

Staining *Protostrongylus* spp. First-Stage Larvae with Carmine-Propionic Acid

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Abstract: Pneumonia mortality caused by bacteria *Pasteurella/Mannheimia* spp. is the major problem in Rocky Mountain bighorn sheep (*Ovis canadensis*) in Colorado. Lungworms (*Protostrongylus* spp.) contribute to stress and exacerbate the problem. It is difficult to differentiate the metastrongyle nematodes on morphology of first-stage larvae. *Protostrongylus stilesi* can transmit across the placenta and is associated with high lamb mortality. *Protostrongylus rushi* is not associated with significant mortality. A low-tech method for differentiating *Protostrongylus* spp. would help with health-related management of wild sheep. Carmine-propionic acid staining method has been used with other parasitic strongylate nematodes. Lungworm larvae were collected from feces of bighorn sheep from the Sangre de Cristo Mountains of southern Colorado using the Baermann technique. Staining times of 1 to 5 hr with carmine-propionic acid enhanced internal anatomy of larvae and has potential for differentiating first-stage larvae of the primary lungworm species in bighorn sheep. This research supported by a Colorado Division of Wildlife Grant (# IA-OSA-1346-06).

BIENN. SYMP. NORTH. WILD SHEEP AND GOAT COUNC. 15: 2006

Key words: Bighorn sheep, lungworm, *Ovis canadensis*, *Protostrongylus* spp., staining technique

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