

Zoochorous dispersal of freshwater bivalves: an overlooked vector in biological invasions?



Vectors that underpin the natural dispersal of invasive alien species are frequently unknown. In particular, the passive dispersal (zoochory) of one organism (or propagule) by another, usually more mobile animal, remains poorly understood. Field observations of the adherence of invasive freshwater bivalves to other organisms have prompted us to assess the importance of zoochory in the spread of three prolific invaders: zebra mussel *Dreissena polymorpha*; quagga mussel *Dreissena bugensis*; and Asian clam *Corbicula fluminea*. An extensive, systematic search of the literature was conducted across multiple on-line scientific databases using various search terms and associated synonyms. In total, only five publications fully satisfied the search criteria. It appears that some fish species can internally transport viable adult *D. polymorpha* and *C. fluminea* specimens. Additionally, literature indicates that veligers and juvenile *D. polymorpha* can adhere to the external surfaces of waterbirds. Overall, literature suggests that zoochorous dispersal of invasive bivalves is possible, but likely a rare occurrence. However, even the establishment of

a few individuals (or a single self-fertilising *C. fluminea* specimen) can, over-time, result in a substantial population. Here, we highlight knowledge gaps, identify realistic opportunities for data collection, and suggest management protocols to mitigate the spread of invasive alien species.

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Obtenir le document : EDP Sciences

Mots clés : ectozoochory, endozoochory, freshwater ecosystems, ichthyochory, invasive alien, secondary spread, ectozoochorie, endozoochorie, écosystèmes d'eau douce, ichthyochorie, espèce exotique invasive, propagation secondaire

Thème (issu du Text Mining) : FAUNE

Date : 2017-09-15

Format : text/xml

Source : <https://doi.org/10.1051/kmae/2017037>

Langue : Anglais

Télécharger les documents : <https://www.kmae-journal.org/10.1051/kmae/2017037/pdf>

Permalien : <https://www.documentation.eauetbiodiversite.fr/notice/zoochorous-dispersal-of-freshwater-bivalves-an-overlooked-vector-in-biological-invasions0>

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