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**Predicting the risk of aquatic plant invasions in Europe: how climatic factors and anthropogenic activity influence potential species distributions**

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**ABSTRACT**

Predicting where species invasions will occur is one of the greatest challenges in conservation. Freshwater ecosystems are very vulnerable to the introduction of non-native species for two reasons: (1) there are many routes of introduction by which non-natives can arrive in freshwater systems; and, (2) freshwater systems are heavily impacted by a wide variety of human activities. Non-native aquatic plants can have harmful effects if they change habitat conditions, alter ecosystem functioning, and/or become key primary producers in invaded ecosystems. In this study, we focused on the potential distribution of non-native aquatic plants in Europe. The main objectives were to (1) identify environmentally suitable areas into which focal species could potentially spread; (2) generate a combined risk map for all the focal species and for the ten most harmful species in Europe; and (3) identify the main physicochemical characteristics of the areas at greatest risk. The results revealed that the potential distributions of non-native species were best predicted by climatic factors, notably by temperature-related variables. Anthropogenic activity was also a major contributor to the distribution patterns of all the non-native species examined. Areas experiencing high levels of eutrophication, a phenomenon that is strongly associated with anthropogenic activity, were among those at greatest risk of invasions. The approach presented here was

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