

Bighorn Sheep Respiratory Disease Surveillance via Animal Behavior and Community Science

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ABSTRACT: Because Bighorn Sheep Respiratory Disease (BHSRD) leads to reduced lamb recruitment, decreased population growth and stability, and even local extinctions in bighorn sheep (*Ovis canadensis*) populations across North America, monitoring this disease is essential to wildlife management. However, physiological surveillance and sampling is logistically and economically challenging, hampering our ability to detect BHSRD incidence and spread. My work aims to circumvent some of the challenges by developing a surveillance program using clinical signs and behavioral sampling to predict infection in bighorn herds. We observed bighorns in four different sites in Montana from June to mid-August; one with no history of BHSRD, one with no die-offs within the past 5 years, one with die-offs within the past 5 years, and one currently undergoing significant lamb mortality. We performed 20-minute focal behavioral sampling, focusing on one lamb or ewe at a time and noting the time lying down (inactive), grazing, walking, standing, playing, and nursing (active), as well as any other signs of compromised health (e.g., nasal discharge, drooping ears, head shaking, or coughing). Here, I grouped behaviors into active and inactive categories and found that inactivity was more prevalent in diseased populations. These results will help determine which behavioral and clinical signs are most useful in detecting BHSRD, making BHSRD monitoring a prime candidate for low-cost, community science-driven programs.

Biennial Symposium of the Northern Wild Sheep and Goat Council 23:32; 2022

KEY WORDS: behavioral sampling, bighorn sheep, respiratory disease.