

## **Modeling Summer Habitat Selection of Sympatric Bighorn Sheep and Mountain Goats in the Greater Yellowstone Area**

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**ABSTRACT** As introduced mountain goat (*Oreamnos americanus*) populations continue to expand throughout the mountainous regions of the Greater Yellowstone Area (GYA), wildlife managers have expressed a need for reliable information specific to this region to understand mountain goat ecology, as well as any potential impacts to native species, including native and restored bighorn sheep (*Ovis canadensis*). In response, we developed and implemented rigorous occupancy survey methodologies in 2 study areas for 3 field seasons (2011-2013). A total of 611 surveys captured spatially precise locations of 128 bighorn sheep groups and 286 mountain goat groups. These data are being used to develop fine-scale summer habitat selection models for both mountain goats and bighorn sheep that account for imperfect detection. The models will provide insight into the potential for resource competition between the 2 species and allow the prediction of mountain goat range expansion into the extensive ranges of bighorn sheep in the eastern mountains of the GYA where small numbers of colonizing mountain goats have recently been observed. We report on the accomplishments from the 3 field seasons, including preliminary analyses and the next steps to completing a full analysis of the data.

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**KEY WORDS** bighorn sheep, expansion, habitat selection, introduced, mountain goat, occupancy, *Oreamnos americanus*, *Ovis canadensis*, potential competition, resource selection.

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