

The Long-Term Effects of Prescribed Fire and Harvesting Techniques on Forest Floor Soil Biogeochemistry and Runoff Water Quality in a Mixed Conifer Forest in the Eastern Sierra Nevada Mountains

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Prescribed fire is a useful and common tool used in management practices in order to eliminate thick fuel load buildup that could otherwise cause a harmful wildfire. The objective of this study is to quantify the lasting effects of prescribed fire and harvesting techniques on forest floor nutrients and runoff water quality approximately 8-9 years after a burn occurred within the study areas. This study will be an overview of two sites located within and around the Lake Tahoe basin. The study sites include a prescribed fire at each location and a mix of four harvest treatments: whole-tree (WT) thinning, cut-to-length (CTL) thinning, mastication, and no harvest. This study will be a comparison and compilation of data collected before, immediately after, and 8-9 years after the prescribed burns at each site. All soils and organic layer samples were analyzed for nutrients. Runoff and snowmelt collectors were instrumented into both sites in order to obtain water quality data. Resin lysimeters, resin capsules, and resin stakes were also instrumented in both sites in order to assess soil leaching. The importance of this study will be assessing the long-term effects of both prescribed burning and harvesting techniques on forest floor ecosystems and what that means in terms of soil fertility in the Sierra Nevada Mountains as well as discharge water quality into Lake Tahoe.