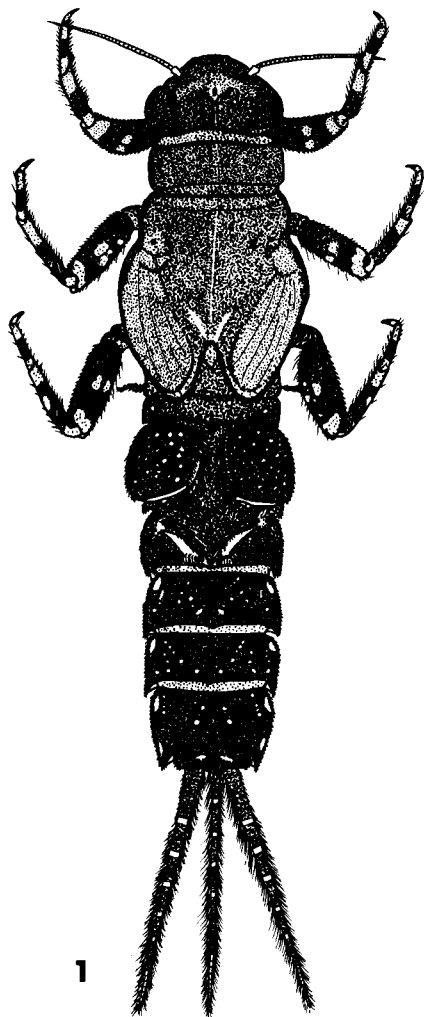
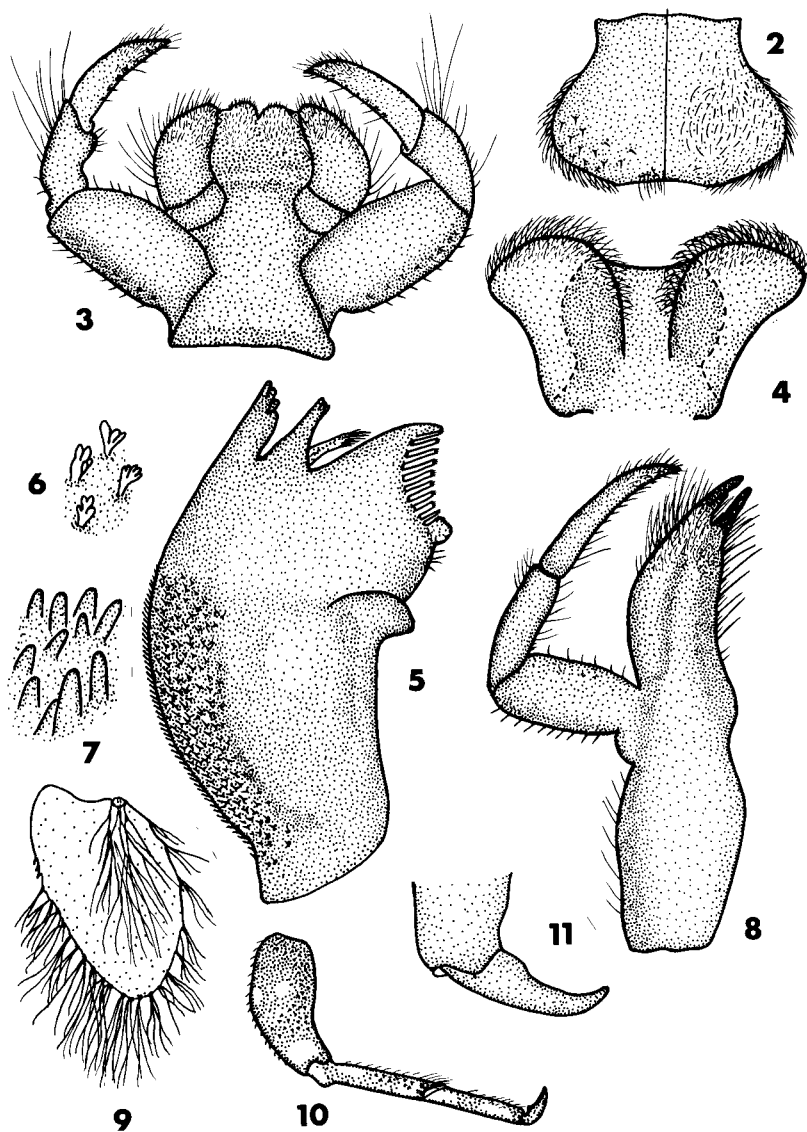


Fig. 1 *Neophemeropsis rarus*, habitus of the full grown nymph.

Larva (in alcohol) (Figs. 1-11). Generally brown, with numerous light spots on abdominal tergites and on abdominal gills 2. The body is completely covered with fine scales (Fig. 6). Head dark brown, antennae light, their basal segment large and brown.



Figs. 2-11: *Neophemeropsis rarus*, structural details of the nymph: 2, labrum; left of the line ventral, right of the line dorsal view; 3, labium, ventral view; 4, hypopharynx, dorsal view; 5, right mandible, dorsal view; 6, scaly asperities on body surface; 7, conical asperities on outer face of mandible; 8, left maxilla, dorsal view; 9, abdominal gill plate; 10, fore leg; 11, tarsal claw.

There is a light pattern between antennae and ocelli resembling a three-lobed leaflet. Occiput with mosaic pattern and a lighter stripe along the vertex.

Labrum dark brown. The exterior margin of the mandibles is in its basal part densely covered with fine scales alternating with spines (Fig. 7). The surface and the inner margin of the mandibles beneath the apical teeth are smooth and light and well contrasted with the brown colour of the mandibles. Maxillae with a long palp, its 3rd segment longest. The ratio of segment lengths is 6:5:7.

Pronotum and postscutellum light brown-grey, unicolorous. Only at the base of the wing pads, there are two round, droplike brown spots. Legs mottled. Tibiae and tarsi with alternating wide, brown and white transverse stripes. There is a white spot on the distal part of the femora and two small spots in its middle, one of them on the exterior edge. Femora covered more densely with scales and spines than tibiae and tarsi.

There is a small tubercle medially at the hind margin of the second tergite. Tergites VII-IX darker than others, brown with numerous light spots (Fig. 1); tergite X without pattern. Abdominal gills 2 conceal the abdominal gills only on abdominal segments III-V, while on tergite VI the small gill plates are so situated that the gills 6 are exposed. This distinguishes the present species from the other in the genus. The basal quarter of the caudal filaments is brown; more distally, brown and light segments alternate, the distal segments are light. The caudal filaments are covered with dense long hairs giving them a pinnate shape. The outer row of hairs in the basal third of the cerci somewhat shorter.

Length of larval body 13 mm, caudal filaments 4.9-5.0 mm.

Comparison: *N. rarus* differs well from *N. caenoides* in size of body, the maximum length of the *N. caenoides* larva being 7.0 - 7.5 mm, caudal filaments 4.0-5.0 mm, while *N. rarus* is 10.8 - 14.1 mm long, without the caudal filaments, which are 4.9-5.0 mm long. The exposed abdominal gills 6 of the present species are also distinctive. *N. rarus* also differs from *N. cuaraoensis* in the well developed anterolateral projections of the pronotum in *N. rarus*, while the projections are entirely absent in *N. cuaraoensis*.

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