



A taxonomic revision of the *Paranoplocephala primordialis* (Douthitt) complex (Cestoda: Anoplocephalidae) in voles and squirrels

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Abstract

This study redescribes *Paranoplocephala primordialis* (Douthitt) in the red squirrel, *Tamiasciurus hudsonicus*, describes two new, related species of *Paranoplocephala* Lühe from *Microtus* and *Myodes* (syn. *Clethrionomys*) voles, and summarizes the patterns of their host specificity and geographic distribution, particularly in Alaska and adjacent regions in Canada and north-eastern Siberia. *Paranoplocephala nearctica* n. sp. and *Paranoplocephala alaskensis* n. sp. are shown to be slightly, but consistently differentiated host-specific parasites of *Myodes rutilus* and *Myodes gapperi*, and *Microtus miurus*, respectively. The related *Paranoplocephala* sp. from *Microtus oeconomus* is also suspected to be specifically distinct, but the available material does not allow a description of a new species.

Paranoplocephala primordialis-like cestodes occur widely in rodents in North America, ranging from California to Labrador and Alaska, but also in north-eastern Siberia. The specific identity of the few Eurasian specimens could not, however, be confirmed. *Paranoplocephala primordialis*-like species seem to be rare in all host species and regions, maximum prevalences being 8%, 3%, 6.5% and 5% for *P. primordialis*, *P. nearctica* n. sp., *P. alaskensis* n. sp. and *Paranoplocephala* sp., respectively.

Key words: tapeworms, Anoplocephalinae, *Paranoplocephala alaskensis* n. sp., *Paranoplocephala nearctica* n. sp., *Paranoplocephala primordialis*, *Tamiasciurus*, Sciuridae, *Microtus*, *Clethrionomys*, *Myodes*, Cricetidae, Arvicolinae, Alaska

Introduction

Herman Douthitt's (1915) pioneering study of anoplocephalid cestodes of North American rodents (and other hosts) included descriptions of four new species of *Andrya* Railliet from pocket gophers, voles and squirrels. These cestode taxa are now generally assigned to *Paranoplocephala* Lühe (see Tenora *et al.* 1986; Genov *et al.* 1996; Haukisalmi *et al.* 2002; Haukisalmi & Henttonen 2003; Wickström *et al.* 2005). Of these species, *Paranoplocephala macrocephala* (Douthitt) [syn. *P. translucida* (Douthitt)] is a relatively common and widespread parasite of pocket gophers and voles, particularly *Microtus* spp., in North America. The type material of *P. macrocephala* is fairly extensive, including both intact specimens and sections, and the taxonomy and phylogenetic relationships of *P. macrocephala*-like cestodes are now reasonably well understood (Haukisalmi & Henttonen 2003; Haukisalmi *et al.* 2004).

However, the other two taxa, *Paranoplocephala primordialis* (Douthitt) and *Paranoplocephala communis* (Douthitt), are evidently rather rare and sporadic, and their descriptions were based on a few incomplete, sectioned specimens. The latter species, described from contracted fragments only, has generally been regarded as a synonym of *P. primordialis* (see Baer 1927; Rausch & Schiller 1949; Spasskii 1951), which was suspected already by Douthitt (1915) himself. This synonymy means that *P. primordialis* would occur in two unrelated species of rodents, i.e. the red squirrel, *Tamiasciurus hudsonicus* (Sciuromorpha), (type host) and the southern red-backed vole, *Myodes gapperi* (syn. *Clethrionomys gapperi*) (Myomorpha).