Testing the Tools: Highlands Bighorn Sheep Project

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More than a dozen of Montana's bighorn sheep herds have experienced all-age pneumonia die-offs in the past two decades and most have yet to fully recover. Wildlife managers have employed various strategies to help restore these herds such as natural herd re-establishment (hands off approach), augmentations, identification and subsequent removal of chronic shedders of *Mycoplasma* ovipneumonia (M. Ovi), and complete herd removal. Using the Highlands bighorn sheep herd in SW Montana, we designed a 5-year study to explore the efficacy of two additional tools for restoring bighorn sheep herds following a pneumonia outbreak: single detection test and removal, and selenium supplementation. Utilizing the metapopulation structure of the Highlands herd, we will collect two years of baseline information on the five sub-herds that comprise the Highlands metapopulation to 1) monitor disease exposure of individuals, 2) monitor lamb survival, and 3) estimate connectivity of sub-herds. We will then implement a single detection and removal strategy in two sub herds, selenium supplementation strategy in two sub herds, and no management intervention in the remaining sub herd. The efficacy of these treatments will be monitored for an additional two years. An increase in lamb survival, population growth and decrease in M. ovi detections in the sub herds receiving a treatment would indicate success of the management tool. Results of this experiment will add to the management toolbox of struggling bighorn sheep herds across Montana and the intermountain west.