

ABSTRACT

Endemic *Bdellocephala* (Platyhelminthes, Tricladida, Paludicola) from Lake Baikal: diversity, morphology and taxonomy

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Lake Baikal is the deepest ancient lake in the world, with the greatest faunistic biodiversity (TIMOSHKIN, 1997). Tricladida belongs to one of the most exciting groups of Baikal animals that are characterized by quantitative and qualitative diversity. All 37 Baikal planarian species and 13 of the 14 genera are endemic (PORFIRIEVA, 1977). *Bdellocephala* de Man, 1875 is the only non-endemic genus of Baikal planarian. Until recently researchers attributed four species and seven subspecies to this genus: *B. angarensis* Gerstfeldt, 1858 with five subspecies (*B. angarensis angarensis* (Gerstfeldt, 1858), *B. a. olivacea* (Korotnev, 1912), *B. a. melanocinerea* (Korotnev, 1912), *B. a. subrufa* (Korotnev, 1912), and *B. a. cotyloides* Rubtsov, 1928), *B. baicalensis* (Zabusov, 1903) with two subspecies (*B. baicalensis baicalensis* Livanov, 1962 and *B. b. subniger* Porfirieva, 1970), *B. bathyalis* Timoshkin et Porfirieva, 1989, and *B. hypervesiculina* Livanov, 1962. It is PORFIRIEVA's opinion (1977) that representatives of ancestral-*Bdellocephala* were the "stem"-forms for most specialized and unusual giant species of Baikal planarians, while at the same time *Bdellocephala* proper produced several flocks of species. Baikal representatives of the genus colonized all depth zones from the water's edge to the abyssal (a schematic pattern of the vertical zonality after KOZHOV, 1962); maximal depth of *Bdellocephala* occurrence is 1313 m (PORFIRIEVA, 1977). *B. bathyalis* is a giant form with the morphological features typical of abyssal and cave-dwelling animals: growth of the body size (length up to 12 cm), complete reduction of eyes, and partial or full depigmentation (compared to colorful littoral forms). At the depth of 160-180 m (supraabyssal) we found *B. roseocula* sp.n. This finding is especially interesting and illustrates the correlation between depth and form; the species possesses all intermediate features and semi-reduced pink eyes consisting of fragmentary pigmented cells in contrast to the whole black eyes of the shallow-water forms. While studying the morphology of species within the genus, we found that the structure of a musculo-cutaneous sac is very conservative for *Bdellocephala*, and its ventral side consists of five muscle layers: outer circular, outer longitudinal (one to two layers), diagonal, inner longitudinal, and inner circular. The dorsal side shows four muscle layers: outer circular, outer longitudinal (one to two layers), diagonal, and inner longitudinal. We found the structure of the outer pharyngeal wall in all Baikal species, except *B. baicalensis*, to be different from that of *B. annandalei* Ijima et Kaburaki, 1916, *B. brunnea* Ijima et Kaburaki, 1916, *B. punctata* (Pallas, 1774), and *B. parva* Zabusova, 1936, their inner muscle layer consisting of longitudinal muscles on the side of the pharyngeal pouch, whereas it consists of alternating longitudinal and circular fibres in most of the Baikal species. According to our phylogenetic hypothesis, ancestors of the present Baikal *Bdellocephala* penetrated the Lake at least twice; the branch to which *B. baicalensis* being the closest to the Japanese-Kamchatka *Bdellocephala* fauna. After a taxonomical revision, we identified three new species and two endemic subspecies of *Bdellocephala*. Consequently, Baikal fauna of *Bdellocephala* comprises eight species and four subspecies. *B. a. subrufa*, *B. a. cotyloides*, and *B. hypervesiculina* are attributed to species inquirenda.

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