

Assessment of freshwater fish established in Europe with the Environmental Impact Classification for Alien Taxa

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The establishment of alien freshwater fish may lead to decline in native biota. Due to the continuous introductions and large variety of species, we assessed and classified freshwater fish established in Europe by comparing their environmental impacts. We used the Environmental Impact Classification for Alien Taxa (EICAT) to assess and compare impact magnitudes caused by different alien species. 40 of the 50 alien freshwater fish were scored and classified according to their deleterious impacts on the environment recorded in literature. Hybridization was the mechanism leading to the highest impact amplitude. Six species were identified as having Massive impacts, 5 due to hybridization with native fish, and 1 due to predation and hybridization. Predation was the most frequently recorded impact mechanism followed by competition. The taxonomic level did not predict the impact magnitude in alien fish; even closely related species differed considerably in their maximum impacts. The traits and origins of the alien fish is not anymore correlated with the impact magnitude. However, the number of papers studying alien fish impact is positively correlated with the amplitude of the highest impact caused by alien fish. Comparison with a different scoring tool (Generic Impact Scoring System) shows overall similar results, although some species differ considerably according to the tool used for assessing the impacts. Freshwater fish were causing larger impacts than alien birds and amphibians already scored with EICAT. In conclusion, EICAT is an efficient tool to quantify impacts of alien species, even if some adjustments should be taken to resolve the fact that hybridization occurs to systematically with high impact amplitude. Moreover, regulations and management decisions of alien species must be taken at the species level since no taxonomic level is correlated with impact amplitude.

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