

Harvesting forest biomass in the southwestern Rocky Mountains: a state of the industry review

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The forests of the southwestern Rocky Mountains have experienced substantial change since the arrival of western civilization. High-grade logging, forest grazing practices, and fire suppression have altered once park-like ponderosa pine-dominated ecosystems into dense forests in need of restoration treatments that include mechanical thinning and/or prescribed fire. The economics of these treatments is challenged by the low-value nature of the wood products removed during treatment. Harvested material may be utilized for biomass energy which takes several forms, typically as wood chips for thermoelectric power, pellets for wood stoves, and fuelwood for traditional wood heat. This study aims to understand and evaluate harvest practices and the current state of the industry as part of a larger study, *ForBio Southwest*, that also assesses how biomass harvest affects forest ecosystems, and how harvest and use impact local air quality, greenhouse gas emissions and carbon balance. During the summer of 2017 we utilized a detailed time and motion study method to analyze 5 different ground-based harvest operations of varying sizes and capacities across the region for 10 operational days each with the goal of understanding the current state of practice in terms of equipment used, production rates and costs, and environmental impact of operations. Results from this study will be used by operators to improve the efficiency and environmental performance of their operations and by researchers to model region-wide biomass energy production.