Title: Soil Macroinvertebrate Responses to Wildfires in the Blue Ridge Mountains, USA

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Abstract: Wildfires are of increasing concern in light of climate change, more frequent late summer droughts, and increasing incidence of human ignitions. There have been few studies examining the effects of wildland fires on soil macroinvertebrates in the Blue Ridge Mountains, in spite of the importance of these animals to soil processes, and their contributions to the biodiversity of these ecosystems. During November and December of 2016, the southeastern USA experienced numerous, large wildfires. These fires offered an opportunity to study the effects of wildland fire on soil macroinvertebrates. We sampled plots from three different wildfires in North Georgia and Tennessee, each plot with five burned plots and five unburned plots. These sites were sampled seasonally from 2017 through 2020. At each plot, on each date, we collected macroinvertebrates by hand sorting both litter (4 m diameter plots) and mineral soil monoliths (30 x 30 x 30 cm) for 30 person-minutes each. All macroinvertebrates were identified to morphospecies. One focal taxon, millipedes, were identified to species. Abundance, species richness, and several diversity metrics (abundance and richness) were calculated to compare the macroinvertebrate communities of the burned areas to those in the unburned areas to better understand their response to fire.