Cougar Food Habits, Prey Selection, and Predation Rates in the Northern Yellowstone Ecosystem [TWS]

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Cougar (*Puma concolor*) predation was studied from 1987 to 1996 in northern Yellowstone National Park and vicinity. Eighty-eight cougars were captured, 84 were radio-collared, and kills of 46 individuals were documented. Elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*) comprised 98 percent of prey biomass and 81 percent of 302 cougar kills. Bighorn sheep (*Ovis canadensis*), moose (*Alces alces*), and pronghorn (*Antilocapra americana*) represented less than 5 percent of cougar kills. Among deer and elk, elk calves were the most important prey, mule deer were intermediate, and cow and bull elk were the least important prey relative to their availability. Predation rates averaged 9.4 days per ungulate kill and varied by cougar hunting experience (measured by age), weight, and ambient air temperature. Cougars killed only 2-3 percent of elk and 3-5 percent of deer on the study area each year. Migratory behavior, habitat use patterns, and the size of prey reduced the effects of cougar predation. Cougars did not effectively limit growth rates of elk and moose populations on the study area, because cougars selected their young preferentially to adults. Strong limitation of mule deer populations was more likely, because all sex-age classes were preyed upon more equitably. Our results indicated that altering the structure of cougar populations (e.g., by hunting) could change the influence of cougars on the numbers and sex-age structure of their ungulate prey. In other words, if the age structure of a cougar population in an area is skewed toward adults, cougar predation would more likely occur on larger ungulates such as elk over deer.

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