ARPHA Conference Abstracts 9: e202104
doi: 10.3897/aca.9.e202104

OPEN ACCESS

Conference Abstract

Freshwater plant invasions: a global, basin-scale overview

Wayne Dawson[‡], Zarah Pattison[§,|], Franz Essl[¶,#], Mark van Kleunen[¤], Holger Kreft[«], Jan Pergl[»], Petr Pyšek[^,˅], Patrick Weigelt[¦], Marten Winter[ʔ], Nigel Willby[§]

‡ University of Liverpool, Liverpool, United Kingdom
§ University of Stirling, Stirling, United Kingdom
| Newcastle University, Newcastle upon Tyne, United Kingdom
¶ University of Vienna, Vienna, Austria
# Austrian Environment Agency, Vienna, Austria
¤ University of Konstanz, Konstanz, Germany
« University of Goettingen, Goettingen, Germany
» Institute of Botany, the Czech Academy of Sciences, Pruhonice, Czech Republic
^ Academy of Sciences of the Czech Republic, Pruhonice, Czech Republic
˅ Faculty of Science, Charles University, Prague, Czech Republic
¦ Radboud University, Nijmegen, Netherlands
ʔ German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, 04103 Leipzig, Germany

Corresponding author: Wayne Dawson (wayne.dawson@liverpool.ac.uk)

Received: 01 Jun 2026 | Published: 01 Jun 2026

Citation: Dawson W, Pattison Z, Essl F, van Kleunen M, Kreft H, Pergl J, Pyšek P, Weigelt P, Winter M, Willby N (2026) Freshwater plant invasions: a global, basin-scale overview. ARPHA Conference Abstracts 9: e202104. https://doi.org/10.3897/aca.9.e202104

Abstract

Invasive plants are a major cause of diversity decline and altered ecosystem functioning in freshwater systems, with high connectivity making them particularly susceptible to new introductions and spread. While studies of plant invasion hotspots have used geopolitical regions to understand global patterns, freshwater plant invasions are better understood at the scale of basins. By combining the inventory of species in the Global Naturalized Alien Flora with aquatic habitat status of all those species and their global occurrence records, we analysed the richness of non-native freshwater plants found in freshwater basins worldwide. After accounting for basin area and sampling effort, we found that the pattern of freshwater plant hotspots differs from that of terrestrial plants. There are basins on all ice-free continents with higher-than-expected non-native freshwater plant richness, though there are relatively few such basins in Europe. Importantly, almost a third of all

© Dawson W et al. This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

RAMSAR Convention wetland sites occur in basins with at least 10 non-native freshwater plant species. Our findings demonstrate that freshwater plant invasions may present a considerable risk to the conservation of key freshwater ecosystems on all continents, but better surveillance of wetland sites is needed to separate current invasion levels from future risk.

Keywords

aquatic, catchment, macroecology, macrophyte, naturalized plants

Presenting author

Wayne Dawson

Presented at

Neobiota 2026, the 14th International Conference on Biological Invasions

Conflicts of interest

The authors have declared that no competing interests exist.