

ASSESSMENT OF GEOSITES TOURISTIC VALUE IN GEOPARKS: THE EXAMPLE OF AROUCA GEOPARK (PORTUGAL)

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Keywords: *geosites; touristic value; assessment; Arouca geopark*

A method to assess the touristic value of geosites is presented. These procedures could be applied in areas where geotourism is an essential issue in management that is the case of geoparks. A numerical valuation of criteria is applied as in other methodologies to assess the use value of geosites in a tourism perspective (Pralong, 2005; Rybár, 2010). The present procedure is an adaptation of a previous methodological proposal to assess the various geosites aspects from inventory to management (Pereira & Pereira, 2010).

In this task geosites are assessed numerically using objective criteria and indicators (Table 1). Four main criteria include thirteen sub-criteria. Main criteria “availability”, “use” and “logistics” are intended to be the more objective as possible. “Perceptiveness” criterion is more subjective, depending largely of the assessor’s sensitivity and understanding of the site. Different scores can be applied to the criteria (0 to 1; 0 to 10; 0 to 100) and different weights can be used depending of the assessment aims. Besides the total values it is important to read partial results by main or sub-criteria (Pereira & Pereira, 2010). In the example here presented each criterion was scored from 0 to 10 and no weight was given to specific group of criteria.

The method was applied to the 41 inventoried geosites that constitute the Arouca Geopark main geological heritage (Sá *et al.*, 2009). The assessment was made by groups of non-specialists in geology using a simple and objective form that includes the name of criteria and correspondent indicators that have to be chosen. For each criterion the assessor is invited to describe the real conditions, to justify its score, and to suggest eventual interventions in the site to enhance that score. To improve objectivity in results different people assessed each geosite.

The assessment results show that the geosite with the highest touristic value in Arouca Geopark is the “Canelas Trilobite Fossils” with a score of 103 points (in 130 possible) and the minimum score was obtained by the geosite “Mourinha Fossils” with 40 points. 12 geosites scored below 50% of the possible maximum (less than 65 points) and only 2 geosites had more than 97,5 points (75% of possible maximum score).

It was possible to distinguish the tourism value of the assessed geosites. Well-known geosites like “Pedras Parideiras” or “Canelas Trilobite Fossils” acquired higher scores than other geosites without visiting conditions, with difficult accessibility or without signage. The nonexistence of specific signage related to Arouca Geopark and geosites was the main issue pointed by the assessors. The difficulty to access the sites is mainly related with the absence of signs and information in the roads and in the surroundings. The lack of interpretative tools in the majority of the sites was also referred as a main limitation.

Geosites management (classification, protection, promotion and monitoring) must be considered one of the main issues in geoparks management. Using this method it is possible to detect weaknesses in that management. However it is also important to point out solutions and initiatives connected with the various criteria assessed.

Table.1. Criteria for the assessment of geosites tourism value.

Main criteria	Sub-criteria	Indicators
A. Availability	Accessibility	Difficulty in accessing the site considering the types of roads, possible means of transportation, distances, and the need of special equipment.
	Visibility	Perceiving conditions of the geological elements regarding the distance, the presence of vegetation and human structures and the need of artificial light.
	Safety	Identification of potential danger for the visitor considering steep slope, slippery floor, presence of water and mass movements.
B. Use	Indications	Existence of signage in the surrounding roads and nearby the site referring it as a geosite or with other interests.
	Use of geological values	Promotion of the geosite in the internet, in guidebooks, leaflets and existence of panels and interpretative centers on the site.
	Use of other values	Existence of other natural and cultural values and their promotion and present use.
	Land status	Possibility to visit the geosite regarding property of the land, existence of fences, accessing fees, and functioning hours.
C. Logistics	Cleanness	Sanitary conditions of the site and existence of garbage recipients considering the possibility of picnics or bathes.
	Toilets	Existence of public restrooms nearby or possibility to use toilets from restaurants and cafes in the surroundings, considering their distance from the site.
	Food	Existence of restaurants and cafes, considering their distance from the site.
	Accommodation	Existence of hotels, hostels and camping parks, considering their distance from the site.
D. Perceptiveness	Aesthetics	Enjoyment of the site, considering landscape attractiveness, natural environment, presence of water and vegetation and appeal of the geological and other natural and cultural elements.
	Contents	Understanding of the geological contents using available tools (interpretative panels, webpages, books, leaflets, etc.)

Acknowledgements

The Portuguese Foundation for Science and Technology sponsors the Geology Centre of the University of Porto and the grant SFRH/BPD/68850/2010. The authors are thankful to Rafaella Guimarães, to the students of the master course in Heritage and Cultural Tourism (2010/2011) and to the students of the master course in Geological Heritage and Geoconservation (2011/2012) of University of Minho for their help in the assessment of Arouca Geopark geosites.

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Proceedings of the

11TH **EUROPEAN GEOPARKS CONFERENCE**

19 > 21 September 2012
Arouca Geopark
Portugal

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References to this volume

It is suggested that either the following alternatives should be used for future bibliographic references to the whole or part this volume:

Sá, A.A., Rocha, D., Paz, A. & Correia, V. (eds.) 2012. *Proceedings of the 11th European Geoparks Conference*. AGA – Associação Geoparque Arouca, Arouca, 319 pp.

Zouros, N. 2012. Measuring progress in European Geoparks: a contribution for a smart, sustainable and inclusive growth of Europe. In: Sá, A.A., Rocha, D., Paz, A. & Correia, V. (eds.) 2012. *Proceedings of the 11th European Geoparks Conference*. AGA – Associação Geoparque Arouca, Arouca, 5-6.

All papers in this publication were presented during the
11th European Geoparks Conference

All abstracts were submitted to peer review by two referees.
Refereeing has been extended by editors to typographical errors
or to graphic quality as far as this was possible.

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ISBN 978-989-96055-6-5□
Legal Deposit 349118/12

Impressão e acabamento: Gráfica M. Vide



11th European Geoparks Conference 2012
Arouca Geopark, Portugal, 19-21 September 2012

Organized on behalf of the European Geoparks Network by the Arouca Geopark and the Municipality of Arouca

Under the auspices of

