

COUGAR PREDATION ON BIGHORN SHEEP IN SOUTHWESTERN ALBERTA¹

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Abstract: Prey selection, and predation and consumption rates by cougars (*Felis concolor*) were studied in the Sheep River area of southwestern Alberta during winter from 1981 to 1994. We examined 376 kills made by cougars. Ungulates provided >99% of the biomass consumed by both male and female cougars between November and April each year. Five ungulate species were available within the study area, and all were taken by cougars. Of 30 bighorn sheep (*Ovis canadensis*) killed by cougars, 14 were lambs. The remainder ranged in age from 1-16 years, and included 9 ewes and 7 rams. Known cougar kills accounted for 0-11% of the early-winter sheep population each year, and accounted for up to 34% of known overwinter mortality. A model based on observed cougar-predation patterns predicted that cougars would kill 10.9-13.6% of the early-winter population. Bighorns provided 9.1% of the biomass consumed during winter by female cougars, and 5.5% for males. Cougar predation on bighorn sheep appears to be largely an individual, learned behavior; most cougars with home ranges overlapping bighorn winter range rarely killed sheep, but certain individuals preyed heavily on them. Predation by 1 female cougar accounted for 8% of the early-winter sheep population 1 year. For ungulates that occur in small, relatively isolated groups, such as many overwintering bighorn sheep herds, the presence of a few such predators may strongly influence their vital rates and behavior.

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