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Landslide inventory map as a tool for landscape planning and management in Buzău Land Geopark

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Buzău Land is an aspiring Geopark in Romania, located in the mountainous region of the southern part of the Carpathian Bend Area. From a geologic point of view, the East Carpathians represent a segment of the Alpine - Carpathian orogene, and they are composed of numerous tectonic units put up throughout the Mesozoic and Cenozoic orogenesis. They represent a result of two compressional phases, (1) during Late Cretaceous and (2) during Early and Middle Miocene that were responsible for thrusting of internal units onto external units. The latter cover tectonically the Foredeep folded deposits.

Landslides are one of the most widespread and dangerous natural hazards in this region, disrupting access routes and damaging property and habitats at least twice per year, in the rainy seasons. This hazard induces deep changes in the landscape and has serious economic consequences related to the damaging of infrastructure and isolation of localities. The proximity to the Vrancea seismogenic zone increases the risk of landslide triggering. A first step in observing the space and time tendency and amplitude of landslides, in order to distinguish the main vulnerabilities and estimate the risk, is to produce an inventory map. We shall present a landslide inventory map for the Buzău Land territory (∼1036 km2), which is the primary base of information for further discussions regarding this phenomenon and an essential tool in observing the development of mass-wasting processes and in landscape planning. The inventory map is in accordance with the recommendations of the IAEG Commission on Landslides and other Mass-Movement, applied across the EU. Based on this work, we can already draw some remarks:

- The Geopark territory mostly covers two major tectonic units of the East Carpathians: the external nappes and the folded foredeep; areas with landslide potential are common, but by far the highest landslide frequency is observed in the foredeep. This is related to the soft, argillaceous and sandy rock compositions. The magnitude of the phenomenon progressively diminishes towards the NW, where older and more coherent rocks are found. Here, mixed aspects (landslides with blocks) and rockslides are well expressed.

- The spatial distribution of landslides is controlled by active tectonics, most of them being observed along faults.

- Landslides are common in the vicinity of salt diapirs and especially on their flanks.

- Deforestation in the area is mostly related to small scale, superficial mass movements (soil creeps especially).

- The dynamics of the area brings continuous damage to the infrastructure. Our inventory map is the first step in characterizing and forecasting landslide activity in the Geopark and future research will offer tools for the sustainable development of the region.

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