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Providing scientific knowledge and technology to sustain our nation's forests, rangelands, and grasslands

Science BRIEFING

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REDUCING POST-FIRE HILLSLOPE EROSION WITH WOOD SHREDS

BACKGROUND

Wood shreds and other mulch treatments (agricultural straw, woods strands, and hydromulch) are frequently recommended as a technique used to stabilize hillslopes by providing immediate ground cover and to mitigate post-fire increases in runoff and erosion rates.

RESEARCH

Research Activity: Guidelines for the production transport, and aerial application of wood shred mulch as a post-fire hillslope stabilization treatment were developed from laboratory and field studies, several field operations, and the evaluations by professionals involved in those operations (Robichaud et al. 2013).

Wood being fed into a horizontal grinder to produce wood shreds (left). Wood shreds that are 2 to 8 inches long and less than 1 inch in diameter are best suited to be aerially applied for hillslope stabilization (right).

Management Implications: Although wood shreds are much heavier, take longer to apply, and are more costly than other mulch treatments (e.g., agricultural straw), the advantages of wood shreds—on- or near-site availability, greater stability in high winds and on steep slopes, and lack of unwanted plant seeds from off-site—make wood shred mulch useful in areas where other mulch treatments may not be desirable. Any post-fire mulch application should be monitored by uniformity of ground cover spread and the percent ground cover achieved as opposed to a weight-based application rate. Monitoring ground cover amounts and uniformity may be done using on-site surveys or newly-developed remote sensing techniques that could provide more comprehensive examinations of mulched areas.

Wood shred mulch cover used as a post-fire hillslope treatment.

KEY POINTS

- Post-fire mulch treatments provide ground cover on hillslopes where erosion mitigation is needed.
- Laboratory and field studies have shown that wood shred mulch can be an effective post-fire hillslope treatment.
- Wood shreds have been successfully produced from burned and green trees.
- The effectiveness of post-fire mulch applications should be monitored and assessed to determine uniformity of ground cover spread and the percent ground cover achieved.

FOR MORE INFORMATION...

- **Robichaud, P.R.**, L.E. Ashmun, R.B. Foltz, C.G. Showers, J.S. Groenier, J. Kesler, C. DeLeo, M. Moore. 2013. Production and aerial application of wood shreds as a post-fire hillslope erosion mitigation treatment. RMRS-GTR-307. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 31p. Available online at: www.fs.usda.gov/rm/pubs/rmrs_gtr307.html.

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