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Conference Abstract

Classical biological control of invasive aquatic weeds in Great Britain and Europe

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Abstract

Invasive aquatic weeds pose major threats to biodiversity, ecosystem function, economic activity and leisure use of freshwater habitats. Dense infestations alter hydrology, displace native species, impede navigation, and impose substantial management costs on water authorities and land managers. Effective long-term control is a high priority. Mechanical and manual control approaches are widely used but are typically short term, costly, and must be repeated regularly to maintain suppression. Restrictions on herbicide use in and around water bodies in the EU and Great Britain due to concerns over non-target impacts and water quality limit the potential role of this management tool. These constraints limit the efficacy and economic viability of conventional management techniques for long term control and intensify the need for alternative solutions.

Classical biological control (CBC) offers a highly selective, environmentally benign and self-sustaining approach to invasive weed management. Following rigorous host-specificity testing, carefully selected natural enemies from a weed's native range are released to provide population regulation in perpetuity, often at landscape scales and with minimal ongoing intervention. CBC targeting aquatic weeds has delivered impressive outcomes against numerous targets on multiple continents, with long-term ecological and economic benefits which are described.

In Great Britain, and more recently in continental Europe, substantial progress has been made in developing CBC programmes for priority aquatic weeds. Current field release

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programmes target *Azolla filiculoides*, *Crassula helmsii* and *Hydrocotyle ranunculoides* in GB and northern Europe. Candidate biocontrol agents for *Myriophyllum aquaticum* and *Elodea* spp., are undergoing host-specificity testing in GB quarantine facilities, while *Ludwigia* spp. have been subject to fundamental CBC research. Additional species prioritised as future targets are also detailed. These initiatives highlight the growing role of CBC as a cornerstone of sustainable invasive aquatic weed management in Europe.

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Conflicts of interest

The authors have declared that no competing interests exist.