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Genetic characterization of the non-native bivalve molluscs belonging to the genus *Corbicula* in Northern Italy

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The basket clam genus *Corbicula*, commonly called the Asian clam, is considered one of the most widespread and well-known invasive species in aquatic environments globally. In Italy, the genus *Corbicula* was first recorded in 1999 in the Emilia-Romagna and Veneto regions, with *C. fluminea* as the initial species identified. Subsequent investigations revealed additional *Corbicula* species and documented their progressive expansion across other Italian regions. Within the framework of the BIOALPEC Project (Biodiversity of Alpine Ecosystems in a Changing World), funded by the National Biodiversity Future Centre (NBFC, Spoke 3), this study focused on evaluating the genetic variability of non-native bivalve molluscs by analysing mitochondrial DNA (the cytochrome c oxidase subunit I marker gene, COI). In this work, we report the results based on specimens of *Corbicula* collected with Ponar grab, Kick-net and diving from lakes Garda, Caldonazzo, Levico, Iseo, and the Begotta Brook (Mantova province). In Lake Levico, a limited number of *C. fluminea* specimens were recorded in 2025 for the first time and given that the population is composed predominantly of juvenile individuals, it is likely that the species has established only recently. The three morphologically distinct species identified in the studied lakes as *C. fluminea* /form R/haplotype FW5, *C. fluminalis* /form S/haplotype FW17, and *C. leana* /form R/ haplotype FW1+FW4 were clearly separated in the phylogenetic tree, forming clusters with specimens from Europe, Asia, and America. In Italy, *C. fluminea* was clearly the most widespread and ecologically dominant species, while *C. fluminalis* and *C. leana* were relatively rare and geographically restricted.