Distribution And Abundance Of Terrestrial Gastropod Intermediate Hosts Of Lungworms On Isolated, Semi-Arid Bighorn Sheep Ranges.

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Abstract: Recent bighorn sheep (*Ovis canadensis*) introductions in northwestern Utah may serve as models to explore the ecology of parasite-host relationships existing under isolated circumstances. Isolation may alter typical movement patterns of bighorn sheep and increase exposure to lungworms (*Protostrongylus stilesi* and *P. rushi*) through a build-up of fecal material. However, dry environments may hinder parasite transmission through limitations placed on terrestrial gastropods, the intermediate hosts. Bighorn sheep habitat use and gastropod distribution and abundance are compared to evaluate potential for lungworm transmission in isolated, semi-arid conditions. Gastropods were collected weekly on Antelope Island and Newfoundland Mountains during May-August 2001 among four major habitat types (grass, rock, spring, and scrub). Three sampling techniques were used. Gastropods were collected from within the families Pupillidae, Succineidae, Thysanophoridae, and Vallonidae. Experimental infections in the laboratory are being conducted to determine host suitability. In the field, gastropods were most abundant near springs, followed by rock, grass, and scrub habitat types. However, on Newfoundland Mountains, gastropods were not collected in grass or scrub. Habitat use by bighorn sheep was determined through visual observations of radio-marked individuals. On Antelope Island, bighorn sheep were observed most in grass, followed by rocks, scrub and springs. Current lungworm loads in the bighorn sheep populations were assessed by collecting fresh feces and extracting larvae to estimate mean lungworm larvae per gram of feces (LPG). LPG values for Antelope Island bighorn sheep are moderate to high suggesting that lungworms may be an important factor to the health of this population. Springs are probably the most important areas of lungworm transmission. A second field season will be conducted May-August 2002.