



Conference Abstract

What's the potential for environmental DNA (eDNA) to assess stygofauna and troglofauna: pilot studies from Western Australia

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Abstract

Biological organisms living in any environment can expel DNA into their surroundings through fecal matter, mucus, shed skin, gametes, etc. Here we examine the utility of metabarcoding from a variety of environmental DNA (eDNA) substrates collected from the Pilbara region, Western Australia, to assess the feasibility for both stygo- and troglofauna detection. With metabarcoding, we confirm eDNA from both stygo- and troglofauna is detectable via molecules. In addition, our proof-of-concept and validation of using an eDNA approach was confirmed when both traditional morphological and metabarcoding assessments were compared. The metabarcoding results from the eDNA substrates are very encouraging when compared to the results of traditional morphological assessments, although highlighted the need for comprehensive DNA reference databases to be accessible for metabarcoding comparisons in order to obtain species identifications and community assemblage profiles. Furthermore, our results indicate a standardised field sampling collection method is warranted in order to maximise the success of subterranean eDNA detection from environmental substrates. eDNA data collected suggest metabarcoding approaches will become a powerful part of the toolkit to study subterranean fauna.

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