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## Relationships between host traits and intestinal nematode abundance in rodents of Vojvodina province, Serbia

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Endoparasites are organisms that live in a very specific type of habitat: the internal organs of their hosts. The effect of host characteristics on parasites and vice versa can thus be compared to the interplay between free-living organisms and their environment. Host-parasite interactions are astoundingly complex and many studies to this date have attempted to shed more light on them. In the current study, we investigated the relationship between selected host traits and intestinal nematode abundance. The intestinal tracts of 76 rodents of seven species (*Apodemus agrarius*, *A. flavicollis*, *A. sylvaticus*, *Micromys minutus*, *Microtus arvalis*, *M. agrestis*, *Mus musculus*) from 6 localities in the Vojvodina province of Serbia were searched for nematode parasites. Biometric parameters (body mass, body, tail, hindfoot and ear length) and spleen mass were measured for all hosts. The intestinal tract of the dissected rodents was cut open and its contents examined under stereomicroscope; nematodes were collected and stored in 70% alcohol prior to species identification. The most common nematode species in the host sample was the trichostrongyloid *Heligmosomoides polygyrus*. To test for possible cause-and-effect relationships, linear regression was carried out with spleen mass as the response variable and body mass, body, tail, hindfoot and ear length, number of *H. polygyrus* and total number of nematodes as predictor variables. A separate linear regression used *H. polygyrus* and total nematode abundance as response variables, and host body mass and length as predictor variables. Body mass ( $F = 21.259$ ,  $p < 0.001$ ), body length ( $F = 18.208$ ,  $p < 0.001$ ), tail length ( $F = 4.465$ ,  $p = 0.038$ ), ear length ( $F = 5.000$ ,  $p = 0.026$ ) and hindfoot length ( $F = 5.089$ ,  $p = 0.027$ ) all significantly and positively influenced spleen mass. Conversely, abundance of *H. polygyrus* and intestinal nematodes in general had no significant effect on spleen mass. However, body mass ( $F = 23.173$ ,  $p < 0.001$ ) and body length ( $F = 9.746$ ,  $p = 0.003$ ) of the host significantly and positively affected *H. polygyrus* abundance; neither factor influenced total nematode abundance. The regression results suggest that there is a positive cause-and-effect relationship between host body size (mass and length) and the number of *H. polygyrus* worms. Such a result provides support for the hypothesis that larger hosts should be more infected because they represent better targets for parasites. While practically invisible, parasites are an important component of every community on planet Earth. With this in mind, disentangling the complicated biotic interactions between host characteristics and parasite abundance is an important part of ecological studies, as it provides us with a better understanding of processes and relationships within any given ecosystem.

Key words: rodents, nematodes, *Heligmosomoides polygyrus*, spleen mass, body size