

Establishing Perennial Grasses Reduces Cheatgrass and Associated Fuels

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Introduction

The introduction and subsequent invasion of cheatgrass (*Bromus tectorum*) onto millions of acres of Great Basin rangelands has truncated secondary succession by providing a fine-textured early maturing fuel that has increased the chance, rate, spread and season of wildfires.

With each passing wildfire season more critical wildlife and grazing resources are being converted to cheatgrass dominance (Fig. 1), therefore resource managers and landowners are facing the daunting task of reducing wildfire risks caused by associated cheatgrass fuels.

Chemical weed control practices, in combination with rangeland seeding efforts, have the ability to be successful in actively suppressing and reducing cheatgrass associated fuels. Long-term control of the invasive annual grass, cheatgrass, is predicated on its biological suppression. Perennial grasses, have been shown to effectively suppress cheatgrass and associated fuels.



Figure 3. The integrated approach of using pre-emergent, soil-active herbicide to control cheatgrass and seeding perennial grasses that have the inherent potential to germinate, emerge and establish in arid environments can significantly reduce cheatgrass and associated fuel loads. (2019)

Results and Discussion

Sulfometuron Methyl significantly reduced cheatgrass above-ground densities by 98.7% (Fig. 2). This reduction in cheatgrass densities significantly improved the emergence and establishment of seedlings of seeded species which averaged 0.8 and 0.9/ft².

Cheatgrass was significantly reduced with the establishment of perennial grasses as the control plots averaged 1,206 lbs/acre of dry weight cheatgrass fuel compared to 135 lbs/acre of dry weight cheatgrass fuel, an 89% reduction in cheatgrass fuel loads (Fig. 1 and 3).

It is critically important to establish perennial grasses and reduce cheatgrass associated fuels throughout the arid west, especially in the Great Basin Region. The use of effective pre-emergent soil active herbicides can play an important role in decreasing cheatgrass densities and improving the germination, emergence and establishment of perennial grasses (Figure 4).

The ability of resource managers to successfully seed perennial grasses will significantly reduce catastrophic wildfires on arid Great Basin rangelands and improve critical wildlife habitats and sustainable grazing resources.



Figure 1. Study plot prior to herbicide application, 1-year fallow and seeding of perennial grasses. Dominated by cheatgrass (2015)



Figure 2. Pre-emergent, soil-active herbicides can be very effective in decreasing cheatgrass above-ground as well as seed bank densities. (2016)



Figure 4. Initial seedling emergence (April 2017) without cheatgrass competition after herbicide fallow.

Methods

We tested the application of the pre-emergent herbicide, Sulfometuron Methyl @ 1.75oz/ac rates in a completely randomized block design in northern Nevada.

Plots were 80' x 150' which included two herbicide treated plots and two control plots for each year. The treated plots were fallowed for one year and then seeded to a perennial grass mix of Siberian wheatgrass (*Agropyron fragilla* ssp. *sibiricum*) at 4 lbs/ac rate, 'Anatone' bluebunch wheatgrass @ 4 lb/acre rate, Sherman big bluegrass @ 1 lb/acre rate and Sandberg's bluegrass @ 1 lb/acre rate in the fall of 2015 and 2016.

Plots were monitored monthly from May through September for two years using randomly selected quadrats that were fixed over time.

