

MOLECULAR PHYLOGENY OF THE MYOTIS MYSTACINUS MORPHOGROUP (CHIROPTERA: VESPERTILIONIDAE) ON THE BALKAN PENINSULA

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SUMMARY

The *Myotis mystacinus morphogroup* is characterized by high morphological variability across the Palearctic region and four taxa *M. brandtii*, *M. mystacinus*, *M. davidii* and *M. alcaethoe* are recognized on the Balkan Peninsula. Previous studies revealed several subspecies in *M. mystacinus* (Kuhl, 1817) (*nigricans* Fatio, 1869, *lugubris* Fatio, 1869, *occidentalis* Benda, 2000, *caucasicus* Tsytsulina, 2000) and in *M. davidii* (Peters, 1869) (*aurascens* Kuzâkin, 1935, *bulgaricus* Heinrich, 1936, *popovi* Strelkov, 1983, *Myotis* sp. A sensu Volleth, 1987, *przewalskii* sensu von Helversen, 1989a, 1989b) based on their distribution and morphology.

This study is based on genetic data obtained in 258 specimens of *M. mystacinus* and 74 *M. davidii*. The sequence variation within 450 bp of the mitochondrial *nd1* was compared with the variation of three nuclear introns (330 bp of *ABHD11*, 142 bp of *ACOX2*, 307 bp of *ROGDI*). Different methods were used to reveal details of distributions, population structure, demographic history and assess the signs of hybridization between both species. Results demonstrate that *M. davidii* and *M. mystacinus* are separate genetic lineages in all sampled regions, except the Balkan Peninsula. All individuals across the Adriatic region and most Bulgarian animals, assigned to *M. davidii* by the nuclear genetic marker and morphology, carried mitochondria of *M. mystacinus*. *M. davidii* individuals from Bulgaria showed reduced level of mitochondrial variation and their haplotypes resembled those of typical *M. mystacinus* from central Europe. Overall, of 56 analyzed animals from Bulgaria only two carried mitochondrial *M. davidii* haplotype which indicate almost complete replacement of their mtDNA by the *M. mystacinus* mtDNA.

Ancient allopatric divergence followed by subsequent secondary contact in the Balkan Peninsula might be the cause for the discrepancy between mitochondrial and nuclear genes. Mitochondrial introgression is hence preceded by hybridization events which raises the question about the effectiveness of the reproductive isolation barriers between both lineages.