

Limiting Factors of Bighorn Sheep Populations in Central and Southwestern Idaho

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ABSTRACT In central and southwestern Idaho, connectivity among populations, dispersal, and habitat preferences of bighorn sheep (*Ovis canadensis*) are poorly understood. In addition, health status, risk of disease transmission, and the influence of habitat quality on disease prevalence have not been identified. We developed a project to provide information on these poorly understood population attributes. Our objectives were to 1) define dispersal patterns and connections between neighboring populations; 2) establish baseline health status and disease prevalence for the herd; 3) estimate productivity and lamb survival; and 4) measure forage quality and quantity. In March 2016, we captured 62 bighorn sheep, 34 (11♂, 23 ♀) in the East Fork of the Salmon River, and 28 (11♂, 17♀) in the Owyhee Mountains, fitting them with GPS collars. Data collected from these individuals will be used to determine seasonal movements and range use, assist domestic sheep/goat-wild sheep risk assessments being conducted by the U.S. Forest Service, quantify lamb production and survival, quantify cause-specific mortality, and develop seasonal habitat suitability models. In addition, we collected blood, fecal, pharyngeal, nasal swabs and ear swab samples. Body Condition Scores (BCS) were assigned, and body fat measurements and pregnancy status were collected via portable ultrasound. Blood selenium levels were higher in East Fork Salmon than Owyhee animals, suggesting better immune function. None of the sheep sampled in the Owyhees and 8 of the 34 sheep sampled in the East Fork were positive for *Mycoplasma ovipneumoniae* on PCR. About 5% Owyhee sheep and about 85% of East Fork sheep were positive for *M. ovipneumoniae* antibodies on ELISA serology. All ewes in both study areas were pregnant except for one in the East Fork. Body Condition Scores (BCS) were similar in both populations at about 2.5, or fair condition. Forage quantity and quality will be measured during summer 2016 using a methodology described by Cook et al. (2016). Lambing success of collared ewes will be documented in June, and lamb survival will be documented in early fall. More collars will be deployed in winter 2017 to maintain sample size at around 30 collared sheep for each study area.

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KEYWORDS connectivity, disease, dispersal, forage quality, lamb survival, *Mycoplasma ovipneumoniae*, *Ovis canadensis*,

LITERATURE CITED

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