

FIRST ANALYSIS OF GENETIC VARIABILITY IN CARINTHIAN POPULATIONS OF THE WHITE-CLAWED CRAYFISH *AUSTROPOTAMOBIOUS PALLIPES*



Several authors have speculated about the nativeness of the white-clawed crayfish (*Austropotamobius pallipes*) in the Austrian province of Carinthia, since this is the only occurrence of the species within the Danube river system. Phylogeographic analyses based on mitochondrial DNA sequences showed that Carinthian *A. pallipes* are closely related to specimens from Slovenia, Croatia and north-eastern Italy. These analyses additionally pointed to an absence of variability among populations in Carinthia. In the present study a larger number of individuals sampled from three different brooks in western Carinthia was investigated by analysing sequences of the mtDNA cytochrome c oxidase gene (COI), microsatellite DNA and microsatellite length variation in the nuclear ribosomal DNA internal transcribed spacer region (ITS1). Not only COI sequences revealed low degrees of genetic variability, but also microsatellite loci displayed low allelic diversity and low heterozygosity. Analysis of ITS1 microsatellite length variation in turn showed high levels of intragenomic variability, since single individuals manifested up to seven distinct fragments. Microsatellite data and ITS1 microsatellite length variation analyses also revealed significant differentiation among some population pairs. Since genetic divergence was mainly based on differences in allele frequencies and not on the occurrence of alternative alleles, we assume that Carinthian populations became isolated rather recently and that the occurrence of this species in this region is more likely to be a result of human introduction than of natural postglacial colonisation.

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