



Two new genera of Lumbriculidae (Annelida, Clitellata) from North Carolina, USA

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Abstract

Recent benthic macroinvertebrate collections from North Carolina contained many undescribed oligochaete taxa, mostly belonging to the family Lumbriculidae. Three of the new species had arrangements of spermathecae and atria previously unreported for the family, and were assigned to new two genera. *Pilaridrilus* is distinguished by the location of spermathecal pores five segments behind the male pores. The single species, *Pilaridrilus uliginosus*, also has unusually complex penes and spermathecae. *Martinidrilus* is distinguished by spermathecae beginning more than two segments anterior to the atrial segment, and also by the the vasa deferentia, which join a common duct before joining the atria. The two *Martinidrilus* species also have unusual digitiform blood vessels in posterior segments. *Martinidrilus carolinensis* has lateral spermathecae in VI, and *Martinidrilus arenosus* has dorsolateral spermathecae in VII and VIII. Because arrangement and morphology of reproductive organs do not resemble those of described lumbriculids, the phylogenetic affinities of the new species are not clear. These new genera and species were generally collected from areas of high water quality, suggesting that lumbriculids can be useful in water quality monitoring and conservation evaluation.

Key words: Oligochaeta, Taxonomy, southeastern USA, water quality

Introduction

The lumbriculid fauna of the southeastern United States has not appeared very speciose in the literature, particularly compared with the approximately 45 species reported from northwestern North America (Altman 1936, Holmquist 1976, McKey-Fender & Fender 2001, Fend & Brinkhurst 2000, Fend & Rodriguez 2003). Nevertheless, despite only 15 or so reported species, the region has appeared faunistically distinctive, with rare records of two monotypic genera (*Spelaedrilus* Cook, *Tenagodrilus* Eckroth & Brinkhurst), as well as endemic species of *Trichodrilus* Claparède, *Eclipidrilus* Eisen, *Stylodrilus* Claparède, and *Eremidrilus* Fend & Rodriguez (Cook 1971a 1975, Eckroth & Brinkhurst, 1996; Wassell 1984). Some of these species are known only from their type locality.

Data accumulated over many years by the North Carolina Division of Water Quality (DWQ) sampling efforts (1983-present) presented a somewhat contrasting view; in this dataset, worms identified as "Lumbriculidae" were frequently encountered in stream macroinvertebrate collections, and often were the dominant oligochaetes. Our subsequent re-examination of the archived material revealed that, although some of these records were in fact megadriles (primarily Ocnerothricidae and Sparganophilidae), the majority were Lumbriculidae. Many of these were not attributable to species previously reported from the State in mainstream literature, and a surprising number represented novel species or genera. Two of the new genera, one monotypic and one represented by two species, are described in this paper.