

Experimental Management of Pneumonia in Bighorn Sheep

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ABSTRACT Following introduction of pneumonia, disease can persist in bighorn sheep (*Ovis canadensis*) populations for years or even decades through annual or sporadic pneumonia epidemics in lambs. Recurring years of depressed recruitment due to high rates of pneumonia-induced mortality in lambs is a major obstacle to population recovery. Currently, 2 management strategies are most commonly implemented in response to this problem: do nothing or eradicate the population and release new sheep. We are investigating the feasibility of another management alternative: removal of individual “super-spreaders.” Individual variation in infection and transmission is well documented in human diseases (e.g., “Typhoid Mary”). We are testing the hypothesis that pneumonia epidemics in lambs are initiated by transmission of pathogens from a few “chronic-shedder” ewes. We plan to 1) identify whether we can detect chronic-shedders through repeated testing; 2) determine whether removal of chronic-shedder ewes improves lamb survival; and 3) monitor health status and growth of a new population established with non-shedders from an infected population. This is the first year of a 5-year project being conducted in 6 Hells Canyon bighorn sheep populations. We present results from the initial phase of the study, including confirmation of individual variation in pathogen shedding consistent with our hypothesis.

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