

5-Year Replicated Plot Results in the Pinedale Anticline

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Abstract: Critical wildlife habitat supporting mule deer, antelope, and sage grouse in high elevation rangeland and sagebrush ecosystems of southwest Wyoming is threatened by energy development and residential sprawl, resulting in a fragmented landscape and a declining forage base. Restoring disturbances with diverse plant communities is needed. Our objectives were to assess establishment and persistence of native plants. In October 2005, 72 entries of 50 native species were drill-seeded on a shut-in well-pad site, in single species plots in a randomized complete block design with four replications. In replicated plots, density of seeded species was recorded in each of the 5 years post-seeding, and biomass was clipped from grass plots for 3 years in 2008-2010. In replicated plots, analysis of variance showed plant counts depended on seeded species. Top performing grasses with greater than 2 plants per square foot in 2010 were Sodar streambank wheatgrass, Critana thickspike wheatgrass, L-46 basin wildrye (test material), P-24 bluebunch wheatgrass (test material), Rodan western wheatgrass, and Washoe basin wildrye. No forb or shrub densities exceeded 1 plant per square foot, a common measure of re-vegetation success for the area. Final project results provide recommendations for native plant restoration and species adaptation to the area. Relatively low establishment of forbs and shrubs indicate more work is needed to develop these plant materials and technologies.

Additional Key Words: Reclamation, native plants, wildlife habitat.

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