

With Great Powder Comes Great Responsibility: Assessing the Response of Sierra Nevada Bighorn Sheep (*Ovis canadensis sierrae*) to Backcountry Skiing

JARON T. KOLEK, Haub School of the Environment and Natural Resources, University of Wyoming, 804 E Fremont Street, Laramie, WY 82072, USA, jkolek@uwyo.edu

Wyoming Cooperative Fish and Wildlife Research Unit, Department of Zoology and Physiology, University of Wyoming, 1000 E University Dr., Laramie, WY 82071, USA

THOMAS R. STEPHENSON, Sierra Nevada Bighorn Sheep Recovery Program, California Department of Fish and Wildlife, 787 North Main Street, Suite 220, Bishop, California 93514 USA

KEVIN L. MONTEITH, Haub School of the Environment and Natural Resources, University of Wyoming, 804 E Fremont Street, Laramie, WY 82072, USA

Wyoming Cooperative Fish and Wildlife Research Unit, Department of Zoology and Physiology, University of Wyoming, 1000 E University Dr., Laramie, WY 82071, USA

ABSTRACT: The influence of humans on wildlife is most notable through habitat loss and fragmentation. The mere presence of humans, however, can trigger antipredator behaviors, alter space use, and limit access to resources. Growth in outdoor recreation has increased the presence humans in natural areas creating potential conflict. To assess the effect of recreation on the habitat use of Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*), we evaluated the selection of home ranges and selection of features within home ranges in relation to backcountry skiing. Sierra bighorn avoided areas with backcountry skiing when selecting home ranges ($\beta = -0.06$, $p < 0.05$) and locations within those ranges ($\beta = -0.18$, $p < 0.05$). At both scales, however, sheep avoided ($\beta = -0.86$, $p < 0.05$) or showed indifference to ($\beta = -0.05$, $p = 0.18$), distance to backcountry skiing potentially indicating a lack of alternative sites or a response that is complicated by terrain. We add to a growing body of literature which shows wildlife can be sensitive to forms of human activity that have been perceived as having minimal impact. Furthermore, we highlight the need to incorporate responses to recreation in management planning to ensure the sustainability of wildlife populations as recreation increases globally.

Biennial Symposium of the Northern Wild Sheep and Goat Council 23:8; 2022

KEYWORDS: *Ovis canadensis sierrae*, Sierra Nevada bighorn sheep, Strava, backcountry skiing, habitat selection, recreation.