Influence of Variable Topsoil Replacement Depths on Soil and Plant Characteristics at a Coal Mine in Northeastern Wyoming. (S11-vance205301-Poster)

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Abstract:

We investigated the effect of varying topsoil depths on soil parameters, plant cover and diversity on a coal mine in northeastern Wyoming. Soil and vegetation information was collected for two consecutive growing seasons (2000 and 2001) on reclaimed areas with three topsoil depths (15, 30 and 56 cm) and from two native reference areas (upland grassland and breaks grassland). Soil pH, EC and SAR in the top 30 cm of the reclaimed soil profile were significantly different from both native reference areas, although statistical differences are not likely biologically significant at this point. No significant gradient for pH, EC and SAR exists within the reclaimed treatments, but gradients were evident within native areas. No significant differences in measured soil or plant parameters were evident by the second growing season in the variable depth treatments, reflecting the young age of the reclaimed area and/or reduced precipitation during the two growing seasons. Differences in treatment will likely be enhanced given time and/or increased precipitation.

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