Increasing Diversity in Crested Wheatgrass Stands in Eastern Idaho

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Crested wheatgrass stands are often monocultures that resist native plant reestablishment. Attempts to increase diversity in these stands require treatment to reduce crested wheatgrass. This study was conducted to determine whether 1) crested wheatgrass is reduced with disking, herbicide, or a combination; 2) treatments increased seedling success over 2 growing seasons; and 3) treatments affect cheatgrass density and ground cover. Factorial combinations of treatment year, disking, and glyphosate application were randomly assigned to plots and a random half was seeded with native shrubs, forbs, and grasses. Line-point intercept and density of seeded species, crested wheatgrass, and cheatgrass were measured in 2 growing seasons after treatment and seeding. Disking and early herbicide application in 2008 reduced crested wheatgrass density in 2009, but differences were not detectable in 2010. Disking and late herbicide application in 2008 reduced Sandberg bluegrass density in 2009. Cheatgrass density in 2009 was generally less than 6 m^{-2} regardless of 2008 treatment. Early herbicide applications reduced cheatgrass density below 2 m^{-2}. Density of seeded grasses exceeded 25 m^{-2}, irrespective of treatment, but undisked plots had greater than 30 m^{-2}. Treatments in 2008 did not affect forb and shrub seedling densities in 2009, which were less than 1 m^{-2} and 0.01 m^{-2}, respectively. Suppression of crested wheatgrass followed with seeding enhances grass, but not forb and shrub, diversity within a few years.