

FUNCTIONAL RESPONSE OF COUGARS AND PREY AVAILABILITY IN NORTHEASTERN WASHINGTON

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Abstract: Within the last ten years, a major change in the population structure of deer in western North America has taken place. Mule deer populations are sharply declining, while white-tailed deer populations are increasing. Researchers have suggested that cougar predation is a possible reason for the decline. The purpose of this project is to investigate cougar predation in a community where substantial populations of white-tailed deer, mule deer, and cougars overlap. We are testing two alternative hypotheses of cougar prey selection. H1, or the apparent selection hypothesis, states that equal selection by cougars for white-tailed deer and mule deer, but a higher reproductive rate by white-tailed deer is causing a decline in the mule deer population. H2 proposes that higher selection by cougars for mule deer is causing a decline in the population. Preliminary results suggest H2. The effect of predation on prey is determined by two factors: 1) functional response, and 2) prey availability. Functional response of cougars is quantified by the number of kills, per cougar, per unit time, and prey availability provides an estimate of the number and distribution of each prey species. The combination of these two factors may offer a more complete understanding of cougar prey selection. This research is in support of a larger study, which will use the apparent competition theory to examine alternative cougar management strategies.