

The Influence of an Incomplete Fuels Treatment on Fire Behavior and Effects in the 2007 Tin Cup Fire, Bitterroot National Forest, Montana

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Abstract

Extensive forested areas have received fuels treatments in recent decades and significant funding is available for additional treatments in an attempt to mitigate undesirable high wildfire intensities and impacts. Fuel treatment successes and failures in moderating fire behavior and effects can be found in quantified and anecdotal reports. Questions remain about the efficacy of biomass removal projects for modifying wildfire characteristics such as; (1) Do wildfires respond to fuel treatments differently under different fire weather? (2) Are fire behavior changes within fuel treatments frequently due to suppression activity? (3) Are conflicting reports of treatment effectiveness often due to contrasting types of treatments?

To address some of these questions, we retrospectively examined several data sources from the 2007 Tin Cup wildfire which burned through a partially completed fuels treatment. We collected stand and fuels data including measurable fire effects in treated and untreated units, interviewed fire fighters, reviewed the incident commander's report, utilized local weather data, and examined photographs and GIS data. We concluded that the variation in fire behavior and fire effects throughout treated and adjacent untreated areas could be explained only by a comprehensive examination of this diverse quantitative and qualitative data set. In addition, similar crown burn severity between paired units, suggests that similar fire behavior and effects can be expected between partially treated units with slash piles and untreated units with ladder fuels.

Additional keywords: Crown scorch, crown burn, flame lengths, fire spread rate, ponderosa

pine, lodgepole pine, Douglas-fir