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HELMINTH PARASITES OF THE WHITE-TAILED JACKRABBIT, *LEPUS TOWNSENDI*, FROM NORTHWESTERN COLORADO AND SOUTHERN WYOMING

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ABSTRACT.—Helminth parasites of white-tailed jackrabbits, *Lepus townsendi*, were surveyed from southern Wyoming and northwestern Colorado. A total of eight helminth species were identified, including two species of adult cestodes, *Mosgovoyia pectinata* and *M. varabilis*; three species of larval cestodes, *Multiceps serialis*, *Taenia pisiformis*, and *Taenis sp.*; and three species of nematodes, *Dermatoxys veliger*, *Passalurus ambiguus*, and a filarid, *Micipsella brevicauda*. In addition, eggs of an unidentified species of *Nematodirus* were found in pooled fecal samples. The cysticercus larva of *Taenia sp.* is a species new to science and will be reported elsewhere. *Mosgovoyia varabilis* and *Micipsella brevicauda* are new records for the white-tailed jackrabbit.

The helminth parasites of the white-tailed jackrabbit are not well known throughout most of its range. Only in North Dakota has any attempt at a survey been made (Voth and James 1965). Additional reports such as those of Honess and Winter (1956) and Thomas and Honess (1962) indicate that helminths occur occasionally in this host but give no information on number of hosts examined or percent of infection.

MATERIALS AND METHODS

The hosts for this study were collected from three locations, i.e., near Meeker, Colorado; 20 miles north of Baggs, Wyoming; and 30 miles north of Medicine Bow, Wyoming. All were collected using firearms. Standard parasitological techniques were used for the recovery of helminths. Selected examples of all adult helminths were deposited in the United States National Museum Helminthological Collection (USNM#).

RESULTS

A total of eight helminth species were found infecting white-tailed jackrabbits examined in this study. They consisted of five species of cestodes and three species of nematodes. A comparison of hosts from the three study areas is shown in Table 1. For the sake of clarity each species will be considered separately.

Mosgovoyia pectinata (Goeze, 1782).—This is the only cestode found in jackrabbits from all areas of collection. It has been reported previously from Albany County, Wyoming (Honess 1982), and from southwestern North Dakota as *Cittotaenia* by Voth and James (1965). It is found in the small intestine of the definitive host (USNM# 77145).

Mosgovoyia varabilis (Stiles, 1895) Beveridge, 1978.—This species was found in only one host from northwestern Colorado. It has been reported previously from the cottontail rabbit, *Sylvilagus nuttalli*, examined from southern Wyoming (Honess and Winter 1956 as *Cittotaenia varabilis*). This cestode, like *M. pectinata*, is a double-pored species that occurs in the small intestine. It may be distinguished from the former by the arrangement of the testes, which are enclosed between the ovaries instead of extending to the longitudinal excretory canals (USNM# 77144).

Multiceps serialis Gervais, 1847.—One host collected north of Baggs, Wyoming, contained a 5-cm coenurus of this species. It was located in the posterior abdominal cavity in association with the psoas muscle. This species has been reported previously in the cottontail rabbit from Carbon County, Wyoming (Honess 1982), and in white-tailed jackrabbits in North Dakota (Voth and James 1965).

Taenia pisiformis Bloch, 1780.—Cysticercus of this cestode were found encysted in the intestinal mesenteries of two hosts collected

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TABLE 1. A comparison of the helminths of white-tailed jackrabbits from three study areas. Percentages indicate percent infected in that locality.

Species	30 miles north Medicine Bow, Wyoming (n = 10)	20 miles north Baggs, Wyoming (n = 11)	Meeker, Colorado. (n = 8)
<i>Mosgovoyia pectinata</i>	4 (40%)	1 (9%)	1 (12%)
<i>M. varabilis</i>	—	—	1 (12%)
<i>Multiceps serialis</i>	—	1 (9%)	—
<i>Taenia pisiformis</i>	—	2 (18%)	—
<i>Taenia</i> sp.	—	1 (9%)	—
<i>Passalurus ambiguus</i>	—	—	1 (12%)
<i>Dermatoxys veligera</i>	6 (60%)	2 (18%)	—
<i>Micipsella brevicauda</i>	—	5 (45%)	—

north of Baggs, Wyoming. This larval cestode, commonly found encysted in the viscera of cottontail rabbits from the same area (Shults, unpublished data) is a parasite of coyotes, *Canis latrans*, and bobcats, *Lynx rufus*. It has been reported from white-tailed jackrabbits in North Dakota (Voth and James 1965) and cottontail rabbits from Carbon and Fremont counties, Wyoming (Hones and Winter 1956).

Taenia sp.—One host from the Baggs, Wyoming, site was found to be infected with visceral cysts of an undescribed species of this genus. Similar cysts have been found in cottontail rabbits. Descriptions of this new species will be published elsewhere.

Passalurus ambiguus (Rudolphi, 1819) Dujardin, 1845.—This species was found in the caecum of one host collected in northwestern Colorado. Thomas and Hones (1962) indicated that this species has been found in cottontail rabbits in Wyoming (USNM# 77146).

Dermatoxys veligera (Rudolphi, 1819) Schneider, 1866.—These caecal nematodes were found in hosts collected from Wyoming sites. They have also been reported from the white-tailed jackrabbit in Albany County, Wyoming, by Hones and Winter (1956) (USNM# 77147).

Micipsella brevicauda Lyons & Hansen, 1961.—Only hosts collected from near Baggs, Wyoming, were infected with this filariid nematode. The adults were found free in the abdominal cavity, and microfilaria were recovered from the circulating blood. Morphological comparisons with other species of this genus indicate that our specimens most closely resemble those of *M. brevicauda* described from black-tailed jackrabbits, *Lepus*

californicus, in Kansas by Lyons and Hansen (1961). Voth and James (1965) found microfilaria in blood smears from white-tailed jackrabbits collected in North Dakota but did not assign them to any genus, although they suggested that they might be *M. brevicauda* (USNM# 77148).

In addition to the above species, pooled fecal samples from each of the study areas revealed ova of *Nematodirus* sp. No adults of this genus were found. It is possible that the specimens were *N. neomexicanus*, which has been reported from black-tailed jackrabbits in Colorado and cottontails in Wyoming (Thomas and Hones 1962).

DISCUSSION

Helminth parasites found in the present study differ somewhat from those found in a similar study by Voth and James (1965). They found only the microfilaria of a filariid nematode present in their survey, whereas two caecal nematode species and the filariid *Micipsella brevicauda* were found in our study. In addition, ova of *Nematodirus* sp. was found by fecal flotation.

In our study only the adult cestodes *Mosgovoyia pectinata* and *M. varabilis* were found. This is in contrast to data from both Voth and James (1965) and Hones (1982), who found *Railletina* sp. in the white-tailed jackrabbit. Hones (1982) stated that this species occurs more often in hosts from an arid or semiarid area, and *Mosgovoyia* is most commonly found in hosts living along streams or in foothills and forests. This was not the case in the present study; *Railletina* sp. was not found in any area, arid or otherwise.

Mosgovoyia variabilis has not previously been reported from white-tailed jackrabbits, although Honess (1982) stated that this cestode is "probably a parasite of all wild rabbits and hares" in Wyoming.

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