

MITOCHONDRIAL AND MICROSATELLITE DNA ANALYSES OF AUSTROPOTAMOBIOUS PALLIPES POPULATIONS IN SOUTH TYROL (ITALY) AND TYROL (AUSTRIA)

Historical data show that the native white-clawed crayfish, *Austropotamobius pallipes*, was once widespread throughout South Tyrol (northern Italy), whereas recent studies identified only half a dozen remaining populations. In order to implement conservation strategies based on knowledge of genetic diversity, each of the six remaining populations in South Tyrol and one population in Tyrol (Austria) were investigated by (i) sequencing segments of two mitochondrial DNA genes, 16S rRNA and cytochrome c oxidase subunit I, and (ii) by analysing four microsatellite DNA loci. Extremely low degrees of genetic differentiation within and among the South Tyrolean populations of *A. pallipes* were found with mitochondrial DNA sequences. In contrast, microsatellite data displayed not only substantial genetic structure among populations, but also moderate genetic variability within four out of six populations in South Tyrol. The two remaining populations revealed a complete absence of genetic variability. Moreover, both of these populations as well as the population from Austria were fixed for single alleles at three of the four investigated microsatellite loci. Our data have important conservation implications and also show that mitochondrial DNA is not always a sufficient tool to study crayfish populations on a small geographical scale.

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