



Monitoring Summary *Ben Delatour Scout Ranch—Thin and Burn*

Wildfire Mitigation Strategy: Mechanical thinning followed by a prescribed broadcast burn was applied to a ponderosa pine stand in a collaboratively funded demonstration project designed to promote forest resilience to wildfire and protect water supply and infrastructure.

Project Highlights: Fire hazard was relatively low before mitigation and was further reduced following the combined thin and burn treatment. Removing slash off site during mechanical thinning, and the subsequent prescribed burn, minimized surface fuel accumulations and raised average tree crown base height, improving resistance to torching and minimizing potential for active crown fire.

Project Information

Implementation Agency	Coalition for the Poudre River Watershed, The Nature Conservancy
Funding	The Nature Conservancy, Peaks to People Water Fund, Coalition for the Poudre River Watershed
Location	Larimer County, CO
Year Completed	2017
Area Monitored	24 acres
Forest Type	Ponderosa pine
Implementation Method	Mechanical thin, broadcast burn
Slash Treatment	Removal, broadcast burn



Pre-treatment photo point (2016)



Post-thin, pre-burn (2017)



Post-thin, post-burn (2017)



1-year post thin, post burn (2018)

Forest and Fuels Inventory

Summary	Pre-treatment	Post-thin	Post-thin, post-burn
Year sampled	2016	2017	2018
Live basal area* (ft ² /ac)	69 ± 34	30 ± 25	31 ± 25
Live tree density (trees per acre)	97 ± 63	39 ± 47	39 ± 47
Canopy cover (%)	38 ± 20	26 ± 22	26 ± 19
Canopy base height (ft)	12 ± 7	9 ± 5	14 ± 10
Fine Woody Fuel Loading (tons/acre)	1.22	1.19	1.17

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

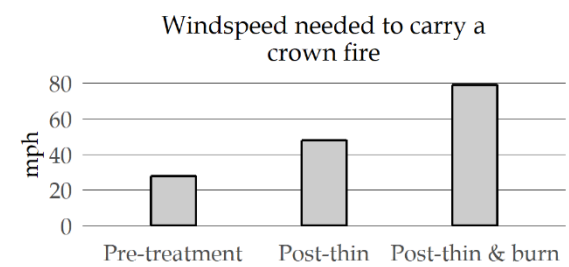
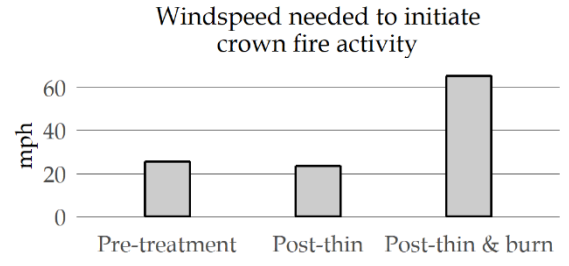
Prescribed fire severity assessment

The prescribed fire was extensive but patchy, with eight of thirteen plots showing signs of fire, but only 23% of ground surface visibly burned.

Fire Hazard Analysis

We assessed the effectiveness of fuels treatments to change expected fire behavior by collecting forest and fuels inventory data at 13 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						
Fire weather and fuel conditions	Pre-treatment		Post-thin		Post-burn	
	Severe	Moderate	Severe	Moderate	Severe	Moderate
Fire type	Surface	Surface	Surface	Surface	Surface	Surface
Total flame length (ft)	3.8	1.6	3.7	1.4	3.6	1.4
Surviving tree basal area (ft ² /ac)	39 (56%)	56 (81%)	21 (70%)	25 (82%)	24 (77%)	26 (83%)



Pre-treatment

Post-Thin

Post-Thin & Burn



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