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SUSTAINABLE TOURISM IN THE ENVIRONMENT OF THE NATIONAL PARKS OF APARADOS DA SERRA AND SERRA GERAL: Report of an experience of Environmental Education

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ABSTRACT

The project's experience is referred to as "Environmental Education of the community surrounding the National Parks of Aparados da Serra and Serra Geral", which aims to contribute to the awareness of the regional community about the importance of preserving the natural, historical and cultural heritage of the areas surrounding PARNAS (National Parks). The project was carried out in eight municipalities through technical visits, lectures, field studies, workshops, theatrical presentations and presentations at seminars and scientific events. Of the ten activities programmed eight were completed, a total public of 471 people was reached, being 218 people reached with the activities foreseen in the project and 253 people with activities unforeseen. It highlights the pioneering aspect of the initiative, as well as the articulation of several social sectors in actions in favor of environmental preservation.

Key-words: Environmental Education, Sustainable Tourism, Ecotourism.



1 INTRODUCTION

The Campos de Cima da Serra located in the State of Rio Grande do Sul and the extreme southern areas of Santa Catarina make up a region of recognized scenic beauty and of great geological and environmental importance. This is the main justification for the creation of the Aparados da Serra National Park and the Serra Geral National Park, integral conservation units whose main objective is the preservation of natural ecosystems (Brazil, 2016).

Notwithstanding such recognition, a considerable part of the resident community around PARNAS is unaware of the specificities of the natural environment, and often does not envisage the exploitation of such wealth as a basis for consolidating itself as a regional development engine that sustainably reconciles not only nature, but of traditional forms of economic, social and cultural organization.

It is worth mentioning that the geological and geomorphological heritage of the region is of great relevance in a national context. To the east are plains composed of sandy beaches and a lagoon complex of very recent geological formation, marked by the quaternary sedimentary cover (Duarte, 1995). In the center, there are older sedimentary lands (Paleozoic), composed of sandstones, argillites and siltite rocks, whose hills' shape derives from intense process of attrition. To the west, in turn, there is a steep relief with altitudes higher than a thousand meters, in some points, suffered spills of volcanic lava in the Mesozoic, giving origin to the Serra Geral Formation (Maack, 2001). In such a system of escarpments, the highest and most imposing of all the national territory, the effluvium-eolic erosion began to excavate great and deep canyons. This diversity of processes gave rise to landscapes of great scenic beauty such as the Itaimbezinho Canyon (largest in Latin America), Malacara Canyon and Fortaleza Canyon, among others.

Together, the region holds a record of the largest tectonic events on the planet, associated with the rupture of the supercontinent of Gondwana, about 200 million years ago (Brasil, 2011). Because it is located geographically in places of great altimetric variation, in the zone of contact between the coast and the mountain range, the region is influenced by different



climatic environments, which, in turn, encompass and determine a significant set of ecosystems.

The region is covered by the Atlantic Forest biome, in its Dense Ombrophilous Forest (subdivided into DOF of the Lowlands, DOF Submountain, DOF Mountain and DOF Highland) and Mixed Ombrophilous Forest (also known as Araucaria Forest). (Rodrigues, 2000).

The plurality of geological and geomorphological features, associated with climatic and botanical variation, provide unique attractions including beaches, dune fields, caves, canyons, cliffs, hills, plateaus, river and lake waterway valleys.

The natural mosaic includes regional cultural and historical heritages, whose roots date back to the occupation of the indigenous people of the great Tupi Guarani nation, such as Carijós and Xokleng (Sung et al., 2016). To the heritages provided by these original groups, we add the customs and traditions of the African, Azorean, Italian and German immigrants. Such ethnic plurality provided the basis for the organization of land production and exploitation based on small family farms, gastronomy, and customs and culture in general.

However, all this landscape, environmental and cultural diversity is not always properly recognized, understood and preserved by the local population. Even in the municipalities involved in the PARNAS perimeter, where the tourist activity takes its initial steps, many residents do not know or recognize the importance of the place.

Such ignorance has effects not only in the contempt for the adoption of practices that respect the preservation of the natural patrimony, but also the invisibility of the principles of sustainability as an economic, social, environmental and cultural alternative of regional development.

The various strategies to change this framework include all initiatives that disseminate information and practices that raise awareness in general and awareness of the local community about the importance of their heritage and the possibilities of a model of sustainable and inclusive exploitation. In this sense, the project aimed to contribute to this



movement, proposing and executing diversified activities to sensitize and raise awareness in the regional community about the importance of preserving the natural, historical and cultural heritage surrounding the National Parks and the region.

Specifically, it sought to sensitize residents, tourist trade and especially teachers and students about the natural and historical potential of the region, promoting the sense of belonging for the local community, promoting sustainable tourism, spreading the natural, historical, social and cultural potentialities through workshops, lectures and technical visits.

2 THEORETICAL BACKGROUND

Studies with a focus on Environmental Education focused on the areas surrounding Municipal, State and National Parks are the most diverse in Brazil (Cerati & Lazarini, 2009; Mello, 2002; Oliveira, 2016; Santos, 2016; Silveira, 2014;). Of note in these initiatives are those aimed at understanding the reality associated with its transformation (Reigada & Reis, 2004). In this aspect the present research was inspired by Thiollent's (2011) Action Research methodology with emphasis on the socio-environmental issue.

The socio-environmental perspective requires a systemic approach, not limited to the analysis of isolated variables, but in a way capable of apprehending the whole and the parts in their relations with the whole, seeing the complexity that results from the interaction between the parties. In addition, the idea of sustainability requires that a vision of the future be taken into account (Thiollent & Silva, 2007, p.95).

Debating the environmental issue and the notion of sustainability requires political positioning and a democratic stance. Therefore, research-action was a natural choice of the project. Moreover, this "(...) type of research generates articulated knowledge and practical capacity to face the problems identified" (Reigada & Reis, 2004, p.151).

Other significant references were the works that debate environmental education in Conservation Units, such as those of Souza (2014), in which interpretive trails and participatory mapping were carried out in order to implement an environmental education



and interpretation program in the Municipal Park Nascente do Mindu, in Manaus, state of Amazonas.

The Environmental Education in the surroundings of State Parks was also discussed in the works of Mello (2002), in the State Park of the Serra do Brigadeiro located in Minas Gerais, and Silveira (2014), who worked the theme in the State Park of the Serra do Rola Moça, municipality of Ibitité, also in Minas Gerais. The latter carried out a total of 12 pre-established activities, which provided a consistent construction of eco-sustainable production concepts and stimulated local farmers to make decisions regarding the adoption of activities that respect the environment.

In the state of Espírito Santo, Santos (2016) a study entitled "Environmental education in the surroundings of the Itaúnas State Park: challenges in facing socio-environmental issues, located in the municipality of Conceição da Barra" was carried out. Their results showed that Environmental Education implemented in surrounding communities has been characterized by punctual activities and community dissatisfaction has been observed regarding the effective offer of sustainable projects that meet local social and environmental demands.

Cerati & Lazarini (2009), developed a research project in the surroundings of the State Park of Fontes do Ipiranga, located in the city of São Paulo (SP), where the work presents the construction of an Environmental Education project using research methodology which had the objective of sensitizing the surrounding community about the importance of conservation in this area.

These projects are based on the idea of Sustainable Tourism. This concept encompasses activities that are developed to meet the needs of tourists and the regional economy, maintaining the integrity of cultural and environmental heritage, so that future generations can have access (World Labor Organization, 1999 apud Brasil, 2007).

In order to develop sustainable tourism in visitation environments, a study must be carried out constantly, that is, a planning so that they are articulated in an appropriate way,



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minimizing the negative points and maximizing the positive points such as the realization of a study of load capacity (Camilo & Bahl, 2017).

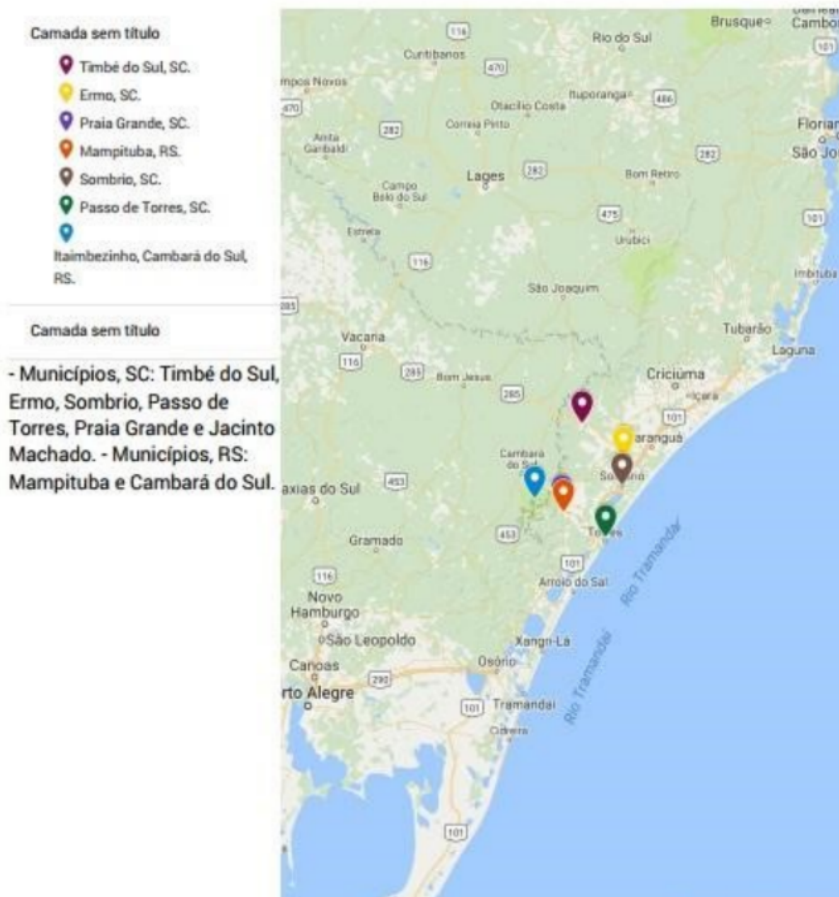
Finally, Oliveira (2016) developed a doctoral thesis on social and environmental dilemmas around the Chapada dos Veadeiros National Park, located in Goiás. The study aimed at understanding the conceptions, interests and participation of people in the region.

3 METHODOLOGICAL PROCEDURES

The proposal of action of the project of environmental education, sensitization and awareness of the natives for the development of the sense of belonging and sustainable tourism, was carried out in eight municipalities of the region around the National Parks of Aparados da Serra and Serra Geral (Figure 1).

Figure 1 - Location of the municipalities involved in the environmental education project, raising awareness of the indigenous people for the development of the sense of belonging and sustainable tourism in the region surrounding the PARNAS of Aparados da Serra and Serra Geral. Municipalities involved in the project

Municípios envolvidos no Projeto



Source: Adapted from Google Maps (2017).

The project was carried out through various activities such as technical visits, lectures, field studies, workshops, theatrical presentations and presentations at seminars and scientific events.

4 DATA PRESENTATION AND ANALYSIS

Of the 10 previously planned activities, 08 were completed by the end of the project (Tables 1, 2, 3, 4 and 5), with such activities reaching a total audience of 471 people, among students, teachers, members of the tourist trade and population, interested in issues of



recognition regarding the environmental, historical and cultural potentials of the PARNAS region, with 218 people affected by the project activities and 253 people with unforeseen activities (Tables 6, 7, 8 and 9).

Visits to tourism and historical-cultural attractions of the region covered by the project were carried out in the form of hikes on trails in natural environments, with students, teachers and members of the tourist trade and other stakeholders as a target audience (Table 1).

Table 1 - Description of the Technical Visits carried out in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
Paleotocas of the municipality of Timbé do Sul, SC	Activity Date: September 18th Working hours: 12 hours. Number of participants: 15 people Target Audience: Final year students of the Course of Geomorphology (IFC) and anyone who is interested Partner entity: Bixo do Mato Ecoturismo
Vale Josafaz, Mampituba / RS	Activity Date: October 8th Working Hours: 12h Number of participants: 24 people Target Audience: Final year students of the Course of Geomorphology (IFC) and anyone who is interested. Partner entity: Bixo do Mato Ecoturismo
Itaimbezinho Trail, PARNA "Aparados da Serra "	Activity Date: November 9th Number of participants: 40 people Target Audience: IFC Agronomy students - Santa Rosa do Sul Partner Entity: Bixo do Mato Ecoturismo

Source: authors (2017).

In the field studies, support was provided for the training of junior firefighters, regarding natural areas susceptible to accidents and a guided group in historiography studies (Table 2).

Table 2 - Description of the field study carried out in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
Monkey hills - Passo de Torres/SC	Activity Date: November 29th Working Hours: 12h Number of participants: 26 people Target audience: instructors and students of the Mirim Firefighter Department.



	Partner entities: Fire Department of Sombrio-SC and Bixo do Mato Ecoturismo.
Vale Josafaz, Mampituba / RS	Activity date: October 6th and 8th Working Hours: 12h Number of participants: 26 people Target audience: anyone interested in regional historiography Partner entity: Bixo do Mato Ecoturismo.

Fonte: autores (2017).

The lectures aimed to provide an environment for dissemination and debate on aspects of regional archeology, especially concerning the collecting peoples that inhabited the coastal slopes of Serra Geral, through a lecture with the historian Edevar Boteon (Table 3).

Table 3 - Description of the lectures carried out in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
IFC – Campus Avançado Sombrio	Activity Date: December 6th Working time: 4h Number of participants: 31 people Target Audience: Academics from the Campus and anyone who is interested Partner entity: IFC – Campus Sombrio Avançado Sombrio, Lecturer: Professor and historian Edevar Boteon.

Source: authors (2017).

The aim of the workshops was to guide children in the observation of the natural environment within the school environment, emphasizing the importance of the preservation and rational use of water resources and the need to recompose the riparian forest (Table 4).



Table 4 - Description of the workshop activities carried out in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
Morro dos Macacos - Passo de Torres/SC	Activity Date: November 29th Working hours: 12h Number of participants: 26 children Target audience: instructors and students of the Mirim Firefighter Department. Partner entities: Fire Department of Sombrio-SC and Bixo do Mato Ecoturismo.

Source: authors (2017).

The understanding of environmental awareness aimed at disseminating principles of environmental preservation and conservation of animal life through the presentation of the play "Responsible Guard" (table 5).

Table 5 - Description of the environmental awareness activities carried out in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
Municipal Basic School João Moro, Ermo, SC	Activity Date: October 19th Working Hours: 8h Number of participants: 80 children Target Audience: Students from 1st to 5th year Partner entity: City Hall of Ermo and SOS Vida Animal NGO

Source: authors (2017).

Some activities were not foreseen, however, such as technical visits to the natural attractions (trails) and cultural (paleotocas) of the municipality of Jacinto Machado - Santa Catarina (Table 6).

Table 6 - Description of the technical visits carried out in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
Paleotocas, Jacinto Machado, SC	Activity Date: June 14th Working Hours: 12h Number of participants: 29 people Target Audience: Students in grades 4 and 5 of the Escola Municipal Fiorante Minatto, Sombrio, SC. Partner entity: Bixo do Mato Ecoturismo.
Trails of Tigre Preto and Morro do Carasal - Jacinto Machado/SC	Activity Date: November 15th Working Hours: 12h Number of participants: 24 people



	<p>Target Audience: Academics from Campus Avançado Sombrio and anyone who is interested. Partner entity: Bixo do Mato Ecoturismo and Tigre Preto Association.</p>
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Source: authors (2017).

Another unforeseen activity that was carried out was the "Acción C" Social Cooperative workshop "Day C Cooperate" in commemoration of the 47 years of the cooperative, making "bergamota" (climbing wall) available to children from municipal schools in the municipality, with partnership of Bixo do Mato Ecoturismo and Cooperja in the city of Praia Grande / SC (Table 7).

Table 7 - Description of the workshop activities carried out in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
Cooperja in Praia Grande, SC	<p>Activity Date: August 30th Working hours: 15h Number of participants: 30 children Audience: Students from the municipal public school of Praia Grande and anyone who is interested. Partner entity: Bixo do Mato Ecoturismo and Cooperja.</p>

Source: authors (2017).

A lecture was also held entitled "The Importance of the Instituto Federal Catarinense for the Region and the Courses Offered on Campus Avançado Sombrio and Santa Rosa do Sul", aiming at promoting and disseminating actions of the Project and that of the Instituto Federal Catarinense itself, as co-responsible entity development of sustainable regional tourism (Table 8).

Table 8 - Description of the activity of lectures held in the municipalities around PARNAS of Aparados da Serra and Serra Geral.

Destination	Information
State School of Jacinto Machado, SC	<p>Activity Date: October 26th Working time: 4h Number of participants: 80 people Public: Students in the 3rd year of high school Partner entity: Bixo do Mato Ecoturismo Speaker: Project Author</p>

Source: authors (2017).



Finally, presentations were made at events with the purpose of aiming, disseminating and presenting the partial results obtained with the Project, in the form of a presentation or scientific article (Table 9).

Table 9 - Description of the presentations at events held in the municipalities around PARNAS de Aparados da Serra and Serra Geral.

Theme and local	Information
I Regional Tourism Seminar "Canyons Gigantes do Brasil "Perspectives and Challenges for Development in Jacinto Machado / SC.	Activity Date: August 11th Working time: 4h Number of participants: 70 people Audience: Seminar Participants Partner entity: Bixo do Mato Ecoturismo Speaker: Project Author
IV Scientific Forum of Gastronomy, Tourism and Hospitality, UNIVALI, Campus Balneário Camboriú, SC.	Activity date: November 24th Working time: 4h Number of participants: 20 people Target Audience: forum participants Partner entity: IFC-Campus Avançado Sombrio, SC. Speaker: Project Author

Source: authors (2017).

The causes for not carrying out two of the planned activities involved variables external to the planning, since the photographic sample was suspended due to difficulties of the partner, involving the cancellation of activities at PARNA Aparados da Serra. However, it should be noted that the photographic material is collected and organized, which will enable the activity to be carried out at any upcoming opportunity. In addition, the environmental education workshop that was supposed to have taken place with basic education students in Cambará do Sul was not carried out due to the difficulty of making the agendas feasible between the organizing partners (the project and the partner, Pousada Bolicho Guabiroba) and of these with the institution receiving the action, that is, the municipal public network of Basic Education in Cambará do Sul. In the text below, the activities carried out throughout the project.

Thus, it can be observed that the project reached an index of compliance with the proposed activities of 80%, characterized by considerable amplitude, both in terms of the diversity of



the activities carried out, the target audience reached and the geographic actions. On the other hand, six additional activities were carried out that, although not foreseen, are in line with the objectives of the Project, raising community awareness about the importance of preserving the natural, historical and cultural heritage of the National Parks and region, aimed at raising the awareness of residents and the tourism trade, especially teachers and students about the natural and historical potential of the region, thus contributing to the development of the sense of belonging of the local community, fostering sustainable tourism and spreading the natural, historical, social and cultural potentialities of all region.

5 APPLICATION OF THE PROPOSAL FOR TOURISM

The project Extension base for the elaboration of this article was a pioneer in the region, highlighting the aspect of a union with various social actors of regional entities, listing the power that union brings to any activity or task, but mainly the commitment (will) of any person who is performing a task that he or she has set out to do.

Therefore, when it was verified that the project carried out several environmental education activities in the established region (in the surroundings of the National Parks of Aparados da Serra and Serra Geral), and that these activities played a role of having a local impact, in case other educational institutions, conservation, municipal governments, and private entities to follow it as a model for the development of sustainable tourism, starting all environmental education, environmental preservation, arousing economic opportunities together with socio-cultural development and valorization, each with its own particularities. With the use of the project as a model we can adapt it in different realities.

As an example, we mention the National Aparados da Serra and Serra Geral National Park, which has an exclusive physical space to work with environmental education, but the place does not work or rarely works due to lack of funds and personnel for activities, often who is assigned to a certain task is always performing other functions, due to the lack of personnel in other areas, these bodies often have a shortage of skilled people in several areas and a shortage of employees, which does not allow these employees to have time to prepare a project as the project has been studied, but if the project is adopted by the



ministry of the environment and ICMBio, the execution becomes simpler and more dynamic, since it consists of small actions with the community, and may even use the visitation itself.

This was a simple example, but this can be employed in any body, be it public or private, once the most difficult parts have been done, records of the entire project is put onto paper and then performed, in activities where there has been no use of economic resource, and still it is available to anyone, in the extension sector of the Instituto Federal Catarinense Campus Avançado Sombrio. It has already been made available to the surrounding community, via prefectures and private entities.

6 FINAL CONSIDERATIONS

The study was carried out based on the project entitled "Environmental Education of the community surrounding the National Parks of Aparados da Serra and Serra Geral for the development of Sustainable Tourism", which consists of a large number of activities involving different entities and execution, which makes it difficult to carry out in its entirety. This difficulty became even greater due to the small number of volunteers who were willing to contribute to the activities.

However, at the end of the project it is considered that there was a very positive balance, since 80% of the pre-established schedule was complied with, and the inclusion of a considerable number of activities not originally foreseen, totaling a number of activities considered high, given its complexity and diversity.

Notwithstanding the negative aspects described above, it is understood that the project has great value, not only for its pioneering aspect, but also for having managed to articulate several social sectors in actions towards the preservation of the patrimony and adoption of the concept of sustainability as a regional development project.



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