

Genetischer Erstnachweis, Verbreitung und südalpine Herkunft der Barrenringelnatter (*Natrix helvetica* spp.) in Bayern

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First genetic record, distribution and south-alpine origin of the barred grass snake (*Natrix helvetica* spp.) in Bavaria

Based on the results of genetic studies, Kindler et al. (2017) elevated the barred grass snake (*Natrix natrix helvetica*) to species status. According to this paper, two mitochondrial lineages of grass snake (*Natrix natrix*) occur in Bavaria, but no barred grass snake (*Natrix helvetica*). Using mitochondrial DNA sequences to check hints on its occurrence in Bavaria, we detected the barred grass snake at the river Loisach, on the upper Isar and along the Inn close to the Austrian border, where they occur in sympatry with *N. natrix*. However, the DNA sequences do not correspond to the nominate form (*N. h. helvetica*), which is widespread in western Germany, but to a mitochondrial lineage hitherto known only from the southern Alps (northern Italy and southern Switzerland), which we here name alpine barred grass snake. We show that this lineage of unresolved taxonomy and nomenclature is also widespread in the northern Alps. It is recorded here for the first time in Germany and might also be widespread in western Austria (Tirol). The mitochondrial sequences from the southern and northern edges of the Alps are almost identical, suggesting a post-glacial transalpine immigration from northern Italy, probably over the Brenner Pass or the Reschenpass and the Inn Valley to Bavaria. It is likely that further Bavarian populations of *N. helvetica* exist outside of the known range outlined in this paper, especially in the Allgäu (Swabia) and in Northern Bavaria (Lower Franconia) where the nominate form *N. h. helvetica* might occur. The sympatric occurrence of *N. natrix* and *N. helvetica* confirms the species status of the barred grass snake, but also raises many new questions. In order to further investigate the distribution, genetic identity, coloration and ecological niche differentiation of *N. helvetica* in Bavaria, we ask for further grass snake findings in the context of a Citizen Science project.

Key words: *Natrix natrix*, *Natrix helvetica*, alpine barred grass snake, reptiles, Germany, Bavaria, mitochondrial genetics, transalpine immigration.

Zusammenfassung

Basierend auf den Ergebnissen genetischer Untersuchungen wurde die Barrenringelnatter (*Natrix natrix helvetica*) von Kindler et al. (2017) in den Artstatus erhoben. Nach dieser Studie kommen in Bayern zwei mitochondriale Linien der Ringelnatter (*Natrix natrix*) vor, aber keine Barrenringelnattern (*Natrix helvetica*). Anhand mitochondrialer DNA-Sequenzen überprüften wir Hinweise auf mögliche Vorkommen in Bayern und konnten die Barrenringelnatter im Loisachtal, an der oberen Isar und am Inn im