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smart inclusive sustainable growth

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CHALLENGES FOR A GEOCONSERVATION STRATEGY OF THE PALAEONTOLOGICAL HERITAGE IN ARARIPE GEOPARK (CEARÁ, NE BRAZIL)

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The Araripe Geopark is located in the southern part of Ceará State in northeastern Brazil (figure 1). With an area of 3,796 km² it is almost entirely situated in the Araripe sedimentary basin and it integrates the municipalities of Barbalha, Crato, Juazeiro do Norte, Missão Velha, Nova Olinda, and Santana do Cariri. The Araripe Geopark was the first geopark of the American continent to be included in 2006 in the Global Geoparks Network, with the support of the Government of the Ceará State, which considers it as an important socio-economical development project.

Fig.1. Location of the Araripe Geopark. 1- Santana do Cariri; 2- Nova Olinda; 3- Crato; 4- Juazeiro do Norte; 5- Barbalha; 6- Missão Velha (modified from Geopark Araripe, 2010).

Due to the international relevance of Lower Cretaceous palaeontological record, the Araripe Geopark is well known worldwide, mainly for the exceptional preservation of fossils occurring in the famous Santana Formation, namely plants, arthropods, molluscs, fishes, amphibians, pterosaurs and birds' feathers, all typical of a lower lacustrine sequence, together with an upper estuarine sequence with outstanding fossils of plants, arthropods, molluscs, echinoids, fishes, theropods dinosaurs and a variety of pterosaurs (Carvalho & Santos, 2005).

Unfortunately, there is a continuous loss of this palaeontological heritage in the whole Araripe region due to a set of interconnected factors that strongly interfere with the implementation of a geoconservation strategy. A symbiotic relationship can be established between illegal collecting and fossil selling. This relationship is mutually beneficial for both collectors and sellers, but at the same time is fatal to the conservation of the palaeontological heritage and its scientific and public use. On
one hand the involvement of limestone quarry workers in the fossil collecting is hard to stop due to their low salaries, low socio-educational levels, as well as inexistence of sense of pride for this rich and distinct natural heritage. On the other hand, the high scientific significance and aesthetic beauty of fossils, the continuous demand of sellers, and the inefficacy of the supervising authorities are factors that contribute to the illegal trade of fossils.

The protection of fossils has paramount importance to Araripe Geopark managers but unfortunately some of the foreseen measures are not possible to be implemented by the geopark alone because the solution depends on federal, state, and local institutions. Nevertheless, the geopark can do an important work with local communities especially in what concerns formal and non-formal education, which is the main aim of this work.

The dialogue between the scientific community, population, mining companies, and local supervising authorities must be encouraged and this can be achieved through the implementation of a suitable holistic education strategy.

The slogan of the 11th European Geoparks Conference (Arouca Geopark, 2012) is “a contribution for a smart, sustainable and inclusive growth!”, which can inspire the strategy for the promotion of the palaeontological heritage conservation in the Araripe Geopark. The actions in this strategy can encourage a "smart growth" because they include formal education activities and the engagement of teachers, as well as the promotion and dissemination of palaeontological heritage in the local communities. The "inclusive growth” can be considered by the efforts of joining the scientific community, population, mining companies, and local supervising authorities. These activities can contribute to a "sustainable growth" through the development of the tourism industry in the region but safeguarding the value of the palaeontological heritage.

This strategy that will be proposed to the Araripe Geopark managers is applicable in the territory but also in other fossiliferous areas of Brazil and in other countries.

References