

ELNAIS, CIESM, HCMR-EEA, MEDMIS, EASIN-Lit. To guarantee the quality of the EASIN data, an Editorial Board, composed of experts on different taxonomic groups and habitats, has been appointed and is contributing to the continuous update and review of the EASIN Catalogue by means of on-line discussions via a forum-like platform. All the information gathered in the EASIN system is publicly available through a widget framework, providing easy to use and flexible web tools for tailored searching, analyzing and mapping, greatly aiding scientists and policy makers in obtaining high quality information. These web tools follow internationally recognized standards and protocols, and can be utilized freely, while ownership of the data remains within its source, which is properly cited and linked in the EASIN geodatabase. The EASIN datasets have been used for pan-European or regional assessments of pathways and gateways of alien invasions, pinpointing the major importance of shipping and the Suez Canal for the marine introductions, and aquaculture, pet/aquarium trade and stocking activities for the freshwater AS, contributing thus towards the fulfilment of the related targets of the Convention on Biological Diversity and of European policies. Moreover, through the EASIN datasets and tools, a pan-European review on highly invasive marine alien species has been performed, highlighting 87 species with a high impact on ecosystem services (mainly food provision) and biodiversity. Finally, an index is under development for mapping cumulative impacts of marine IAS, allowing the identification of hotspots of highly impacted areas and prioritization of sites, crucial for management actions.

34-O Non-native species in Italian freshwater habitats: a macroecological assessment of invasion drivers. *Paolo Colangelo*¹ - *Diego Fontaneto*¹ - *Aldo Marchetto*¹ - *Alessandro Ludovisi*² - *Alberto Basset*³ - *Luca Bartolozzi*⁴ - *Isabella Bertani*⁵ - *Alessandro Campanaro*⁶ - *Antonella Cattaneo*⁷ - *Fabio Cianferoni*⁴ - *Giuseppe Corriero*⁸ - *Gentile Francesco Ficetola*⁹ - *Cataldo Pierri*⁸ - *Gianpaolo Rossetti*⁵ - *Angela Boggero*¹

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The relative role of propagule pressure, abiotic and biotic variables as determinants of non-native species occurrence differs among studies, hindering the synthesis of emergent patterns in invasion ecology and preventing generalisation for conservation actions. In order to produce a broad and general assessment of the occurrence of alien species in aquatic habitats, we proposed a macroecological approach to assess the drivers of occurrence of alien species in all biota (microorganisms, plants and animals) across several natural habitats in freshwater ecosystems in Italy, and we generalised the results of the analysis to provide a risk map of the occurrence of alien species.

We determined that abiotic climatic variables were good predictors of alien species occurrence. Indeed, these variables, together with propagule pressure, expressed as the proximity to major inhabited areas, and differences in the receiving community, expressed as the native species richness, played a crucial role in determining the number of alien species. Furthermore, we found evidence of an influence of body size in determining the occurrence of the non-native species. By using the predictions of our model, we addressed the probability of the occurrence of alien species in freshwater habitats across the whole country and highlighted areas at higher risk.

34-O Contribution of non-native species to fish communities in 1940 European lakes: geographical distribution, predictors of occurrence, and proportions in community abundance and biomass.

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The invasion of non-native species is considered one of the major threats for biodiversity worldwide. Freshwater ecosystems are still relatively poorly studied in this context, and there is no systematic overview on non-native fish species in European lakes. We took advantage of the important sampling effort and data collection on fish communities following the implementation of the European Water Framework Directive, and compiled information on non-native fish species in 1940 lakes and reservoirs from 13 European countries plus Turkey. Non-native species occurred only in 297 lakes or reservoirs (15.3% of total). The highest proportions of non-natives (>80% of species richness) were found in 38 Irish lakes and 5 reservoirs of Spain and Portugal. The proportions of non-natives in overall lake species richness correlated closely with proportions of non-natives in approximations of total fish abundance and biomass. This strong correlation suggests that non-natives rarely came to community dominance in lakes, which are characterized by a high richness of native species. The dominant predictors of non-native proportions were temperature, precipitation and lake spatial dimensions (area and depth), whereas total phosphorus (TP) concentration was not a significant predictor in a subset of lakes for which TP data were available. We conclude that many European lakes are still relatively unimpacted by fish species invasions, and that the changes observed in dominance structure of fish communities after invasions are still modest.

34-O Is there a latitudinal gradient of biotic resistance to plant invasion? *Antonella Petruzzella, Elisabeth S. Bakker, Ellen van Donk*

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Invasive plants threaten native biodiversity, alter ecosystem structure and functioning and cause annual losses of millions of Dollars worldwide. There is an urgent need of greater understanding of general patterns and, mainly, mechanisms underlying the success of invasion. Biotic resistance or the role of species interactions in decreasing the success (i.e. establishment or performance) of invasive species has currently been invoked as an answer to the crucial question: why do not all introduced species become successful in their new range? Previous studies have demonstrated that the tropics harbor lower numbers of invasive species than at higher latitudes, which is true for nonnative groups of terrestrial mammals, birds and terrestrial plants. Following an opposite pattern, however, the latitudinal gradient of species diversity proposes that native species richness increases from the poles to the tropics. It has widely been assumed that biotic interactions, such as competition and herbivory, are stronger and more specialized in the tropics, which promoted further diversification and explains greater species richness compared to temperate zones. The strength of biotic interactions is believed to play an important role in the origin and maintenance of species diversity, as well as, resistance to invasion. Therefore, the question remains whether there is a latitudinal gradient of biotic resistance. We tested the hypothesis that biotic resistance to invasion in plant communities is stronger at low latitudes. Here, we present the results of a meta-analysis of plant invasion literature, including studies that experimentally manipulated any source of biotic resistance, such as competition or herbivory, in situ or mesocosms, across wetland, marine and terrestrial ecosystems.

34-O Role of genetic identity and diversity in cyanobacteria invasion. *Sarah Bolius*¹ - *Karoline Morling*² - *Claudia Wiedner*³ - *Guntram Weithoff*¹

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The invasion of species can have a severe impact on the environment and economy. Compared to terrestrial plants or animals, relatively little is known about the mechanisms of the invasion success of aquatic microorganisms. As microbes often have a high reproduction rate and are difficult to survey on the species level - it is important to learn more about