
SUMMER HABITAT SELECTION AND RANGE EXPANSION OF NON-NATIVE MOUNTAIN GOATS IN THE GREATER YELLOWSTONE AREA

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The ongoing expansion of non-native mountain goat populations throughout the mountainous regions of the greater Yellowstone area (GYA) may pose a threat to species native to this ecosystem, particularly native and restored bighorn sheep populations with a history of vulnerability to overexploitation, habitat loss, and disease die-offs. To inform future management actions and policy on the breadth of mountain goat expansion, we used unique occupancy methodologies to rigorously survey two study areas with established bighorn sheep and mountain goat populations over three summer field seasons (2011-2013), modeled patterns of scale-specific habitat selection, and predicted the ultimate distribution of suitable habitat and abundance of mountain goats for the entire GYA. We recorded 505 mountain goat detections for 53,098 sampling units. Mountain goat occupancy was most strongly related to slope, slope variance, canopy cover, heat load, and NDVI. We predicted extensive suitable habitat for the GYA covering 10,745 km² and extending throughout the South Absaroka, Teton, Gros Ventre, Wind River, and Wyoming Ranges. We estimated the GYA to support 5,372-8,918 total mountain goats, or about 2.5-4.2 times the current abundance estimate of 2,104. The potential implications to management and conservation of bighorn sheep and mountain goats are addressed.