COLORADO FOREST RESTORATION INSTITUTE | COLORADO STATE UNIVERSITY

Monitoring Summary

Ramsay Shockey Unit B

Wildfire Mitigation Strategy: Ponderosa pine was thinned, with residual slash pile burned in a collaboratively funded demonstration project designed to promote forest resilience to wildfire and protect water supply and infrastructure.

Project Highlights: Forest thinning created larger gaps in the tree canopy that lowered the potential for active crown fire spread. Residual slash was placed into piles for burning, which resulted in a reduction of fine woody surface fuels across the unit. However, predicted tree mortality under severe fire conditions remains relatively high. Follow-up maintenance activities, such as broadcast burning, could further reduce surface fuel loading, raise tree crown base height, and generally extend benefits of fire mitigation.

Project Information

Lead Implementer	Larimer County Department of Natural Resources
Funding Sources	Peaks to People Water Fund, Northern Water
Year Completed	2016
Area Monitored	21 acres
Forest Type	Ponderosa pine
Implementation Method	Hand thin
Slash Treatment	Pile burn

Pre-treatment photo point

Forest and Fuels Inventory

Summary	Pre-treatment	1 yr post-treatment
Year sampled	2016	2017
Live basal area* (ft^2/ac)	79 ± 53	46 ± 32
Live tree density (trees per acre)	174 ± 149	75 ± 72
Canopy cover (%)	37 ± 22	30 ± 25
Canopy base height (ft)	10 ± 5	11 ± 5
Fine Woody Fuel Loading (tons/acre)	1.2	0.8

* Basal area is the cross-sectional area of tree stems at breast height (4.5 ft) for a given area.

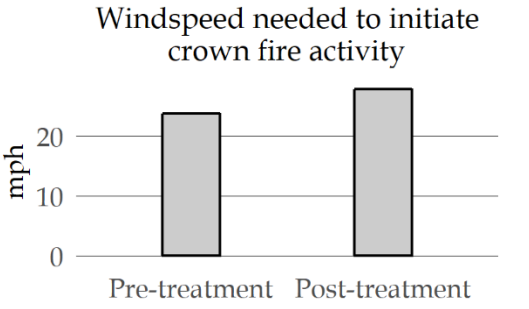
Post-treatment photo point

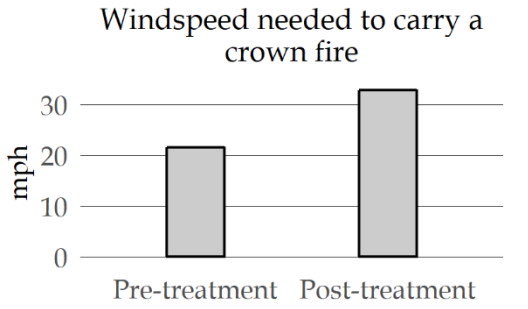
Fire Hazard Analysis

We assessed the effectiveness of fuels treatments to change expected fire behavior by collecting forest and fuels inventory data at 11 field plots pre-treatment and post-treatment. Field data was used to model potential fire behavior with the Fire and Fuels Extension to the Forest and Vegetation Simulator. The table displays fire behavior outputs modeled under severe and moderate conditions. The graph and images show changes in forest structure and modeled fire behavior under severe conditions.

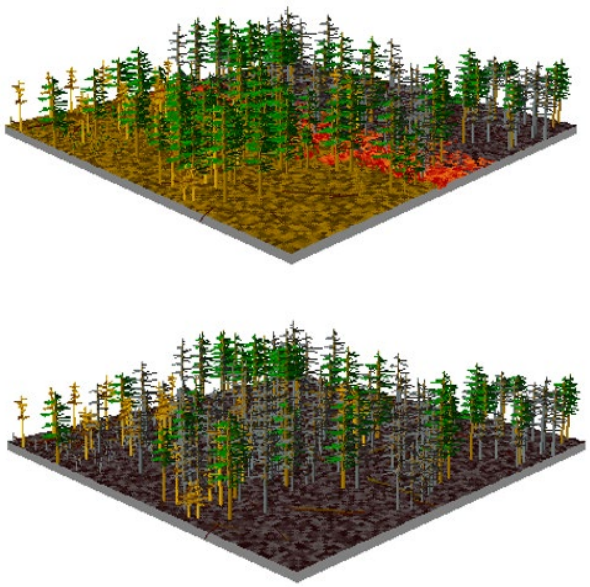
Modeled Fire Behavior

	Pre-treatment		1 yr post-treatment	
Fire weather and fuel conditions	***Severe***	*Moderate*	***Severe***	*Moderate*
Fire type	Surface	Surface	Surface	Surface
Total flame length (ft)	3.5	1.5	3.9	1.6
Surviving tree basal area (ft^2/ac)	32 (40%)	60 (76%)	22 (47%)	36 (78%)

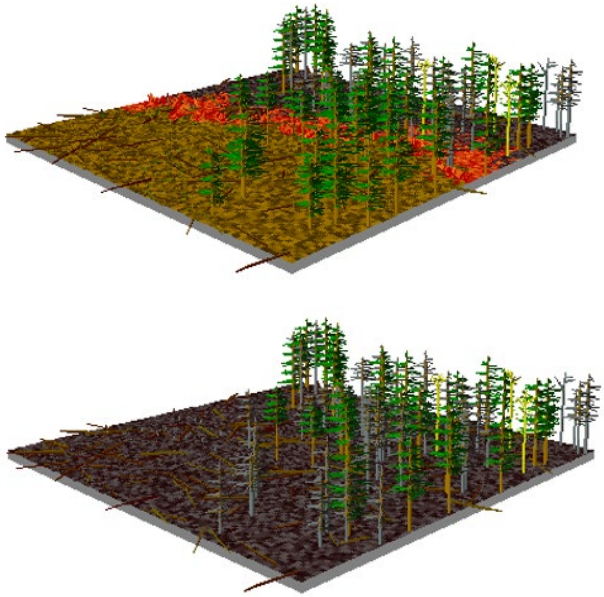




Pre-treatment



Post-Treatment



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Full methods and details described in the Peaks to People Monitoring Report, available at cfri.colostate.edu. January, 2019.