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EFFECT OF INTERSPECIFIC DISTURBANCE ON FORAGING BEHAVIOR OF BIGHORN SHEEP AT A WILD HORSE RANGE

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Abstract: The foraging behavior of Rocky Mountain bighorn sheep (Ovis c. canadensis) was analyzed from June 1986 to November 1987 as part of a multi-year wildlife research program at Bighorn Canyon National Recreation Area. Objectives of the research program were: to determine population size, age and sex composition and to analyze health of the herd; to analyze seasonal food habits and dietary overlap of sheep and wild horses; to analyze seasonal habitat utilization and activity pattern and to identify areas sensitive to human use; and to evaluate the total habitat potential of the area for mountain sheep. The setting of the 120,000 acre recreation area is a precipitous canyon land and 72-mile long reservoir in south-eastern Montana and north-central Wyoming. Portions of the recreation area have been federally designated as a wild-horse preserve. Access to the wild-horse range and southern portion of the recreation area is by secondary highway. The focus on the research program is a recolonized population which originated from the post-release dispersal of 6 sheep in 1975. Reproductive performance was optimal and the population currently numbers 50-60 sheep. In attempt to isolate a critical factor from an array of factors which could potentially limit future expansion of the herd, we quantified behavioral stress in different habitats. The habitat variable of interest was the presence/absence of wild horses or humans. Foraging behavior was analyzed in habitat that sheep used exclusively (precipitious habitat), in habitat sheep used in common with horses and/or humans (roadside habitat), and in habitat that sheep used with horses (non-precipitous habitat greater than 400-m from the road). Vegetative associations were similar in the 3-habitats. We analyzed time spent in 3 behavioral categories during foraging periods: foraging (ingesting or searching for food), social, or alert. We considered alert behavior to be an interruption of maintenance activity (IMA). Throughout the study IMA levels were highest at the roadside and lowest at the precipitous-lakeshore. IMA levels were intermediate but low at habitat used in common with horses, showing that humans had a greater effect on the behavior of ewes than did wild horses. Though IMA levels were high due to vigilance and flight response, roadsides supported succulent forage and received heavy use by lactating ewes during peak-summer tourism. The utility of roadside habitat to ewes will be discussed. Data supporting our hypothesis will be presented. Rams and wild-horses associated extensively. In every instance, IMA levels were lower when rams foraged with horses than when rams foraged with conspecifics. Rams never exhibited alert or social behaviors when foraging with horses. The same was true for ewes and yearlings which were observed in association with horses on one occasion. We will discuss several plausible explanations for these unexpected results.