Survivors of Invasion: Seed Bank Response to Juniper Expansion in the Sagebrush Steppe

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Expansion of Juniperus occidentalis into sagebrush steppe has resulted in significant changes in understory composition. A consequence of increased J. occidentalis dominance may be a depletion of the seed bank. The potential for depletion is problematic because it lowers site resiliency through a reduction of species availability. This research evaluated the effects of the relative abundance of J. occidentalis on the soil seed bank. Questions addressed were 1) is species richness negatively correlated with J. occidentalis abundance, 2) does the number of weedy species change along a gradient of J. occidentalis abundance, and 3) does seed density decrease as J. occidentalis abundance increases? Two eastern Oregon sagebrush steppe sites where chosen to represent the juniper woodland-sagebrush steppe region. These sites displayed a range of J. occidentalis canopy cover. Soil samples were collected in the fall of 2006 and 2007 and subjected to both cold-wet and warm-dry stratification. Germination occurred over a period of eight months under greenhouse conditions. Preliminary results indicate that the soil seed bank varies in both time and space across study sites. For example, a negative relationship between J. occidentalis cover and seed bank density was observed in the first year but was not detected in the second year. This variability suggests a complex relationship between J. occidentalis cover and seed bank composition which may partially depend on weather conditions.