

Classification of long-distance trails into nature-based tourism niches: A preliminary study

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ABSTRACT: Hiking tourism has intensified in Brazil in recent years. Among the evidence of this process is the creation, in 2018, of the Brazilian Network of Long-Distance Trails (RBT), which brings together trails that require at least one overnight stay to complete their route. Considering the country's potential in this field and the rapid growth of this tourist offer, the research sought to develop and test a methodology to classify these trails according to niches in the nature tourism segment. To this end, it collected data from RBT websites and social media and from the Long-Distance Trails (LDT) of Rio Grande do Sul, as well as applied online questionnaires with managers to identify evidence that would make it possible to associate these trails with certain niches of nature tourism. As a result, it obtained a preliminary classification of the Long-Distance Trails of Rio Grande do Sul in relation to the niches of the nature tourism segment, as well as identified important aspects to be considered for the construction of methodologies with the same purpose.

Keywords: Trails.
Nature-based Tourism.
Tourist Segmentation.

Info do artigo:

Aceito 12/Jun/2023
Publicado 01/Nov/2023

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DOI: 10.14210/at.v8i3.19635

INTRODUCTION

Over time, trails have come to have other uses and are no longer just a means of getting from one place to another, as they used to be. In tourism, in addition to being a way of accessing attractions, they have also become a tourist product (Bregolin & Rudzewicz, 2021).

In countries like the United States and France, where national trail systems have been operating for decades, this type of tourism product with low implementation and maintenance costs attracts millions of users every year, thus demonstrating tourism and economic potential (Omena & Bregolin, 2020).

In the case of Brazil, which has one of the largest territories in the world, there is great potential for the development of trails as a tourist offer (Omena & Bregolin, 2020). This includes the possibility of implementing long-distance trails, (LDT) i.e. trails that require at least one overnight stay.

To encourage better use of this potential, the public policy National Network of Long-Distance Trails and Connectivity - Rede Trilhas (Rede Trilhas, 2022a) was created in 2018. It is a system made up of LDT that connect different biomes in the country, linking different landscapes to promote organization and structure, giving visibility to the nature tourism offer in Brazil (Brasil, 2018). One of its objectives is to expand and diversify the tourist range, stimulating tourism in natural areas and attracting two million people a year (Brasil, 2018a).

Linked to this public policy and with the aim of meeting its objectives, the Brazilian Trails Network Association was established, a non-profit civil entity made up of national, regional and local trails with their own deliberative councils (Rede Trilhas, 2022a). All the trails participating in this network are governed, implemented and managed autonomously, but they adopt a signage standard, based on black and yellow footprints, which gives them their identity as a system (figure 1) (Rede Trilhas, 2022a).

Figure 1: Example of representative footprints from long-distance trails in Rio Grande do Sul



Source: Authors, 2022.

With plans to structure 20,500 kilometers of trails in 20 years in the country, by 2022 this network had a total of 8,000 kilometers in place, distributed over 138 trails that passed through 415 Conservation Units, 1 Geopark, 300 municipalities; covering the six terrestrial biomes that exist in Brazil and 25 of the country's 27 federal units (Brasil, 2022).

In this context, there has been a significant growth in this type of tourism offer in the country since the creation of the Trails Network. There is also a need to qualify the proposal of these trails as a tourism product because they are often described in a generic way in the media, which makes it difficult for potential users to understand what kind of experiences they can offer.

In order to address this problem and find alternatives for overcoming it, this exploratory research, focusing on the state of Rio Grande do Sul, sought to develop a methodology for classifying LDT according to nature tourism niches. In this way, it aims to encourage managers to reflect on the vocation of each trail as a tourism product when planning routes, which could result in more assertive communication with potential users.

THEORETICAL FRAMEWORK

Trails: evolution in use and understanding, classifications

Until the nineteenth century, trails were the main component of the land transport infrastructure and were routes used by people, domestic animals and goods (Brasil, 2018). For a long time, therefore, walking on trails simply meant moving from one place to another.

However, with the industrialization of the 19th century and the emergence of the Romantic movement, walking became popular as a leisure activity (Rodrigues & Kastenholz, 2007). For this reason, Folmann, Pinto and Guimarães (2010) say that walking on trails is man's oldest means of transportation, and more recently, these same trails have been understood as attractions for those seeking experiences close to nature.

In the 1970s, trails were considered interpretive resources when they were defined as routes in natural places that provide explanations about the environment, flora, fauna, natural phenomena, local uses and customs (Guillaumon, 1977 apud Martins & Dutra, 2019). Later, Machado (2005) said that trails are "open paths for transportation, displacement and access", an understanding similar to that of ABNT (2008), who conceptualized them as "narrow, usually unpaved and impassable for passenger vehicles".

An analysis of these definitions shows that trails can serve different purposes. Machado (2005) gave them the following: access, administrative purposes, nature interpretation, access to wilderness areas, and a more intimate relationship with the environment. Merriam, Bality, Stein & Boehmer (2017) broadened this scope by suggesting that trails support the achievement of objectives related to the promotion of public health by providing outdoor spaces for physical activities that help reduce stress and improve the mental health of practitioners (Merriam et. al., 2017).

Because they promote users' contact with nature and, in some cases, stimulate their awareness of the importance of conservation, trails are widely used in nature tourism, in which context they are generally understood as a means for people to reach tourist attractions (Folmann et. al., 2010).

However, more and more visitors are traveling to tourist destinations with the main purpose of hiking, making them the main tourist attraction (Bregolin & Rudzewicz, 2021). In light of this and associated with this movement, hiking tourism stands out as an important tool for nature tourism, contributing to the preservation of cultural and natural heritage (Rodrigues & Kastenzholz, 2017).

Since they are associated with this diversity of practices and relationships, trails have different configurations, which implies that they are classified in different ways. In this sense, their typology, format, length and level of difficulty are among the main criteria considered.

With regard to typology, ICMBIO (2018) states that they can be classified as terrestrial, where the surface is made up of soil/rocky substrate; or aquatic, where it is predominantly made up of water. For this reason, this classification defines which recreational uses are possible on the trails, since terrestrial trails are used for walking, running, cycling or horseback riding, while aquatic trails are used for canoeing, floating and rafting.

When it comes to terrestrial and hiking trails, the focus of this research, Brasil (2018) also suggests classifying them according to format and length. In this way, he classifies the trails according to Table 1.

Chart 1 - Classification of Trails based on Format and Length

TYPE	DESCRIPTION
Crossings	When they cross a certain region or even a conservation unit, with two access points served by motorized transport.
Linear trails	When they start and end in the same place, allowing access to a destination but requiring the user to return to the starting point.
Circular trails	When they start and finish in the same place, but with a route that is not repeated.

Trails in eight	They start and finish in the same place, with an unrepeat route, but with a crossing point that allows visitors to take two routes, one shorter and one longer.
Circuit	Networks of trails in a given area, with one or more access points, allowing for different route options.
Trails with overnight stay	The extent of the trail can't be covered in just one day's walk, requiring visitors to spend the night.
Long-distance trails	When the trail is more than 100 km long and crosses or connects conservation units of different categories.

Source: Authors (2023) based on Brazil (2018)

Subsequently, this concept of a long-distance trail was adapted in the country by changing its definitional parameter: from a distance of more than 100 kilometers (Brazil, 2018) to a duration that includes at least one overnight stay (Brazil, 2022). As a result, two types of LDT have also been established: the Regional Long Distance Trail, which requires at least one overnight stay and a maximum of 28 days of walking, and the National Long Distance Trail, which requires more than 28 days of walking and includes at least two regional trails (Brazil, 2022).

In addition to the criteria already mentioned, trails can also be classified according to their level of difficulty. In the case of Brazil, the standard ABNT NBR 15505-2, which deals with hiking trails, presents points for evaluation related to the following topics: a) severity of the environment, which refers to the dangers and difficulties encountered at the site; b) orientation of the route, i.e. the degree of difficulty for orientation; c) terrain conditions, which covers aspects of the route in relation to the ground and conditions for walking it; and d) intensity of effort, i.e. the amount of physical effort required to complete it (ABNT, 2008).

All these methods are relevant for classifying trails according to the purpose for which this process is carried out. Classification by typology, for example, allows an initial definition of possible recreational uses and, consequently, the identification of potential audiences. Classification by format and length helps to better understand the characteristics of the trails that make up the national network, facilitating the planning and organization of information. Finally, the classification by degree of difficulty contributes to the safety of users by helping them to choose the trails best suited to their level of experience.

Although these methods are useful for characterizing trails and providing important references for managers and users, they are still insufficient for evaluating trails from the perspective of a tourist product, as postulated by the bodies promoting the Trail Network¹.

Therefore, considering that the interests and motivations for walking on a trail vary according to the profile of the public, we advocate the creation of other classification methods to facilitate the identification of the market vocations of each LDT. In the case of this study, the proposal was to classify LDT according to nature tourism niches. The goal is to encourage managers to add other information when publicizing LDT to ensure better communication to potential users about the type of nature experience each trail can provide.

Nature Tourism Niches

Kotler (2006) explains that market segmentation divides consumers into groups with similar preferences, which provides benefits and facilitates marketing planning for businesses. In this sense, segmentation is a process that consists of dividing a market into product profiles that correspond to different customer profiles, making it easier to communicate and market the right products to each audience and achieve greater satisfaction. From these segments, even more specific levels, the niches, can be identified, focusing on certain aspects of the different segmentation bases, such as interests, demographic variables, educational conditions, income, etc.

In the case of nature tourism, there are many labels. For this reason, Silva (2013) comments that the terminology referring to tourism practiced in nature is multiple, with different concepts and dimensions. As he explains, some authors emphasize the territory (visiting natural areas), others refer to participation and/or experiences related to natural attractions, while others link the concept of nature tourism to sustainability. The author also notes that nature tourism is also misunderstood as synonymous with ecotourism.

With this in mind, he suggests using the term nature tourism "for any type of tourism that consists of visiting predominantly natural areas with the aim of appreciating and enjoying nature, or practicing activities and experiences directly related to natural resources" (Silva, 2013, p. 165). Thus, this broad concept would include tourist activities carried out in natural spaces with different interests and objectives, covering different niches such as ecotourism, ecological tourism, environmental tourism, scientific tourism, adventure tourism, rural tourism, among others.

Machado (2005), who also discussed tourism related to natural spaces, described terms such as scientific tourism, environmental tourism, adventure tourism, rural tourism and ecotourism with greater emphasis. About them, he noted that they all have a predominance of natural elements that promote the visitor's contact with the space, but that the expectations and interests of the practitioners are the

criteria that define which type of tourism is practiced in that environment (Machado, 2005). In this sense, he cited some key words to identify the corresponding tourism niches. Based on this idea, Table 2 shows the niches cited by the author with their keywords, adding the characteristics cited by other authors or institutions that have also addressed these niches.

Table 2 - Niches of Nature Tourism

CONCEPT	CHARACTERISTICS	AUTHORS
Ecotourism	Conservation Awareness Valuing local communities	Machado (2005) Brasil (2006) Silva (2013)
Environmental tourism	Awareness Clarification	Machado (2005)
Scientific Tourism	Generation and dis- semination of scien- tific knowledge Pro- duction of scientific knowledge	Scientific Tourism Network (2019) Conti <i>et.</i> <i>al</i> (2021)
Adventure Tourism	Adventure activities Controlled risk sports	Ministério do Turismo (2006) Machado (2005)
Rural Tourism	Tourist activities in rural areas Agricultural produc- tion / Cultural herita- ge	Ministério do Turismo (2003) Machado (2005)

Source: authors (2023)

All the niches mentioned in Table 2 can be associated with hiking trails, which is why this research has drawn on them to propose a methodology for classifying LDT, according to the methodological path detailed below.

METHODOLOGY

When designing the methodology, the intention of the research was to propose a classification of long-distance trails based on nature tourism niches. In this sense, it was decided that the study would be qualitative because, as Silva and Chauvel (2011) state, this type of methodology provides a deeper understanding of what is being studied, emphasizing situational details and providing a good representation of processes.

It was also understood that it would be appropriate to carry out exploratory research, since, according to Gil

¹ Ministério do Turismo - MTur (Ministry of Tourism), Ministério do Meio Ambiente - MMA (Ministry of the Environment), Instituto Chico Mendes para Conservação da Biodiversidade - ICMBIO, (Chico Mendes Institute for Biodiversity Conservation), Agência Brasileira de Promoção Internacional do Turismo - Embratur (Brazilian Agency for International Tourism Promotion) and Associação Brasileira de Trilhas de Longo Curso (Brazilian Association of Long Distance Trails).

(2017), this type of research aims to "provide greater familiarity with the problem in order to make it more explicit". Given that the implementation of free trade agreements is a recent phenomenon in Brazil, it was considered appropriate to carry out this type of research because it aims to improve ideas, with flexible planning that allows for the consideration of different aspects related to the subject under study and provides a new view of the problem (Gil, 2017).

The research can also be characterized as descriptive (Gil, 2017) because it describes the LDT in the state of Rio Grande do Sul in a standardized way. This area was chosen because this state was one of the pioneers in the implementation of LDT in Brazil, with a significant number of them. It was also easier for the authors to access the managers to obtain the data to be analyzed. Data were collected through bibliographic research, documentary research and questionnaires. The bibliographical research aimed to update and develop knowledge on the subject (Boccatto, 2006) by consulting publications on the subject. During the documentary research stage, "materials that have not yet received an analytical treatment or that can still be reworked according to the research objectives" were used (Gil, 2017). In this stage, data was collected on the website of the Brazilian Trails Network and on the communication channels - websites and social media - of the long-distance trails of Rio Grande do Sul, in order to better characterize the object of analysis. Among the information collected were: a) the name of the trail; b) the name of the regional and/or national trail to which it belongs; c) location: tourist region; d) location: municipalities traveled; e) biome; f) conservation units involved: names and governmental jurisdictions; g) length of the trail: planned distance; h) length of the trail: realized distance; i) estimated length of the trail; j) managers; k) representative image (footprint); l) other relevant information.

In addition to the Internet research, a questionnaire was administered to trail managers to identify the following elements: (a) main tourist attractions; (b) main tour operators; (c) presence of interpretive signs on the trail; (d) community participation in management; (e) presence of scientific publications on the trail; (f) presence of school activities; (g) presence of adventure activities on the trail; (h) presence of experience/contact with agricultural activities along the trail; (i) presence of relationships with other hiking-based tourism products; (j) functioning and composition of management.

The data collected were analyzed by assigning a priori categories (Bardin, 2011), that is, by checking the relationship they expressed with the elements that signal the niches identified in the theoretical frameworks considered (Chart 3).

Chart 3 - Signaling elements considered for the niches

NICHE	CATEGORY	ANALYZED ITEMS	AUTHORS
Ecotourism	Interpretation	Interpretive signposting (existence of interpretive signs) on the Trail; Participation of the local community in the management of the trail.	Machado (2005) Brasil (2006) Silva (2013)
Environmental Tourism	Educational activities	Presence of school activities / visits on the Trail.	Machado (2005)
Scientific Tourism	Scientific activities	Scientific publications on the trail.	Machado (2005) Scientific Tourism Network (2019) Conti <i>et. Al.</i> (2021)
Adventure Tourism	Extreme activities	Offer adventure activities on the trail.	Machado (2005), Ministério do Turismo (2006)
Rural Tourism	Agricultural activities	Direct farming activities and experiences along the trail.	Ministério do Turismo (2003) Machado (2005)

Source: authors (2023)

RESULTS AND DISCUSSION

Long-distance trails evaluated

Located in the far south of Brazil, the state of Rio Grande do Sul (RS) is the country's ninth-largest federal unit, with 281,707.151 km² and a population of 10,880,506 (IBGE, 2023). Its territory is divided into two biomes: the Atlantic Forest and the Pampa (Rio Grande Do Sul, 2020).

At the time of the survey data collection, in September 2022, this state had ten LDT in varying degrees of implementation (Rede Trilhas, 2022a).

Four of them, Caminhos da Geodiversidade (Geodiversity Paths); Caminhos de Caravaggio (Caravaggio Paths); Travessia Transmontana da ARIE Morro Ferrabraz ao PET do Caracol-RS (Transmontana Crossing from the Morro Ferrabraz ARIE to the Caracol-

RS PET), Transpoa - Trilha Transportoalegrense (Transpoa - Transportoalegrense Trail); did not yet have signs set up to the RBT standard and were therefore disregarded from the study.

In this way, the research evaluated the other LDT that had already begun the process of signposting with the Network standard: Araucaria Trail (Caminho das Araucárias), Caminho do Corredor Ecológico da Quarta Colônia (Fourth Colony Ecological Corridor Trail), Caminho dos Morros de Porto Alegre (Porto Alegre Hills Trail), Caminho do Pampa (Pampa Trail), Travessia Cassino x Barra do Chuí (Cassino x Barra do Chuí Crossing) and the Trilha dos Santos Mártires das Missões (Holy Martyrs of the Missions Trail)(Rede Trilhas, 2022a). These trails are shown in Figure 2.

Figure 2 - Location of the trails evaluated in the state of Rio Grande do Sul



Source: Adapted from Rede Brasileira de Trilhas de Longo Curso (2023)

Results obtained on the internet

An Internet search was conducted to describe the trails evaluated. It included the website and social media of the Trails Network, as well as the promotional channels - Facebook, Instagram - used by the LDT. From this, data was extracted and, in some cases, supplemented with other data from publications, where available. The

following is a summary description of each LDT.

Caminho das Araucárias (The Araucarias Trail):

Located in the Atlantic Forest biome, it was created in 2017 with the Trail Management and Signposting Workshop organized by ICMBio in the São Francisco de Paula National Forest (Omena & Bregolin, 2020). Aimed at hikers, cyclists and horseback riders, the LDT will last 30 days and has a planned route of 600 kilometers of trails and roads, of which 212 kilometers (35%) are already in place. It covers the states of Rio Grande do Sul (RS) and Santa Catarina (SC), passing through nine cities in Rio Grande do Sul - Canela, São Francisco de Paula, Rolante, Riozinho, Itati, Três Forquilhas, Jaquirana, Cambará do Sul, São José dos Ausentes and eight cities in Santa Catarina - Bom Jardim da Serra, São Joaquim, Praia Grande, Jacinto Machado, Lauro Müller, Orleans, Grão Pará and Urubici. Its route includes ten Conservation Units (UCs) and other types of protected areas - Caracol State Park, Canela National Forest, Ronda Municipal Natural Park, São Francisco de Paula National Forest, Aratinga State Ecological Station, Rota do Sol Environmental Protection Area, Tainhas State Park, Aparados da Serra National Park, Serra Geral National Park in RS and São Joaquim National Park in SC (Rede Trilhas, 2022b). It is managed by the Caminho das Araucárias Association, which includes volunteers linked to various institutions and organizations.

The Fourth Colony Ecological Corridor Trail: Located in the Atlantic Forest and Pampas biomes, this is a regional trail that began to be structured in 2019 by the Ecological Corridor team in partnership with local actors (Rede Trilhas, 2022c). With an estimated duration of 20 days, the route is designed for walking and cycling. Its projected length is 250 kilometers, of which 75 kilometers have been realized (30%). It links twelve municipalities: Santa Maria, Dona Francisca, Faxinal do Soturno, Ivorá, Itaara, Nova Palma, Pinhal Grande, Restinga Seca, São João do Polesine, São Martinho da Serra, Silveira Martins and Agudo; and five UCs - Morros Municipal Natural Park, MOÃ Foundation State RPPN, Solar das Borboletas RPPN, Monte Grappa Municipal Natural Park and Quarta Colônia State Park (Rede Trilhas, 2022c).

Caminho dos Morros de Porto Alegre (Porto Alegre Hills Trail):

Located in the Pampa biome, structured on the initiative of a group of independent hikers and geared towards hiking, biking, pilgrimage and equestrian routes, its estimated duration is 7 days. It has a planned length of 80 kilometers, 6 of which, equivalent to 7.5%, are already in place (Rede Trilhas, 2022d). Located in the municipalities of Porto Alegre and Viamão, it includes five PAs - Saint Hilaire Municipal Nature Park, José Lutzenberger Lami Biological Reserve, Morro do Osso Municipal Nature Park, Itapuã State Park and São Pedro Wildlife Refuge.

Caminho do Pampa (Pampas Trail): Located in the Pampa biome, geared towards hiking, biking and horseback riding, it has been running since 2021. With an estimated duration of 9 days, it is 172 kilometers long, of which 45 have already been signposted - representing 26% of the route. It runs through the municipalities of Santana do Livramento, Rosário do Sul and Alegrete, integrating the PAs of the Ibirapuitã Environmental Protection Area and Valle del Lunarejo, in Uruguay (Rede Trilhas, 2022e). Managed by the APA Ibirapuitã Management Council.

Travessia Cassino x Barra do Chuí (Cassino x Barra do Chuí Crossing): Located in the Pampa biome and geared towards hiking, it takes 8 days to cover its 226 kilometers. It connects the municipalities of Rio Grande and Santa Vitória do Palmar, bordering the Taim Ecological Station. It has no signposts as the route is easier to follow due to the presence of the Atlantic Ocean along its entire length. It has interpretive signs with the visual communication of the Trails Network distributed along the route. It is managed by a group of volunteers, who have not yet been formalized into an Association (Rede Trilhas, 2022f).

Trilha dos Santos Mártires das Missões (Trail of the Holy Martyrs of the Missions): Located in the Atlantic Forest and Pampa biomes and oriented towards hiking, biking, pilgrimage and equestrian routes, it lasts an estimated 8 days. With a route of 180 kilometers, 100% signposted, it covers the municipalities of São Nicolau, Pirapó, Rolador, Roque Gonzales, São Pedro do Butiá and Caibaté, and does not pass through any Conservation Units. It is managed and organized by a group of volunteers, the Association of Friends of the Trail of the Holy Martyrs of the Missions (Rede Trilhas, 2022g).

Results obtained via questionnaire

An online questionnaire was sent on October 17, 2022, to the institutional emails of each trail to complement the data obtained on the internet. This document had 25 questions and aimed to verify the presence of items signaling nature tourism niches in the LDT, as well as to verify the respondents' perception of the relationship between these LDT and these niches. Below is a summary of the responses obtained.

Caminho das Araucárias (The Araucarias Trail): Reported the following as its main attractions: Caracol Waterfall, Ronda Waterfall, Bolo de Noiva Waterfall, Centenary Araucarias, Passo do S Waterfall, Morro da Visão, Passo da Ilha, Itaimbezinho Canyon, Fortaleza Canyon and Pedra Furada. She did not inform any operators. The respondent believes that the trail can be associated with the adventure tourism, ecotourism, rural tourism, experience tourism and geotourism

segments. She said there were no interpretive signs along the route, nor did she identify any school activities or scientific publications related to the trail. With regard to the existence of adventure activities, he reported crossings and cycling. Regarding the experience of farming activities, he said that a large part of the Way takes place in rural areas and that, therefore, the experiences would be developed there. He indicated that other tourist products associated with the trail include visitation and activities carried out within the UCs that make up the trail. Regarding the composition of the governance body, he said that it was made up of representatives from the public sector - ICMBIO, SEMA/RS, Municipal Tourism and Environment Secretariats -, the private sector - tourism agencies, drivers/guides and owners of establishments and the University of Caxias do Sul (UCS). He also commented that there was little support from the community in general. He also said that the management team meets every two months.

Corredor Ecológico da Quarta Colônia (Ecological Corridor of the Fourth Colony):

Said that the main tourist attractions found along the route were landscapes, historic and religious buildings/architecture, the railroad, local cuisine, waterfalls and Conservation Units. She indicated local agencies as the main operators. The respondent believes that the tourism segments of ecotourism, nature tourism, adventure tourism, rural tourism and religious tourism are the ones that best relate to the route. She informed us that the LDT does not yet have interpretive signs, but that 30 km of the route has indicative signs. It did not identify the presence of school activities or publications on the route. Regarding adventure activities, he mentioned the presence of rappelling, climbing, cycling and canoeing on the route. Regarding the experience of agricultural activities, he said there were activities related to the grape harvest, horse riding and equine therapy, and the production of beer and cachaça. As for management, he said that the LDT was built in conjunction with local communities and institutions and that a group of volunteers was set up to help manage and carry out the work. Governance is made up of representatives from the public sector - SEMA-RS, Emater, the Municipal Secretariats for Tourism and the Environment, the private sector - rural producers and entrepreneurs from the communities involved, agency representatives - the local community - the Bandeirantes da Serra Group, the MO'Á Foundation, the Association of Friends of the Camino de Santiago de Compostela and the Federal University of Santa Maria (UFSM). Meetings are held on an as-needed basis.

Caminho dos Morros de Porto Alegre (Porto Alegre Hills Trail):

Mentioned natural viewpoints, indigenous and quilombo communities, rural paths, UCs and craft breweries as the main tourist attractions. With regard to tour operators, she mentioned Clínica da Bike and Trilhas Libertá. The respondent believes that ecotourism is the segment that best relates to the LDT. She reported that there were no interpretive signs and no scientific publications on the trail, nor any agricultural activities. He said that the trail receives school visits from 5th and 6th graders to identify river springs and that there are climbing and free flight activities on the route. With regard to other related tourism products, he said that the Caminhos Rurais Association carries out activities on some of the properties around the LDT. Regarding governance, he said it was made up of small groups of volunteers - tour guides and volunteer hikers - and the local community - the "Preserve Morro Santana" group. Meetings used to be held every two weeks, but at the moment they were not taking place.

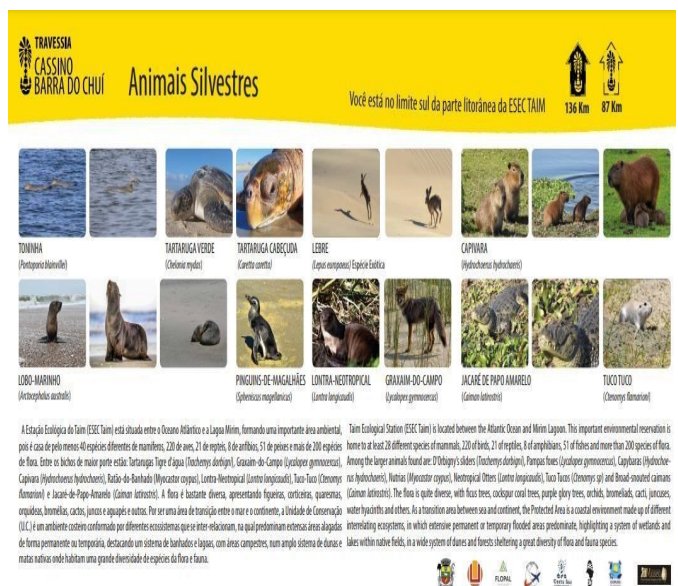
Caminho do Pampa (The Pampa Trail): Said that the main tourist attractions were the large rural estancias, cultural and historical aspects, rock formations, fauna, flora and the fact that the trail runs along the Royal Way where Dom Pedro I was. He said that because the LDT was new, it did not yet have operators. He said that there were directional and interpretive signs along part of the route. The interviewee said that there were no scientific publications about the route or school activities. He indicated that the range of adventure activities on offer was quite diverse and included activities such as abseiling, mountain biking, river rafting and cave exploration. With regard to agricultural activities, he reported on the milking of cows, illustrating the daily life of the region's gauchos. The management is made up of the Ibirapuitã Environmental Protection Area Management Council, authorities, university professors, local businessmen, farm owners and tourist guides. The interviewee also said that the Caminho do Pampa Association is being formalized so that the community can increasingly help make decisions about the trail.

Travessia Cassino x Barra do Chuí (Cassino x Barra do Chuí Crossing):

The main tourist attractions mentioned were hotel ruins, the Altair shipwreck, the Verga, Sarita, Albardão and Barra do Chuí lighthouses, the natural and paleontological formation of the Concheros, Lagoa Mangueira; fauna and flora, and the buffer zone of the Taim Ecological Station. The interviewee reported that there is interpretive signage (Figure 3) with panels providing information about the trail route, biodiversity, culture and local attractions. She mentioned ecotourism, nature tourism, and adventure tourism as the niches best associated with the trail. He

mentioned Caminho dos Faróis as the main tour operator. He said that there were no school activities, adventure activities or contact with agricultural activities on the trail. Regarding the presence of scientific publications, he indicated that there is an extended abstract on the LDT. The management is made up of volunteers (local residents, university students and Santa Vitória do Palmar town hall employees) and meetings are held as needed to discuss participation in events, promotion of the trail, maintenance of signage, etc.

Figure 3: Example of interpretive sign at the Cassino X Barra do Chuí Crossing



Source: Travessia Cassino x Barra do Chuí (2022b)

Trilha dos Santos Mártires das Missões (Trail of the Holy Martyrs of the Missions):

The main attractions cited were the São Nicolau Archaeological Site, the Nossa Senhora do Caçapamini Archaeological Site, Cerro do Inhacurutum, the Assunção do Ijuí Sanctuary, the Caaró Sanctuary, Passo do Padre and Cruz do Martírio. According to the respondent, cultural tourism, adventure tourism, religious tourism and rural tourism are the niches most related to the trail. He said there were no interpretive signs on the trail, only indicative ones. With regard to school activities, he said there were awareness-raising talks on ecological issues at local municipal and state schools during stops on the trail at three annual events promoted for walking, horseback riding and cycling. He said that there was published research on the trail and other research yet to be catalogued. Regarding adventure activities, he mentioned cycling and, with regard to experiencing farming activities, he said it was possible to go horseback riding and taste products produced in the region's rural communities. Regarding governance, he said it was made up of the public sector (mayors and

secretaries of the municipalities involved), the community in general (schools, Gaucho Traditions Centers, community centers, family groups) and the Federal University of the Southern Frontier (UFFS) - Cerro Largo Campus. The presence of the private sector in governance was considered small. Meetings are held every two months.

DISCUSSION OF RESULTS

In general, these six LDT were found to have an average planned length of 251 km and an estimated travel time of 13 days (Rede Trilhas, 2022). In terms of location, they cross municipalities in Rio Grande do Sul and Santa Catarina, and in the case of Rio Grande do Sul, the spatial focus of the study, these LDT are widely distributed, covering the tourist regions of Campos de Cima da Serra, Central, Costa Doce Gaúcha, Delta do Jacuí, Fronteira, Hortênsias, Litoral Norte Gaúcho, Pampa Gaúcho and Rotas das Missões (Brasil, 2022).

As for the conservation units, there are a total of twenty-nine, linked to the three levels of government and belonging to the categories of Environmental Protection Area, Ecological Station, National Forest, Park (National, State and Municipal), Biological Reserve, Private Natural Heritage Reserve, as well as a Tourist Park. About each of the LDT, the following can be highlighted:

Caminho das Araucárias (The Araucarias Trail): It was possible to identify some differences between the answers received and aspects of the trail known to the authors. This may be due to the different understandings and positions of the respondents in relation to what was asked. An example of this is the response that there are no operators on the trail, while at another point tourism agencies were mentioned as participating in the management, which would indicate participation in the LDT. In terms of adventure activities, hiking, crossings and cycling were mentioned, which are more related to the modes of transport of the trail than to the adventure tourism products marketed and present on the route. Therefore, it was understood that the Araucarias Trail could not be linked to adventure tourism at this time. When it came to identifying experiences and/or contacts with agricultural activities, the answer was that the trail takes place in the rural environment where these activities are carried out. However, there was no direct link between the trail and rural tourism through participation of hikers in agricultural experiences. There were no scholarly publications about the trail area, although there were articles about it, including those about the LDT. In addition, since a significant part of the trail passes through protected areas and the

Atlantic Forest biome - the most threatened in the country - it is easy to see that there is scientific interest in the route. In terms of ecotourism, the LDT did not meet the proposed criteria because, according to the interviewee, it has no interpretive signage and little community involvement in management. However, there is potential to develop this niche, since the LDT includes important UCs along its route, areas whose objectives include the conservation of ecosystems and school visits, scientific research and tourist visits with a focus on environmental awareness. Therefore, it is clear that the Araucaria Trail can be linked to ecotourism, environmental tourism and scientific tourism.

Caminho do Corredor Ecológico da Quarta Colônia:

Fourth Colony Ecological Corridor Trail): has community participation in management, but does not have interpretive signage, a requirement considered important to link it to the ecotourism niche in a self-guided trail. The trail does not receive school visits, so it cannot be linked to ecotourism. No scientific publications about the trail were cited. In terms of experiences related to the rural environment, there were reports of grape harvesting, horseback riding, equine therapy, beer and cachaça production, situations related to this environment but not yet offered as agricultural activities that link this LDT to rural tourism. This route offers a wide range of adventure activities, such as rappelling, climbing and canoeing, making it possible to link it to the adventure tourism niche.

Caminho dos Morros de Porto Alegre (Porto Alegre

Hills Trail): Has community participation in its management, but does not have interpretive signage, an element considered in this research to link it to the ecotourism niche. The hikers have no contact or experience with agricultural activities, and for this reason this LDT was not linked to rural tourism. When responding to the form, it was noted that there were no scientific publications about the trail. Since the trail is visited by elementary school students to learn about the sources of the region's rivers in educational and awareness-raising activities, this LDT can be linked to environmental tourism. To reinforce this characteristic, the social media of the trail's main tour operator also markets this route with an environmental focus, encouraging visitors to spend time with nature in a responsible way. The trail can be linked to adventure tourism due to the range of activities offered, such as climbing and free flight.

Caminhos do Pampa (The Pampa Trail): Has community participation in its management, and the respondent said that there were interpretive signs. However, it was not possible to identify the presence of information about the fauna and flora of the region in the images provided, which created uncertainty about

the trail's links to the ecotourism niche. No scientific publications on the LDT route were identified, nor were any school activities, so the LDT was not linked to the science tourism or ecotourism niche. As indicated in the responses to the form, this trail offers a wide range of adventure activities and could be linked to this niche. The information obtained also indicated the significant presence of agricultural activities offered to hikers to provide them with a typical experience of the region, helping to promote the culture and identity of local communities. As a result, the Caminho do Pampa was identified as also having a rural tourism profile.

Travessia Cassino x Barra do Chuí (Cassino x Barra do

Chuí Crossing): The local communities participate in its management, defending their interests and allowing them to benefit from this tourist product. It has interpretive signs that allow users to interpret the environment, promoting environmental awareness and linking this LDT with ecotourism. This trail is visited by students of the Tourism Course of the Federal University of Rio Grande, and is also the subject of research and articles, which indicates a scientific tourism profile. No adventure or agricultural activities were identified along the route, so the trail was not linked to adventure or rural tourism.

Trilha dos Santos dos Mártires da Missões (Trail of the Holy Martyrs of the Missions): The trail is managed by the communities. However, it has no interpretive signs, which makes it impossible to link it to the ecotourism niche according to the criteria adopted in this study. In terms of adventure activities, there is cycling, a situation more related to the trail mode than to a commercialized adventure tourism product. Therefore, it was not associated with this niche. The response indicated the presence of horseback riding and tasting of handicraft products produced in rural communities in activities related to the rural environment, but these were not tourism products that linked this LDT to rural tourism. The trail has a schedule of activities with municipal and state schools in the municipalities it passes through, which indicates a link with environmental tourism. They also reported publications about the trail and the participation of the Federal University of the Southern Frontier - Cerro Largo Campus in its management, indicating a link with scientific tourism. Chart 4 was prepared based on the responses of the representatives of each trail and an analysis of the material obtained from the Internet. It shows the points that were considered to link the trails studied with certain niches in the nature tourism segment.

Chart 4 - Preliminary Classification of LDT in Rio Grande do Sul

TRAIL	NICHES	EVIDENCES
Caminho das Araucárias	Ecotourism Environmental Tourism Scientific Tourism	<ul style="list-style-type: none"> Route taken within Conservation Units. Presence of school and university visits to the Conservation Units; Scientific interest due to the biome; Existence of scientific publications on the route; Recognition of part of the route as a UNESCO World Geopark.
Caminho do Corredor Ecológico da Quarta Colônia	Adventure Tourism	<ul style="list-style-type: none"> Adventure activities on the route
Caminho dos Morros de Porto Alegre	Environmental Tourism Adventure Tourism	<ul style="list-style-type: none"> Elementary school visits to identify river springs in the region; Offering adventure activities along the way;
Caminho do Pampa	Adventure Tourism Rural Tourism	<ul style="list-style-type: none"> Offering adventure activities along the way; Experiences of farming activities and a concern to rescue and value local heritage and culture.
Travessia Cassino x Barra do Chuí	Ecotourism Scientific Tourism	<ul style="list-style-type: none"> Interpretive signage; Community involvement in trail management; Presence of university activities; Existence of articles/research on the trail.
Trilha dos Santos Mártires das Missões	Environmental Tourism Scientific Tourism	<ul style="list-style-type: none"> Presence of school activities; Presence of university activities; Existence of articles/research on the route.

Source: Authors (2023).

It should be noted that this classification was influenced by the answers given by the managers and also by the evidence obtained from the publicity of the routes, which sometimes shows bias on the part of those who produced it.

In the case of the Caminho das Araucárias, other elements of the route known to the authors were considered. This was because there were differences in understanding between what was asked and what was

answered. This situation was important for the research because it showed how subjective aspects related to the understanding of certain elements can influence the results of the classification.

During the survey, it was also noteworthy that some responses indicated that respondents had different understandings of the topics, even though the questionnaire provided definitions and examples to guide the understanding of each niche and its evidence. For example, when asked about publications of scientific research conducted on the trail, some managers responded that these were publications on the LDT itself and not on the trail as a whole (e.g., research on geodiversity, biodiversity, or cultural elements of the trail). Similarly, when asked about the main attractions, some respondents mentioned specific locations, as expected, while others spoke of types of attractions - waterfalls, natural viewpoints, ruins, for example. Another area of variation was the identification of trail operators. In this case, some respondents mentioned companies that sold products based on the trails, while others didn't mention any companies because they didn't think they were accredited by the LDT. Given these situations, it became clear that future research efforts would be needed to refine this preliminary methodology. To do this, we should consider improving some of the items asked in order to maintain the questionnaire. We should also consider whether it would be better to collect the data through interviews with managers, as this would quickly identify these differences in understanding, allow for immediate reformulation of the questions, and thus guarantee a more homogeneous understanding by the respondents. In addition, it should be noted that the survey did not evaluate all the potential that exists along the trails, which could provide more objective criteria for classifying niches in the nature tourism segment by comparing the profile of tourist offers. This analysis of potential could also point to other niches and segments that could be activated through analysis and implementation.

FINAL CONSIDERATIONS

Long-distance trails (LDT) are gaining importance as a tourism product in Brazil due to their low implementation and maintenance costs. However, to effectively manage them as a tourism product, it is important for managers to be clear about the tourism niches to which each LDT is best suited. With this in mind, the research sought to answer the question "How can the Long Distance Trails of Rio Grande do Sul

be classified according to different nature tourism niches? Based on the methodology applied, it was possible to make a preliminary proposal for the classification of these trails. The analysis showed that although the LDT are in the same state and, in some cases, have similar geographical and environmental characteristics, they have proposals aimed at different niches in the nature tourism segment. In this sense, Rio Grande do Sul stands out for having a diverse range of LDT that cater to different public profiles. There is also a concern on the part of the state's tourism sector to provide tourism that is less damaging to the environment and beneficial to all stakeholders.

One of the limitations of the study is the different understanding of the niches expressed by the managers interviewed, a situation that tends to improve with access to recent publications of the Ministry of Tourism that deal with the process of structuring and formatting long-distance trails as a tourism product. There is also the realization that some managers have perceptions of the niches suitable for their LDT that are far removed from the actual potential of the trails. Another aspect to consider as a limitation of the study was the fact that it did not address niches such as geotourism and nature sports tourism. These niches were excluded at the beginning of the research due to the difficulty some managers had in identifying them. Finally, it should be noted that there were sometimes discrepancies between the answers given by the managers and what is being planned or implemented in these LDT. Despite these limitations, the study was able to establish a preliminary link between evidence of LDT and niches in the nature tourism segment. However, the methodology needs to be improved in order to better characterize managers' perceptions of the issue and to capture the actual market potential that exists on the trails.

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