Low Lamb Recruitment and Declines in Adult Dall's Sheep: Cold Temperatures and Influence of the Snowshoe Hare Cycle

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ABSTRACT: Widespread extremely low lamb recruitment in Dall's sheep (*Ovis dalli*) occurred 2020 to 2022 in southwest Yukon and parts of Alaska. Declines in adults were also observed in some populations, particularly evident in 2023. Here we present these concerns and possible causes using data from aerial surveys dating back to 1977 on 4 populations of Dall's sheep. This dataset is unique not only because it is one of the longest datasets within the range of Dall's sheep but also from populations which experience little to no harvest in Kluane National Park and Reserve, southwest Yukon. Using generalized models, we found different drivers of year-to-year variation in lamb recruitment among the 4 populations. Colder falls, winters or springs and later springs were poor for lamb recruitment depending on location. The impact was amplified from apparent competition when snowshoe hare density was high, and coyote activity was also high 2 years prior. We discuss the implications of these results for Dall's sheep under future climate change in southwest Yukon.

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