

LATE-SEASON BURNING AND GRAZING INTERACTIONS  
ON MIXED-GRASS PRAIRIE AND WOODY DRAWS

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## ABSTRACT

Clark, Lorilynn Margo, M.S., Program of Natural Resources Management, Department of Animal and Range Sciences, College of Graduate and Interdisciplinary Studies, North Dakota State University, October 2006. Late-season Burning and Grazing Interactions on Mixed-grass Prairie and Woody Draws. Major Professor: Dr. Kevin K. Sedivec.

This study is the combination of 2 separate research projects conducted in western North Dakota. The first study was initiated on mixed-grass prairie to compare herbage production, plant species cover, and diversity using a prescribed dormant-season burn among a twice-over rotation (TOR), season-long grazing (SL), and an ungrazed control (CO). A TOR, SL, and CO treatment was implemented on each of 3 blocks using a randomized complete block design in the spring of 2002. Herbage production was not affected by grazing treatment but was reduced ( $P < 0.05$ ) by 39.4% on burned sites compared to unburned sites. Clubmoss (*Selaginella densa* Rydb.) was reduced ( $P < 0.05$ ) by 46.1% on burned sites compared to unburned sites during the first growing season following the burn. The second section of this study was the final phase of an ongoing research project that began in 2001 to assess the effects of wildfire on hardwood and coniferous wooded draws in western North Dakota. Fire disturbance in wooded draws in the northern Great Plains has not been widely studied. The objective of this project was to 1) provide baseline data concerning plant species composition for Rocky Mountain juniper (*Juniperus scopulorum* Sarg.) and green ash (*Fraxinus pennsylvanica* Marsh) communities following a wildfire, and 2) make direct comparisons between coniferous and deciduous burned and non-burned draws. The hardwood draws had recovered more quickly than the coniferous draws, with both types of burned draws exhibiting increased growth of hardwood saplings and shrub cover 69 months after burning.