



## Contributions towards a review of the genus *Rhynchelmis* Hoffmeister (Clitellata: Lumbriculidae)

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### Abstract

Morphological characters for several Palearctic taxa attributed by recent authors to the genus *Rhynchelmis* Hoffmeister, 1843 were reviewed using new or previously studied museum specimens. The genus *Rhynchelmis* s. lat. was supported, and the Palearctic subgenus *Rhynchelmis* (*Rhynchelmis*) was proposed, based on several probable synapomorphies: longitudinal muscles with lateral margins curled; strong dorsolateral-transverse muscles; vasa deferentia with thickened, glandular epithelium; spermathecal ampullae with anterior, sacciform diverticulum; accessory organ often present in preatrial segment. The Japanese *Rhynchelmis orientalis* Yamaguchi, 1936 was redescribed using new material, and had none of the abovementioned characters. The separation of other potential subgenera, the *Rhynchelmoides* and *Sutroa* groups, is still subject to review of those primarily Nearctic taxa. Attribution by Kaygorodova & Liventseva (2007) of several Lake Baikal species to *Pseudorhynchelmis* Hrabě (1982) was supported, and *Rhynchelmis paraolchonensis* Giani & Martinez-Ansemil, 1984 may also belong in *Pseudorhynchelmis*.

**Key words:** Clitellata, Oligochaeta, Lumbriculidae, *Rhynchelmis*, *Pseudorhynchelmis*, taxonomy

### Introduction

Families within the Clitellata are mostly defined by the constant relative positions of the various elements of the reproductive system. The Lumbriculidae have an unusually diverse array of these arrangements, and are therefore recognized as a Family by the unique presence of semi-prosoporous or prosoporous male ducts. Traditionally, lumbriculid genera were identified by the specific distribution and number of their male and female ducts, gonads and spermathecae, with limited reference to other morphological details that might be regarded as apomorphies. Using this approach, *Rhynchelmis* Hoffmeister, 1843 has been defined largely on the basis of the position of the spermathecae (in VIII and sometimes also in IX) and male pores (in X). The type species, *Rhynchelmis limosella* Hoffmeister shares a number of distinctive characters with some other Palearctic species; these include the junction between spermathecal ampullae and the gut, long-tubular atria, the unique inward curvature of body-wall muscle bundles, the prostomium extended into a filiform proboscis, and branched lateral blood vessels. A unique feature of *R. limosella* and a few other Palearctic species is the presence in IX of a structure somewhat resembling the atria of the male ducts; although often considered to be a rudimentary atrium, we refer to it here as the “accessory organ”. As additional lumbriculids with the same basic arrangement of genital pores have been described, most of these features have been considered variable within a broad definition of *Rhynchelmis*. Cook (1971) identified eleven species in the genus, although more recent descriptions have more than doubled that number. However, basing the genus definition on position of genital pores alone has proven untenable, as indicated by erection of several genera of small, non-proboscis bearing worms: *Pseudorhynchelmis* Hrabě, 1982, *Pseudolycodrilus* Hrabě, 1982, *Tatriella* Hrabě, and *Secubelmis* Fend & Gustafson. Although considered to be part of *Rhynchelmis* by most authors, recent studies have given persuasive evidence for the retention of *Pseudorhynchelmis* for *Rhynchelmis olchonensis* Burow & Koshov, 1932 plus several similar, mostly Baikalian species (Martin *et al.* 1998, Kaygorodova & Liventseva