

Otterly delicious: Spatiotemporal variation in the diet of a recovering population of Eurasian otters (*Lutra lutra*) revealed through DNA metabarcoding and morphological analysis of prey remains

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Abstract

Eurasian otters are apex predators of freshwater ecosystems and a recovering species across much of their European range; investigating the dietary variation of this predator over time and space therefore provides opportunities to identify changes in freshwater trophic interactions and factors influencing the conservation of otter populations. Here we sampled faeces from 300 dead otters across England and Wales between 2007 and 2016, conducting both morphological analysis of prey remains and dietary DNA metabarcoding. Comparison of these methods showed that greater taxonomic resolution and breadth could be achieved using DNA metabarcoding but combining data from both methodologies gave the most comprehensive dietary description. All otter demographics exploited a broad range of taxa and variation primarily reflected changes in prey distributions and availability across the landscape. This study provides novel insights into the trophic generalism and adaptability of otters across Britain, which is likely to have aided their recent population recovery, and may increase their resilience to future environmental changes.

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