

A prioritization framework for multi-objective fire management: A case study of the High Park Fire and the City of Fort Collins' water supply

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Abstract. The increased probability of catastrophic wildfires in the western US indicates a pressing need to understand the socio-ecological context surrounding wildland fire management. Of particular risk to wildfires are ecosystem services such as sediment regulation and water supply that are sensitive to watershed condition. To begin addressing this issue, we are developing a framework to address water supply outcomes of pre- and post-fire wildland management. This framework will eventually allow resource managers to compare proactive (e.g., hazardous fuels reduction) and reactive (e.g., suppression, restoration) wildfire management scenarios affecting municipal water supply. Our study area is the 2012 High Park Fire (HPF), northwest of Fort Collins, CO in the Cache la Poudre River watershed. While post-HPF restoration and water supply will be a research focus, the framework is initially applied to theoretical pre-HPF wildfire mitigation scenarios (e.g. thinning) for analysis of socio-economic, ecologic and hydrologic consequences and tradeoffs.