Quality does not reign supreme

A recent article highlighting a University of Wyoming (UW) research project explained the presence of prairie dogs may increase forage quality for cattle grazing. The increase in forage quality seen in this UW study is explained by the prairie dogs keeping the forage regularly clipped (eaten) so the plant remains in a young stage of maturity. Since maturity is generally the enemy of quality, a younger plant is more nutritious than an older plant. While the data supports this conclusion, there are many other pieces to the puzzle which influence the impact and management of prairie dogs.

Two of the most important terms used when discussing cattle forage are quality and quantity. These terms seem easy to define and measure using biomass, number of tillers per square foot, animal unit months, crude protein, relative feed value, etc. In the context of cattle grazing, the question becomes if the biomass sample mimics forage access by cattle. Due to their mouth and jaw structure, cattle typically can’t eat plants shorter than two inches and prefer vegetation around six inches tall. Prairie dogs may clip vegetation shorter than the height utilized by cattle. Implications of lower biomass production reach far and wide including changes to soil fertility, erosion, nutrient cycling, and susceptibility to weed invasions. Overall quantity measurements may be irrelevant if cattle can’t utilize the forage, therefore making the quantity discussion even more complicated.

The temporal scale is another factor contributing to the puzzle of prairie dogs. Forage species are generally perennial grasses. Certain grass species are better adapted to continuous grazing and remaining in a vegetative state of growth. However, grass species which are not adapted to frequent grazing are unable to sustain such existence over several growing seasons. If prairie dogs are continuously clipping the plant it may never reach the elongation (jointing) or reproductive stages. Forage species may be more nutritious on a short time scale, yet over several years the plant community will likely shift to something less desirable. Invasive weed species generally thrive on disturbed sites similar to prairie dog colonies. Several studies show the quality and quantity of forage around prairie dog colonies are a function of the colony age.

Further, the spatial scale should also be considered in the context of cattle grazing and prairie dog management. Among other factors, location, precipitation, and soil type influence plant communities. For example, southeast Wyoming and western Nebraska may have more warm-season perennial grasses than the Thunder Basin National Grassland where the UW study was conducted. Geographic variances will impact the timing and intensity of cattle grazing and nutritional requirements of cattle, as well as prairie dog behavior. While large ungulates such as bison have co-existed with prairie dogs in the past, the comparison to current conventional livestock management does not mimic the historical scene. Irrigated crops and rangeland/pasture are intermixed within a landscape and cattle are intentionally moved between areas to maximize efficiency of forage and labor on privately-owned land as compared to public lands. These two factors were not present during historical relationships between bison and prairie dogs.

Researchers of this project are well aware of the study limitations and are not advocating for or against prairie dogs or cattle. This study answers one piece of a large, complicated puzzle. Within the area of southeast Wyoming and western Nebraska, the tradeoff of higher quality forage likely will not offset the lower quantity available to cattle. Landowners must assess their situation with all knowledge available to make informed management decisions. For more information about prairie dogs or the research study, contact Dr. Derek Scasta at jscasta@uwyo.edu, or Goshen County Weed and Pest at (307) 532-3713, gocoweeds@embarqmail.com, <https://www.facebook.com/gocoweeds>.

