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First Report of Immature *Thelazia skrjabini* (Nematoda: Thelazioidea) from the Eye of a White-tailed Deer, *Odocoileus virginianus*

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ABSTRACT: The eyes from 103 hunter-killed white-tailed deer (*Odocoileus virginianus*), and 19 mule deer (*O. hemionus*) killed between 28 November to 14 December 1991 from Wainwright, Alberta were examined for *Thelazia* spp. One immature male and two immature female *Thelazia skrjabini* were collected from beneath the third eyelid of one adult female *O. virginianus*. This is the first report of *T. skrjabini* in a member of the Cervidae.

Key words: *Thelazia skrjabini*, *Odocoileus hemionus*, *Odocoileus virginianus*, Alberta, eyeworms.

There are few published reports of eyeworms from deer in North America. Oberhansley (1940) and Herman (1944) collected *Thelazia californiensis* from black-tailed deer, *Odocoileus hemionus columbianus* in California (USA). Parmelee et al. (1956) reported it from several hosts, including deer (*Cervus* spp.), from California. Schad and Raught (1958) extended the known range of *T. californiensis* in mule deer (*O. hemionus*) to include New Mexico (USA), and Beitel et al. (1974) reported the same species in *O. h. columbianus* in northwestern Oregon (USA). Weinmann et al. (1974) noted that *T. californiensis* was the only native eyeworm of mammals in North America. Interspecific cross-transmission from deer to other mammals has been reported for *T. californiensis*, including dogs, cats, sheep, horses and humans. Wildlife such as deer (*Cervus* spp.), jackrabbits (*Lepus townsendii*), and coyotes (*Canis latrans*) also are reported as occasional hosts for *T. californiensis* (Parmelee et al. 1956; Weinmann et al., 1974). *Thelazia skrjabini*, an eyeworm of cattle, was likely introduced into North America with its vector, *Musca autumnalis* in 1952 (Vockeroth, 1953) and is now widespread. To my knowledge, *T. skrjabini* has not been reported from any member of the family Cervidae. The lack of reports of *Thelazia* spp. in deer may be attributed to the fact that deer generally are not examined for eyeworms unless conjunctivitis is present.

In the Wainwright area (approximately 596 km^2), Alberta, Canada, about 3,000 white-tailed deer (*O. virginianus*) and 500 mule deer often browse pastures used by approximately 7,500 beef cattle. Five-to-ten percent of these cattle are infected with *T. skrjabini*. There existed a potential for deer to become infected with two species: *T. skrjabini*, and *T. gulosa* which normally is found in cattle (M. J. Kennedy, unpubl.). From 28 November to 14 December 1991, the heads from 122 deer were collected from hunter-killed animals in the Wainwright area (52°45′N, 110°06′W) (Table 1). The heads were removed and frozen in the field, then shipped to the Provincial Veterinary Laboratory, Edmonton, Alberta. The heads were thawed in the laboratory; the eyes were removed and examined using the method of Kennedy and Moraiko (1987).

Thelazia skrjabini was found in only one of 122 deer examined. Two immature females and one immature male were recovered from beneath the third eyelid of the left eye of a white-tailed deer. The three specimens were deposited in the Canadian Museum of Nature Parasite Collection, Ottawa, Ontario, Canada K1P 6P4 (Accession number CPNP1992-0015). *Thelazia skrjabini* normally is found within the lacrimal ducts of the third eyelid in cattle; less frequently it is found free be-

TABLE 1. Age distribution of 122 deer, *Odocoileus* spp., examined for *Thelazia* spp. from Wainwright, Alberta.

	Host sex						
	Male			Female			
Species	Adult	Fawn	Yearling	Adult	Fawn	Yearling	Total
O. virginianus	1	7	8	60	19	8	103
O. hemionus	4	0	6	5	4	0	19

neath the third eyelid or in lacrimal ducts leading from the orbital lacrimal gland opening into the conjunctiva near the fornix (Patton and Marbury, 1978; M. J. Kennedy, unpubl.). In our study, worm position may have resulted from the nematodes being unable to enter the numerous smaller ducts present under the third eyelid of deer compared to the two-to-three larger ducts found in cattle. *Thelazia skrjabini*, common in cattle in Alberta (Kennedy et al., 1990), is occasionally reported from other mammals including horses in the United States (Lyons et al., 1976), and buffalo in India (Pande et al., 1970; Chauhan and Pande, 1973). Mule deer in California frequently are reported to harbor *T. californiensis*, and wapiti (*Cervus elaphus*) have been reported to be infected with *T. rhodesii* in Romania (Almasan and Nesterov, 1961) and the U.S.S.R. (Tretyakova, 1964). Both nematodes normally develop beneath the third eyelid and less frequently enter the ducts of their host.

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