
THE INFLUENCE OF CONIFERS AND ABIOTIC FACTORS ON BIG SAGEBRUSH COVER

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Expansion of conifers into sagebrush is a concern since it reduces sagebrush cover for wildlife. The objective of this study was to model the relationship between the cover of Douglas-fir (*Pseudotsuga menziesii*) and Rocky Mountain juniper (*Juniperus scopulorum*), and the cover of Wyoming big sagebrush (*Artemisia tridentate* spp. *Wyomingensis*) and mountain big sagebrush (*Artemisia tridentate* spp. *Vaseyana*). Two

hundred forty 30x30 m plots were established at three locations in southwest Montana in 2009 to establish this relationship. The best-fit model using AIC criteria found $(\sqrt{\text{sagebrush cover}} = \text{Intercept}_{i-} - 0.401\sqrt{\text{conifer cover}} ; R^2 = 0.61)$ a negative relationship between conifer cover and sagebrush cover. No abiotic factors (elevation, slope, aspect, soil depth, soil texture and percent rock) significantly influenced sagebrush cover. Douglas-fir trees were found to have three-times the canopy area of similar aged Rocky Mountain juniper trees. Conifer removal to increase sagebrush cover is not recommended, since the increase in sagebrush cover is small. If conifer control is deemed necessary, Douglas-fir should be removed before Rocky Mountain juniper, and begin at low levels of conifer cover.