Devils Canyon Bighorn Sheep Movement Analysis

2020 Spring Update

From 2008 to 2016 the Devils Canyon sheep herd experienced exceptional reproductive rates averaging 53 lambs per 100 ewes and ranging from 47-60:100. However in 2017, 18, and 19 the population has seen poor lamb ratios of 32, 37, and 44 respectively. While this population is classified from the air in the middle of summer, it's difficult to identify exactly why this is happening or what this means for the population, especially when the data is collected when the lambs are only 3 months of age.

Abundance of sheep in the herd has also decreased in the last three years although much of that can be attributed to individuals removed for transplants. We monitor abundance using a trend or raw count from the air, to give managers a known minimum population. In 2019 we observed 143 sheep in roughly four hours of flying. This brings the three year average to 154 sheep, which is below, but still within 20% of the 175 sheep objective set in 2015.

To gain insight into the future of Devils Canyon bighorns, the Wyoming chapter of the Wild Sheep Foundation in conjunction with the Wyoming Governors Big Game License Coalition graciously awarded the WGFD the funding to GPS collar a proportion of ewes and rams within the herd.

In November of 2019 WGFD personnel deployed 7 and 20 collars on Devils Canyon rams and ewes respectively. These collars are programmed to collect location data in real-time every 6 hours and are estimated to function for a minimum of 3.5 years. This is the first time that a movement analysis has occurred within this herd since the last transplant occurred in 2006.

In addition to collaring, 22 of the captured 27 sheep were were sampled for respiratory pathogens. Nasal and tonsil swabs were analyzed for the presence of respiratory pathogens by culture and polymerase chain reaction (PCR). Results were consistent with recent sampling efforts where the three most prevalent pathogens detected were *Mannheimia haemolytica*, *Pasteurella multocida*, and *Mannheimia glucosida*. Fortunately *Mycoplasma ovipneuomoniae* has still yet to be detected within the Devils Canyon bighorn sheep.

This data will be used to monitor to lamb survival and subsequent recruitment through the biological year. In December of 2019 the collared ewes were used to locate a larger sample (n=120) of sheep to efficiently conduct an aerial classification from helicopter. The results showed little change in the lamb ratios from our July (44:100) to December (46:100) counts, indicating high survival in that period. Continuing this effort into the spring will include deploying the remaining three ram collars, monitoring seasonal movements, and conducting a spring classification prior to lambing.

This work will be an integral component to keeping Devils Canyon Sheep on the mountain, and we at the Wyoming Game and Fish Department want to thank the Wyoming chapter of the Wild Sheep Foundation for the opportunity.