

## BIVALVE MOLLUSCS FAUNA OF ANCIENT LAKES IN THE CONTEXT OF HISTORICAL BIOGEOGRAPHY IN THE BALKAN REGION

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Ancient lakes with their unique plant and animal communities are well known as "hot spots" of biodiversity and refuges for relict faunas. Therefore, investigations of these peculiar habitats are important for biogeographical regionalisation, the reconstruction of faunal history and understanding the mechanisms of speciation (Stanković, 1960). Among animal groups, gastropod molluscs are distinguished by the great diversity of endemics in some ancient lakes (Baikal, Tanganyika and Ohrid) and the presence of high rank endemic taxa (families/subfamilies in the first two lakes, genera/subgenera in the latter). Bivalve mollusc taxa seem to be more conservative and widespread, but nevertheless family Sphaeriidae is represented by endemic species and subspecies in Baikal, Ohrid, Prespa, Biwa, the African Great Lakes and Titicaca (see Korniuschin *et al.* (2000) for a review), and a number of endemic *Corbicula* species are known from the ancient lakes of Sulawesi, Indonesia. All endemic lacustrine bivalves belong to widely distributed genera, except the unique cemented bivalve from Lake Poso included in a separate genus (family Corbiculidae).

At present, twelve species of bivalves are known from Lake Ohrid and five from Lake Prespa (Dhora & Welter-Schultes, 1996; Korniuschin, *unpubl.*). Most of them have broad Palaearctic or European ranges, the recent distribution of *Microcondylaea compressa* (Menke, 1830) is basically Mediterranean. Two endemic species (*Pisidium edlaueri* Kuiper, 1960 from Ohrid and *P. maasseni* Kuiper, 1987 from Prespa) proved to be close relatives of the Holarctic *P. nitidum* Jenyns, 1832 (Korniuschin *et al.*, 1998). *Pisidium subtruncatum* Malm, 1855 is represented in Ohrid by an endemic subspecies. Noteworthy, such species as *P. amnicum* (Müller, 1774), *P. henslowanum* (Sheppard, 1823), *P. moitessierianum* Paladilhe, 1866 (all found in Ohrid), as well as *P. nitidum* Jenyns, 1832 are now represented in the Balkans by scarce, isolated populations.

Composition of the bivalve mollusc fauna in Ohrid and Prespa does not contradict the biogeographical concept of Stanković (1960) which suggests the origin of the lake's fauna from the freshwater fauna distributed across Eurasia in Tertiary. However, the group *P. (Odhneripisidium)* apparently having its roots in this ancient fauna is represented in Ohrid by only one species - *P. tenuilineatum* Stelfox, 1918, sporadically distributed in other European countries, while *P. annandalei* sensu Kuiper, 1962 (= *P. sogdianum* Izzatullaev & Starobogatov, 1986) is restricted in the Balkans to Greece.

The taxonomy of *Dreissena* in the Balkan region is rather intricate. In particular, the Ohrid form was once described as a new species and even included in a separate subgenus (Lvova & Starobogatov, 1982), but modern reviewers treat it as a variety of *D. polymorpha* (Pallas, 1771) (Dhora & Welter-Schultes, 1996). While Ponto-Caspian origin of *Dreissena* is evident, the exact sources for its invasion in the Balkan region need to be clarified by the further morphological and molecular studies.

Our study shows no testable relationship between the bivalve faunas of Ohrid and Prespa. Similarity between *P. subtruncatum recalvum* Kuiper, 1960 from Ohrid and the form of the same species living in Prespa (Korniuschin *et al.*, 2000) can be explained by convergence, since similar characters (high triangular shell and broad hinge plate) develop independently in many lacustrine taxa.

Thus, the Balkan lakes are rather peculiar in respect of their bivalves, even if compare them to the older lakes with the higher general level of endemism, like Baikal and Tanganyika. However, biogeographic information provided by these molluscs is limited because of their low diversity and wide distribution. Revision of the extremely diverse Ohrid gastropods (71 species) by using exact methods of phylogenetic reconstruction including molecular phylogenetics seems to have great potential in this respect.

**Key words:** Mollusca, bivalves, ancient lakes, speciation, Ohrid, Prespa

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