Evaluating Contact Risk Factors Between Wild and Domestic Sheep in Montana

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Respiratory disease, specifically pneumonia caused by *Mycoplasma ovipneumoniae* (M. ovi), remains a limitation to bighorn sheep conservation success in Montana. M. ovi can be transmitted among all members of the Caprinae family, including domestic sheep and goats. This study aims to identify individual, herd-level, and environmental factors that contribute to a higher risk of contact, allowing managers to better predict when and where wild sheep are likely to interact with domestic sheep and goats and to focus effective separation efforts. To date, 125 domestic sheep and/or goat producers have been identified near 6 bighorn sheep study herds where 142 bighorn ewes and 56 rams are GPS-collared. In addition, GPS collars are deployed on 291 domestic sheep and 30 livestock guardian dogs across 5 operations near 3 bighorn study herds. During 2024, 132 close proximity events (<200 meters) were identified through GPS data and involved 18 individual bighorn sheep and 6 producers across 3 study herds. The close proximity rate was 0.06 events/sheep/month across all collared individuals andvaried from 0–2.9 events/sheep/month. Proximity events occurred throughout the year, ranging from <2 hours–7 days, with a minimum distance to domestic sheep averaging 92 meters. Data collection will continue for 2 more years. The products of this study and future work will be developed collaboratively among producers, woolgrowers, sportspeople, and wild sheep managers with a goal of optimizing separation tools that work for both production agriculture and wildlife conservation.