A review of the Lake Baikal limpets, family Acroloxidae Thiele, 1931 (Mollusca: Pulmonata: Hygrophila), based on type specimens, with keys to the genera

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Abstract. We provide a comprehensive synopsis of Lake Baikal limpets, including summaries of their taxonomy and nomenclature, with emphasis on the identification of type species. We provide colour photographs of the type specimens of 24 valid species of the family Acroloxidae, including 22 species in 4 endemic or subendemic Baikalian genera, Pseudancylastrum, Frolikhiancylus, Gerstfeldtiancylus, and Baicalancylus, and 2 Siberian–Amur species in the Holarctic genus Acroloxus inhabiting shallow bays of Lake Baikal. Most of the species were described by the Russian malacologist Yaroslav I. Starobogatov between 1989 and 1991. The type species are stored in the collections of the Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia), the Limnological Institute of the Siberian Branch of the Russian Academy of Sciences (Irkutsk, Russia), the Zoological Museum of the Ivan Franko National University of Lviv (Ukraine), and the Freie Universität Berlin (Germany). We also present photographs of the holotypes of 2 species described by Starobogatov in 1989 and later synonymized. We provide topotype SEM images of species for which the type specimens are unavailable. Images of the teleoconch ultrastructure of 14 species as well as protoconchs of 11 species have not been published previously. Most of the topotypes are kept in collections of the Senckenberg Naturmuseum (Frankfurt am Main) and the Limnological Institute SB RAS. For each species, we describe their synonymy, type locality, type series, vertical and geographic distribution in Baikal, substrate preferences, ecology in brief (if at all), history of the usage of the name, and taxonomic remarks. We present a new identification key to Gerstfeldtiancylus spp. Specifically, we propose new characters, such as radula and jaw structure details, protoconch sculpture types, shell adductor topography, and relative sizes of parts of the male copulatory organ, in addition to traditional characters, such as teleoconch proportions. Identification keys to Pseudancylastrum and Baicalancylus spp. include well-defined species only.

Key words. Lake Baikal, limpets, Acroloxidae, taxonomy, type specimens, topotypes, identification key.

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Introduction

The first collection of endemic molluscs of Lake Baikal was made by Richard K. Maack, a Russian naturalist, traveler, and teacher, who made 3 large-scale expeditions in Siberia and the Russian Far East between 1854 and 1860. This collection was described by Heinrich N. Gerstfeldt (1859) who accompanied Maack on his travels. Gerstfeldt described 12 species of terrestrial and freshwater molluscs, including 5 endemic Baikal species collected in a near-shore zone of the lake at the head of the Angara River (SITNIKOVA & RÖPSTORF 2004). One of these 5 endemic species is the acroloxid “Ancylus” sibiricus, originally placed in the “familia Limnaeacea” by Gerstfeldt (1859) without indication of the subgenus. He compared the basic shell characteristics with those of Ancylus flaviatilis O.F. Müller, 1774 and Acroloxus lacustris (Linnaeus, 1758).