



The role of soil biota in soil formation in reclaimed and non reclaimed post mining sites

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This contribution summarizes long term research of soil formation, soil chemistry, microstructure and soil biota in unreclaimed post mining sites and sites reclaimed by forest plantation in Northwest Bohemia. Spoil substrate quality vary substantially however the most frequent are tertiary clays, which support fast development of vegetation. Tree canopy closed in 15-20 years old plantations. Non reclaimed sites, were covered by willow (*Salix caprea*) shrubs about 15-20 years after heaping and young birch and poplar (*Betula pendula* and *Populus tremula*) forest appeared 25-30 years after heaping. Humus layer development in 25-35 years old plots was generally faster in plantation of deciduous trees than in conifers with unreclaimed sites being somewhere in middle. Two chronosequences of sites, one covered by alder plantations and the second unreclaimed, both covering age from 1-41 years were studied in detail. In non-reclaimed sites macrofauna abundances were lower and appear in higher densities in 25-30 years old sites, testacea amoebae and oribatid mites, densities in these sites were high, similar as in natural forest habitat. Microbial respiration was similar to reclaimed sites. Thick fermentation layer developed on soil surface of 15-20 year old plots, in 25-30 year old sites humus layer developed. Enclosure

experiment indicated low soil mixing in unreclaimed sites. In alder plantation macrofauna was more abundant dominated by Diptera larvae Diplopoda, and earthworms. In the contrary, meso and microfauna displayed lower densities.

Presence of earthworms resulted in more intensive soil mixing, which appear in rapid formation of humus layer.