



## The status of the genus *Hokkaidocephala* Tenora, Gulyaev & Kamiya, 1999 (Cestoda: Anoplocephalidae), parasites of the endemic Japanese field mice (*Apodemus* spp.)

VOITTO HAUKISALMI<sup>1</sup>, MITSUHIKO ASAKAWA<sup>2</sup> & ANDRÁS GUBÁNYI<sup>3</sup>

<sup>1</sup>Finnish Forest Research Institute, Vantaa Research Unit, PO Box 18, 01301 Vantaa, Finland. E-mail: [voitto.haukisalmi@metla.fi](mailto:voitto.haukisalmi@metla.fi)

<sup>2</sup>Veterinary Medicine, Rakuno Gakuen University, Ebetsu, Hokkaido 069-8501, Japan. E-mail: [askam@rakuno.ac.jp](mailto:askam@rakuno.ac.jp)

<sup>3</sup>Hungarian Natural History Museum, Baross utca 13, H-1088 Budapest, Hungary. E-mail: [gubanyi@mail.zoo.nhmus.hu](mailto:gubanyi@mail.zoo.nhmus.hu)

### Abstract

The present study reconsiders the status of the genus *Hokkaidocephala* Tenora, Gulyaev & Kamiya, 1999 by examining available specimens of the type species *H. apodemi* (Iwaki, Tenora, Abe, Oku & Kamiya, 1994) (syn. *Andrya apodemi*) and comparing them with related anoplocephaline cestodes. It is shown that *Hokkaidocephala apodemi* does not differ fundamentally from related genera in the development of the reproductive organs, contrary to the argument of Tenora *et al.* (1999). In *Hokkaidocephala* and related genera (*Anoplocephaloides* Baer, 1923 *s. str.* and *Microcephaloides* Haukisalmi, Hardman, Hardman, Rausch & Henttonen, 2008), sperm appears in the seminal receptacle (female organ) simultaneously or slightly earlier than in the seminal vesicles (male organs) and the ovary and vitellarium are absent in postmature proglottides where testes still persist and usually reach their maximum size. However, *Hokkaidocephala* is considered here a valid genus differentiated from the related genera by its unique uterine structure and development. Presently, *Hokkaidocephala* includes two host-specific species [*H. apodemi* and *H. baeri* (Rausch, 1976) n. comb. (= *Anoplocephaloides baeri* Rausch, 1976)] parasitizing endemic Japanese field mice (primarily *Apodemus argenteus*).

**Key words:** *Hokkaidocephala*; *Anoplocephaloides*; *Andrya*; Anoplocephalidae; Cestoda; *Apodemus*; Hokkaido; Japan

### Introduction

Two species of anoplocephalid cestodes, *Andrya apodemi* Iwaki, Tenora, Abe, Oku & Kamiya, 1994 and *Anoplocephaloides baeri* Rausch, 1976, are known from the endemic Japanese field mice *Apodemus argenteus* (Temminck) and *Apodemus speciosus* (Temminck). The occurrence of host-specific anoplocephalid cestodes in *Apodemus* spp. is remarkable, because elsewhere they do not harbour any species of *Anoplocephaloides* Baer, 1923, *Andrya* Railliet, 1893 or related genera (*Paranoplocephala* Lühe, 1910 *s. l.*, *Paranoplocephaloides* Gulyaev, 1996), which are primarily parasites of arvicoline rodents (voles and lemmings) or lagomorphs.

The genus *Hokkaidocephala* Tenora, Gulyaev & Kamiya, 1999 was erected for *Andrya apodemi* by Tenora *et al.* (1999b). The brief original description of *Hokkaidocephala* mentioned "gynandry" (i.e. progyny or proterogyny) as the main distinguishing feature of this genus, which was further emphasized in the subsequent generic redescription (Tenora *et al.* 1999a). According to Tenora *et al.* (1999a), "the female reproductive system matures earlier than the male system, and the ovaries and vitelline glands are resorbed earlier than the testes". However, it was also stated that *Hokkaidocephala*, by its apparent "gynandry", "distantly resembles *Anoplocephaloides baeri* ... and *Anoplocephaloides kontrimavichusi* Rausch, 1976..." (the latter from the Nearctic northern bog lemming *Synaptomys borealis* Richardson), but no taxonomic actions were proposed.