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Public knowledge of alien species: a case study on aquatic biodiversity in North Iberian rivers

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Abstract:

Biological invasions have increased in recent decades due to globalization and human activities. These invasions are currently one of the main threats to biodiversity, and their early detection is essential for a rapid and effective response. Here, we explored the use of citizen science strategies to create an early alert to detect invasive species. Our main objective was to evaluate the general knowledge of volunteer participants of invasive freshwater species in Asturias (north of the Iberian Peninsula) and compare it with both real data from electrofishing surveys and official data from the regional government. A total of 140 volunteer surveys were conducted in 4 different rivers in Asturias. The largest group of participants consisted of males older than 50 years. Four species were identified as native to the four rivers: *Anguilla anguilla*, *Mugil cephalus*, *Salmo salar*, and *Salmo trutta*. More than 50% of the native species surveyed by electrofishing were recognized by the locals in each river region. A total of 22.86% of the volunteers were able to correctly name an exotic species, and a total of 7 were correctly identified: *Procambarus clarkii*, *Trachemys scripta*, *Cyprinus carpio*, *Esox lucius*, *Salvelinus fontinalis*, *Carassius auratus* and *Oncorhynchus mykiss*. However, compared to the list of actual exotic species surveyed, less than 40% were recognized in the four rivers. Despite the poor correlation between local knowledge and real exotic aquatic fauna, citizens were able to detect one exotic species not yet found in the wild in this region (*T. scripta*). Finally, more than 70% of the volunteers were in favor of fighting against invasive species, although only 22.86% were able to identify any specific exotic species found in the region. The positive attitude to exotic species control was correlated with both the level of native species knowledge and the concern about the ability of exotic species to impact native fauna in the region. Better training will improve public awareness, reduce the nonintentional release of non-native species, and increase the detection of non-indigenous species. The attitudes of the citizens make the region a promising candidate for education efforts to reduce alien species introductions and help preserve fauna biodiversity.

Keywords: citizen science, Non indigenous species, early detection, biodiversity