

THE MARSH FROGS (*PELOPHYLAX RIDIBUNDUS* COMPLEX) IN CENTRAL KAZAKHSTAN: EXPANSION AND RETREAT

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Abstract. For two decades after an occasional introduction in the middle of the 20th century, marsh frogs (complex *Pelophylax ridibundus*) have spread across many water bodies of Central Kazakhstan (Kazakh Upland, KU). The questions of which genetic forms of the complex have become entrenched in the region and how successful the progress of their present settlement has been were priorities for our study. The survey of the region was carried out in May-August 2021, covering the seasons of mating and early growth. Molecular genetic analysis was performed for the mitochondrial ND2 gene. In contrast to what had been expected, our study showed a reduction in the area inhabited by marsh frogs in KU, and a noticeable decrease in their abundance. The frogs disappeared from many points in the Nura and Ishim rivers, and significantly decreased in number on the western and northern coasts of Lake Balkhash. However, it remained a common species in the floodplain of the Irtysh Rivers and on its tributaries. For the first time for the KU the genetic affiliation of the populations (by mitochondrial ND2 gene) was determined and the habitation of two genetic forms – the invasive Anatolian *P. cf. bedriagae* and the native "Balkhash" form. The habitat of *P. cf. bedriagae* was established as being on the northern coast of Lake Balkhash. The native "Balkhash" form was identified on the western coast of Lake Balkhash and in the River Shar (Irtysh River Basin). In the rest of the KU, the distribution of the two forms was variegated, and in a number of water bodies they lived together. To the north of KU lives Anatolian *P. cf. bedriagae* (in Kostanay and Pavlodar provinces); and to the south the "Balkhash" form (in the Balkhash-Ili Depression, Almaty City and Lake Issyk-Kul). The relationship between a change in climatic cycles and the success of the past dispersal of amphibians and the present reduction in their populations in the region has been marked. The disappearance of the frogs on Lake Balkhash is most likely due to the dispersal of the snakehead (*Channa argus*). Molecular genetic analysis data indicated a wider distribution and wider adaptive potential of *P. cf. bedriagae* than previously thought. The study identified a number of promising tasks for future.

Keywords: *Pelophylax ridibundus* complex, dynamics of distribution, genetic diversity, mt-ND2 – gene, Kazakh Upland

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