

Project Title: Consequences of fire and thinning on soil processes and nutrient cycling

Project Leader: Deborah Page-Dumroese

Participating Research Contacts: Martin Jurgensen (MTU), Tom Rice (RMRS), Michael Amacher (RMRS), Jeff Evans (RMRS), Pete Robichaud (RMRS)

Participating Forests/Grassland Contacts: Sharon DeHart (R1); Ed Lieser, (Flathead National Forest); Jeff Bruggink (R4); John Lott (Caribou-Targhee National Forest)

Funds

Total Project Cost: \$397,973

Timeframe (within 2001-2005):

2003: \$200,000

2004-2005: (remaining costs): \$50,000

Progress from 2002-2003: (Description of work accomplished; attach more detailed description, map, or pictures that could be used for tech transfer on the web or w/in compiled monitoring report.)

What are the consequences of prescribed fire (and mechanical thinning) on nutrient reserves in suppressed stands? In 2002-2003 we conducted pre-harvest sampling on the Flathead National Forest and Caribou-Targhee National Forest. These two sites (one forested, one rangeland) will be treated with prescribed fire and (for the Flathead NF) harvested. Mineral soil, surface organic matter, and each vegetation layer (herbaceous, shrub, overstory) are being analyzed for C, N, Ca, Mg, K, organic matter content, etc.

Does fire changes nutrient cycling processes? In cooperation with Dr. Michael Amacher, additional samples were collected in 2003 from burned FIA plots. Chemical analyses will be matched to pre-burn data to evaluate changes after varying types of wildfire.

What are the key processes that influence erosion and soil productivity? In cooperation with Dr. Pete Robichaud, soil samples were collected from burned and unburned BAER plots. Nutrient analyses are proceeding. Nutrient changes associated with erosion from burned plots may be significant on a watershed scale and may influence regeneration success. In addition, the wood decomposition study sites (installed on the BAER plots in 2002) were sampled in June and October. These wood decomposition study sites will be used to determine the impact of BAER treatments on below-ground productivity changes.

Integrating soil productivity and erosion research findings with management. We are in the process of putting locally important research papers, administrative studies, and/or personal experience information on our web site (<http://forest.moscowfsl.wsu.edu> - click on microbial processes). This information will be synthesized into a publication for managers so they can evaluate management and fire impacts on soil productivity and site resiliency.

Plans for 2004: (Description of work.) Post-treatment soil sampling will take place as soon as each study site has finished treatment. We will continue to collect wood decomposition samples from our BAER treatment plots. Continuation of our efforts to put information on our web site (see above).

Products and/or tech transfer expected in 2004: (Incl. Web links if you have them). Synthesis paper on management or fire impacts on soil productivity. Additional web information will become available as we are able to get it into a compatible format.