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Conference Abstract

Establishment of regional action plan for conservation of critically endangered crucian carp in Czechia

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Abstract

The crucian carp (Carassius carassius) occurs in two highly divergent phylogenetic lineages in Europe:

1. the northern lineage, which is widespread across northern and central-eastern Europe and occurs in the Labe (Elbe) and Odra (Oder) river basins and
2. the Danubian lineage, which is restricted to the Danube basin.

The crucian carp from both phylogenetic lineages are naturally present in Czechia. However, probably due to intensive aquaculture and transfers by recreational anglers, fish from different lineages have become mixed in some areas, or particular phylogenetic lineages have been translocated to other watersheds. Although we cannot rule out natural admixture, the conservation of crucian carp should treat these lineages as separate conservation units. In response, a Regional Action Plan (RAP) was developed to preserve the current distribution of phylogenetic lineages in the Vysočina Region and to prevent further unnatural admixture.

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A citizen science approach ("Save the crucian carp" project) was used to find the remaining populations. Individual populations identified through citizen tips were selected for systematic site monitoring, and samples were collected for further analyses. The lineage (northern or Danubian) of these populations was evaluated using genetic analyses, and suitable populations for conservation were selected. As part of the RAP, we initiated the repatriation of genetically verified crucian carp populations. We distinguished the two lineages genetically and repatriated the populations to their corresponding locations within their respective watersheds. In total, five and seven northern and Danube populations were identified, respectively and three and five northern and Danube populations were repatriated, respectively, using source fish coming from identified populations. This study provides a comprehensive conservation approach for a declining wetland fish species. Although regionally restricted to the Bohemian-Moravian Highlands, the approach can be applied to other declining wetland species with similar ecology and genetic diversity. The findings emphasize the need for a complex, multi-approach assessment of species threats and highlight the importance of managing conservation actions based on scientific evidence (Suppl. material 1).

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Conflicts of interest

The authors have declared that no competing interests exist.

Supplementary material

Suppl. material 1: Establishment of regional action plan for conservation of critically endangered crucian carp in Czechia doi

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