S-I

Distributional patterns of groundwater copepods in the unsaturated karst of Slovenia and northeastern Italy

F. Stoch [1] & A. Brancelj [2]

[1] Dipartimento di Scienze Ambientali, Universita di L'Aquila, Via Vetoio, Coppito, I-67100 L'Aquila Italy [2] National Institute of Biology, Večna pot 111, 1000 Ljubljana, Slovenia & University of Nova Gorica, Faculty for environmental sciences, Vipavska cesta 13, 5000 Nova Gorica, Slovenia

The distributional patterns of copepods in the unsaturated karstic aquifers (i.e. epikarst and upper layers of the vadose zone) were examined during the last twenty years sampling percolating water in caves, artificial tunnels, and mines in alpine, subalpine and high Dinaric karst in Slovenia as well as in the low Dinaric karst (including the Classic Karst) in southeastern Slovenia and northeastern Italy. A total of 140 sites were sampled; 71 species of harpacticoid and cyclopoid copepods were collected, 46 of them being stygobiont. An estimation of sampling efficiency using rarefaction curves and non-parametric estimators of species richness revealed that, notwithstanding the high sampling effort, approximately 80% of the total number of stygobiotic species was collected, due to the high level of rarity, endemism, and the high degree of fragmentation of the study karstic area. Non-parametric multivariate statistical analyses and one-way analysis of similarity demonstrated that the copepod assemblages of percolating waters are significantly distinct in the different karstic typologies, the lower Dinaric karst (and especially its coastal area, lacking a surface hydrographic network and with warmer climatic conditions) hosting the most peculiar assemblages. The main cotribution in differentiating the assemblages are due to endemic species of the genera *Speocyclops*, *Lessinocamptus*, *Morariopsis*, *Elaphoidella*, and *Parastenocaris*, while the non-obligate subterranean species (mainly *Paracyclops*, *Bryocamptus*, and *Attheyella*) are more common in the continental karstic areas, which hosts surface running waters and springs.