Russian Knapweed Response to Grazing and Aminopyralid
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INTRODUCTION
Russian knapweed (Acroptilon repens) is a deep rooted perennial forb that has become an invasive pest species of non-crop and agricultural lands in the western United States and many parts of Canada. It displaces desirable vegetation and forms monocultures which effectively reduce forage quality, increase soil erosion and causes a decline in native species diversity. Integrated management is a necessary step in managing and controlling invasive perennial weeds such as Russian knapweed.

OBJECTIVE
The objective of this study is to evaluate the effects of grazing combined with aminopyralid on Russian knapweed control and desirable grass recovery in an abandoned pasture setting.

METHODS
• Trials were initiated at Dinosaur National Monument in 2009 and 2010.
• Randomized Split-Plot Design
   Whole Plots = grazing treatment
   Sub Plots = different rates of aminopyralid
• Grazing was applied during June 2009.
• Aminopyralid was applied in October 2009 at 0, 53, 70, 88 and 105 g ha\(^{-1}\) (all treatments included a non-ionic surfactant at 0.25% v/v).
• Control of Russian knapweed was evaluated visually in June 2010.
• Plant density was measured using 0.25 m\(^{-2}\) frames.
• Cover was measured using a line point method.
• Biomass was measured via destructive sampling.
• Density, cover, and biomass data were collected for both Russian knapweed and desirable grass species. Desirable grasses include smooth brome, sand dropseed, Kentucky bluegrass, western and intermediate wheatgrasses and saltgrass.

RESULTS
• Aminopyralid effectively reduced Russian knapweed density, cover, and biomass regardless of rate.
• With the exception of visual control data, analyses show no interaction between grazing and herbicide treatment.
• Desirable grass densities were not affected by treatment (Fig.2), however relative cover of desirable grasses increased across all rates as Russian knapweed cover decreased (Fig. 3).
• In visual evaluations 1 year after herbicide treatment grazing alone appeared to provide some suppression of Russian knapweed in grazed plots compared to non-grazed controls (Fig. 1).

CONCLUSIONS
At this point in the trial, even when applied at one half of the recommended labeled rate, aminopyralid provided nearly complete Russian knapweed control. Future evaluations will be important in determining the long term effectiveness of these treatments.