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Conference Abstract

The potential role of freshwater connectivity in facilitating the range expansion of invasive freshwater invertebrate species in canal systems within the UK

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Abstract

In the UK, the network of navigable canals spans over 2000 miles and provides habitat for a wide diversity of wildlife (Canal & River Trust 2026a, Canal & River Trust 2026b); Canals support a variety of physical habitats from lightly managed rural to heavily modified urban locations (Gurnell et al. 2025). However, canals are underrepresented in the UK's freshwater ecological research particularly in relation to the macroinvertebrate diversity they support, despite being unique but widespread habitats (but see The Ponds Conservation Trust: Policy & Research 2003; Walker and Hassall 2021; Bibi et al. 2022). A potential threat to the biodiversity of macroinvertebrates within canal ecosystems are invasive non-native species (INNS) (Jackson et al. 2014). Freshwater invasive macroinvertebrates are particularly common in artificial waterbodies, and especially canal systems, and include the signal crayfish (*Pacifastacus leniusculus*), Asian clam (*Corbicula fluminea*), zebra and quagga mussel (*Dreissena polymorpha; Dreissena bugensis*), and demon, killer and bloody-red shrimp (*Dikerogammarus haemobaphes; Dikerogammarus villosus; Hemimysis anomala*), which have been introduced either intentionally or unintentionally through human activities such as fishing, aquaculture and boating (Hulme et al. 2008; Keller et al. 2011). The mechanism of successful

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establishment of these invertebrates will differ depending on their functional characteristics. However, the increased connectivity of waterbodies offered by canals is likely to facilitate their movement across the landscape (Wohl 2017). Despite being a potential hotspot for INNS, currently there are no studies that have specifically considered the distribution of invasive invertebrates in canals in the UK. This research gap is being directly addressed using the Grand Union Canal and adjacent rivers within Leicestershire (UK) as a case study. The composition of the macroinvertebrate communities has been characterised, alongside the presence of INNS. This research project will provide evidence of the composition of macroinvertebrate communities in canals and discuss the potential role of waterbody connectivity in facilitating the range expansion of invasive invertebrate species.

Keywords

invasive non-native species, canal macroinvertebrates, connectivity, range expansion

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Conflicts of interest

The authors have declared that no competing interests exist.

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