## Fire and Fire Surrogate Treatment Effects in the Sierra Nevada, a Pre-treatment Perspective. (S07-greinke141412-Oral)

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## Abstract:

The Fire and Fire Surrogate Study utilizes forest thinning and prescribed burning in attempt to create forest stand structures that reduce the risk of catastrophic wildfire. Replicated treatments consist of mechanical tree harvest (commercial harvest plus mastication of sub-merchantable material), mechanical harvest followed by prescribed fire, and prescribed fire alone. Harvesting operations may accelerate N mineralization due to microclimate changes. Skidding will increase exposure of mineral soil and soil bulk density. Prescribed fire alone will reduce forest floor biomass. This may enhance N mineralization rates in the surface soil, while intense heat pulses may cause short-term alterations to microbial communities. Soil pH and base saturation are both expected to rise, while soil texture and compaction will remain unchanged by burning. Mechanical harvest followed by fire is expected to result in increased forest floor consumption and higher flame temperatures than those obtained by burning alone. Biological and chemical effects may be more pronounced than in the fire-only treatment. Soil physical effects are expected to be similar to those in the harvest-only treatment.

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