

Forest fire induces short-term shifts in soil food webs with consequences for carbon cycling

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Abstract

© 2020 John Wiley & Sons Ltd/CNRS We tested for fire-induced (5–6 years post-fire) changes in the structure and functioning of the soil food web along a 3000-km north–south transect across European Russia, spanning all major forest types in the northern hemisphere outside the tropics. The total biomass of the detrital food web, including microbes and invertebrates, was not affected by fire. However, fire reduced the biomass of microfauna and mites, but had no impact on mesofauna or macrofauna. Fire also reduced rates of carbon (C) mobilisation by soil biota. Our results demonstrate that fire-induced shifts in soil food webs have significant short-term effects on forest soil C cycling, but that these effects vary across forest types and geographic locations.

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Keywords

Boreal forest, carbon cycle, climatic gradient, forest fire, Mediterranean forest, soil biota, temperate forest

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