



Multi-level landscape degradation due to tourist-oriented land use changes in Serbian mountainous regions

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Mountain regions are characterized by pronounced heterogeneity resulting from a wide range of altitude gradients, topography and specific microclimate. In these areas natural hazards are emphasized and additional anthropogenic activities have a catalytic effect on the degradation processes. Land use change for touristic and recreational purposes, results in the creation of artificial landscape elements that disturb the landscape structure. Skiing as a type of tourist and recreational activity strongly influences the land cover, changing the dynamics of natural ecosystems. Initially, ski resorts provoke intensive erosion processes, affecting the surrounding environment and even endangering the functionality of the built objects. The dominant disturbing activities (clear cuttings, trunk transport, machine grading of slopes, huge excavations, and access road construction) are followed by the activities during skiing and non skiing periods (skiing, usage of snow groomers, moving of vehicles and tourists, forestry activities and overgrazing). On a landscape scale, the impact of the ski resorts broadens to larger areas, which is accompanied by the degradation of the landscape visual quality. Due to the technical characteristics of the ski slopes, their volume and linear distribution evoke strong contrast in the scenery (geometrical versus bimorph edges). Such areas are losing their scenic quality and visual identity, and as such can be considered anthropogenic. The applied restoration and erosion control measures have stopped the degradation processes and helped to rehabilitate the appearance and functions of the landscape. The results of this investigation can contribute to the improvement of planning processes and the implementation of development projects in ski areas.