BAER Treatment Effectiveness Study

Funded by the Joint Fire Sciences Program

Evaluating the effectiveness and ecological impacts of BAER slope stabilization treatments following the Pot Peak, Deer Point, and Dirtyface wildfires.

Project Description:

Soil stabilization treatments, including seeding, fertilizing, and mulching, are often prescribed after wildfires as part of burned area emergency response (BAER) to prevent and control surface soil erosion and protect soil and water resources. However, the effectiveness of these treatments for increasing soil cover and reducing soil erosion has been questioned recently. Recent studies also suggest that post-fire seeding and mulching treatments may delay recovery of native vegetation and introduce exotic weeds. The primary purpose of this study was to evaluate the effectiveness of seeding and fertilization treatments for increasing plant cover during the first two years following severe wildfire. We also wanted to find out if treatments produced any negative effects on native vegetation recovery and/or biodiversity.

Objectives:

The objectives of the proposed project are:

1) Test the effectiveness seeding and fertilization treatments for increasing plant and litter cover during the first two years after fire.

2) Assess the effects of seeding and fertilization treatments on native vegetation recovery, native plant species richness, and weed abundance.

Methods:

In spring 2005, we established experimental field plots at eight sites within severely burned areas of the 2004 Pot Peak Fire near Chelan, Washington.

We tested the effects of four seeding treatments and three fertilization levels in factorial combination at each site. Sites contained 96 plots each, so each of the 12 treatment combinations were replicated eight times at each site.

We monitored vegetation recovery by observing and recording plant species cover during the summers of 2005 and 2006.

Similar studies of the effects of seeding and fertilization on post-fire vegetation cover have been established on the nearby Deer Point (2002), Dirtyface (2005), and Tripod (2006) wildfires.

Progress:

Field work has been completed at all sites (except Tripod) and preliminary results have been reported (see below). Complete results will be available soon.

Publications and Products:

Peterson, D.W.; Dodson, E.K.; Harrod, R.J.; 2007. Assessing the effectiveness of seeding and fertilization treatments for reducing erosion potential following severe wildfires. In: Butler, B.W.; Cook, W. (comps.) 2007. The fire environment – innovations, management, and policy; conference proceedings. 26-30 March, 2007; Destin, FL. Proceedings RMRS-P-46CD. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 662 p. CD-ROM. Available at: http://www.fs.fed.us/rm/pubs/rmrs_p046/rmrs_p046_465_474.pdf

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