

Targeting Post-Wildfire Watershed Restoration at Source Water Protection

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High severity wildfires alter the physical and biological processes that determine how watersheds retain and release nutrients and influence stream water quality. In Colorado, the proximity of the 2013 High Park Fire to Front Range populations brought the fundamental links between forest conditions, wildfire and water supply into sharp focus and highlighted the challenges of source water protection in watersheds vulnerable to severe wildfire. Water quality changes following the High Park Fire compromised the drinking water supply in the Cache la Poudre watershed, and water treatment and supply to >250,000 homes and agricultural producers. This presentation highlights a partnership consisting of watershed researchers, municipal water utilities, forest management agencies and a local non-profit (Coalition for the Poudre River Watershed), that formed in the immediate aftermath of the High Park Fire to study post-fire watershed processes, to identify threats of water supply and to prioritize watershed restoration activities. Stream nitrate, a source of water quality impairment and indicator of ecosystem nutrient loss, increases after Front Range fires and can remain elevated for more than a decade. Our project aims to advance understanding nutrient retention and release in headwater streams to better target post-fire restoration aimed at protecting drinking water sources.