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Conference Abstract

Towards the Establishment of Conservation Units of the Endangered European Weatherfish (*Misgurnus fossilis*)

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Abstract

The European weatherfish (*Misgurnus fossilis*) has suffered significant declines across its distribution area due to extensive anthropogenic habitat destruction. As a result, many European countries classify the species currently as ‘endangered’ or ‘critically endangered’. *Misgurnus fossilis* is also known for exhibiting exceptionally low genetic diversity throughout Europe if compared to other freshwater fish species. This study analyses the genetic diversity of *M. fossilis* based on mitochondrial (mtDNA) and nuclear DNA (nuDNA) sequence data from 30 populations across Central Europe and two from Eastern Europe. Both datasets reveal that populations from the Czech Republic, Austria, and Bavaria form a genetically distinct lineage, separate from other European populations. This lineage is found in three major river basins — Elbe, Danube, and Oder — but is geographically isolated by surrounding mountain ranges. Despite at least two natural contact zones between the CZ-A-Bav lineage and other groups and a relatively small genetic distance between them, the two should be recognised as separate conservation units. In Austria, Bavaria, and the Czech Republic, the populations are

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typically geographically extremely limited and small, making them highly vulnerable to the ongoing landscape and climatic changes leading to the disappearance of surface water. These populations are experiencing a rapid and alarming decline. Given their precarious status and ecological uniqueness, this Central European conservation unit should be classified as critically endangered and prioritised for protection. Urgent habitat conservation efforts are essential, not only for *M. fossilis* but also for the broader ecological community that coexists with it.

Keywords

Conservation, critically endangered species, mitochondrial DNA, nuclear DNA, phylogeny

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Conflicts of interest

The authors have declared that no competing interests exist.