

# **Effects of Snow Removal and Addition on Soil Moisture Dynamics in Sage Habitats of Western Colorado**

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Abstract: The aim of this study, conducted in the late winter and early spring of 2019, was to test soil moisture retention by examining the effects of snow removal and addition in sagebrush landscapes of the Gunnison Valley to simulate above-average snow conditions or premature snow-melting events. Data collected in this study can be applied to predicting the effects that climate change will have on snowpack melt rates and times as well as the environmental implications of snow removal operations. We found that double-snow plots had the highest average moisture content followed by control plots with zero-snow plots having the least. It can be concluded that more snow-cover results in overall higher soil moisture content. Soil in double-snow plots also retained high levels of moisture over the longest period of time. Data collected within this study lends insights into the effects of climate change on soil moisture and soil health in areas dependent upon snowpack. Treatment conditions applied to snow plots simulates effects of climate change. By creating these simulations, conclusions can be made on the relationship between variable snowpack due to climate change and soil moisture content.