



New *Eclipidrilus* species (Annelida, Clitellata, Lumbriculidae) from southeastern North America

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Abstract

Three new species of Lumbriculidae from southeastern North America are attributed to *Eclipidrilus* Eisen. All are small worms (diameter 0.2–0.5 mm), having semi-prosoporous male ducts with the atria in X, and spermathecae in IX. *Eclipidrilus breviatriatus* n. sp. and *E. microthecus* n. sp. have crosshatched atrial musculature, similar to some *E. (Eclipidrilus)* species, but they differ from congeners in having small, compact spermathecal ampullae. *Eclipidrilus macphersonae* n. sp. has a single, median atrium and spermatheca. The new species have been collected only in Sandhills and Middle Atlantic Coastal Plain streams of North Carolina.

Key words: Clitellata, Oligochaeta, Lumbriculidae, *Eclipidrilus*, taxonomy

Introduction

Eclipidrilus Eisen, 1881 is a small genus of lumbriculid worms that appears endemic to the Nearctic region, with the exception of the widespread *Eclipidrilus lacustris* (Verrill). Six of the eight described species occur primarily east of the Continental Divide. Despite the low number of species, *Eclipidrilus* is quite heterogeneous, and encompasses two other proposed genera (*Mesoporodrilus* Smith, 1896 and *Premnodrilus* Smith, 1900), which most authors (e.g., Cook 1971, Wassell 1984, Brinkhurst 1998) have combined with *Eclipidrilus*. In addition to morphological variability within the genus, the status of *Eclipidrilus* is compromised by a very broad definition of the genus *Stylodrilus* Claparède, which has a similar arrangement of reproductive organs, but is not defined by clear synapomorphies. Wassell (1984) organized the genus into three rather homogeneous subgenera, each of which included only two species: *E. (Eclipidrilus)*, *E. (Leptodrilus)*, and *E. (Premnodrilus)*. Brinkhurst (1998) described an additional *E. (Leptodrilus)* species, but a subsequently described western species (Fend 2005) was more difficult to place within the genus.

Recent collections in southeastern USA (primarily North Carolina) have contained a large number of lumbriculid specimens that can be assigned to *Eclipidrilus*, using current or slightly modified genus definitions. Some of these appear to be species that were previously unknown from the region, but others represent clearly undescribed species. Three of the most distinctive new species are described herein, providing additional evidence for a diverse assemblage of endemic Lumbriculidae in the Sandhills and Coastal Plain ecoregions of North Carolina.

Material and methods

Most of the new specimens were separated and processed in the field; worms were relaxed in dilute ethanol, then fixed in Bouin's solution (Pennak, 1989), and eventually transferred to 80% ethyl alcohol. Other material was obtained from samples preserved in bulk with 10% formalin solution, transferred to ethanol, and sorted in the lab with magnification. The latter technique was useful in finding these very small worms. Longitudinal dissections and whole worms were dehydrated through an alcohol series, transferred to methyl salicylate, and slide mounted in