
WOLF-COUGAR CO-OCCURRENCE IN THE CENTRAL CANADIAN ROCKY MOUNTAINS

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Cougars and wolves are top predators that can influence the dynamics of an ecosystem, including prey behavior, dynamics, and interspecific competition. I am examining co-occurrence between wolves and cougars in the Central Alberta Rockies using occupancy modeling. I hypothesize that cougars will have lower occupancy of higher quality habitat in the presence of wolves; cougars will be restricted to higher elevations, more rugged terrain, and areas with lower NPP than the areas occupied by wolves. To test this overall hypothesis, we collected data from 167 remote wildlife cameras in Banff, Jasper, and Yoho National Parks and use co-occurrence models to explicitly test the effects of wolves on cougars. We examined co-occurrence between seasons, summer (May 1 – October 31) and winter (Nov 1 – April 30), in seven-day intervals. From naïve occupancy models, summer cougar occupancy was 0.35 with a detection probability of 0.202 and winter occupancy was 0.157 with a detection probability of 0.065. Summer wolf occupancy was 0.625 with a detection probability of 0.209, while winter occupancy was 0.435 with a detection probability of 0.134.

The larger proportional, seasonal decline in cougar occupancy in winter is intriguing because prey density is higher during the winter, meaning cougar-wolf competition may increase during winter; wolf presence may impact both cougar detection and occupancy. Preliminary co-occurrence models support our hypothesis that wolves can potentially outcompete cougars in our system. This study is important because the literature about wolf-cougar co-occurrence provides mixed results: mostly cougars are secondary predators to wolves, but occasionally, cougars are unaffected by wolf presence.