**WHAT DOES IT ALL MEAN? INTERPRETING RESPIRATORY PATHOGEN SURVEY RESULTS FOR BIGHORN SHEEP MANAGEMENT

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Respiratory disease has been a major challenge for bighorn sheep (*Ovis canadensis*) conservation and is a dominant factor influencing management decisions of bighorn sheep, however; much about the disease process remains unknown. Decades of research have compiled considerable evidence that domestic sheep and goats can transmit the disease to bighorn sheep as well as strong evidence for several bacterial organisms as causative agents for the disease. However, there are examples of bighorn populations hosting the agents linked to respiratory disease with little demographic side-effects. Further, the immediate cause of disease events often remains undetermined. Two general hypotheses exist to explain observed disease events in wildlife populations: 1) A disease event is caused by introduction of a novel pathogen from neighboring or sympatric host populations or; 2) A disease event is caused by certain conditions triggering endemic pathogens to become virulent to the host. While the extent to which these competing hypotheses explain observed respiratory disease events in bighorn sheep is unknown, the appropriate management actions to address disease due to these different processes are very different. Effectively addressing these hypotheses and better understanding the major causes of observed respiratory disease events is a challenge and requires rigorous and repeated pathogen sampling in bighorn populations both affected and seemingly unaffected by respiratory disease. This presentation provides a brief background of bighorn respiratory disease, highlights the challenges of interpreting respiratory pathogen survey results to inform management as well as recent advances in respiratory pathogen research that have promise to help further inform management decisions.