IUCN OTTER SPECIALIST GROUP BULLETIN
VOLUME 16 ISSUE 2 PAGES 76 - 78

Citation: **Sidorovich, V. & Anisimova, E.I.E. (1999)** Comparative Analysis or the Helminthocenoses of the Native Semiaquatic Mustelids (*Lutra lutra*, *Mustela lutreola*) in Connection with the Width of Food Spectra *IUCN Otter Spec. Group Bull*. **16(2):** 76 - 78

COMPARATIVE ANALYSIS OF THE HELMINTHOCENOSES OF THE NATIVE SEMIAQUATIC MUSTELIDS (*LUTRA LUTRA*, *MUSTELA LUTREOLA*) IN CONNECTION WITH THE WIDTH OF FOOD SPECTRA

SIDOROVICH Vadim, ANISIMOVA Elena I. E.

Vertebrate Predation Research Group, Institute of Zoology, National Academy of Sciences of Belarus, Akademicheskaya str., 27, Minsk-220141, BELARUS
e-mail:mustbel&mustbel.belpak.minsk.by

(received 6th July 1999, accepted 16th September, 1999)

Abstract: The helminth fauna of mink (*Mustela lutreola*) was compared with that of otters (*Lutra lutra*) and found to be more diverse. This probably reflects the fact that otters are more specialist predators than mink, and therefore exposed to fewer infesting sources of eggs and larvae.

Between 1987 and 1995, 38 dissected Eurasian otters (*Lutra lutra*) were found to be infested with five helminth species (Table 1). These were also common in 41 European mink (*Mustela lutreola*) (Table 2). Details of the method used in the helminthologic studies were as those described by ANISIMOVA (1997) and SIDOROVICH (1997).

Table 1. Helminth infestation of otter population in Belarus

Helminth species	**1987-** percentage occurrence of helminth species (n)	**1995** number of specimens. min-max (mean)
Euparyphium melis (Schrank, 1788)	34.2 (38)	6-79 (21)
Rossicotrema donicum Skrjabin et Lindtrop, 1919	2.6 (38)	3
Spirometra erinacei-europaei (Rud., 1819)	57.1 (49)	?
Capillaria mucronata (Molin, 1858)	18.4 (38)	1-6 (4)
Skrjabingylus nasicola (Leuckart, 1842)	8.2 (49)	?

In a previous study conducted by Shimalov between 1960 and 1980, 25 otters were examined and five different helminth species (*Metorchis albidus, Pseudamphistomum truncatum, Alaria alata* larvae, *Capillaria putorii, and Strongyloides martis*) were found (SIDOROVICH et al., 1997). These species were also found in the European mink population (Table 2). The helminth fauna of the European mink population was therefore more diverse, with 17 species being recorded (Table 2).

Table 2. Helminth infestation of the European mink population in Belarus

Helminth species	**1987-** HOC, % (n)	**1995** HN, sp. min-max (mean)
Euparyphium melis (Schrank, 1788)	40.0 (41)	3-14 (9)
Rossicotrema donicum (Skrjabin et Lindtrop, 1919)	11.8 (17)	2-4 (3)
Opistorchis felineus (Rivolta, 1884)	5.9 (17)	3
Metorchis albidus (Braun, 1893)	5.9 (17)	3
Pseudamphistomum truncatum (Rud.,1819)	5.9 (17)	2
Alaria alata, larvae (Goeze, 1782)	5.9 (17)	many
Spirometra erinacei-europaei (Rud., 1819)	90.0 (41)	?
Taenia mustelae (Gmelin, 1790)	11.8 (17)	1-2
Capillaria mucronata (Molin, 1858)	36.6 (41)	1-9 (6)
Capillaria putorii (Rudolphi, 1819)	35.3 (17)	2-32(9)
Trichinella spiralis, larvae (Owen, 1835)	25.0 (41)	1/28
Strongyloides martis (Petrow, 1940)	11.8 (17)	2-7 (4)
Skrjabingylus nasicola (Leuckart, 1842)	36.6 (41)	?
Filaroides martis (Werner, 1782)	31.7(41)	?
Molineus patens (Dui, 1845)	18.0 (17)	2-17 (10)
Ascaris devosi (Sprent, 1952)	11.8 (17)	2-3
Corynosoma strumosum (Rud, 1802)	5.9 (17)	4

HOC - occurrence of helminth species; HN - number of specimens of helminth species

Allowing for the fairly low level of morpho-physiological divergence in semiaquatic mustelids (DANILOV and TUMANOV, 1976; TERNOVSKY, 1977), and the high similarity of habitat conditions for the parasites in these two species (KONTRIMAVICHUS, 1963), there is support for the idea that helminth diversity in these two species relates mainly to the differences in their diets.

In the upper reaches of the River Lovat (Gorodok district, Vitebsk region, NE Belarus), the otter and the European mink still coexist. An analysis of 1,474 European mink scats, collected between 1986 and 1995, identified 49 prey species (SIDOROVICH, 1997). The occurrence of different prey categories in its diet was: amphibians - 47.4%, fish - 22.8%; small mammals - 11.1%, crayfish - 9.1%, birds - 2.7%, reptiles - 0.3%, water insects - 5.2%, and molluscs - 1.4%. At the same time, by analysing 802 otter spraints, only 29 prey species (mainly fish - 19 species) were found (SIDOROVICH, 1997). The occurrence of the main prey categories in its diet were as follows: fish - 51.8%, amphibians - 30.4%, crayfish - 14.3%. Other prey items comprised only 3.5%. To compare the overall diet diversity (food niche breadth) in the native semiaquatic mustelids, Levins's index (LEVINS, 1968) for occurrence of 8 prey categories was calculated. The food niche breadth of the European mink was 3.36, whereas that of the otter was substantially lower at 2.62.

These marked differences in diet suggest different probabilities of being infested by the high diversity of mustelid helminths, the European mink eating more prey species and, therefore, being exposed to a higher variety of infesting sources (either egg or larva) than the otter. Thus, the otter in Belarus, as a more specialised predator, is infested by fewer helminth species, whereas the helminth fauna of the European mink, a more generalised predator of stream valleys, was substantially more diverse.

REFERENCES

Anisimova E.I. (1997). Keys of the mustelid helminth. In: **Sidorovich V.E.** (ed.) Mustelids in Belarus. Evolutionary ecology, demography and interspecific relationships. Edited by. Zolotoy uley publisher, Minsk, 21-45.

Danilov, P.I. & Tumanov, I.L. (1976). Mustelids of north-eastern of SSSR. Leningrad, Nauka [In Russian].

Kontrimavichus V.L. (1969). Helminthofauna of mustelids and consistent pattern of its forming Moscow, Nauka [In Russian].

Levins R. (1968). Evolution in changing environments. Princeton University Press., Princeton.

Sidorovich, V.E. (1997). Mustelids in Belarus. Evolutionary ecology, demography and interspecific relationships. Minsk, Zolotoy uley.

Sidorovich V.E., Anisimova E.I., Shimalov V.T., Bychkova E.I. & Lauzhel G.O. (**1997)**. Comparative analysis of the semiaquatic mustelid helminthocenosis. In: **Sidorovich V.E.** (ed.) Mustelids in Belarus. Evolutionary ecology, demography and interspecific relationships. Edited by. Zolotoy uley publisher, Minsk, 194-199.

Ternovsky, D.V. (1977). Biology of mustelids. Novosibirsk; Nauka Publisher [In Russian].

RESÚMEN: Análisis comparativo de la helmintocenosis de los mustélidos semiacuáticos nativos (*Lutra lutra, Mustela lutreola*) en relación con la amplitud del espectro alimenticio

Entre 1987 y 1995, 38 nutrias eurasiáticas (*Lutra lutra*) disecadas estaban infectadas por 5 especies de helmintos. Estos eran también comunes en 41 visones europeos (*Mustela lutreola*). En un estudio previo realizado entre 1960 y 1980 en el que se examinaron 25 nutrias, se encontraron 5 especies distintas de helmintos (*Metorchis albidus, Pseudamphistomum truncatum, Alaria alata, Capillaria putorii, Strongyloides martis*). Estas especies también se encontraron en la población de visones, por lo que la fauna de helmintos del visón europeo fue más diversa, con 17 especies registradas. Debido a las pocas diferencias morfofisiológicas en los mustélidos semiacuáticos, y a la gran similitud en las condiciones del hábitat para los parásitos de estas 2 especies, existe sostén para la idea de que la diversidad de helmintos en estas 2 especies se relaciona principalmente con las diferencias en sus dietas. Nutrias y visones aún coexisten en el tramo superior del Río Lovat (NE de Bielorrusia). El análisis de 1474 fecas de visones, colectadas entre 1986 y 1995, permitió identificar 49 especies de presas. La ocurrencia de diferentes categorías de presas en su dieta fue la siguiente: anfibios 47.4%, peces 22.8%, pequeños mamíferos 11.1%, cangrejos de río 9.1%, aves 2.7%, reptiles 0.3%, insectos 5.2%, moluscos 1.4%. En 802 fecas de nutrias sólo se encontraron 29 especies de presas (principalmente peces, 19 especies). La ocurrencia de las principales categorías de presas fue: peces 51.8%, anfibios 30.4%, cangrejos de río 14.3%. Otros ítems alimenticios comprendían sólo el 3.5%. Se calculó el índice de Levins para la ocurrencia de 8 categorías de presas para comparar la diversidad de dieta (amplitud del nicho trófico) entre los mustélidos semiacuáticos nativos. La amplitud del nicho trófico del visón fue 3.36, mientras que el de la nutria fue sustancialmente inferior, 2.62. Estas diferencias marcadas en la dieta sugieren diferentes probabilidades de infección debido a que el visón ingiere más especies de presas, teniendo una mayor variedad de fuentes de infección que la nutria. Por eso en Bielorrusia, la nutria, como predador más especializado, pudo ser infectada por menos especies de helmintos, mientras que la fauna de helmintos del visón, un predador más generalista, fue sustancialmente más diversa.