RELATIONSHIP OF SALTCEDAR (*TAMARIX RAMOSISSIMA*) AGE AND STAND STRUCTURE TO SOIL CONDITIONS IN THE BIGHORN BASIN, WYOMING [1]

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Abstract: Saltcedar (*Tamarix ramosissima* Ledebour) is an introduced, invasive shrub that has become established along waterways in many western states. Detrimental changes in the composition of vegetation along these waterways have prompted concern for the biological integrity of *Tamarix*-invaded sites. The spread of saltcedar into Wyoming and Montana has elicited questions regarding its invasiveness and influence in northern climates. We selected 16 saltcedar sites in the Bighorn Basin of northern Wyoming to address the relationship of saltcedar age and stand structure to soil properties. Sites varied in *Tamarix* dominance and associated native vegetation (*Sarcobatus vermiculatus*, *Artemisia tridentata*, and *Populus deltoides*). Within each site, we documented soil parameters at five replicates per five microsite positions. The positions were beneath the canopy of large-based *Tamarix*, beneath the canopy of randomly selected *Tamarix*, interspaces associated with the large-based *Tamarix*, interspaces associated with the randomly selected *Tamarix*, and beneath the canopy of native woody plants. At each position, soil samples were collected from four soil depths (0-5, 6-20, 21-35, and 36-50 cm) and analyzed for electrical conductivity, pH, organic matter, nutrients, and texture. Saltcedar sections from just below the union of stems were collected, sanded, and ring-counted for age determination. In general, surface soils (0-5 cm) have greater electrical conductivity and lower pH than deeper soils. Surface soils (0-5 cm) beneath *Tamarix* have higher electrical conductivity and lower pH values than interspace soil. However, within the majority of sites, electrical conductivity was at a tolerable level for most plants. Results of this study are of consequence for revegetation following saltcedar control.

Additional Key Words: weed, invasive, electrical conductivity, pH

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