

A Collaborative Regional Initiative to Correlate Respiratory Pathogens with Demographic Attributes of Bighorn Populations

ROBERT A. GARROTT,¹ *Fish and Wildlife Ecology and Management Program, Ecology Department, Montana State University, 310 Lewis Hall, Bozeman, MT 59717, USA*

HANK EDWARDS, *Wyoming Game and Fish Department, 1174 Snowy Range Road, Laramie, WY 82070, USA*

JENNIFER RAMSEY, *Montana Fish, Wildlife and Parks, 1400 S. 19th Avenue, Bozeman, MT 59718, USA*

DOUGLAS MCWHIRTER, *Wyoming Game and Fish Department, 2820 State Highway 120, Cody, WY 8241, USA*

NEIL ANDERSON, *Montana Fish, Wildlife and Parks, 1400 S. 19th Avenue, Bozeman, MT 59718, USA*

CARSON BUTLER, *Fish and Wildlife Ecology and Management Program, Ecology Department, Montana State University, 310 Lewis Hall, Bozeman, MT 59717, USA*

ABSTRACT Bighorn sheep (*Ovis canadensis*) conservation and management has been plagued with seemingly unpredictable outbreaks of pneumonia in herds throughout the range of the species. These disease events can vary from persistent low-level mortality to infrequent catastrophic all-age die-offs reducing populations by 50-90%. Some populations appear to recover well from pneumonia events after a period of poor lamb recruitment in subsequent years, while other populations never seem to regain demographic vigor. Managers routinely sample affected bighorn herds in an attempt to gain insight into the respiratory pathogens responsible for die-offs and poor demographic performance, as well as to assess both donor and recipient herds prior to translocations of animals. Bighorns host a suite of respiratory pathogens and there is little consensus on the role of these organisms in pneumonia events. We describe an ongoing collaborative effort to employ standardized field and laboratory protocols to sample respiratory pathogens in bighorn herds throughout Montana and Wyoming. The sampled herds occupy diverse ecological settings with varying management histories, demographic attributes, and histories of pneumonia. These data will be used to explore potential correlations between respiratory pathogens detected in each herd and its demographic performance in the years immediate prior to and after the sampling event.

Biennial Symposium of the Northern Wild Sheep and Goat Council 19:12; 2014

KEY WORDS bighorn sheep, demography, die-offs, health, Montana, *Ovis canadensis*, pneumonia, recruitment, respiratory pathogens, Wyoming.

¹ E-mail: rgarrott@montana.edu