
Proposed Environmental Interpretation in a Conservation Unit: the case of the Morro de Santo Antônio Natural Monument – MT

Propuesta de Interpretación Ambiental en una Unidad de Conservación: el caso del Monumento Natural Morro de Santo Antônio – MT

Proposta de Interpretação Ambiental em Unidade de Conservação: o caso do Monumento Natural Morro de Santo Antônio - MT

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Resumo

A Interpretação Ambiental no Monumento Natural Morro de Santo Antônio, localizado em Santo Antônio do Leverger – MT, surge da necessidade de apresentar discussões acerca da problemática do uso do local de estudo. Este estudo teve como objetivo propor a implantação de trilhas autoguiadas no Morro de Santo Antônio, com vistas ao desenvolvimento da Educação e Interpretação Ambiental. O procedimento metodológico utilizado foi a pesquisa exploratória com abordagem qualitativa. Foram realizadas visitas *in loco*, onde percorremos a trilha principal utilizada pelos visitantes. A partir destas visitas, foram levantados os elementos naturais visíveis com base em pontos pré-selecionados na trilha, configurando-se em pontos estratégicos para a sugestão da instalação dos painéis interpretativos.

Palavras-chave: Educação Ambiental. Interpretação Ambiental. Unidades de Conservação.

Abstract

The Environmental Interpretation at the Morro de Santo Antônio Natural Monument, located in Santo Antônio do Leverger - MT, arises from the need to present discussions about the problem of using the study site. This study aimed to propose the implementation of self-guided trails in Morro de Santo Antônio, with a view to the development of Environmental Education and Interpretation. The methodological procedure used was exploratory research with a qualitative approach. On-site visits were made, where we cover the main trail used by visitors. From these visits, the visible

natural elements were surveyed based on pre-selected points on the trail, configuring themselves at strategic points for suggesting the installation of interpretive panels.

Keywords: Environmental Education. Environmental Interpretation. Conservation units.

Resumen

La Interpretación Ambiental en el Monumento Natural Morro de Santo Antônio, ubicado en Santo Antônio do Leverger - MT surge de la necesidad de presentar discusiones sobre el problema del uso del sitio de estudio. Este estudio tuvo como objetivo proponer la implementación de senderos auto guiados en Morro de Santo Antonio, con miras al desarrollo de la Educación e Interpretación Ambiental. El procedimiento metodológico utilizado fue la investigación exploratoria con enfoque cualitativo. Se realizaron visitas in situ, donde recorrimos el Sendero principal utilizado por los visitantes. A partir de estas visitas, se relevaron los elementos naturales visibles a partir de puntos pre seleccionados del Sendero, configurándose en puntos estratégicos para sugerir la instalación de paneles interpretativos.

Palabras clave: Educación Ambiental. Interpretación ambiental. Unidades de conservación.

Introduction

The study related to environmental issues has expanded in recent decades, in view of the constant changes in the ecosystem, resulting from the anthropocentric view that places the human being as superior to the other elements of nature. In this way, it is essential to raise awareness of existing environmental problems and the importance of conserving natural resources, which are non-renewable.

Faced with this problem, Environmental Education emerges as a process that helps individuals and the collectivity to develop actions, attitudes and behavior changes aimed at nature conservation. For Sato (2003), Environmental Education is characterized as a moment focused on the recognition of values and classification of concepts, aiming at the development of skills in relation to the environment, to appreciate the interrelations between human beings, their cultures and the biophysical environment.

In Environmental Education, there are several tools that can be used, with Environmental Interpretation being one of them. The difference is that Environmental Education is a continuous process, which must happen at all stages of

the subjects' education; environmental interpretation, occurs as long as the visitor remains in the place where the interpretation is made.

In this way, Environmental Interpretation can be seen as an instrument of communication used to sensitize visitors, working with feelings and emotions, aiming that the information offered to them reaches the mind, but also to the heart. According to Moreira (2014, p. 79), "Environmental Interpretation facilitates the knowledge and appreciation of nature, as it is a translation of technical language into the common language of people".

Based on the principles of Tilden (1957apud DELGADO; PAZOS, 2013), for environmental interpretation to be a positive experience for visitors, it is necessary that its activities be pleasurable, meaningful, organized, provocative, differentiated and thematic, in order to prove them with the cause of biodiversity conservation.

In Brazil, conservation units are natural areas for environmental interpretation activities. The visitation is performed through previously delimited trails, which are implanted and maintained according to the characteristics of each location, making it possible to interpret them. According to the Doces Matas Project (2002, p. 77), the interpretive trails give visitors a different view "from the one that the normally 'distracted' eyes cannot see. It's revealing meanings... It is to establish a new look...".

For this work the Conservation Unit Morro de Santo Antônio State Monument, located in Santo Antônio do Leverger – MT, was chosen, which has as activity religious tourism and sports, such as trekking and hiking. The choice was defined based on the interest in working the Environmental Interpretation in a Conservation Unit. Still on the justification, we can mention another relevant reason for this work to be carried out: in the scenario of research on Environmental Interpretation in Mato Grosso, we note that there are no studies on what we are addressing.

According to searches in national journals, in internet sources via Google Scholar, we found some scientific studies, namely: Dalla Nora and Takata (2018),

entitled "Tourist planning of the Morro de Santo Antônio State Natural Monument", and Souza (2017), entitled "The use of remote sensing to evaluate the dynamics of vegetation in a Conservation Unit in the state of Mato Grosso".

And in the collection of the Central Library of the Federal University of Mato Grosso (UFMT), we find some studies of *latu sensu* graduate studies in Cerrado Biology – Center for Graduate Studies of Biology (UFMT), i.e.: Ferrer (1981), entitled "Some observations on the flowering and occurrence of *Salvertia Convallariodora* St.Hill. (Vochysiaceae) in Morro de Santo Antônio - MT"; Lima (1980), entitled "Preliminary survey of soil arthropods in Cerrado environments in Morro de Santo Antônio - MT"; Silva (1981), entitled "Proposal for the preservation of Morro de Santo Antônio", and Moreira (1981), entitled "Occurrence of Pteridóphytes in Cerrado I: Morro de Santo Antônio de Leverger".

Therefore, we noticed that specific studies were conducted, but no research presented discussions related to Environmental Education and Interpretation in a Conservation Unit. Other reasons that stimulated to work with the theme are related to the problem found on the site, with regard to its use.

Within this context, the present work was developed with the objective of proposing the implementation of self-guided trails in the Morro de Santo Antônio Natural State Monument, with a view to the development of Environmental Interpretation. In order to contemplate other aspects on this theme, we systematize the following specific objectives for the development of work: to understand that educational processes take place beyond the school spaces; demonstrate that environmental interpretation is a strategy for the conservation of natural environments that have tourist activities and suggest the implementation of interpretive panels on self-guided trails at the Morro de Santo Antônio Natural State Monument.

Regarding organization, the work is divided into three chapters. In the first, the bibliographic survey is presented, with a discussion on the main themes that

follow (FREIRE, 1997) the research, such as Environmental Education, Environmental Interpretation and Conservation Units. In the second chapter, the methodology is presented, where the main procedures used to achieve the proposed objectives were described. Then, the results obtained with the research were disclosed, evidencing the importance of the use of environmental heritage interpretation in a Conservation Unit.

Interpretation of Environmental Heritage

The visitation to protected areas, such as parks and conservation units, has increased considerably in recent years. Due to the fast pace of large cities, society in general has sought these refuges in order to "disconnect" from daily life and reconnect with nature.

According to Delgado and Pazos (2013, p. 317):

Many protected areas are also inhabited territories, with the presence of communities within or around these areas and which depend to a large extent on the resources of the area. The interpretation allows to awaken new vocations, as well as to create new centers of interest and services that can become opportunities for work and income and thus positively focus on local development.

Environmental Interpretation brings the connection so that communities can feel part of the environment and understand the benefits of conservation. Therefore, the Environmental Interpretation Centers arise, which are open spaces for visitation, which develop leisure activities, Education and Environmental Interpretation.

For the Chico Mendes Institute for Biodiversity Conservation (ICMBio, 2018, p. 09), Environmental Interpretation is a "powerful tool for sensitization because it speaks directly to the individual and seeks to create empathy and personal identification between the public and what we want to protect", offering tourists the opportunity to know the existing natural wealth.

Because it has several forms and methodologies for communication with the public, environmental interpretation allows the creation of a sense of familiarity or

intimacy with the place. Interpretive communication programs have several instruments, such as interpretative boards, flyers, self-guided trails, technologies with audio, video and several other instruments that stimulate the transmission of information, making it possible to interpret that heritage, whether historical, cultural or natural.

Due to a close relationship with Environmental Education, Environmental Interpretation has become an important tool, as it aims to present the meanings and natural phenomena through practical experiences and interpretive means, being used, as Moreira (2014, p. 78), "to describe the activities of communication performed for a better understanding of the environment in protected areas, museums, nature interpretation centers".

The difference is that Environmental Education is a longer and continuous process, which must happen at all stage of the individual's education and should be worked on inside and outside the classroom; Environmental Interpretation, is for a specific moment, as long as the visitor remains on site, and is practiced in natural environments.

Environmental Interpretation was studied by Freeman Tilden in 1957 in the United States and, thanks to his contributions, was considered the father of the interpretation of heritage. Its concept was formulated when some flyers were made and distributed to tourists visiting American parks, so that they could help in understanding existing natural resources and in the conservation of nature.

The visitation to the parks in the 1950s was a reality due to the American social and cultural lifestyle. In that period, the habit of leisure was created in these spaces, and what should be done was to minimize the impacts that visitors could cause, in order to bring citizens closer to nature and insert them in the process of Environmental Education.

Tilden (1957 apud DELGADO; PAZOS, 2013, p. 302) defined Environmental Interpretation as "an educational activity that aimed to reveal meanings through the

use of original objects, first-hand experiences and illustrative means, rather than simply communicating factual information". Therefore, it presents itself as a way to improve the quality of visits in natural areas, seeking alternatives for a better form of communication of the experience, in order to make it unforgettable.

Interpreting can also be understood, according to Ontiveros *et al.* (2011, p. 16):

[...]how to translate from a specialized and technical language of historians, archaeologists, anthropologists, biologists and others, to an accessible and close language for those who are not obliged to know. Its objective is to ensure that visitors adopt an attitude of respect, appreciation and contribute to the conservation of the light to which they go. Therefore, interpretive programs must be at least brief and clear, in addition to using direct language.

Tilden (1957 *apud* DELGADO; PAZOS, 2013) he was also responsible for establishing the bases, principles and characteristics that directed environmental interpretation at that time. According to the author's principles, a good interpretation activity should be interesting, thematic, organized, differentiated and especially pleasurable.

Interpretation of Environmental Heritage in Conservation Units

Although it is a tool with many fields of application, Environmental Interpretation plays a decisive role in the management of Conservation Units, because it allows sustainable tourism and the minimization of the impacts caused by mass tourism.

Conservation Units are considered important spaces for recreational and educational activities and are ideal places for Environmental Interpretation practices. These protected areas have the social function to educate visitors about the importance of maintaining the ecosystem and, because they have low cost, attract tourists and the local community.

In this sense, the creation of the law that instituted the SNUC (Law No. 9,795/1999) favored Environmental Interpretation, recreation and ecological tourism in these spaces, and these factors are some of the various benefits that these areas provide for society.

In the Management Plans the Environmental Interpretation program should deal with the activities that will lead visitors to reflect on the importance of conservation of the natural and cultural heritage of the area, so that they can interpret these resources.

With the opening of these places for visitation, there is a risk of trivialization of the Unit, removal of vegetation, hunting of animals, among others. And the Environmental Interpretation goes against this problem, because it helps in the planning of circuits that control the flow of visitors, respecting the capacity of the place and avoiding the vulnerability of some destinations, without reducing the satisfaction of the experience and responding to the expectations of visitors.

However, only in 2006 did the Ministry of the Environment establish a national definition for Environmental Interpretation. Considering that ICMBio aimed to implement interpretation as one of the management tools, the Institute (2018, p. 16) adopted the following concept: "Environmental Interpretation is a set of communication strategies designed to reveal the meanings of environmental, historical and cultural resources, in order to provoke personal connections between the public and protected heritage."

Thus, the Environmental Interpretation aims at the conservation of the elements of nature, and, for Moreira (2014, p. 79), serves "as a management tool", in order to sensitize tourists to observe, understand and feel the natural heritage they are visiting, helping to minimize negative environmental impacts and potentiate positive social impacts.

Self-guided trails

Self-guided trails are part of the group of non-personalized interpretive media. According to Moreira (2014), they can be performed without the follow-up of guides, with predetermined stops that must have interpretive panels, plates or flyers with information about the place that is interpreted.

An example of self-guided trails is Yellowstone National Park in the United States, which, in addition to having interpretive panels, field guides are available at fixed locations on the trail, and can be purchased even if the Visitor Center is closed.

To be efficient, self-guided trails, according to Moreira (2014, p. 92),

must have adequate and sufficient interpretive material. Only with the availability and use of panels and printed material (flyers and field guides), together with the interest of the visiting public, one can achieve the objectives of interpretation of the environment related to geological heritage.

One of the positive aspects of the auto-trail is the access of visitors at any time of the year, being able to attract a greater number of people, allowing the visitor to set their own pace and they are indicated for those people who do not like group tours.

In the elaboration of an interpretation project with self-guided trails, the width of the trail should be included in addition to the stop points. According to the Doces Matas Project (2002), on average, a maximum length of 1.5 km is recommended, with a time of 45 minutes.

It is important to be aware also of the impact it will cause on the environment, presenting to the visitor the importance of maintaining the place, the correct disposal of waste that may be produced on the route, the removal of some element that makes up nature and, mainly, the trails must maintain the natural characteristics, always valuing the appearance of the place.

According to Doces Matas project (2002, p. 83):

It is important to be aware also of the impact it will cause on the environment, presenting to the visitor the importance of maintaining the place, the correct disposal of waste that may be produced on the route, the removal of some element that makes up nature and, mainly, the trails must maintain the natural characteristics, always valuing the appearance of the place.

Proposals that mitigate the impacts on nature are of paramount importance in a project of interpretation, if the areas have some fragility, such as marked slope or flooding, because they are closer to the watercourses.

Regardless of the type of trail that will be developed in the Conservation Units, it must be organized, pleasurable and have relevant information and, above all, have a sequence, presenting a starting point, the stop points and the end of the trail, because each of these parts has a specific function. Thinking about it, the selection of stop points is fundamental so that they are always related to the main interpretative theme. The amount of interpretation points will depend on the length of the route and the interest of visitors. It is important to highlight that a large amount of these points can characterize a certain wear, so that it loses interest in the last points interpreted.

At the beginning of each trail it is essential that the interpretive panels have information of distance, walking time, difficulty in the route and also present the particularities of the place, such as the presence of rivers and waterfalls, wild animals, in order to arouse the visitor's interest in interpreting the place.

At each point selected in the project, the theme is developed in order to increase the visitor's interest. It is essential to note that each stop point must have an interpretive plate developed in the form of text, which is not very extensive and can be read by any visitor.

The end of the trail should be the place where all the information of what was interpreted is gathered, making a relationship with what was seen during the route and the main theme, with the aim of bringing visitors to reflection on the

conservation and maintenance of these protected areas along with water resources, soils, fauna and flora.

In the case of the Morro de Santo Antônio State Natural Monument, the trail ends at a belvedere, which can help the public to better understand the natural and anthrop processes that occurred in that place and where it is possible to have a view of the entire protected area, the Cuiabá River and the city of Cuiabá.

In an interpretation project, it is important to look at the safety of the site and visitors. It needs to be easily accessible, that it does not present obstacles and that the trail is safe. Trash cans should be installed on the trail for the disposal of waste and, if possible, toilets for visitors.

Another key item in a location that has trails that will be interpreted is an access gate, because this is the first contact that the public will have with the Conservation Unit. At the entrance, there should be a space for the visitor to know its history and the importance of the place for the surrounding population and for the city.

Aiming at access for all, the self-guided trails should be appropriate to receive also visitors with some kind of disability, with a view to stimulating well-being, through contact with the calm that nature provides.

Interpretive panels

Interpretive panels are the most popular means used in parks and conservation units. They must be rich in colorful figures and have texts with simple vocabulary to be understood by all individuals who visit the place.

This interpretive medium presents itself without interfering in the natural scenarios, information or some characteristic of the place being interpreted. The communication process is based on the written message. It is important that the set of types and sizes of letters, colors, drawings and figures is thought and developed in a way that is readable at the time of reading.

When an interpretive panel is not read by some visitors, it is important to analyze the material produced. According to Moreira (2014, p. 94), "this can be due to the fact that it is poorly located, its design is not attractive, the letters are very small". There may be the possibility that some texts are more complex, with technical information that only a specific group will be able to understand.

For instance, the role of the teacher at this time is important. Those who can hold field classes in parks or Conservation Units should stimulate their students to read, since these panels have important information regarding geology, hydrography, vegetation and geomorphology of certain places so that it is easier to understand.

Methodology

The construction of this work was divided into three stages: (I) bibliographic surveys on the concepts of Environmental Education and Environmental Interpretation, (II) visitation to the study area and, finally, (III) the results.

In a first stage, we conducted a study from authors who dialogue on Education and Environmental Interpretation, among them: Tilden (1957 apud DELGADO; PAZOS, 2013), Dorst (1973), Sato (2003), Moreira (2014), Dias (2014), Reigota (2006) and government agencies such as the United Nations (UN, s/d) and environmental institutions such as ICMBio (2018), so that it was possible to think about the Environmental Interpretation in the Morro de Santo Antônio Natural Monument for visitors and the community inserted there.

We studied the historical evolution of these two concepts to have a comprehensive notion of the various definitions that are proposed for Education and Environmental Interpretation, also observing the importance, legal instruments and their implementation in conservation areas in our country.

In the course of the fieldwork, we requested, the Coordination of the Conservation Unit of the Secretariat of Ambient Environment (SEMA/MT), authorization for scientific research in Morro de Santo Antônio.

After the presentation of the documents requested by SEMA/MT, technical opinion no. 191/CUCO/SUBIO/SAGA/SEMA/2019 was issued, favorable to the research. Thus, we carried out two fields: the first occurred at the beginning of December 2019, in order to know the place. On this day, we walk the main trail that is used by visitors and carry out the preliminary follow of the flora, fauna and physical characteristics.

The second fieldwork, which took place in the second half of December 2019, was to mark the pre-selected points, configuring themselves as strategic points for the installation of interpretive panels. Later, these locations were photographed and marked with GPS device to assist in the elaboration of the trail.

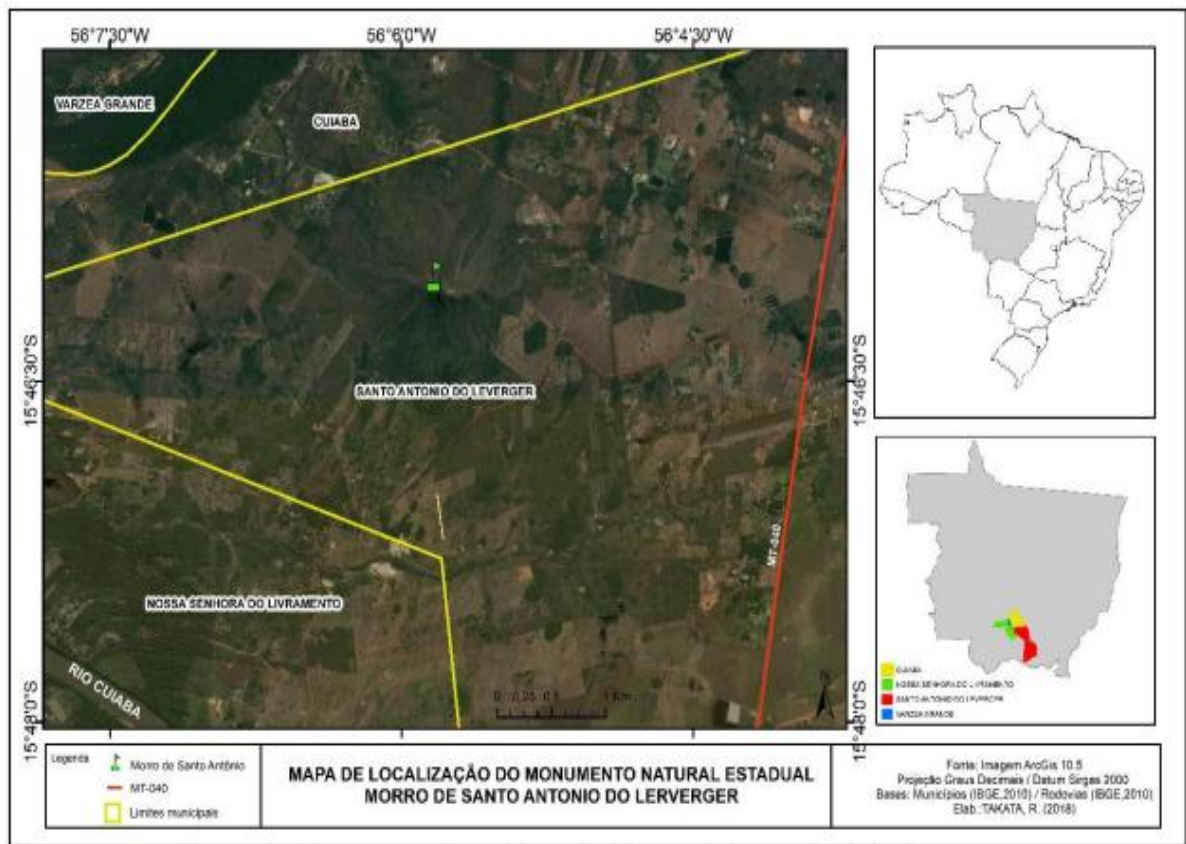
We define not only the places for interpretation, but also the aspects to be addressed in each of them. A track location figure was generated, based on the satellite image provided by *Google Earth*.

Finally, the last stage of the work was the proposal of Environmental Interpretation in Morro de Santo Antônio with the implementation of self-guided trails and the production of interpretive panels. We consider the proposal important, in view of the reality found where the visitor, when they know the place, is left with a lack of structure that helps them to interpret it.

Morro de Santo Antônio State Natural Monument

Morro de Santo Antônio, created by Law No. 8,504/2006, is located at MT-040 (Rod. Palmiro Paes de Barros) in the city of Santo Antônio do Leverger-MT, between the geographical coordinates 15° 45' 887" S and 56° 05' 386" O (Letter Image 1). It has an area of 258 hectares and is approximately 17 km from the central area of Cuiabá.

Chart Figure 1 – Location of the study area



Source: Dalla Nora e Takata (2018, p. 159).

According to Guarim et al. (2000), the vegetation is composed of open tree savannah, presenting in its distinct physiognomies as Campo Sujo, Savanna Parque and Mata de Galeria. The climate, according to Rondon, Modesto Filho and Moura (2017), is warm tropical semi humid, marked by two distinct periods, drought (May to October) and rainy (November to April). The average temperature is 26° C, with maximum records of 42° C.

The rocks belong to the Cuiabá Group and, according to Thomé Filho et al. (2004, p. 294), have “cryogen age (> 600 million years) and are represented by quartzite, metalotnite and filite intercalations cut by numerous milky quartz veins, many of which are auriferous”. As for hydrography, the region is inserted in the Great Cuiabá River Basin, sub-basin of the Paraguay River. As for soils, they are of the alic litholic type and Dystrophic Podzolic Dealers.

For Thomé Filho et al. (2004), Morro de Santo Antônio is considered an *inselberg*, an isolated residual relief form that stands out in the landscape, more resistant to the wear and tear of time. The site has a quota of 450m altitude, standing out in Baixada Cuiabana.

Under Law No. 7,381/2000, Morro de Santo Antônio was listed as a Landscape, Historical and Cultural Heritage of the State, with SEMA/MT being responsible for the management and supervision of it.

This monument was part of the state's history, as it served as a reference for the Bandeirantes to reach Cuiabá. In the Paraguayan War, observation points were set up at the top of the hill to warn of a possible invasion across the Cuiabá River.

Known to bororos indigenous peoples as "Toroari" or "Aturuari", it has great spiritual value. For the Bororo people, Morro de Santo Antônio is a sacred site. According to Dalla Nora and Takata (2018, p. 159), "besides the hill being present in indigenous culture, it is a symbol of *cuiabania* and is present in works of artists and poets", such as João Sebastião and Gervane de Paula, among many others.

Currently, the place is used more for religious tourism and sports such as trekking, hiking and mountaineering, because it is closer to the city of Cuiabá.

Interpretation of the results

Environmental Interpretation, for Tilden (1957 apud DELGADO; PAZOS, 2013), can be understood as a communication practice that gives meaning to protected areas and aims to demonstrate to the public the importance of the place, so that they can understand and value the natural and cultural aspects, transforming the visit into an enriching and pleasant experience.

In recent years, the growth of visitation in protected areas has increased in the country and worldwide. According to the president of ICMBio (2019), Adalberto Eberhard, the "increase in visits is due to the greater interest of people in the environment and experiences in nature". Tied to this, there was a structuring in the

Federal Conservation Units, with training of technical teams, improvement in infrastructure in order to provide well-being to visitors.

However, in order for the visitor to have access to these Units, it's necessary to be aware of the norms and procedures, so that the activities carried out are in accordance with the SNUC, that is, to preserve the diversity of natural ecosystems. According to the Directorate of Protected Areas (DAP) of the Ministry of Environment (s/d), "visits must be planned and meet recommendations, so that they function as a tool to raise awareness of society on the importance of biodiversity conservation".

In the Morro de Santo Antônio Natural Monument, it is no different. Being inserted in an Integral Protection Unit, it aims to preserve rare natural sites, singular or of great scenic beauty. For your visitation it is important that the public is aware of Ordinance No. 309/2011, which provides for its use.

Any form of exploitation of natural elements shall be prohibited and flora, fauna, soil and water shall be preserved; it is forbidden to light fires, leave garbage on the trails and in inappropriate places. Also according to the document, any cultural, religious, artistic and sporting events should be requested via protocol to SEMA/MT, the body responsible for the management of the Unit.

All standards and regulations are necessary, as each human action has some impact on the environment. What should be sought is to minimize these impacts, reconciling conservation and visitation in these natural environments with actions that seek to sensitize and stimulate the change of behavior of the public towards nature.

Thus, with the realization of this scientific research at the Morro de Santo Antônio State Natural Monument, in Santo Antônio do Leverger - MT (Panel 1a), we try to cause as little impact as possible.

Panel 1- Main information about the Morro de Santo Antônio Natural Monument

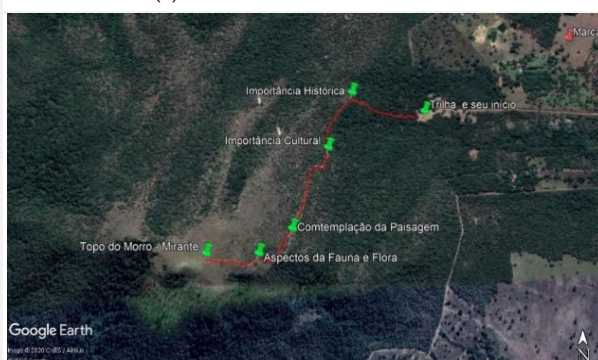
Morro de Santo Antônio Natural Monument (a)



Path of the main trail of Morro de Santo Antônio (b)



Suggested points for interpretation: Morro do Santo Antonio Trail (c)



Recommendations for the use of Morro de Santo Antônio (d)

- MANTENHA- SE NA TRILHA PRÉ-DETERMINADA;
 - TRANSITE APENAS NO HORÁRIO DO FUNCIONAMENTO DA UNIDADE;
 - É PROIBIDO SOM ALTO;
 - NÃO TRAGA ANIMAIS DOMÉSTICOS;
 - NÃO PERNOITE NO TOPO OU EM QUALQUER LOCAL NO MORRO;
 - TRAGA SEU LIXO DE VOLTA;
 - NÃO LEVE NADA PARA CASA;
 - RESPEITE OS ANIMAIS E AS PLANTAS;
 - NÃO FAÇA FOGUEIRAS;
 - NÃO TRAGA BEBIDAS NEM ENTRE NA UNIDADE EMBRIAGADO;
 - SEJA CORTÊS COM OS VISITANTES E COM A POPULAÇÃO LOCAL.
- "Você está entrando em um ambiente natural e extremamente sensível"
- AJUDE A PRESERVAR**

Interpretive board with information about Morro de Santo Antônio (e)

<p>O Monumento Natural Estadual Morro de Santo Antônio possui uma área de 258 hectares. É uma unidade de conservação estadual, e tem como objetivo preservar os sítios naturais raros, singulares ou de grande beleza cênica.</p> <p>Foi tombado em 2000 como Patrimônio Paisagístico, Histórico e Cultural de Mato Grosso.</p> <p>O local é um refúgio de pássaros e animais silvestres, além de apresentar uma das melhores vistas do rio e da cidade de Cuiabá.</p>	<p>The Morro de Santo Antônio State Natural Monument has an area of 258 hectares. It is a state conservation unit, and its purpose is to preserve rare, singular or of great scenic beauty natural sites.</p> <p>It was listed in 2000 as Landscape, Historical and Cultural Heritage of Mato Grosso.</p> <p>The place is a refuge of birds and wild animals, and presents one of the best views of Rio and the city of Cuiabá.</p>	
<p>INFORMAÇÕES DA TRILHA</p> <p>ALTITUDE: 498 metros</p> <p>EXTENSÃO: 2.566 metros</p> <p>GRAU DE DIFICULDADE: moderada a difícil.</p> <p>TEMPO DO PERCURSO: 2 horas. (IDA E VOLTA)</p>		<p>HORÁRIO DE VISITAÇÃO</p> <p>Entrada: 6h</p> <p>Saída: 17h30min</p> <p>ATENÇÃO: EVITE A CAMINHADA EM CASO DE CHUVAS.</p>

Source: fieldwork 2019, Photo: Silva, images from Google Earth, 2019.

Thus, when analyzing the area, we check on site the existence of preexisting trails that have served for the displacement of visitors. We chose to use the main trail,

which has a unique route, and then we set off to the top of the hill and returned to the starting point (Panel 1b).

The walk to course the trail takes an estimated time of 2 hours, and some stretches have ascents / descents with irregular conditions of terrain, with some degree of difficulty depending on the physical state of the visitor. The estimated time takes into account the stop at the given points, for exploring the issues considered important so that visitors can interpret the environment.

The main trail begins in the Morrinho Community to the highest point of the hill. As the objective of the interpretative trails is to contribute to the conservation of the environmental heritage of the Morro de Santo Antônio Monument, the selected interpretive points were chosen taking into account the existing stop points and, mainly, that could provide the contemplation of the entire landscape.

At the beginning of the trail, there is a makeshift area that is used for parking vehicles. At the site, no information center was observed that could guide the visiting public or any supervision of the use and control of the site. We observed only one information board and an abandoned house that could be used by the Government to serve the visitor.

Going along the trail, it was possible to notice that the monument is suffering some natural wear, among them, the high degree of soil compaction, which favors the surface flow of rainwater and the intensification of erosive processes in stretches with greater slope. Other factors observed are due to human action, such as the presence of waste and vandalism, factors that can compromise the balance of the ecosystem.

In this sense, if the interpretative trails are justified as an instrument for Environmental Education and Interpretation, it is essential that in its beginning and throughout them are implemented interpretative plates with information about vegetation, fauna, hydrography, among other elements, as well as the guidelines for the correct use by visitors.

Each stop will have an interpretive panel that will have content linked to Morro de Santo Antônio. These plates can be made of wood, opting for the most durable.

In this way, we determine six stop points, including the first point, which is located at the beginning of the trail (Panel 1c).

Trail and its beginning

In the initial landmark of Morro de Santo Antônio, we intend to produce the interpretive panel with general information about the monument, among them, the altitude, extension of the trail, degree of difficulty, visitation time and estimated time for completion of the route.

We also propose that in the initial framework there is another information board with the necessary recommendations to make the trail, such as: keep quiet be careful during the route, do not collect any specimens of plants, collect the residues produced (panel 1d).

The information must be in Portuguese, foreign language and Braille, in order to include persons with disabilities (Panel 1e).

Historical importance of the Morro de Santo Antonio trail

At this point of stop, the interpretative plates should have information about the historical importance of Morro de Santo Antônio for Mato Grosso, their participation in the Paraguayan War and how the monument is present in the official coat of arms of the state. They should also contain information on the emergence of the municipality, the important figures and the local culture.

Cultural importance of the Morro de Santo Antonio Trail

In this place, the interpretative plates should contain information about the Hill being one of the important historical and cultural symbols of the state for

indigenous peoples and for the culture of the people of Cuiabá, since it is portrayed in the works of several Mato Grosso artists, such as Gervane de Paula and João Sebastião.

Physical aspects of the Morro de Santo Antonio trail

At this point we intend to present to visitors the physical aspects of Morro de Santo Antônio, such as pedology (soils), geomorphology (relief) and hydrology (rivers), and also the characteristics that make the monument be considered *inselberg* of the type "sugar loaf".

Contemplation of the landscape: fauna and flora's aspects on the trail of Morro do Santo Antonio

At this point, we propose that the interpretative plates contain information on the local fauna and flora and the importance of preserving existing species for the ecosystem.

At the end of the trail, the visitor will reach the top of the hill, where the viewpoint of the monument is located. Here, the visitor will be invited to enjoy the landscape, overlooking the Cuiabá River and the city of the same name, connecting them with the natural environment through the senses (smell, vision and hearing), observing the sounds, colors, humidity and odors, in order to awaken some sensation / perception when visiting a Conservation Unit.

They will also be invited to reflect on all the points interpreted, not only for the natural aspects and scenic beauty, but also for the process of human intervention that modified that place.

After this moment, the return must be made by the same path traveled. During the trail, in addition to the interpretative panels, we also propose the implementation of identification plates of tree species, containing: popular name, scientific name, family, some curiosity or importance of the plant.

The plates should be made of wood and fixed to the ground. Once implemented, we propose that there be periodic maintenance.

Once the implementation of self-guided trails and interpretive panels is suggested, some interventions on the trail will be recommended, such as:

- a) construction of the Tourist Service Center;
- b) there should be control of tourist cargo, seeking to minimize the natural or anthrop impacts caused to the monument;
- c) in order to maintain the safety of visitors, it is necessary to introduce small wooden masts, with the tips painted white, along the trail in order to indicate the path, provided that the minimum impact caused to the environment is observed;
- d) construction of a socio cultural space for environmental education activities, ecotourism and exhibition of regional handicrafts;
- e) Management Plan of the Natural Monument of Morro de Santo Antônio.

All the interventions suggested in Morro de Santo Antônio were not emphasized in the SNUC, being in charge of the Management Plan of each Comprehensive Conservation Unit. The plan will determine which activities or actions will take place in each Conservation Unit.

To the present date, the monument in question does not have its Management Plan, thus making it impossible to develop activities other than conservation activities, as determined by the SNUC.

Final considerations

Conservation Units are areas protected by the Government, created for the maintenance of habitats and biodiversity, aiming to stop the advancement of society over natural spaces. Its conservation contributes to a better quality of water, climate, soil, in addition to protecting specimens of fauna and flora, in order to restore the balance of nature.

Therefore, Environmental Education in a Conservation Unit has the possibility of reaching a greater number of people, promoting values, knowledge, ethics and citizenship in its relationship with the environment, in order to become active in the preservation and recovery of natural areas. Only from the changes in behavior, will we have a more just, conscious, egalitarian and sustainable society, without compromising the development of future generations.

Thus, we also highlight environmental interpretation as an important tool that improves the quality of tourist activity, helping to raise awareness about the preservation of Conservation Units. It is worth mentioning that the practice of interpretation also refers to the culture and history of the place, so that visitors can better understand the natural and cultural heritage that is being interpreted.

Unfortunately with regard to the maintenance and conservation of the Morro de Santo Antônio Natural Monument, a lack of structure and control of visitation was observed and also a lack of collection of waste produced by visitors, revealing the abandonment of the public power with such an important place for the history of Mato Grosso.

And finally, it was demonstrated, through works and authors such as Tilden (1957 apud DELGADO; PAZOS, 2013), Moreira (2014) and the Doces Matas Project (2002), that Environmental Interpretation is an important tool that helps in the preservation of natural areas.

We also observed that the implementation of self-guided trails, with the support of interpretative signs, constitutes an important pedagogical resource, enabling visitors to get in direct contact with nature, contributing to promote reflections on the importance of conservation of natural areas, even favoring the valorization of local culture and identity, and the opportunity for new jobs and income for traditional communities.

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