Aquatic oligochaete worms (Annelida: Clitellata) in Texas spring, hyporheic and phreatic groundwater habitats: preliminary findings.

Steve Fend*†[1], Benjamin Hutchins , and Randy Gibson

[1]California Academy of Sciences – United States

Abstract

In contrast to the situation in Europe, stygobitic and hyporheic annelids have received little attention in North America. Recent spring, hyporheic and phreatic groundwater collections suggest a rich oligochaete fauna endemic to the region of the Edwards Aquifer in central Texas. Some species in springs and spring runs, including several Naidinae (Naididae), are widespread in surface waters (Worsham & Huffman 2016). *Eclipidrilus palustris* (Lumbriculidae) was common in springs and associated habitats, and is widespread in cleaner, cooler waters of the southeastern USA. *Varichaetadrilus angustipenis* (Naididae, Tubificinae) was also common in these habitats; this species has been associated with groundwater in Illinois by Wetzel & Taylor (2001). However, several stygophilic or hyporheic species of Haplotaxidae and Lumbriculidae appear to be new and endemic. In the Haplotaxidae, 2 basic morphotypes, each with more than one apparent species, are distinguished by morphology of the gizzard: typical for the family (in IV-V, with a median sphincter) in one type, vs. more elongate (III or IV-VII), with uniform musculature in the other. The few mature specimens also differ in gonadal arrangement and presence of genital chaetae. Lumbriculids are diverse, with over 10 novel morphotypes distinguished so far. Several morphotypes can be assigned to *Eremidrilus* based on semiprosoporous male ducts with male pores in X, spermathecae in XI, and a filiform proboscis. Two hyporheic species (in genera *Eremidrilus* and *Pararhynchelmis*) have spermathecae that appear to join the gut, and also have unusual mid-dorsal glands in posterior segments. Other Texas lumbriculid species have unusual arrangements of reproductive organs, and are difficult to classify. An unknown species of Phallodrilinae was represented by a single specimen; these small oligochaetes may not be efficiently captured by the relatively large mesh sizes used in standard collection methods.

Keywords: Texas hyporheic groundwater

*Speaker

†Corresponding author: stevenfend@gmail.com