

## Preliminary notes on the nymphs of Ephemeroptera found in Macedonian waters

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The territory is 25 750 km<sup>2</sup> in extent, mountainous with peaks rising up to 2900 m, and provided with a diversity of streams, rivers, lakes, ponds and swamps.

*Baetis gemellus* is abundant, *B. pumilus* scarce in streams at the highest altitudes; then comes *B. rhodani*; and in the rivers of the plains *B. bioculatus* is abundant, *B. tenax* scarce. In addition to these five Euro-Siberian species, there are four Mediterranean, three Irano-Turanian, and two endemic. One of the last, *B. meridionalis* IKONOMOV is widespread up to 600 m.

*Ecdyonurus helveticus* and *E. venosus* inhabit mountain streams, the latter the lowland rivers also, where, in the south of the territory, *E. epeorides* is found too. *Rhithrogena aurantiaca* occurs in mountain streams between 800 and 1800 m in Western Macedonia, *R. semicolorata* in most running waters between 200 and 1000 m. The endemic *Heptagenia macedonica* IKONOMOV is confined to the lower and middle parts of mountain streams, *H. coeruleans* to the lowland rivers. *Iron yugoslavicus* SAM. and *Epeorus assimilis* are typical of high mountain streams. *Oligoneuriella yugoslavica* IKONOMOV is found in streams above 900 m, whereas *O. rhenana* occurs below it wherever there are torrential conditions.

*Habroleptoides modesta* is characteristic of the quieter parts of streams and rivers where there is decaying organic matter on the bottom, and a new species in the same genus with Irano-Turanian affinities has been recorded in the lower parts of tributaries of the River Vardar. *Centropitulum luteolum* and *C. pennulatum* are rare and known only from some valleys in Western Macedonia, but the endemic *C. picinensis* is numerous at high altitudes where it is always together with a species of *Ameletus* of Pontian affinity. *Siphonurus aestivalis* abounds in the middle and lower reaches of the River Vardar, as does *Prosopistoma foliaceum* also. *Ephemerella ignita* has been taken in streams, rivers, and the shallow parts of lakes, in the last together with a new species close to *E. notata*. *Caenis macrura* has a distribution like that of *E. ignita*. Both genera have a representative of Mediterranean affinity in the middle of and lower parts of rivers in Southern Macedonia. The Ethiopian *Euthraulus dosznenensis* IKONOMOV occurs in the Vardar system, which is also the only place from which the burrowing species *Palingenia longicauda* and *Polymitaeris virgo* are known. *Ephemerella danica* is rare and known only from lakes in Western Macedonia where it inhabits sandy bottoms. *E. lineata*

Pirinensis

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is common in the quieter parts of streams, and the Mediterranean *E. bellus* is restricted to the south. *Abtenapter macedonicus* Uilman is a large burrowing form important in the middle and lower reaches of the River Vardar and its tributaries.

Typical of temporary bodies of water are a species of *Hebropeltis* with Mediterranean affinity, an endemic species of *Coenra*, *Coenra strugensis* Inceoglu, *C. macrura*, *Closon dipterum* and *Ephemerella ignita*.