



## Evidence for a residual post-glacial founder effect in a highly dispersive freshwater invertebrate

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**ABSTRACT:** In the northern hemisphere, glacial periods have had profound and lasting effects on the population genetics of numerous species, with founder effects often persisting for many generations in formerly glaciated regions. We found an unusual example of this in the freshwater bryozoan *Cristatella mucedo*, which showed regional differences in haplotype diversity with relatively low levels of haplotype diversity in northern Europe compared to central/southern Europe despite previous evidence for frequent dispersal between *C. mucedo* populations. Such contradictions between high dispersal and low gene flow have now been reported in several other freshwater taxa and may be attributed to persistent founder effects following colonization of sites by a few individuals whose efficient reproduction leads to rapid population growth. Alternatively, selection may determine which genotypes can thrive in northerly locations, or it may be that *C. mucedo* has undergone cryptic speciation. Future work on adaptive genomic regions is required before we can understand how gene flow, local adaptation, and speciation influence the current distribution patterns of bryozoans and other freshwater invertebrates.

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