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Source: Journal of Wildlife Diseases, 15(2) : 263-265

Published By: Wildlife Disease Association

URL: <https://doi.org/10.7589/0090-3558-15.2.263>

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## GASTROINTESTINAL NEMATODES OF WILD SHEEP (*Ovis orientalis*) FROM IRAN

A. ESLAMI,<sup>1</sup> M. MEYDANI,<sup>2</sup> SH. MALEKI<sup>2</sup> and A. ZARGARZADEH<sup>2</sup>

**Abstract:** A total of 250 wild sheep (*Ovis orientalis*) from different national parks and protected regions of Iran were examined for gastrointestinal nematodes at necropsy. Twenty five species of nematodes were found. *Marshallagia marshalli*, *Ostertagia* spp; *Nematodirus* spp; and *Skrjabinema ovis* were the most prevalent.

Although all the species found are recorded from wild sheep for the first time in Iran, 88% were reported previously from domestic sheep. New host and distribution records for *Nematodirus davtiani*, *N. gazellae* and *Nematodirella longissimespiculata* were established during the present study.

### INTRODUCTION

There is no information in the literature on parasitic infections of wild sheep (*Ovis orientalis*), the most plentiful big game mammal in Iran. However, sheep occur in almost every mountain range. Apart from their economic and commercial importance as a game animal and a source of protein (particularly in the past), there is close contact between domestic and wild sheep.

The aim of this investigation was to determine the prevalence of gastrointestinal nematodes among wild sheep of Iran and determine if cross-transmission occurs between the wild and domestic species.

### MATERIALS AND METHODS

From August, 1973, through January, 1976, alimentary tracts of 250 wild sheep of different age and sexes and from different national parks and protected regions of Iran were examined for nematodes. The animals were shot, and at necropsy alimentary canals were removed and preserved in 10% formalin for later investigation.

Viscera were brought to the laboratory and the contents of the abomasum, small intestine and large intestine were washed through a 100 mesh UK standard sieve. The nematode burden was determined by 10% aliquots from a dilution of the contents. Identification of species was confirmed by examination of males. When the total count was high, one hundred males of each genera were selected and identified after clearing in lactophenol. If the count was low, fifty males, or as many as could be recovered, were identified. The percentage of male nematodes in the sample was used to compute the total number of each species in the abomasum, small intestine and large intestine. Representative specimens of most of the helminths recovered were deposited in the British Museum of Natural History, Department of Zoology, Parasitic Helminth Laboratory.

### RESULTS

The results are presented in Table 1. All species recorded are the first report of nematodes from wild sheep in Iran.

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TABLE 1. The Prevalence of gastrointestinal nematodes of wild sheep (*Ovis orientalis*) in Iran.

Species	Prevalence	Mean Number	Maximum Number
<b>Esophagus</b>			
<i>Gongylonema pulchrum</i>	5.6	5.5	10
<b>Abomasum</b>			
<i>Haemonchus contortus</i>	0.8	2	2
<i>Marshallagia marshalli</i>	93.6	309	3376
<i>Ostertagia occidentalis</i>	51.6	43	315
<i>O. circumcincta</i>	9.2	56.5	150
<i>O. trifurcata</i>	0.8	6	6
<i>Nematodirus davtiani</i>	32	27	124
<i>N. archari</i>	3.6	13	17
<i>Parabronema skrjabini</i>	0.8	36	36
<b>Small intestine</b>			
<i>Nematodirus oiratianus</i>	76	368	3118
<i>N. spathiger</i>	36	45	242
<i>N. filicollis</i>	21.6	71	165
<i>N. abnormalis</i>	2	22	47
<i>N. archari</i>	11.2	31	139
<i>N. davtiani</i>	4.6	52	105
<i>N. gazellae</i>	3.6	3	5
<i>Trichostrongylus vitrinus</i>	0.8	6	6
<i>Nematodirella longissimespiculata</i>	26	110	274
<b>Large intestine</b>			
<i>Skrjabinema ovis</i>	72	1508	9160
<i>Chabertia ovina</i>	56	15.5	40
<i>Trichuris skrjabini</i>	38.4	7.4	27
<i>T. discolor</i>	18	6	17
<i>T. parvispiculum</i>	15.6	13	27
<i>T. ovis</i>	10	5	21
<i>T. gazellae</i>	6.4	3.7	7
<b>Body Cavity</b>			
<i>Setaria</i> sp.	0.4	1	1

## DISCUSSION

Parasitism of wild sheep with gastrointestinal nematodes was widespread and infected animals were found in each national park and protected region investigated. Most wild sheep were infected with several species of nematode, although infection with a single species of nematode did occur. Of 250 sheep examined none was free of parasites.

*Marshallagia marshalli*, *Ostertagia* spp., *Nematodirus* spp. and *Skrjabinema ovis* were the most prevalent species.

With some exceptions, these worms are reported to be the most prevalent nematodes of domestic sheep.<sup>2</sup> *Trichostrongylus* spp., present in quite small numbers and low prevalence in wild sheep (Table 1), is one of the nematodes seen in large numbers with a high prevalence in domestic sheep.<sup>2,4</sup> On the other hand, *S. ovis* occurs with low prevalence in domestic sheep. The recovery of domestic sheep nematodes in wild sheep was expected. A comparison of 25 species of nematodes found in wild

sheep with those reported by Eslami<sup>2</sup> reveals that 88% also are parasites of domestic sheep.

In regions where animals graze on the same pasture at different times of the year, likely some species of nematodes are interchanged. Range forage contaminated by domestic sheep during the summer may infect mountain sheep in the fall as they migrate to winter range over land recently grazed by domestic sheep. Conversely mountain sheep may,

in the spring, contaminate forage eaten by domestic sheep during late spring and summer.

Some of the nematodes, namely: *Nematodirus davtiani*, *N. gazellae* and *Nematodirella longissimespiculata* were seen exclusively in wild sheep. However, there is some evidence that these nematodes are parasites of domestic sheep in many parts of the world, including the USA and USSR.<sup>1,3</sup>

#### Acknowledgements

The authors express their gratitude to Mr. S. Prudhoe, former Head of the Parasitic Worm Section, of the British Museum (Natural History) and to Mrs. Harris from the same Section for their assistance with the determination of species of nematodes.

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*Received for publication 15 April 1976*