

# **Annotated Bibliography- Plant-Herbivore Interactions in a North American Mixed-Grass Prairie**

**Kevin Zhou**

## **Bio 862-01 Current Topics in Ecology**

M. Silvia Cid, James K. Detling, April D. Whicker, and Miguel A. Brizuela. **“Vegetational responses of a mixed-grass prairie site following exclusion of prairie dogs and bison.”** Journal of Range Management, Vol. 44, No. 2, (Mar., 1991): 100-105.

-The authors research about the impact of exclusion of prairie dogs and bison in a mixed-grass prairie at Wind Cave National Park, S.D. They hypothesized that release from grazing by prairie dogs, bison (and other native ungulates), or both would reverse these trends of increased plant species diversity and graminoid equitability, and increased shoot nitrogen concentration. Further more they hypothesis that prairie dog exclusion would have a greater impact on vegetation than ungulate exclusion. In two years study, they found that the trends are slightly but significantly changed. But there are no significant difference between prairie dog exclusion and ungulate exclusion.

D.L. Coppock, J.K. Detling, J.E. Ellis, and M.I. Dyer. **“Plant-Herbivore Interactions in a North American Mixed-Grass Prairie.”** Oecologia (Berlin) (1983) 56: 1-9.

-This research is about effects of black-tailed prairie dogs on intraseasonal aboveground plant biomass and nutrient dynamics and plant species diversity on a northern mixed-grass prairie site at Wind Cave National Park, South Dakota. They suggest that prairie dog-induced changes in plant biomass, plant species diversity, plant nutrient content, and forage digestibility may lead to further alterations of nutrient cycling and trophic dynamics in this mixed-grass prairie ecosystem.

Philip E. Hulme. **“Herbivory, Plant Regeneration, and Species Coexistence.”** The Journal of Ecology, Vol. 84, No. 4, (Aug., 1996): 609-615.

-This paper has introduced 3 different mechanism and relationship between herbivores and plants. They are herbivores and plants competition, herbivores and plants regeneration and herbivores and vegetational diversity.

Bonham CD and Lerwick A (1976). **“Vegetation changes induced by prairie dogs on shortgrass range.”** J Range Manage 29: 221-225.

-The research is about prairie dog induced change on the biomass nutrient dynamics and plant species diversity on the shortgrass range. On shortgrass prairie, plant species diversity is reportedly greater on prairie dog towns than on nearby uncolonized sites. But changes in plant species diversity as a function of time since colonization

apparently have not been documented. Indeed, the role of herbivores in influencing vegetation diversity in general has received little attention.

Daniel W. Uresk. "**Black-tailed prairie dog food habits and forage relationships in western South Dakota.**" *Journal of Range Management*, Vol. 37, No. 4 (Jul., 1984): 325-329.

-This paper is about the research on the habits and forage relationships of prairie dog in Conata Basin. The forage plants of prairie dog were sand dropseed, sun sedge, blue grama, and wheatgrasses. Relationships of diets to available forage were weak, having an average similarity of 25%. Rank-order correlations were nonsignificant, indicating that black-tailed prairie dogs are selective feeders.

Martha J. Desmond, Julie A. Savidge, Kent M. Eskridge. "**Correlations between Burrowing Owl and Black-Tailed Prairie Dog Declines: A 7-Year Analysis.**" *The Journal of Wildlife Management*, Vol. 64, No. 4, (Oct., 2000): 1067-1075.

-This paper is about the prairie dog and owl interaction in west North America. Because of the strong dependence of owls on burrows, they hypothesize that reduction of prairie dogs would lead to declines in burrowing owls. The research monitored burrowing owls and prairie dog burrows for 7 years. The number of burrowing owls and prairie dog burrows declined substantially throughout the 7-year period. This research shows that burrowing owls may benefit from the presence of prairie dogs in the vicinity of nests.

Mark V. Lomolino and Gregory A. Smith. "**Dynamic Biogeography of Prairie Dog (*Cynomys ludovicianus*) Towns near the Edge of Their Range.**" *Journal of Mammalogy*, Vol. 82, No. 4 (Nov., 2001): 937-945.

-This research studied the biogeography of the black-tailed prairie dog along the southeastern edge of its grassland. They assessed the status of species in this region and identified trends in prairie dog town coverage and mean town size over the past century, to test whether town persistence was associated with area and isolation of towns. They found that the total coverage of towns has declined, mean size of towns has decreased, and towns have become increasingly more isolated.

John G. Sidle, Douglas H. Johnson, Betty R. Euliss and Marcus Tooze. "**Monitoring Black-Tailed Prairie Dog Colonies with High-Resolution Satellite Imagery.**" *Wildlife Society Bulletin*, Vol. 30, No. 2 (Summer, 2002): 405-411.

-This research is about using high-resolution satellite imagery to detect small and large colonies of prairie dogs in the United States of America. They monitored the black-tailed prairie dog colonies throughout the Great Plains, using the species' distribution in North Dakota as an example. Monitoring plots could be established and imagery acquired periodically to track the expansion and contraction of colonies.

Kelly A. Roe and Christopher M. Roe. "**Habitat Selection Guidelines for Black-Tailed Prairie Dog Relocations.**" *Wildlife Society Bulletin*, Vol. 31, No. 4

(Winter, 2003): 1246-1253.

-This paper studied the relocation guidelines for black-tailed prairie dogs. They determined the soil, vegetation, slope, and elevation, previous use of the relocation site by prairie dogs, proximity of the site to existing prairie dogs and proximity of the site to neighboring properties. They found that wildlife and natural resource managers should consider all the factors that affect the success of a relocation effort including the biological needs of prairie dog, consideration of the grassland habitat to which the prairie dogs are relocated, landowner concerns regarding the relocation, and how prairie dog behavior can affect all of the above.