



Fact Sheet #4 Myths About Cattle and Prairie Dogs

Extensive research, conducted over the course of the past twenty years, indicates that prairie dogs do not present a significant economic threat to livestock operations. For instance, O’Meilia et al. (1982) found no significant difference in the weight of steers grazing on and off prairie dog towns. O’Meilia et al.’s study was conducted under heavy cattle stocking rates, thereby maximizing opportunities for competition between cattle and prairie dogs.

Other studies have similarly concluded that prairie dogs pose a negligible economic threat to cattle ranching. Hansen and Gold (1977) found that cattle weights did not significantly differ between colony and off-colony sites. In addition, Collins et al. (1984) reported that poisoning prairie dogs was not cost-effective, as the annual cost of maintaining control exceeded the annual value of the forage gained. Their conclusion held whether one assumed the perspective of the Forest Service or a grazing permittee.

Uresk (1985) finds that controlling black-tailed prairie dogs did not result in increased forage for the four-year time period he studied. Similarly, Klatt and Hein (1978) reported that eradication of prairie dogs would not significantly benefit cattle grazing, as changes in vegetation following five years of prairie dog abandonment were minor in the shortgrass prairie. In fact, these researchers concluded that there were decreases in total vegetative cover after prairie dog abandonment of colonies.

There are several reasons why the historical belief that prairie dogs are detrimental to cattle ranching is inaccurate. First, prairie dog grazing results in a higher nitrogen concentration in plant shoots, compared with off-colony areas (Whicker and Detling 1988; Coppock et al. 1983a; 1983b; Krueger 1986). More generally, Whicker and Detling (1988: 783) reviewed the literature on the increased nutrition of forage on prairie dog colonies and concluded:

In patches created by prairie dogs, plant biomass has a greater live-to-dead ratio (albeit lower standing crop), a higher crude protein (nitrogen) concentration, and a greater digestibility than biomass from the uncolonized prairie (Coppock et al. 1983a). These characteristics result in improved nutrition per unit of food consumed on the colony.

Indeed, rather than promoting soil erosion, as prairie dogs have been described as doing, prairie dog creation of more bare soil and their reduction in plant biomass and cover “may cause microclimatic changes in the system” (Whicker and Detling 1988: 782), which may lead to increased nitrogen in plants on prairie dog towns. The effects of this warmer microclimate are offset by greater available soil moisture on prairie dog towns

(Day and Detling 1994). Decreases in transpiring leaf area, conservation of soil moisture, changes in soil physical properties, and the promotion of water infiltration to deeper soil depths all probably account for the improved soil moisture availability and plant water status on prairie dog colonies. This improved water status and the higher ratio of green forage on colonies later in the season may explain preferential grazing by bison (Bison bison) (Krueger 1986; Day and Detling 1994) and pronghorn (Antilocapra americana) (Krueger 1986). In fact, Bonham and Lerwick (1976) report that some plant species preferred by livestock are more abundant on prairie dog colonies than on study sites without prairie dogs.

In addition, research indicates that prairie dogs can control honey mesquite (Prosopis glandulosa) (Miller et al. 1996; Miller and Ceballos 1994; Weltzin et al. 1997). Prairie dogs remove pods and seeds and nip and strip bark from young seedlings, which contributes to seedling mortality. The extermination of the BTPD in Arizona and other areas of the southwestern U.S. may partly explain the proliferation of honey mesquite from the late 19th century ("Suffering From a Prairie-Dog Shortage," 1991). Where mesquite proliferates, prairie dogs could serve to control it and in this way could benefit livestock operations (Weltzin et al. 1997). Indeed, Weltzin et al.'s research indicates that prairie dog control of brush encroachment can benefit livestock.

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