**The predictable sequence of adaptive radiation in subterranean amphipods: glass half empty or half full?**

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Adaptive radiation (AR) is an evolutionary phenomenon in which an ancestral species colonizes an environment of unexploited resources, and subsequently rapidly diversifies into a large number of ecologically divergent species. The initial high rates of speciation and diversification slow down as ecological niches fill up. Theoretically, ecological diversification within AR unfolds predictably, with the emerging species initially exploiting habitat diversity, and subsequently diversifying into trophic niches. We tested this hypothesis using AR of the subterranean amphipod genus *Niphargus*. Adaptive radiations within this genus occurred in southeastern Europe 20-15 Mya~~, in a series of ARs that assembled into a large AR~~. Multiple ARs within a single genus are an excellent model system to test the hypothesis that habitat diversification precedes diversification of trophic niches. Using functional morphological traits as surrogates for habitat and trophic components of ecological niches, we analysed the sequence of diversification of each habitat and trophic niche traits, respectively, over time. We performed analyses at two levels of AR: at the whole genus as well as for four speciose clades, respectively ~~representing four ARs~~. Two of these clades diversified predominantly in karst areas with high habitat diversity, while the other two clades adaptively radiated predominantly in interstitial, where habitat diversity is low. Genus-wide analysis indeed suggested that diversification of traits related to habitat preceded diversification of traits related to trophic niche. However, at the clade level, sequential ecological diversification was only recovered in the two karstic clades, but not in the interstitial ones. We conclud that sequential ecological diversification is predictable but habitat-dependent, and might misleadingly amplify on a higher taxonomic level.