

**EVALUATION OF WINTER TICK INFESTATION AND ASSOCIATED HAIR
LOSS ON LOW-ELEVATION WINTERING STONE'S SHEEP IN NORTHERN
BRITISH COLUMBIA**

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Abstract: Stone's sheep (*Ovis dalli stonei*) wintering at low elevations along the Williston Reservoir in northern British Columbia were observed to exhibit hair loss in late winter similar to that seen in moose (*Alces alces*) affected by winter ticks (*Dermacentor albipictus*). We determined the relationship between hair loss and sheep wintering at high and low elevations. We conducted 69 examinations of 30 low-elevation (700 – 1,200 m) and 8 high-elevation (1,400 – 1,900 m) wintering Stone's sheep in March/April between 1999 – 2003, and fitted 27 sheep with VHF radio-collars. We classified the degree of winter tick-associated hair loss and breakage into one of 5 categories based on affected proportion of the torso: None (<1%), Very Low (1-5%), Low (6-15%), Moderate (16-30%), High (>30% of torso). Radio-collared sheep were monitored weekly - biweekly in fall (Oct/Nov) to determine range and habitat use during the peak tick larvae pick-up period.

No sheep that wintered at high elevation had winter ticks or exhibited any hair loss (n=14 exams), while 60% of low-elevation wintering sheep had some degree of tick-associated hair loss ranging from Very Low to High (n=55 exams), primarily on the neck, chest, and shoulders. Lambs were more affected by winter ticks than adult sheep. Of the 6 lambs examined in 2001, 83% exhibited Moderate to High hair loss compared to only 7% of adult sheep wintering at low elevation that same year (n=14) and 14% of sheep over all years (n=49). The degree of hair loss was directly related to the date that sheep descended to low-elevation ranges in the fall. The degree of hair loss did not appear to affect adult mortality or productivity because mortalities occurred in years when observed hair loss was low, and productivity throughout the study was normal. Starvation, likely related to late spring snow conditions, was the primary cause of death for 6 radio-collared females that died in spring 2002, and 2 females in spring 2003. Of the 12 and 14 sheep examined in March of these years respectively, only 15% had Low to Moderate hair loss (6-30%) and no sheep had High hair loss. Proportion of females producing lambs ranged from 85% - 100% annually throughout the study. Sheep that used low-elevation winter range came into greater contact with ticks than those that used high elevation winter range probably because Rocky Mountain elk (*Cervus elaphus nelsoni*) were present in higher densities on the low-elevation ranges and were likely the primary host for *D. albipictus*.