

## Analysis of the species structure in the haemoparasite community of bank voles (*Myodes glareolus*)

Jolanta Behnke-Borowczyk<sup>1</sup>, Natalia Kartawik<sup>1</sup>, Mohammed Alsarraf<sup>2</sup>,  
Ewa J. Mierzejewska<sup>2</sup>, Dorota Dwużnik<sup>2</sup>, Katarzyna Tołkacz<sup>2</sup>,  
Mustafa Alsarraf<sup>2</sup>, Maciej Grzybek<sup>3</sup>, Adrian Łukowski<sup>4</sup>,  
Jerzy M. Behnke<sup>5</sup>, Anna Bajer<sup>2</sup>

<sup>1</sup> Department of Forest Phytopatology, Faculty of Forestry, Poznań University of Life Sciences, Poznań, Poland; <sup>2</sup> Department of Parasitology, Faculty of Biology, University of Warsaw, Warsaw, Poland; <sup>3</sup> IM-MiT, Medical University of Gdańsk, Gdańsk, Poland; <sup>4</sup> Department of Silviculture, Faculty of Forestry, Poznań University of Life Science, Poznań, Poland; <sup>5</sup> School of Life Sciences University of Nottingham, Unniversity Park, Nottingham, NG7 2RD, UK

**INTRODUCTION.** Populations of small mammals, especially rodents, are very good for concluding research on the ecological and evolutionary shaping of the host-parasite relations. They are favored by such population characteristics as high abundance, heterogeneity and a very strong influence of habitat factors, such as the abundance of food and climate conditions. Influence factors also include the age and sex of the host.

**AIM.** The aim of the work was detection of bank voles blood parasites and the assessment of the intensity and degree of blood infection in the bank vole by hemoplasmas: *Bartonella* spp. with the dependence on place of trapping rodents.

**MATERIAL AND METHODS.** In this work, the influence of these factors on the occurrence of haemoparasites: *Babesia microti*, *Bartonella* spp., *Mycoplasma* spp., *Hepatozoon erhardovae*, *Trypanosoma evotomys* in three populations (three isolated forest areas – Urwitałt, Tałty and Pilchy) of bank voles caught in August 2018 in the Masurian Lake District. Blood samples were collected from each individual into a sterile tube with a 0,001M EDTA solution at pH 8. Thin smears of blood were also prepared. Phylogenetic trees were developed on the basis of the gene fragment 18S rRNA (for *Hepatozoon erhardovae* and *Trypanosoma evotomys*) and rpoB (for *Bartonella* spp.). For the phylogenetic analysis a consensus sequence was generated for each of the sequences obtained.

**RESULTS.** 266 individuals belonging to the species *Myodes glareolus* were caught. In Urwitałt were 91, Tałty 97 and in Pichy 78 rodents. No *Babesia microti* was observed on any plate with blood smear, which was confirmed by PCR.

**CONCLUSION.** As a result of the analysis of this research material from 2018 it was established that the bank vole is the host for four types of haemoparasites: *Mycoplasma* spp., *Bartonella* spp., *Hepatozoon erhardovae* and *Trypanosoma evotomys*. The most common occurrence in this study is *Mycoplasma* spp., and the most rare *Trypanosoma evotomys*. None of the factors analyzed has a significant impact on haemoparasite infections. Among individuals infected with *Bartonella* spp., two species can be distinguished: *B. grahamii*, whose share is greater in Urwitałt and Pilchy and *B. taylorii* which occurs mainly in Tałty.