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Lateral Transport of Black vs. Bulk SOM with soil erosion

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Erosion of topsoil, and associated bulk soil organic matter (SOM) and black carbon (BC) impose significant controls on dynamics of SOM within the eroding watershed. As of yet, the relative lateral distribution and export of bulk SOM vs. BC from eroding upland, fire-affected forested ecosystems has been poorly quantified. The extent of both bulk and BC export from eroding watersheds depends on SOM concentration, composition and stability in eroding slope profiles, the type and rate of erosion, and time since and severity of past fires. Sediment traps located at the point where first-order streams leave the watershed provide insight into the amount and composition of material removed by soil erosion. Here, we will present data on the amount and composition of soil material eroded from eight first-order watersheds in the mixed-conifer zone of the Sierra National Forest in the Kings River Experimental Watershed. Our results show that there is large variability in nature of exported material – including ratio of bulk sediment vs. BC content, chemical composition of SOM, and overall sediment export across the watersheds that is not directly related to watershed size or climatic variability.