

Reestablishment of Wyoming Big Sagebrush in Eastern Wyoming for Sage Grouse Habitat Restoration¹

D.C. Balthrop and P.D. Stahl*²

Abstract: Reestablishing Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) following a wildfire has proven difficult in many areas of the western United States especially in areas where competition from grasses is problematic. This study attempts to develop an effective method for restoring Wyoming big sagebrush in a Sage Grouse Conservation area where sagebrush was previously decimated by wildfire and the current plant community is dominated by relatively heavy native grass cover. Different methods were used to grow seedlings propagated from locally adapted seed that will maximize the amount of soil moisture available to them through snow catchment fencing, fabric mulch and seedling planting density. Sagebrush seedlings were planted in the spring of 2014 onto a 2-year-old burn site using a randomized complete block design. Results show that the use of polypropylene fabric mulch to eliminate interspecific competition and retain soil moisture significantly increases the production and survival rate of transplanted seedlings. As of October 2015 (18 months post planting), survival for seedlings with and without fabric mulch was 49.9% and 30.3% respectively, with a 137% increase in height and 270% increase in width for seedlings planted with the fabric mulch treatment. Growth differences continued to increase through October 2016 when fabric mulch was removed. Drawbacks to use of fabric mulch included attraction of rodents during winter and the degree of difficulty of removal after 3 years in place. Management implications for this method, including planting of shrub islands and recruitment of new sagebrush plants from those we planted will be discussed.

Additional Key Words: competition, soil moisture, fire, threatened species

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 2. Peter D. Stahl (* presenter), Professor, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY, 82071; David Casey Balthrop, Environmental Planner/Biologist, Logan Simpson, Fort Collins, CO 80524.
 3. Work reported here was conducted near 43° 75' 97" N, 105° 38' 22" W.