Restoring Native Plants to Crested Wheatgrass Stands

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Crested wheatgrass (Agropyron cristatum (L.) Gaertn.) is often criticized for forming nearly monotypic stands. Our objective was to determine the feasibility of restoring native plant species to crested wheatgrass-dominated rangeland. We investigated methods for suppressing crested wheatgrass followed by revegetation with a mix of native species. We tested five suppression treatments: undisturbed, low rate of glyphosate (0.25X recommended rate), high rate of glyphosate (recommended rate), 1-pass mechanical (disked once), and 2-pass mechanical (disked twice). Procedures were repeated in two trials in separate years in southeastern Oregon. We sampled density and canopy cover of crested wheatgrass and density of seeded species for three (Trial 1) and two (Trial 2) years. Mechanical treatments increased crested wheatgrass density by 30 to 50%, while most other treatments were similar to the undisturbed (6.8 plants/m²). Crested wheatgrass cover decreased in mechanical and full herbicide treatments in Trial 1 and was variable across treatments in Trial 2. Seeded species density in all treatments (29 plants/m²) was greater than in the undisturbed treatment (18 plants/m²) one year after seeding in Trial 1 and was similar across treatments (26 plants/m²) in Trial 2. By the end of the study, though, all treatments resulted in similar seeded species density (<5 plants/m²). Results suggest suppression treatments were not effective and therefore did not improve restoration of native species in crested wheatgrass stands. Native species establishment may require subsequent management to favor persistence of native species and retard crested wheatgrass.