Success of Broadcast Seeding Big Sagebrush in the Northern Great Basin

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Big sagebrush (*Artemisia tridentata*) has been greatly reduced across its range due in large part to invasive annual grasses and wildfires. Efforts to reestablish sagebrush after disturbance are quite variable depending on climate, soils, and competition from exotic or seeded species. The effects of post-treatment livestock management can also alter successional pathways of sagebrush establishment. For example, introduced grass seedings established in the 1950's and 60's were quickly repopulated with sagebrush if a seed source was available and livestock use levels were high. More recently, reestablishing big sagebrush after wildfires in the Great Basin has been a priority given the high wildlife, ecological, and social-economic values of this shrub. Broadcast seeding in the winter is commonly employed to distribute sagebrush seed over the large acreages associated with wildfires. Aerial broadcasting sagebrush seed has produced variable and often unsatisfactory results. Sagebrush establishment following aerial distribution of sagebrush seed in the low elevation Snake River Plain of Idaho resulted in a failure on 23 of 35 fire rehabilitation projects evaluated. Average density of sagebrush in aerial seeded projects was 513 plants per acre while unseeded controls averaged 37 shrubs per acre. In northern Nevada, aerial sagebrush seedings appear to be more successful if seed was applied in early winter on the more mesic sites. Another application option is to ground broadcast sagebrush seed on a firm seedbed. A better understanding of sagebrush seedbed ecology and effects of post-fire management will improve seeding strategies and success in establishing this important shrub.