Ecology and distribution of hyporheic microannelids (Oligochaeta, Aphanoneura, and Polychaeta) from the eastern United States

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With 6 figures and 4 tables

Abstract: Annelids (oligochaetes, aphanoneurans, and polychaetes) often are diverse and abundant in hyporheic communities, but have been little studied outside of Europe. In this study, I sampled hyporheic annelids from 14 unpolluted sites in eastern North America to (1) test whether Pleistocene glaciation has residual effects on present-day distributions of hyporheic annelids, and (2) describe the composition of hyporheic annelid communities of the region, which have not been well studied. These samples contained at least 9 families and 36 species of annelids, and were dominated by Enchytraeidae, Naididae, and Aeolosomatidae. At least four of these species (Stylodrilus wahkeenensis, Parvidrilus strayeri, and undescribed species of Potamodrilus and Lumbriculidae) were new to science, and several others are poorly known. The composition of hyporheic annelid communities was strongly related to latitude and the distance of the sampling point from the stream channel, but not to sediment grain size or organic content. Evidence for a residual effect of glaciation was weak: species richness and endemism were slightly higher in ancient unglaciated terrain than elsewhere, but these differences were not statistically significant. Further, although several specialized interstitial species (Potamodrilus sp., Parvidrilus strayeri, various Lumbriculidae) were most widespread in unglaciated terrain, others (Troglochaetus cf. beranecki, Rhyacodrilus cf. subterraneus) were widespread in glaciated terrain as well.

Key words: Glaciation, distribution, hyporheic community, species richness.

Introduction

Annelids are abundant in many hyporheic communities, often constituting 5–20 % of meio- and macrobenthic animals (Strayer et al. 1997, Hakenkamp & Palmer 2000). Typically, hyporheic annelid communities contain a diverse mixture of surface-water species and interstitial specialists that rarely

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