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Destruction of dolines: the examples from Slovene karst

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Due to the absence of soil and flat agricultural land, in karst regions, the cultivation of doline bottoms and the clearing of stones on fields and meadows were traditional methods of adapting farming practices to the landscape with limited agricultural potential. In recent years, a variety of activities resulting from comprehensive economic and urban development have increased pressure on karst landscapes. In some areas the surface and the underground are increasingly threatened by industrial activities, uncontrolled settlement and spread of infrastructure, the development of tourism, and intensive agrarian land use. Unsupervised human encroachment on karst landscapes is causing the increasingly more frequent and more widespread degradation of karst relief forms. The intensive reshaping of the landscape has expanded beyond control largely as a result of technological development and mechanization. The excessive modern filling of dolines, as one of the most distinctive karst surface features, has become a major encroachment on the environment for leveling purposes. Such kind of human influence affects the shape of karst features and the appearance of the landscape as well as the intensity of karst processes such as corrosion. Many dolines are filled with general and construction waste, which threatens the existence of unique habitats and quality of groundwater and consequently water supply. This contribution presents some cases of inappropriate management of karst landscape in Slovenia and examines the national legislative framework on spatial planning in karst regions. Unfortunately, in the current legislation, the standards and conditions for the protection of karst landscape characteristics (e.g. dolines) are loose and not fully elaborated. Principally, there are no uniform mechanisms to protect specific relief forms or for the adequate protection of karst. To a large extent, the preservation of the characteristic karst landscape is left to local communities that most often lack the necessary financial and professional resources to appropriately direct land use, and those dealing with spatial planning and land use have insufficient knowledge regarding the complexity of karst and its vulnerability. The unique karst relief with various types, shapes and dimensions of dolines is usually considered only as an obstacle for faster local spatial development (e.g. building of industrial zones, traffic infrastructure, settlements, etc.) by decision makers, planners and construction engineers. Therefore, dolines are extremely susceptible to human impacts, which has to be considered in spatial planning in karst in order to preserve their natural value.