Ecological properties of earthworm burrows in an organically managed grass-clover system

Paul Henning Krogh[1], Mathieu Lamandé[2], Jørgen Eriksen[2], Martin Holmstrup[1]

[1]*Department of Bioscience, AU*
[2]*Department of Agroecology, AU*

Abstract
Earthworms have long been recognized for their soil engineering capacities. Since the creation of the ecosystem service concept the utilitarian perception of nature has gained a lot of attention and funding for research. Hence, we selected earthworms and their burrowing activities to enable an assessment of their influence on water movement and nutrient release. The study went on in autumn where earthworm population densities and their burrowing activities were quantified in plots of third year clover-grass crops differing in fertilisation and the manner of removing the biomass either by grazing or cutting. We found very high biomasses as expected for clover-grass about 200 g wet earthworm weight m^{-2}. The common earthworm association typical to our region was: *Aporrectodea tuberculata*, *Aporrectodea rosea*, *Aporrectodea longa* and *Lumbricus terrestris*, i.e. two endogeic and two anecic species. We present our results on the burrow size distribution down the soil profile and link it to the species and species traits. The results are further put into perspective in our present research on macropores related to soil ecosystem services and pesticide leaching.