Interpretative trails to enable an environmental education process in a Brazilian park

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Introduction

Environmental Education (EE) is the knowledge's construction process that has the capacity to encompass the socio-environmental interactions, recognizing the importance of stimulating the decision making, as well as the ethical and democratic foundations of life in society (Unesco, 1998).

In the Brazilian parks' institutional field, EE is an integrating axis of the public use, as it is a planned activity for all the categories established by the National System of Conservation Unities' law (SNUC), that regulate this kind of protected area in Brazil. Considering the process of parks' institutionalization and the consequent recognition of its importance for society, EE could enable a closer relationship among managers, adjacent communities and visitors (Pimentel and Magro, 2012). The Environmental Interpretation (EI) is based on practical experience of natural areas' visiting, to inform, to raise awareness, to educate and to encourage the ability of observation and reflection about the relations of people with nature (Tilden, 1977). This can provide a structure for carrying out educational activities and contribute to the promotion of social mobilization in support of environmental conservation. Thus, the EI is an enabling tool for Environmental Education, both generating positive impacts related to public use in parks (Cole, 2012). So, Interpretative Trails (IT) should stimulate new perceptions about nature based on a critical stance to allow this new environmental awareness. The objective of this paper is to present the development of two Interpretative Trails for Environmental Education in the Serra da Tiririca State Park (RJ – Brazil).

Development

The Serra da Tiririca State Park is located in Rio de Janeiro (Brazil). It was created in 1991 from a popular mobilization and protects Atlantic Rainforest biome. Two trails were chosen due to their intense visitation and proximity to the Itaipu's Archaeological Museum (MAI) and participant's schools. The Enseada do Bananal Trail (TEB) has 660 meters long. The Morro das Andorinhas Trail (TMA) has 2.6 kilometers long and has two belvederes that allows the landscape observation. The IT was developed for 833 meters of TMA (Fig. 1). The TEB and TMA were structured as ITs by selecting points with similar interpretive potential on track (Magro and Freixedas, 1998), as well as focusing on pedagogical objectives. To observe the perceptions of students from local public schools and check subjective responses about environmental interpretation points, guided tours were organized (Meireles et al., 2013).

The MAI collection shows the close relationship between the natural resources and local human history, from prehistoric times to the present day (Fernandes, Pimentel and Ferreira, 2011). Thus, to amplify its recognition by society, the Museum develops an EE process with local schools, consisting of ecosystems observation, guided tours to Park's trails, debates with local traditional community representatives, landscape reinterpretation and biodiversity identification.

The activities in TEB and TMA were based on the enhancement of environmental attributes that could rationalize to visitors, the region's institutionalization in a park. Thus, it was important to improve the knowledge of both micro and macro features, from Park's biodiversity to its geological formations. Nevertheless, socio-environmental characteristics had also been an inherent part of both ITs, as local history and designations, landscape transformation and the local humans' impacts.

Nine points of environmental interpretation were established for TEB basing discussions about biology, as species' scientific names and adaptations. Ecological information covered the landscape's features, the Atlantic Rainforest characteristics, as well the transition between marine and forest ecosystems. The presence of alien species and the need for environmental recovery stimulated environmental conservation debates. Information about the geological characteristics was also important. In view of the historical context, the Charles Darwin's visit on nineteenth century was highlighted. Considering the socio-environmental relations, the indigenous names were discussed as well as the past and present human occupations.

Six points of environmental interpretation were developed for TMA. It was also highlighted the biological information. But the human presence on the site and the possibility of landscape observation from the belvederes stimulated further discussion about local socio-environmental relations, as the landscape's historical development, the presence of residents in a park and issues concerning its limits and legal status. The TMA was tested with high school and elementary students, which generated two distinct models of guided and self-guided (folders) ITs. The first is ideal to work with schools and the second with visitors in general. Another practical result was the use of ITs as a complement to the school curriculum to facilitate the teaching and learning process, as indicated by the Brazilian National Curricula Parameters (PCNs). The educational structuration of the TEB's track was also important, so a textbook was produced to base all the work at schools, the Museum and the Park's ITs.

It should be noted that in both cases there were a previous educational process conducted with the local schools' support. Thus, it is considered important that the EI activities should be also related to these formal educational spaces. This ratifies the local institutions' relevance to enable the use of the non-formal learning space provided by the Park. The partnership among Park, Museum, Schools and University was fundamental to the project development.

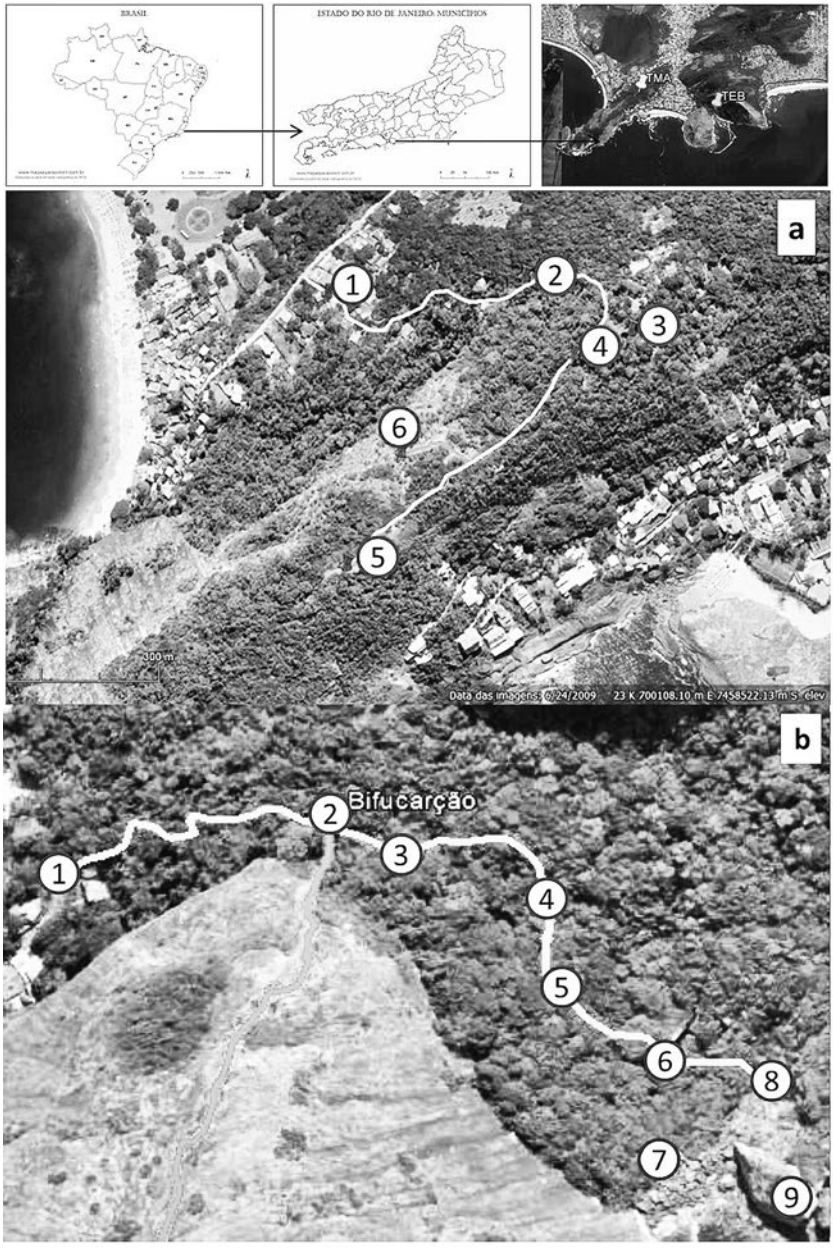

Figure 1. *Brazil, the Rio de Janeiro State and Goggle Earth images pointing and detailing the two trails: (a) The Morro das Andorinhas Trail (TMA – Yellow and Red) with 6 Interpretations Points: 1) Wires everywhere; 2) Jerivá palm tree; 3) Traditional people place; 4) Jackfruit tree sight; 5) Itacoatiara belvedere; 6) Itaipu belvedere and (b) The Enseada do Bananal Trail (TEB – Yellow) with 9 Interpretations Points: 1) Starting point; 2) What goes up, must come down!; 3) Walking in the woods; 4) Forest giant; 5) Untouched nature?; 6) Climbing the walls; 7) Natural theater; 8) Invaders!; 9) Arrival. Reference: adapted from Meireles et al., (2013).*

Conclusions

The ITs presented in this paper were developed from the formal space provided by schools but also involved other institutions as the Park and the Museum. All these interactions were enabled by different academic works, so the importance of this partnership increases due to lack of resources and personnel for management of environmental conservation and park´s public use. Also, the activities necessarily addressed socio-environmental issues, such as history, politics and laws, ratifying the multidisciplinary basis of the process, which is in accordance with the environmental education's precepts. The production of educational materials was also considered important to potentiate a more qualified visit. However it is also achieved with trained trails' monitors. Both the Park and the Museum should continue to seek recognition of their importance to society and specifically from the local community. Therefore the developed ITs, based on EE key precepts of critical learning, is of enormous importance to empower local people for environmental management.

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