

Hybridization and distribution of cryptic species of green toads (*Bufo*) (Bufonidae, Amphibia) in Republic of Dagestan (Russia)

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Abstract. Distribution of cryptic species of green toads (*Bufo viridis* and *B. sitibundus*) in Dagestan still understudied. We used the nuclear (microsatellite *BM224*) and mitochondrial (fragment of the *CytB* gene) markers characterized by species-specific alleles and haplotypes, respectively. Alleles of *B. viridis* predominated in toad populations in the plains in the north of the republic, while *B. sitibundus* alleles were more numerous in more southern mountainous and coastal (the coast of the Caspian Sea southeast of Makhachkala) regions. Most samples contained both homozygous and heterozygous genotypes. The distribution of haplotypes for the *CytB* gene in the republic differed markedly from that for the *BM224* microsatellite. If we compare the occurrence of *BM224* alleles and *CytB* haplotypes in studied populations, the relationship between them turned out to be very weak. In many individuals, the nuclear marker belonged to one species, while the mitochondrial marker belonged to another species, indicating the widespread asymmetric introgression of mitochondrial genomes here. We found a significant correlation between the altitude of location and the occurrence of *BM224* alleles. In mountainous regions of the republic, populations of *B. sitibundus* were predominantly distributed, while in lowland regions hybrid populations were revealed, in which the predominance of *B. viridis* alleles was typical for the most northern populations inhabiting dry steppe and semi-desert landscapes.

Keywords: *Bufo viridis*, *Bufo sitibundus*, Bufonidae, interspecies contact zone, Eastern Caucasus, multiplex PCR, microsatellites

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