

Non-indigenous macroinvertebrate species in Lithuanian fresh waters, Part 1: Distributions, dispersal and future



Biological invasions are of increasing global concern. They impact on biodiversity and may result in high economic loss. This demands improvement in knowledge of the dynamics of species dispersal with the goal of preventing future invasions, and predicting and reducing undesirable impacts. This study reports on non-indigenous macroinvertebrate species (NIMS) which have invaded Lithuanian fresh waters. Fifteen NIMS have been recorded during a 12-year study. They include one cnidarian, two molluscan and twelve crustacean species. The deliberate introduction of peracaridans and crayfish for fishery and aquaculture enhancement has substantially contributed to the current NIMS composition. Invaders of Ponto-Caspian origin are dominant, and the collector-gatherers are the largest group with respect to feeding mode. Current NIMS distributions, the history of their primary invasion and patterns of local dispersal are analysed. The main invasion vectors have been inland shipping and deliberate introductions, while secondary spread proceeded both naturally and by various human mediated vectors. The current distribution of most NIMS may remain constant in the future, whilst further expansion of a few NIMS, which possess good dispersal abilities and are well-adapted to

freshwater environments, seems very probable. Using multivariate analysis of data from water bodies with established peracaridan invaders, allowed predictions on which unsurveyed water bodies could contain such invaders. Invasions of new NIMS and diversification of donor areas, pathways and vectors are considered.

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Obtenir le document : EDP Sciences

Mots clés : non-indigenous, benthos, invasion, inland waters, feeding habit, non-autochtones, benthos, invasion, eaux intérieures, habitudes alimentaires

Thème (issu du Text Mining) : FAUNE, MILIEU NATUREL

Date : 2012-01-03

Format : text/xml

Source : <https://doi.org/10.1051/kmae/2011075>

Langue : Anglais

Télécharger les documents : <https://www.kmae-journal.org/10.1051/kmae/2011075/pdf>

Permalien : <https://www.documentation.eauetbiodiversite.fr/notice/non-indigenous-macroinvertebrate-species-in-lithuanian-fresh-waters-part-1-distributions-dispersal-a0>

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