



Conference Abstract

Environmental DNA in subterranean biology update: from “Where?” to “How many?”

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Abstract

Recent records of *Proteus anguinus* outside its historically known range (Gorički et al. 2017), discovered through detection of its DNA dissolved in groundwater (environmental DNA or eDNA), mark the beginning of a new era in the study and conservation of cryptic subterranean biodiversity. An upgraded technology, droplet digital PCR (ddPCR), initially developed for studies of gene expression, detection of genetically modified organisms and in medical diagnostics, is being tested for improved detection of the much smaller and rare stygobiont, the cave clam *Congerina jalzici*. In parallel to eDNA assay development for

various stygobiotic species of the Dinaric Karst, a groundwater-sample library is being created. The samples will be available for future analysis of their species composition and will also serve as a source of information on any changes in species distribution over time. In another line of eDNA research, the utility of ddPCR for direct quantification of eDNA molecules in groundwater is being explored by using the large, accessible and well-characterized (Zakšek and Trontelj 2017) natural *Proteus* population in the Planina Cave (Slovenia) as a model. The eDNA methodology may in the future be applied in estimation and monitoring of *Proteus* population sizes without having to see, mark or otherwise disturb the animals themselves.

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Hosting institution

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