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*A Slippery Slope: The Effects of Slope and Remediation Treatments on Post-Fire Sedimentation*

The purpose of the investigation was to determine which post-fire remediation treatment would be the most effective in reducing sediment loss. Following a wildfire the soil gains hydrophobicity and loses vegetation. The soil repels water, creating debris flows and flash floods. I hypothesized that mulch would be the most effective treatment for reducing sediment loss at all slopes.

An adjustable slope model was designed – a wooden trough with a catch screen at the base. The conventional post-fire sedimentation loss remediation methods of straw, mulch, and logs were tested along with the novel methods of garden mat and orange peel treatments. For each trial, 3kg of Pikes Peak granite gravel was evenly distributed on the slope model with the treatment applied on top. Water was sprayed over the slope for one minute. Gravel that washed onto the screen was collected and weighed. Three trials were conducted for each treatment at 14 different slopes of increasing steepness. An ANOVA test was performed to analyze statistical significance of the data.

The hypothesis was unsupported. The most effective treatment was dependent upon slope. At 0%-5% slope treatment was unnecessary as no treatment was statistically different from the control. At 10%-50% slope garden mat treatment was most effective, at 55% slope mulch was most effective, and at 60%-70% slope logs were most effective.

The results can be applied to prescribe the most effective treatment for reducing sediment loss at a given slope.

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