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Conference Abstract

The morphology of the colonizers of the springs from the down-under

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Abstract

Transition from surface to subterranean environment generally results in easily detectable morphological changes, generally referred as troglomophism. Although the cave colonisation history of species can differ considerably, in certain cases there is a possibility to directly examine the cave-induced morphological and life history changes, as some of the troglobiont and stygobiont species still have closely related surface species. A less common and therefore less known phenomenon is the invasion in the opposite direction, when cave-adapted species establish stable populations (and later, new species) in surface or surface-connected (ecotonal) habitats. A great model taxon to study if morphological changes occur in such cases is the *Niphargus* genus, which primarily comprises subterranean species, although some species successfully colonised surface or ecotonal habitats.

To get insight of morphological changes and whether these changes were affected by sex, we measured 15 functional morphological traits on 488 individuals from both sex of eight *Niphargus* species, out of which four inhabit ecotonal (spring) habitats, while the other four are exclusively subterranean. We analysed our data trait-by-trait with linear mixed models. We found that colonising the “new” habitat did not demonstrably affect morphology. In contrast habitat dependent sexual dimorphism was found in case of the 2nd gnathopods’ coxa. Besides the aforementioned habitat dependent sexual dimorphism, we found sexual dimorphism in case of 11 out of the 15 traits. Based on our result we can assume that

morphological changes might happen in the course of the colonisation of the novel habitat, but they are not as unambiguous as when surface species colonise caves. It is also possible that although we consider springs as ecotone or even surface habitats, they might be feasible for subterranean species without striking morphological changes as they do not meet selection forces strikingly different from those present in caves.

Keywords

Niphargus, morphology, colonisation

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CF methodology design, field work coordination; ZF data curation, field work; GB methodology design; GH poject administration, conseptualization; AB data acquisition, analysis

Conflicts of interest

None declared