

The Soils and the biological diversity of the Pogány-havas Microregion

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In the Pogány-havas Microregion territory we identified ten soil types which can be classified in eight soil families. In this paper we used the new Romanian Soil System Taxonomy and the modern soil classifications concepts.

The dominant soils of the Pogány-havas Microregion are Cambisols, which display a vertical differentiation according to precipitation levels – in the higher altitude areas there are Dystric Cambisols with acidic character and in the lower areas there are neutral Eutric Cambisols.

On the plateaus of the Hășmaș Mountains, on carbonate-rich parent rocks Rendzina soils have developed, and on steep slopes saturated Lithosols. On the high ridges and on flat tops of the Csík Mountains, over 1100 m altitudes, Umbric Podsoles have developed. In the case of carbonate-rich parent rocks, the presence of Ca-cations, determine the forming of calcium – humates in the organic complex of soils. Calcium - humates are insoluble in water and are a persistent form of humus and thus create the best conditions for nutrient storage. The presence of the calcium – humates, high saturation grades and richness in base cations of soils, high exchangeable capacity of colloidal complexes and special geographical conditions as altitude differences, slope and exposure of terrain, the fragmented surfaces and variety of the landforms determined the high biodiversity of the studied area.

The soils of the microregion present high organic matter or humus content, are rich in calcium humates, and the pH of the dominant soils falls into an optimal interval, between 5.9–8.2. The high biodiversity of this area depends not only on the landscape and climatic diversity, but is also dependent on the structure and chemical complexity of the soil layers. The soil map developed through this study can serve as a basis to other, more detailed soil, biological or ecological studies.

Land use also has important effect on soil quality. Through intensive grazing the processes of humus formation and soil saturation decrease, leaching increases and the adsorption capacity decreases. As a result, soils become acidic and poor in mineral nutrients. Traditional mowing on the other hand maintains more the processes that are favourable from the point of view of soil ecology.