Restoration of pile burned areas to reduce the risk of post-fire weed expansion after fuels treatment

2007 Accomplishments

Our study 1) examines changes that have occurred in the surface and belowground environments after pile burning, 2) uses greenhouse studies to determine which of these post-fire changes favor invasive weeds over native vegetation, 3) develops restoration treatments, using native seeds, native soils, and organic material, that will mitigate for the post-fire changes, and 4) field tests the effectiveness of these treatments on pile burned areas.

Post-fire results, one-month post burn

- NH4+ increased from outside, to the edge, to the center of the pile burn,
- NO3- was not greatly impacted,
- Microbial biomass decreased from outside, to the edge, to the center of the pile burn, and
- Water soluble P increased from outside, to the edge, to the center of the pile burn.

Restoration results, one year post burn

- NH4+ remained elevated where soils were not scarified,
- NO3- increased with scarification,
- Vegetative cover increased with seeding of native graminoids (Figure 1),
- Vegetative cover increased with seeding and scarification (Figure 1),
- Weed cover averaged 4.5 percent and was not affected by seeding (Figure 2), and
- On unseeded piles, addition of organic material increased weed cover (Figure 2).

Ongoing research

- Post-fire physical properties,
- Total C and N of soil and dried plant material,
- Analysis of data from the greenhouse study.

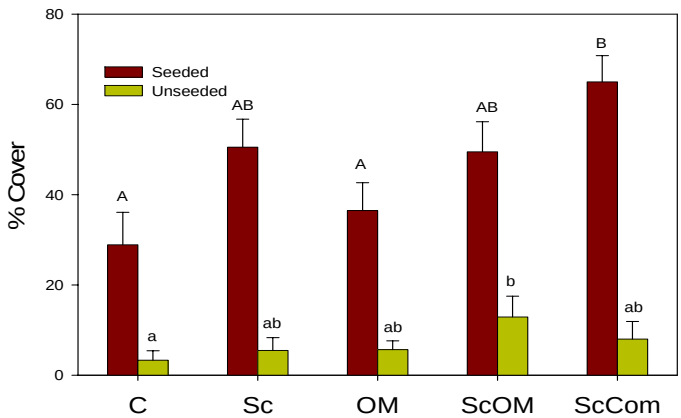

Figure 1. Impact of restoration treatments on total vegetation cover (C = untreated burned Sc = scarification, OM = organic matter, ScOM = scarification and organic matter, ScCom = scarification & compost).

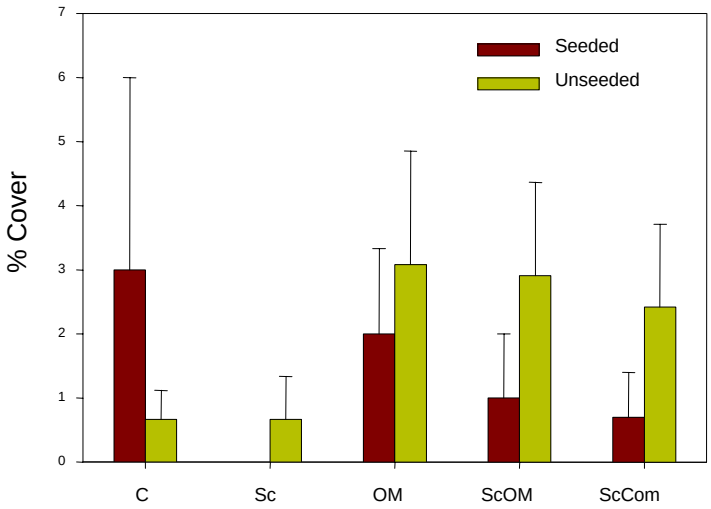

Figure 2. Impact of restoration treatments on total weed cover (C = untreated burned Sc = scarification, OM = organic matter, ScOM = scarification and organic matter, ScCom = scarification & compost).

Year Awarded: initial award in 2006

Project completion: 2009

Report number 2 of 3

Expenditures (through 10/2007):
- FY06 funding $19,843, expend. $12,533 $7,310 remaining
- FY07 funding $22,712, expend. $14,747; $7,965 remaining
- **Total funding $65,267, total expend $27,280; $37,987 total remaining**

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