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Conference Abstract

Citizen science to complement professional data: towards conservation of declining native freshwater fish, the crucian carp

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Abstract

The citizen science approach enables the collection of extensive ecological data while reducing time and cost, offering a valuable tool to address complex conservation challenges. However, its precision in monitoring morphologically similar freshwater fish species remains insufficiently explored. This study evaluates the effectiveness of citizen science in distinguishing between the critically endangered crucian carp (*Carassius carassius*) and the invasive gibel carp (*Carassius gibelio*), two closely related species often confused due to their similar appearance. The native crucian carp has experienced a sharp population decline in Central Europe and is currently classified as critically endangered in the Czech Republic. In response, the citizen science initiative, save the crucian carp was launched to map the species' distribution and support its conservation and restoration. We assessed the project's effectiveness using data submitted by 953 participants, which included current and historical occurrence records for both crucian and gibel carp. The analysis focused on species identification accuracy, public engagement, and the influence of media outreach on participation. Field verification of reported sightings revealed a 35% accuracy rate for crucian carp identification. A positive correlation was observed between respondents' species identification quiz scores and

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the number of valid occurrence tips submitted. Participants aged 31–50 showed the highest engagement in conservation efforts. Notably, media campaigns significantly boosted public involvement, highlighting the importance of awareness-building in fostering biodiversity stewardship. Data collected through citizen science exhibited broader coverage and greater reporting regularity compared to records from the Nature Conservation Agency of the Czech Republic, underscoring the value of citizen contributions in shaping conservation strategies. Overall, this study illustrates the promise of citizen science as a scalable and impactful approach for monitoring and conserving threatened freshwater fish species.

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Conflicts of interest

The authors have declared that no competing interests exist.