No Evidence for Reduced Lungworm Loads or Improved Lamb Recruitment Following Experimental Anthelmintic Treatments in a Free-ranging Bighorn Sheep Herd

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ABSTRACT Beginning in the 1970s, free-ranging Rocky Mountain bighorn sheep (*Ovis canadensis*) in Colorado were treated with anthelmintics to reduce lungworm infections in pregnant ewes. The treatments were thought to reduce transmission of larval lungworm to fetuses in late pregnancy, which would result in higher early lamb survival. However, research has suggested that treatments did not improve lamb recruitment. Given the uncertainty of long-term lungworm treatments, we examined the efficacy of anthelmintics on 1) increasing lamb recruitment and 2) reducing larval lungworm loads in ewes. To investigate these questions, we captured, radio-collared and divided 24 ewes into a control and 2 treatment groups. We monitored these sheep over a 4-year period, repeating treatments once per winter. We quantified ewe larval lungworm loads from fecal samples and monitored lamb recruitment through lamb-ewe associations. We saw no difference in early lamb survival between the treatment and control groups. We also found that larval lungworm loads were equivalent or higher in treated sheep compared to control sheep after one year. Our results, combined with previous research, suggest that long-term lungworm treatments do not improve lamb recruitment or overall herd health in bighorn sheep.

Biennial Symposium of the Northern Wild Sheep and Goat Council 19:111; 2014

KEY WORDS anthelmintics, bighorn sheep, Colorado, lamb recruitment, lungworm, *Ovis canadensis*, *Protostrongylus*.

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