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THE EFFECTIVENESS OF PLANT COVER IN REDUCING EROSION OF STEEP SLOPES AND ITS USE FOR RECULTIVATION OF MINING WASTE DUMPS

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By a conceptual model it is evaluated, how and in which relative extent the vegetation reduces the surface layer erosion under rainwater. In consideration of the Hungarian climatic conditions, two mechanisms are taken into account: 1. the striking and splashing effect of raindrops (the soil structure breaks apart to small particles, and these are subsequently moved airborne downslope), 2. sheet erosion (the rainwater moves down the hill and carries small pieces of soil with it). The model provides a mathematical expression for the soil volume eroded per unit time. The vegetation diminishes the erosion through 4 different parameters in this expression: α: the plants retain this proportion of rainfall, therefore it cannot cause erosion, *z:* friction coefficient (roughness) by which the vegetation increases the friction work of flowing water, hereby reducing the available energy for the erosion, σ: specific erosion work, which is increased by the plants because their roots, rhizomes and stolons hold together the soil against external forces, b_1 : specific splash erosion is diminished by the plants because their shoots and leaves reduce the raindrops' kinetic energy. According to these parameters, four indicators are introduced and their 5 scale evaluation for 474 vascular plant species (with regard to their growth forms) is attempted. The results could help to select species and assemble plant communities for recultivation purposes.

Keywords: *erosion, rainwater, model, recultivation, vegetation*

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