

Degradation of in situ geosites caused by anthropogenic factors – analysis of tourists' attitudes

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Geological diversity values are extremely vast, but are also most reasons for its degradation. Only at the beginning of the XXI century, with the popularization of science, the role of geological heritage started to be accepted and the need for its protection recognized in developing countries, such as Serbia. However, the papers available are mainly engaged with the essence of geoconservation and its basic steps: geosites inventory, examining their values and threats and suggesting the best solution or geoconservation method, etc. The authors returned to revise the part that concerns the study of the very threatening factors. Threatening factors can be divided into those arising from natural processes and those arising from anthropogenic activities - more numerous, but weaker.

Natural processes that could cause degradation are extremely rare, but when they happen – they cause disasters (such as: erosion on Canossa geosite, earthquakes, river floods, etc). On the other hand, main types of anthropogenic threats to geodiversity are: extraction of mineral resources, urban development, deforestation, intensive agriculture, tourism activities, removal of geological specimens, forest fires, military activity, and lack of education (neglecting natural values). However, this division cannot be taken for granted, given that the erosion is usually caused by human activity.

The factor that is very important to mention is tourism. Although geological formations are less sensitive to anthropogenic impacts than biological formations, they deserve an adequate care through a variety of protection measures. Tourism activities can be the engine of development of economic activities and exploitation of the cultural and aesthetic values of the landscape. However, tourism could immensely degrade the environment. A large number of visitors can be destructive for geological formations and this can be a cause of disappearance of various landforms.

The central aim of this research is to examine tourists' attitudes towards anthropogenic degradation of geosites. For this purpose, the survey was conducted on a sample of 309 respondents in Serbia. The respondents' attitudes examined are divided into four groups: Attitudes towards the environment (Mean= 3.58), Attitudes towards geosites' aesthetic components (Mean= 4.19), Attitudes towards the role of the human factor in degradation (Mean= 3.13) and Attitudes towards geosites' state and protection (Mean= 3.59).

The results showed that respondents have the most positive attitudes towards aesthetic component of the environment, but are also at least in favor with the role of human factor towards the degradation.

Table 1. Respondents attitudes towards environment

Attitudes towards:	N	Minimum	Maximum	Mean	Std. Deviation
Environment	309	2.00	4.57	3.5853	.47750
Aesthetic component	309	1.80	5.00	4.1916	.75356
Anthropogenic factor in degradation	309	1.60	4.20	3.1333	.47045
Condition and protection of environment	309	2.38	5.00	3.5907	.54519
Valid N (listwise)	309				

The results also indicate that respondents generally have a positive attitude towards the environmental protection, but are not yet ready to change their own behavior in order to protect the nature. All the attitudes were analyzed separately, with comparisons between the categories. The aim was also to explore if the level of education, income, place of residence or type of work affects the respondents perception of their own influence (as a visitor) to geosite. Based on the results obtained, it is concluded that people of different professional qualification and income differ in their attitudes towards geosite degradation. People of different gender and age, however, do not show significantly different attitudes.