



On the contribution of the soil fauna to the macropores

Stefano Barontini (1), Paolo Vitale (2), Mattia Comincini (1), Dario Pezzotti (1), Marco Peli (1), Stefano Armiraglio (3), Massimo Tomirotti (1), and Roberto Ranzi (1)

(1) Università di Brescia, DICATAM, Brescia, Italy (stefano.barontini@unibs.it), (2) Liceo Scientifico Statale N. Copernico, Brescia, Italy, (3) CSNB, Museo Civico di Scienze Naturali, Brescia, Italy

Soil fauna play an important role in characterizing the soil structure, and they are one of the main macropore sources, together with roots, swelling and local erosion. In an hydrological perspective, according to most of the authors, macropores are meati with meaningfully small capillary action, that is with a characteristic transverse-length greater than some tens of micrometers. Macropores importance is crucial for the hydrological cycle, as they are seat of preferential flow and they contribute to key hydrological processes, viz infiltration, percolation and subsurface runoff.

In the framework of a wider investigation which aims at deepening the comprehension of the role played by the macropores in characterising the soil hydrological response (at spatial scales from the local to the slope one), we present a literature reanalysis focused on the capability of soil fauna to dig nests, holes, burrows, and subsoil tunnels and rooms. Particularly we examined data about fauna with dimensions ranging from small arthropods and anellids to some big chordates.

As a result we present a classification approach which aims at enlightening the hydrological features of the holes, e.g. structure, length, main direction, tortuosity, transverse section, displaced soil volume, hydraulic radius, digging technique, affected soil layers, in view of comparing the hydrological fallouts of different soil diggers.