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Conference Book

Micael Jonsson (11:00 o'clock)

Continental-scale patterns for wood decomposition in streams across strong gradients in land-use intensity and climate



ABSTRACT

RIPARIANET is a Biodiversa+ funded project investigating a wide range of ecosystem functions in streams and riparian zones across 7 basins in Europe [Sweden, Germany (2), Italy (2), Spain, and Portugal]. Here, we present results on wood decomposition rates, of a standardized substrate, in streams across strong environmental gradients – including land use and climate. For land use, an index from zero to five was calculated, based on remote sensing information for land-use and land-cover in strips along the study reaches. We found that, despite the strong gradient in land-use intensity, only mean annual temperature (positive) and mean annual precipitation (negative), together with stream size (i.e., stream order), had effects on wood decomposition rates. Hence, while land use is known to have local influences on organic matter decomposition rates via adverse impacts on water chemistry and decomposer organisms, climatic factors, such as temperature and precipitation, drive decomposition patterns on the larger, continental scale. As such, regardless of land-use intensity, rising temperatures and changing precipitation patterns due to climate change are likely to alter organic matter cycling in European streams.

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