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Conference Abstract

Subterranean Species in Washington, D.C.: Spatial Analysis, Habitat Preferences, & Urban Conservation Implications

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Abstract

Washington, D.C. is home to a remarkable assemblage of troglomorphic amphipods and isopods living in shallow groundwater habitats, the hypotelminorheic. Groundwater from the hypotelminorheic emerges on the surface into low-flowing seepage springs, or “seeps”, which are categorized as having blackened leaves, an underlain layer of clay, a drainage area of less than 10,000 m^2, and are situated in slight topographical depressions. Stygobiotic species found in D.C.’s seeps include *Crangonyx* and *Stygobromus* amphipods and *Caecidotea* isopods. One species, *Stygobromus hayi*, is on the endangered species list and is endemic to the district; however, little is known about their habitat preferences or their distribution. All small water bodies, including rainwater puddles and seepage springs were sampled in national park lands in Southeast D.C. for hypotelminorheic fauna, soil morphology, and water quality indicators such as nitrates, phosphates, radon, pH, DO, and conductivity. Comparing sites with and without stygobionts, all phsysico-chemical parameters were statistically insignificant except for conductivity, which was able to distinguish between stygobiont-rich and stygobiont-poor seeps using logistic regression. Spatially, *Crangonyx* and *Stygobromus* amphipods rarely inhabit the same seepage spring, with only three occasions of cohabitation and an expected occurrence of ten. *Caecidotea*, however, is found in habitats with both amphipods. These results can be explained by

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either competitive exclusion or the presence of chemical differences in their habitats; however, even if there were some slight differences in their habitats, that still does not exclude competitive exclusion as an explanation. This study highlights new and important findings into the environmental preferences of D.C.'s most cryptic and rare species, and the importance of continued exploration of D.C.'s lesser known park lands.

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