

EVALUATION OF BIGHORN SHEEP AND MULE DEER HABITAT ENHANCEMENTS ALONG KOOCANUSA RESERVOIR.

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Abstract. Habitat enhancement projects were initiated along Koocanusa Reservoir in 1984 in an effort to increase bighorn sheep and mule deer populations. This report evaluates the efficacy of these efforts by measuring and analyzing the responses of vegetation and deer and sheep populations before and after habitat manipulations. An evaluation of vegetation responses indicated that shrub frequency and volume measurements decreased in response to manipulation except for palatable species such as serviceberry and spiraea, which increased. Herbage production and understory cover composition both increased initially, but returned to pre-treatment levels within 2 years. Bighorn sheep responded by increasing utilization of treatment units and adjacent habitat. A change in overall distribution of mule deer seemed to occur, but was less apparent than for sheep. Four deer changed from a migratory to a resident pattern, 3 shifted established winter home ranges, and the proportion of deer using spring and fall transitional ranges decreased from 69% pre-treatment to 0% post-treatment all suggesting a positive response by deer. Home range sizes were variable over time for both species and revealed no clear relationship to habitat manipulation. Sheep and deer population estimates over the study period were variable, but did not support the hypothesis that populations should increase in response to habitat manipulations. Bighorn natality and recruitment declined over the study period. Natality for mule deer also declined between the pre-treatment to post-treatment periods. There was no significant decline in survival for sheep during winter and spring between treatment periods. Survival rates for mule deer declined between periods, but not significantly. Age structures from mule deer harvest data indicated declining recruitment and a stable to declining population. Bighorn sheep group composition suggested a decrease in recruitment and a declining population. Results of monitoring indicated that sheep and deer exhibited a positive behavioral response to habitat manipulation, but a long-term improvement in population dynamics was not evident from the data. Managers should reconsider their original mitigation goals of a 33% increase in mule deer and bighorn sheep populations.

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