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On *Eulimnogammarus messerschmidtii*, sp. n. (Amphipoda: Gammaridea) from Lake Baikal, Siberia, with redescription of *E. cyanoides* (Sowinsky) and remarks on taxonomy of the genus *Eulimnogammarus*

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Abstract

A new amphipod species of the endemic fauna of Lake Baikal (East Siberia, Russia), *Eulimnogammarus messerschmidtii* **sp. n.,** from the littoral zone of the northern part of the lake is described. The species is characterized by the presence of a group of spines with dense setae on the last 4 body segments. The basal peduncular segment of antenna 1 bears bunches of dense setae without spines, uropods 3 are covered by dense simple setae without plumose setae and the outer ramus has a second small article. The body length of sampled specimens ranges from 7.5 to 18 mm. Population analysis at one of the sampling points revealed a spring-summer reproduction period for this species. This species was previously erroneously identified as *E. cyanoides*. *E. cyanoides* is here redescribed in details based on the lectotype. The differences between *E. messerschmidtii* **sp. n.**, *E. cyanoides* and other closely related *Eulimnogammarus* species are described. The taxonomy of the genus *Eulimnogammarus* is discussed.

Key words: amphipods, littoral zone, *Eulimnogammarus*, taxonomy, biology of population

Introduction

The amphipod fauna of Lake Baikal is an outstanding phenomenon not only for freshwater bodies, but for the biosphere in general. It constitutes a substantial part (4.3%) of the entire known amphipod fauna, and 45.3% of the epigeous continental amphipod fauna (Takhteev 2000). Considering the Väinölä *et al.* (2008) data, Baikal amphipods represent 28.5% of all known freshwater amphipods (Takhteev *et al.*, in press). This taxonomic group is extremely diverse by species and is considered to have undergone explosive speciation in Lake Baikal (Mats *et al.*, 2011).

Eulimnogammarus Bazikalova, 1945 is the taxonomically richest and by numbers of individuals most abundant genus with 47 (49?) species and 13 subspecies in Lake Baikal and the adjacent Angara (even when considering that two subgenera—*Heterogammarus* and *Corophiomorphus*—are independent genera) (Takhteev 2000). Species of *Eulimnogammarus*, in general, are inhabitants of rocky substrate of the littoral (0–20 m) and sub-littoral (20–70 m) zones of the lake, although there are deep-water species within this genus. Due to large numbers of species within the genus and complicated taxonomy, the species from this genus have been some of the most difficult to identify. Previous revision of *Eulimnogammarus* was based on numerical analysis and did not result in any changes in taxonomy (Morino & Kamaltynov 1997). However, later Kamaltynov (2001) proposed to place some species in a separate genus with no substantiation for this change. Problems in the identification are also

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diagnoses (Bazikalova 1945; Takhteev 1999). Thus, the diagnosis of the family Eulimnogammaridae also does not coincide with the diagnoses of subordinate genera. Further, in the *Eulimnogammarus* species the shape of interantennal lobe of the head varies greatly; i.e., in *E. cyanoides* it is weak and not sharp (see fig. 3). The same applies to bases of pereopods that in *Eulimnogammarus* are either narrower or broader than in *Gammarus* (as it is mentioned by Kamaltynov himself), or comparable to the species of this genus in length and width, as well as the degree of development of the postero-distal corner of basis pereopod 7. Proposed by Kamaltynov (2001), the family Eulimnogammaridae is not completely isolated by its morphology as a separate group.

Therefore, we believe that the genus *Eulimnogammarus* is a member of the family Gammaridae from a morphological point of view (Takhteev 2000). At the same time, there is a need to make a new diagnosis of this family, including the numerous descriptions of new taxa from the reviews of Bousfield (1977) and Barnard & Barnard (1983).

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