

Long-term Effects of Pinyon-Juniper Treatments to Restore Sagebrush Communities

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The effectiveness of converting pinyon-juniper dominated sites to shrub/herb communities using chaining and roller chopping techniques was evaluated. Three individual sites on the Uncompahgre Plateau in southwestern Colorado were selected. The sites were originally chained in the 1960's and re-treated by roller chopping in 2001. At the time of treatments, the sites were seeded with commercial perennial seed mixtures. For comparison, ten transects measuring 30 m x 2 m were laid out in both treated and non-treated areas respectively at each site. Within the transects, sagebrush were counted by species, age class, and number of seed heads. Nested frequency and percent cover methods were used to determine herb species present. Tree density and age class were also determined within the areas. Within the treated areas, shrub density was increased from 345 shrubs/hectare to 653 shrubs/hectare while tree density was decreased from 1681 trees/hectare to 345 trees/hectare. Forb and grass frequency was increased from 15% to 30%. Forb diversity was increased by an average of 15% and grass diversity by an average of 38%. These results suggest that the combination of chaining and roller chopping have improved the density and diversity of these shrub/herb communities.