

# Proposal 126

Prohibit the use of domestic goats and sheep as pack animals for hunting sheep, goats, and muskox

- ◆ Recommendation: Adopt
- ◆ Department Proposal



# Impact of Domestic Animals on Wild Sheep Populations

- ◆ Declines and population expatriations of Big Horn Sheep (BHS) coincided temporally and spatially to contact with domestic animals
- ◆ Respiratory disease resulting in pneumonia is the most serious and devastating disease at a population level that is shared by domestic sheep/goats and wild sheep
- ◆ A preponderance of field and experimental evidence has demonstrated that comingling or even single apparently healthy domestic sheep or goat can result in disease and death of wild sheep



# Field Evidence of Disease Transmission from Domestic Sheep and Goats

- ◆ Colorado 1997-98 following discovery of a single domestic sheep with BHS
  - 28% died, *Pasturella* pneumonia spread to 2 nearby herds
  - Lamb recruitment was very low for 2-3 years
  - Adult mortality for an additional two years.
  - Nine years later, the population only half the size prior to the outbreak.
- ◆ Hells Canyon area 1995
  - a feral goat was found in association with BHS just prior to a large pneumonia-related die-off of 50-75% of the herd



# Experimental Evidence of Pathogenicity of Domestic Sheep Respiratory Bacteria

- ◆ In inoculation trials with *P. haemolytica* cultured from domestic sheep, none of the domestic sheep died while 12 of 13 BHS died
- ◆ Dall's sheep shown to be susceptible to lethal pneumonia when inoculated with *P. haemolytica* (Foreyt et al . 1996)
- ◆ BHS were penned with 'healthy' domestic sheep or argali/mouflon hybrids
  - All 23 BHS died while all domestic and hybrid sheep remained healthy





# Evidence of Pathogenicity of Domestic/Pack Goat Respiratory Bacteria

- ◆ When healthy pack goats in Idaho were tested, 35 of 45 harbored pathogenic strains of *Pasteurella haemolytica*
- ◆ In pen experiments two of nine BHS penned with domestic goats died of respiratory disease



## Excerpts from: Recommendations for Domestic Sheep and Goat Management In Wild Sheep Habitat, WAFWA Wild Sheep Working Group (2007)

- ◆ There is a preponderance of evidence that indicates a significant risk of disease transmission from domestic sheep and goats to wild sheep exists
- ◆ In some cases, consequences to wild sheep have been severe enough to endanger entire populations of wild sheep.
- ◆ Effective separation (both temporal and/or spatial) between wild sheep and domestic sheep and goats should be a primary management goal of state and provincial agencies responsible for wildlife management

# Excerpts from: Recommendations for Domestic Sheep and Goat Management In Wild Sheep Habitat, WAFWA Wild Sheep Working Group (2007)

- ◆ It is widely recognized (Garde et al. 2005), but needs to be re-emphasized, that thinhorn sheep (Dall's sheep, Stone sheep) in northwestern Canada and Alaska are immunologically naïve compared to wild sheep occurring in southern Canada and the remainder of the western U.S.
  - Additional precautions should be taken to ensure that absolutely no contact occurs between naïve thinhorn sheep and domestic sheep and goats.
  - The use of domestic sheep and goats as pack animals by hunters, anglers, and other recreational or commercial users that travel in mapped wild sheep habitat should be prohibited where legislation/regulation exists

Garde et al. (2005) Examining the Risk of Disease Transmission between Wild Dall's Sheep and Mountain Goats, and Introduced Domestic Sheep, Goats, and Llamas in the Northwest Territories







# Muskoxen

- ◆ Although there have been no published risk assessments of pack goats on muskoxen, we do know:
  - Muskoxen are susceptible to domestic goat diseases and are more similar to goats than any other domestic species
  - AK muskoxen have extremely low genetic diversity (founder effect) including for disease resistance
  - Mass mortalities of Canadian and Norwegian muskoxen have occurred from diseases traditionally associated with domestic animals
  - Several AK muskoxen populations are declining and there is evidence that disease and parasites are causing substantial morbidity and mortality.





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