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***Uktena riparia* n. gen., n. sp. (Annelida, Clitellata, Lumbriculidae), a new spermatophore-producing oligochaete**

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Abstract

Uktena riparia n. gen., n. sp. has been collected in hyporheic habitats at several sites in North Carolina, southeastern USA. The genus is defined by unusual characters related to reproductive structures, including the formation of encapsulated spermatophores for sperm transfer and large bundles of genital chaetae, both previously unknown in the Lumbriculidae. The simultaneous occurrence of both spermatophores and spermathecae is rare in the microdrile oligochaetes. *Uktena* spermatophores appear more similar to those reported in leeches than to those in other microdrile oligochaete families. Possible synapomorphies associating *Uktena* with the genera *Kincaidiana* and *Guestphalinus* include a filiform, ringed proboscis, a forward shift of reproductive organs relative to the usual position in the family, and spermathecae in the atrial segment. The new species adds to the already diverse, endemic lumbriculid fauna of the North Carolina Sandhills ecoregion.

Key words: Oligochaeta, Lumbriculidae, new genus, taxonomy, spermatophores, genital chaetae, freshwater

Introduction

The southeastern region of North America has recently been shown to have an unusually diverse and endemic lumbriculid fauna. This includes new members of widespread, previously recognized genera, but new and possibly endemic genera have also been described in the region (Fend & Lenat 2007, 2012; Rodriguez *et al.* 2014). A proboscis-bearing lumbriculid with spermathecae in the atrial segment and male pores anterior to segment X has recently been discovered at several sites in North Carolina, southeastern USA. This combination of characters is unusual within the family, being otherwise shared only with two species, both representing monotypic genera: *Kincaidiana hexatheca* Altman, 1936 from northwestern North America, and *Guestphalinus wiardi* (Michaelsen, 1933) from Europe. Although the new species also has additional characters in common with the above two genera, it also has three characters unknown in the Lumbriculidae: spermatophores, a copulatory organ in the spermathecal bursa for spermatophore attachment, and multiple genital chaetae in post-atrial segments. These prompt its attribution to a separate genus, *Uktena* n. gen.

Spermatophore production is uncommon among microdrile oligochaete families, and spermatophores are particularly associated with those taxa lacking spermathecae, where they seem to replace the sperm storage function. The new species, *Uktena riparia*, is unusual in this context since it combines sperm transfer via spermatophores with storage and preservation of the sperm in well-developed spermathecae.

Material and methods

Habitat and sampling methods. All collections are from permanent-flow streams in the Sandhills ecoregion in