

GIARDIA AND OTHER PARASITES OF
SMALL MAMMALS IN
GRAND TETON NATIONAL PARK

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The objectives of this study are to document the effect of parasitism on vole populations and to investigate small mammals of Grand Teton National Park as potential reservoirs of human parasites.

Immediate goals for this year were (1) to continue the documentation of the incidence and prevalence of parasites of these small mammals; (2) to determine the age at which Giardia infections are contracted by the Microtus host; (3) to identify ticks associated with these small mammal populations; and (4) to survey the animals for Babesia infections.

Methods

Microtus montanus was livetrapped in the study sites used by A. J. Pinter in Grand Teton National Park at an approximate elevation of 2057 meters. The unbaited traps are also entered by a variety of other small mammals (e.g., jumping mice, shrews, pocket gophers), although these species are captured in much smaller numbers than Microtus. Analyses for the presence of Giardia and other parasites were done on all small mammals that were trapped.

To confirm the presence of viable trophozoites of Giardia, wet mount preparations were made from scrapings of the duodenal mucosa. Blood smears were stained with Geimsa and observed for Babesia infections. Portions of intestine fixed in formalin and ticks removed from the voles were dehydrated, sputter coated, critical point dried and observed by scanning electron microscopy. Identification of the parasites was based on accepted morphological criteria from light and scanning electron microscopy.

Results

All but 12 of the 144 M. montanus trapped during late May and mid-July were infected with Giardia. Eight of the uninfected animals were very

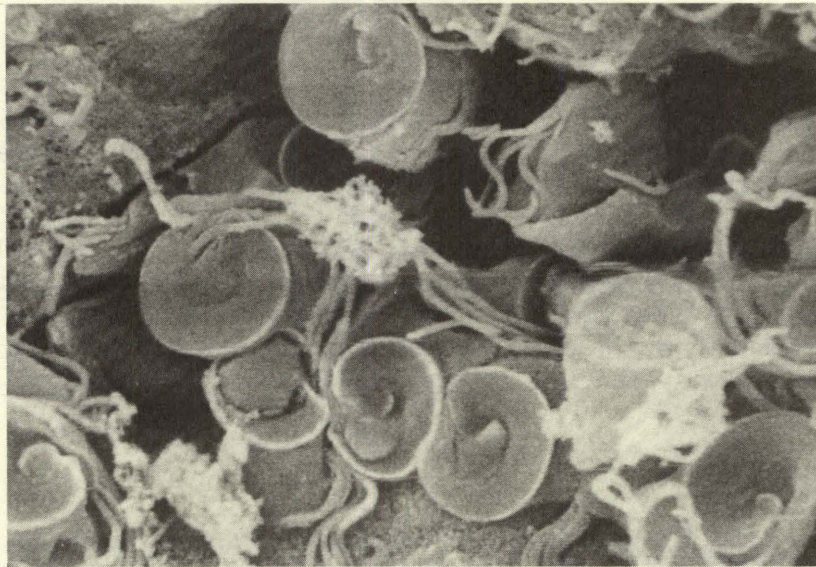


Figure 1. Scanning electron micrograph of a new species of Cochlosoma soricis from the intestine of water shrews in Grand Teton National Park.

young juveniles. Ticks removed from living M. montanus were identified as adult Ixodes angustus. About one in three voles were infected with Babesia sp., presumably B. microti.

Conclusions

Giardia is endemic in vole populations within Grand Teton National Park in both very wet and very dry years (Pinter, et al., 1988). Young voles appear to contract Giardia infections soon after they are weaned and leave the nest although more information is required to establish the most likely time and source of infection.

Using the blood smear for detection, Babesia infections of voles in Grand Teton National Park occur with about the same incidence as infections reported in rodent populations from other areas (Spielman, et al., 1981). I. angustus has not been implicated in the transmission of Babesia. More work will be necessary to establish the identification of the Babesia and its vector.

Literature Cited

- Pinter, A. J., W. D. O'Dell and R. A. Watkins. 1988. Intestinal parasites of small mammals from Grand Teton National Park. *J. Parasitol.* 74(1):187-188.
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