

Prescribed Grazing by Sheep and Goats to Suppress Juniper Encroachment: Influence of Stocking Density and Mixed Grazing During Summer.

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Introduction

Prescribed Grazing by sheep and goats have been proposed as a tool to control undesirable plant species in New Mexico. However, information on their use to control regrowth of one-seed juniper saplings is lacking. There is a need to develop cost effective and environmentally sound guidelines for the use of prescribed grazing at the ranch level.

Objective

Test the effect of two stocking densities and two kinds of herbivores on feeding behavior and juniper and herbaceous vegetation use by goats grazing alone or mixed with sheep

Methods

Factorial experiment of two herbivores (Goats or Goats + Sheep) and two stocking densities (High density: 1.1 AU in plots of 10 by 10 m for 1 day; Low density: 1.1 AU in plots of 20 by 30 m for 6 days). Juniper use, grazing intensity of herbaceous vegetation, and animal activity were monitored.



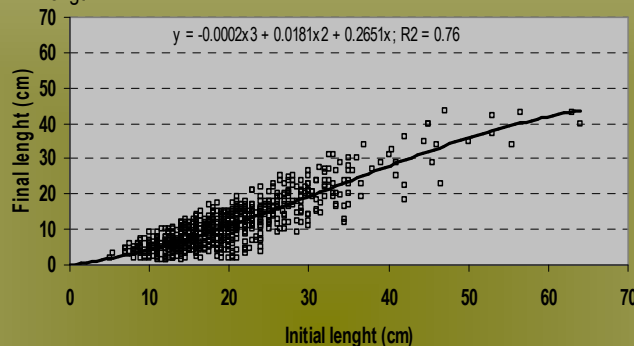
Goats + sheep under low density (Left) and Goats under high density (Right). Electric net fences were successful to contain animals.



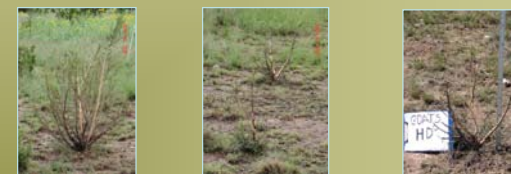
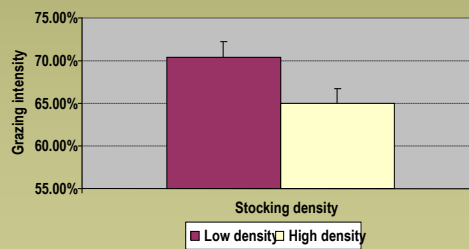
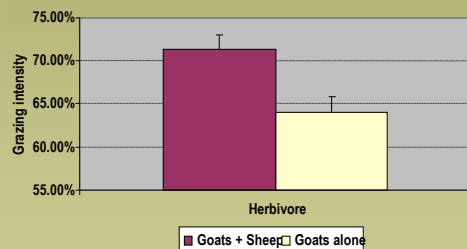
Ewes and nannies were penned at night and received a protein supplement (44% CP at a rate of 0.4% BW).

Results

Juniper browsing intensity was not affected by stocking density or herbivore. On average animals removed 39% of the original branch length.



Ewes and nannies in action. Goats however were more likely to consume juniper even though herbaceous understory was abundant (149 gDM m²).

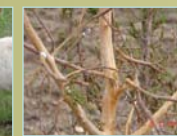
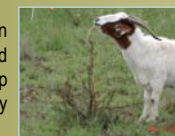


Over 35% of juniper saplings were classified as severely damaged

Small trees (<0.5 m) were severely browsed, even though they had abundant spiny leaves. Small saplings may have lower terpenoid concentration



Goats also fed on juniper bark. This kind of damage could help increase tree mortality rates.



Goats spent 25% of their feeding time on juniper whereas sheep only 8%. Top goats however spent between 35% and 50% of their time feeding on juniper. Fecal analysis with the NIRS at Texas A&M lab will confirm this potential to consume juniper. Ewes in mixed grazing and nannies that grazed alone maintained body weight. Nannies in mixed grazing treatment gained body weight.

Conclusions

Prescribed high density grazing with goats alone, rather than goats and sheep, could promote acceptable juniper sapling use along with lower damage on herbaceous vegetation. However, goat and sheep defoliation of junipers could be complementary. Juniper sapling responses to the treatments imposed in this study will be monitored through time

Acknowledgments

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