INFLUENCE OF RANGE CONDITION ON FORAGE PRODUCTION IN THE CHIHUAHUAN DESERT

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(Key Words: Rangeland, Cattle, Grazing, Plant Ecology)

Research was initiated in 1988 to evaluate forage production on upland Chihuahuan Desert ranges in excellent, good, fair, and poor ecological condition. Ecological condition involves the amount of original or climax vegetation that remains on a particular range site. About 10% of the Chihuahuan Desert in New Mexico is in excellent condition, 25% is in good condition, 45% is in fair condition, and 20% is in poor condition based on surveys by the USDA Natural Resources Service.

Between 1988 and 1993 several fall forage production surveys were made on various ranges near Las Cruces in these four condition classes. Forage in these surveys was considered to be all palatable perennial grasses and forbs. Clipping, drying, and weighing of forage plants in 5-20 quadrats along 4-5 transects for pastures in the various condition classes was the basic approach used in this study. Primary forage plants evaluated included black grama, dropseeds, threeawns, bush muhly, tobosa, and croton. Fall forage standing crops averaged 910, 597, 260, and 65 lbs/acre on excellent, good, fair, and poor condition ranges, respectively. These data were collected over a six year period when growing season precipitation was about 15% above the long term average. In 1993 when growing season precipitation was near the long term average, forage standing crops in October were 764, 501, 218, and 55 lbs/acre on excellent, good, fair, and poor condition ranges, respectively. All ranges in this study were grazed by livestock. The two ranges we studied in excellent condition had a long history of conservative stocking (30-35% use of perennial forage species) in combination with a best pasture rotation grazing system.

THE EFFECTS OF SEASONAL GRAZING ON WINTERFAT IN THE SHORTGRASS PRAIRIE OF SOUTHCENTRAL NEW MEXICO

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(Key Words: Plant Responses, Growth, Development)

Growth patterns of winterfat are being studied on the Corona Range and Livestock Research Center to determine responses of the plant to seasonal grazing by cattle. Two seasonal treatments and one control treatment were established in June 1994 to monitor differences in plant growth throughout the next two growing seasons. The first treatment incudes plants that were grazed in the fall of 1993 and are currently protected from grazing. The second treatment are plants that were grazed during the summer of 1994 and will be grazed again during the

summer of 1995. Portions of the summer treatment plants are being protected from grazing to use for comparison to the grazed plants. The control treatment is an area on the ranch that has not been grazed for several years and these plants will be used to compare the two seasonal grazing treatments.

Monitoring is done by measuring growth increments on specific branches that were identified and marked at the beginning of this study. Measurements were taken every two weeks during the summer and once every month during the fall. The difference in growth increments from each treatment will be compared.

Initial early data indicate that Fall-only grazing seems to be the best way for winterfat to achieve the most growth and biomass. Fall grazed plants grew an average of 61% more than those plants grazed in the summer or the plants located in the control plots. Management implications for ranchers could be higher amounts of winter forage available for cattle if pastures with high densities of winterfat were deferred until late fall or early winter.

HABITAT PREFERENCE OF CATTLE GRAZING PINYON PINE/JUNIPER WOODLAND IN SOUTHCENTRAL NEW MEXICO

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(Key Words: Beef Heifers, Grazing Behavior, Diet Selection)

The habitat preference of cattle grazing grassland and varying densities of Pinyon and Juniper woodland are being evaluated at the Corona Research Center. The study area consists of semi-arid terrain at approximately 7,000 ft in elevation, with blue grama as the primary grass. The behavioral data are recorded two times weekly with one night watch per month, via observation. Observations being recorded are: time spent in each area, activities in each area, i.e., grazing, ruminating, walking, species eaten, and time at water. Daily weather observation are being recorded for day and night watches. Observations suggest that cattle prefer open and sparse stands of Pinyon/juniper when compared to grassland and dense Pinyon/juniper during day hours. However, this preference shifts at night to grassland and sparse Pinyon/juniper. Key grazing times are from approximately 6:00-10:00 a.m., resume again from approximately 4:00-7:00 p.m., and then from approximately 11:00 p.m. - 2:00 or 3:00 a.m. However, these times may vary somewhat due to weather events and season. Ruminating, watering, resting, and socializing take up the rest of the cattle day. Clippings are taken once every two weeks from three areas where cattle have grazed to determine key species selected. Key species for grasses include blue grama, wolftail, and dropseed, while key forbs include four-o'clock, little yellow zinnia, cowpen daisy throughout all area types. This however, does not suggest that other forbs and grasses are not important. Further analysis of diet selection is underway.