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HISTORICAL AND PRESENT SLOPE EVOLUTION IN HILLY FARMLAND (ON THE EXAMPLE OF THE MYJAVA HILL LAND, SLOVAKIA)

ABSTRACT: STANKOVIANSKY M., *Historical and present slope evolution in hilly farmland (on the example of the Myjava Hill Land, Slovakia)*. (IT ISSN 1724-4757, 2003).

The overwhelming majority of the Myjava Hill Land, namely its eastern and central part, is specific with the relatively short-term human interference into the original natural landscape. The mentioned territory was settled in two stages between the early 14th and late 18th centuries. It is possible to distinguish two different types of slope evolution in this area in the past after the transformation of former woodland into farmland. The first type was characteristic by the leading role of linear water erosion, occurring in time of colder and wetter fluctuations in the course of the Little Ice Age, when disastrous gully erosion resulted in the formation of dense network of gullies. The second type was typical for the combined acting of areal water erosion and tillage erosion. It was linked temporally with the periods between and after climatic fluctuations and spatially with the slope portions not suffered by gullying. The operation of these processes, lasting centuries, resulted in the lowering of the surface of slopes and ridges with different nature in case of slope portions cultivated along contours and gradients. The slope evolution was totally changed due to the collectivization in agriculture. Its results are the total smoothing of slopes and marked acceleration of their lowering. Conclusions of this study are still more valid for the hilly environments in Slovakia with much longer duration of agricultural interference.

KEY WORDS: Hilly agricultural landscape, Linear water erosion, Gullies, Areal water erosion, Tillage erosion, Slope lowering, the Myjava Hill Land, Slovakia.

INTRODUCTION

The objective of the article is to elucidate the historical evolution and transformation of slopes in the hilly agricul-

tural landscape of Slovakia on the example of the Myjava Hill Land. Hill lands represent the transitional step between plains and mountains. Their typical feature is high vulnerability against geomorphic processes, resulting both from their natural conditions and the character of their land use. The high morphodynamics of the hilly environment results in significant transformation of its landforms. The main natural prerequisites of the high hill landforms dynamics are represented by their morphometric parameters and especially by the low geomorphic value of sedimentary (exceptionally older than Neogene) complexes building them, resulting in significant thickness of regolith. The most important anthropic prerequisites of accelerated morphodynamics of hill lands are their forest clearing and intense agricultural utilization. According to Bučko & Mazúrová (1958), they belong to the most affected areas of Slovakia in the past and also to the most attacked areas at present from the viewpoint of water erosion, both linear and areal. However, besides water erosion, an important role in the landform transformation was also played by tillage erosion, which did not attract the attention of Slovak natural scientists so far (cf. Lobotka, 1958).

STUDY AREA

The Myjava Hill Land (384 km²) is situated in Western Slovakia near the frontier with the Czech Republic. This geomorphic unit represents a lowering between the more uplifted massifs of the White and Little Carpathians (fig. 1). The character of the Myjava Hill Land is mostly plateau-like with relief of the order of 40-130 m. It comprises primarily the Neogene, Paleogene and Sennonian sedimentary rocks of medium to low resistance which result in considerable thickness of fine-textured regolith. The islands of loess and loess loams of different areal

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