PST25 - Predicting the invasion risk in Europe by aquatic exotic plants

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Identifying regions with a high risk of invasion by non-native species is a fundamental challenge for the development of preventive actions and management planning; owing to exotic species are one of the main causes of the loss of biodiversity on a global scale.

In this work we draw an approximation to the potential distribution of 60 aquatic plants considered exotic in Europe. To accomplish this work we rely on their global distribution patterns. The models were performed with the maximum entropy algorithm implemented in the MaxEnt species distribution modelling software and for identifying the most suitable areas for colonization and spread of the studied species, we used a set of bioclimatic variables derived from temperature and precipitation and a bonus variable, which reflects the human impact on the territory.

The different models performed indicate the most probably regions in which the spread of the studied species can more frequently occur. The overlapping of all the models identifies those areas with the highest risk of invasion, which we can consider as hotspots of exotic species. Our analysis illustrated a notable influence of variables, such as seasonality temperature and water availability in the dry season on the potential distribution range of the studied species. They are often associated to anthropogenic activities, which have allowed to find the necessary requirements for their spread and the pathways of arrival for their colonization and expansion.

We conclude that this methodology represents a powerful tool, which let us to make more profitable the available resources, establishing early warning systems for managing and preventing future biological invasions.