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## **Disease Risk to Dall's sheep in Alaska**

### **Executive Summary**

More than 25% of all wild sheep in North America live in the State of Alaska. Dall's sheep are highly valued by countless sportsmen, photographers, nature lovers, subsistence users, and scientists. Weather patterns and predators have influenced Dall's sheep populations through the millennia but now there is a relatively new threat on the scene.

Wild sheep are susceptible to diseases carried by domestic sheep and goats that can affect herd survivability. The most significant diseases affecting our wild sheep are respiratory infections that result in pneumonia. Pneumonia in North American wild sheep has been documented in numerous scientific studies resulting in more than 70 technical publications. Pneumonia most often results in death across all age groups of wild sheep, and is typically followed by years of depressed lamb survival.

In March 2015, The Wildlife Society (TWS) and the American Association of Wildlife Veterinarians (AAWV) published a joint issue statement [attachment] recognizing that disease transmission from domestic sheep to wild sheep is a significant risk factor for the conservation of wild sheep populations. As part of the solution, TWS and AAWV's recommend increased cooperation and communication among all stakeholders and recognized spatial and temporal separation of domestic sheep and goats from wild sheep as the only current available management solution.

The Alaska Chapter of the Wildlife Society (TWS) published a position statement "*Reducing Disease Risk to Dall's Sheep and Mountain Goats from Domestic Livestock Position Statement*," which takes a specific look at the risk factors in Alaska. AK TWS recommended borough, state, federal and private organizations develop proactive programs and policies to minimize the potential for disease transmission to wild sheep and goat populations. Their published position statement also provides an excellent summary of the literature on risks and means of prevention of disease transmission.

The Western Association of Fish and Wildlife Agencies (WAFWA 2012) Wild Sheep Working Group's "*Recommendations for Domestic Sheep and Goat Management in Wild Sheep Habitats*" recommends pro-active management strategies to achieve effective spatial and temporal separation between wild sheep and domestic sheep or goats.

Many scientists and biologists believe that thinhorn sheep, Dall's and Stone's, may be particularly susceptible to these respiratory pathogens. This is due to their relative isolation and lack of previous exposure to domestic sheep and goats. Although the threat is real, there is no evidence that the current reduction in Alaska's Dall's sheep population is due to widespread pneumonia. However, only a very small percentage of the wild sheep in Alaska have been tested for these pathogens, but testing is ongoing despite limited resources.

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Respiratory bacteria carried and expelled by domestic sheep and goats don't significantly impact those domestic animals because of thousands of years of adaptation. However, these airborne respiratory bacteria when introduced to North American wild sheep pose a highly significant threat to their survival. This is a similar response to the millions of native peoples around the world that lost their lives when exposed to introduced diseases like smallpox for which they had no natural immunity. Not all pneumonia outbreaks in wild sheep have occurred following documented contact with domestic sheep and goats. The preponderance of scientific evidence, however, shows that interaction between domestic sheep and goats with wild sheep frequently results in the death of the wild sheep.

Should a transmission event occur from domestic sheep or goats, the disease would be spread by Dall's sheep themselves. First within their herd, and then from one herd to another, most often carried by rams traveling in search of a mate. The disease could spread long distances from one mountain range to another because young rams often travel surprising distances. Unchecked, this could result in significant die-off of Alaska's Dall's sheep that might take several lifetimes from which to recover. The spread and effects of pneumonia may also be heightened by stress from adverse weather and predation.

Management options to prevent a significant die-off of wild sheep caused by respiratory disease are limited. To date, there are no effective vaccines or treatments for pneumonia outbreaks in wild sheep. Collectively, 20 western state, provincial, and territorial fish and game agencies have recognized this risk and recommend steps be taken to develop effective separation between domestic sheep and goats and wild sheep as the only viable method of prevention.

We support multiple use resource management and are in no way against agriculture and the raising of domestic sheep and goats, either commercially or as a hobby. This is a traditional occupation and pastime done by fine people with no intended malice. We are, however, also strong advocates of science-based wildlife management in general, and for Dall's sheep in particular.

Alaskans now have the opportunity to exercise science-based management to avoid risking potential loss of their incredible Dall's sheep resource while still maintaining a traditional agricultural business or hobby. Whether via regulatory mechanisms through the Alaska Board of Game or legislative means via Alaska's Legislature, we recommend a pro-active, collaborative effort to address this important challenge before it becomes a crisis.

Respectfully,

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