

New data about the helminth fauna of the red squirrel (*Sciurus vulgaris* Linnaeus, 1758) in Belorussian Polesie

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Abstract The result of helminthological examination of 5 red squirrels in Belorussian Polesie during 2003–2012 is presented. Two species of helminths were found: *Taenia martis* (Zeder, 1803) larvae and *Syphacia thompsoni* Price, 1928. The red squirrel for the first time established as host of cestode *T. martis*. The nematode *S. thompsoni* registered as *Syphacia* sp. in this region between 1985 and 2000.

Keywords Red squirrel · *Taenia martis* · *Syphacia thompsoni* · Belorussian Polesie

Introduction

More than 30 species of helminths parasitize red squirrels in the Eurasian region (Ryzhikov et al. 1978, 1979).

Eleven species of helminths (2 Trematoda, 4 Cestoda, and 5 Nematoda) were found in red squirrels in Belorussian Polesie during 1985–2000 (Shimalov and Shimalov 2002a). The total rate of infection of red squirrels by helminths was 76.7 %. Infections by 2–4 species of helminths were found in 53.3 % of examined squirrels. The cestode *Catenotaenia dendritica* (Goeze, 1782) and nematode *Syphacia* sp. were the most frequently detected parasites. The prevalence of these helminths in red squirrels was 26.7 and 33.3 %, respectively. The number of parasites varied from 1 to 30 specimens of *C. dendritica* in intestines and from 4 to 22 specimens of *Syphacia* sp. in blind gut.

The red squirrel was one of widespread species of rodents in Belarus in the twentieth century. Since 2004 is one

of species of the rodents included in the Red List of Belarus as the look demanding additional studying and attention for the purpose of preservation.

Materials and methods

The material for this report was collected during 2003–2012 in the southern part of Belorussian Polesie (Brest region: Brest, Ivatsevichi and Kamenets districts). A total of 5 red squirrels (males) were investigated. Three animals were killed by hunters of Belorussian Society for Hunters and Fishermen, and two animals got under wheels of cars.

The animals were subjected to a full helminthological examination (dissection and organ compression). Identification of helminths was carried out with the aid of Ryzhikov et al. (1978, 1979), Genov (1984) and Anderson (2000).

Results and discussion

Helminths infected 4 red squirrels. Two species of helminths were found: cestode *Taenia martis* (Zeder, 1803) larvae and nematode *Syphacia thompsoni* Price, 1928.

Two larvae of armatetrathyridium type of cestode *T. martis* localized in a chest cavity of one red squirrel. Length of larvae was 3.0 and 3.2 cm. The form of larvae extended with narrower back end. Larvae have 4 suckers and a crown from 28 rostellar hooks, located in 2 rows on 14 hooks in everyone. Form of hooks is a typical for a cestoda *T. martis* (Kontrimavichus 1969). Length of big hooks was 0.28 mm, small—0.22 mm. Cestode is peculiar to *T. martis* variability of quantity and the sizes hooks

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(Kontrimavichus 1969). This feature was confirmed in experiment with white laboratory mice (Schuster and Benitz 1992). The quantity hooks in larvae varied from 26 to 32, they settled down till 13–16 in each row, and length of larvae thus made 4 mm (26, 28 hooks), 9 mm (30 hooks), 10 and 11 mm (28, 32 hooks).

Obligatory definitive hosts of a cestode *T. martis* are mustelid species (mainly martens), and intermediate hosts—various rodents (mainly mice, voles). The common marten, the European polecat, the red-backed vole, the striped field mouse and the yellow-necked mouse are hosts of this helminth in Belorussian Polesie (Shimalov and Shimalov 2002b; Shimalov 2010). The red squirrel is also the new intermediate host of a cestode *T. martis*.

The nematode *S. thompsoni* parasitized in 4 animals and was localized in a blind gut. The quantity of parasites fluctuated from 3 to 78.

This nematode is a specific parasite of squirrels. It is registered in squirrels in Belorussian Polesie during 1985–2000 as *Syphacia* sp. (Shimalov and Shimalov 2002a). Then 33.3 % of animals were infected by this parasite.

Thus, only 12 species of helminths (2 Trematoda, 5 Cestoda, and 5 Nematoda) parasitize red squirrels in Belorussian Polesie. The nematode *S. thompsoni* is the most widespread parasite of red squirrels in this region.

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