

# Nature-based tourism in the north-east of Portugal: an analysis from the perspective of demand

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## Abstract

*The purpose of this paper is to analyse the nature-based tourism in the northeast of Portugal from the perspective of demand. Therefore, it was intended to do the online research of the profile of visitors, focusing on their sociodemographic characteristics and primary motivations for visiting and their satisfaction. Empirical research was conducted on a convenience sample of 204 respondents who visited the protected areas within the districts of Vila Real and Bragança in the last 5 years. The research was conducted from April until June 2023 and data were analysed using the statistical software Jamovi 2.2.5, an open statistical software, employing both univariate and multivariate statistical methods. The results show that there are differences in the overall satisfaction between nature tourists and nature day visitors. The results also confirmed differences in the ratings of visit in relation to expectations between nature tourists and nature day visitors. The contribution of this paper is a refined understanding of nature-based visitors in the north-east of Portugal, a region with an extraordinary potential for nature tourism. Academics and destination managers can use the results to attract and retain different market segments at these protected areas in a more sustainably way.*

## Keywords

*nature-based tourism • nature visitors • Portugal • protected areas • visitor satisfaction*

## 1. Introduction

Tourism is an economic activity that is very vulnerable to disasters of natural or man-made origin, as happened with the recent COVID-19 pandemic. The unprecedented global impact led to a 74% drop in demand, resulting in export revenue losses of USD 1.3 trillion and the loss of 120 million direct jobs (UNWTO, 2021). In Portugal, the impact was also catastrophic having recorded in 2020, 63.2% fewer overnight stays, 61.6% fewer guests and a 66.3% decrease in overall revenue (Turismo de Portugal, 2021). However, the restrictions imposed on the international movement of tourists, the existence of a wide range of services focussed on nature tourism and the demand for places with low population density have resulted in an increase in the popularity of destinations located in natural areas (Sánchez-Sánchez & Sánchez-Sánchez, 2022).

This trend has also occurred in Portugal and with the increase in demand for the nature tourism product, the country and the north-east of Portugal in particular has to position itself in a very competitive international market. A well-run protected areas, “offering the tourist a well-managed natural


environment coupled with well-designed infrastructure, is an important ecotourism product” (Kruger et al., 2017, p.312). With the increasing demand for nature tourism, the country and the north-east of Portugal in particular has to position itself in a very competitive market. Although the existing protected areas in Portugal are not large, they vary greatly in terms of fauna and flora and in the type of activities offered. Those responsible for the management of protected areas must therefore position themselves and capture the most appropriate segments for their territory in order to obtain competitive advantages. The adoption of sustainable development policies or strategies for protected areas requires an in-depth understanding of the socio-demographic characteristics of visitors and the main motivations for visiting. Therefore, this study aims to address this gap through a detailed analysis of visitors.

Using market segmentation based on demographic characteristics Kruger et al., (2017) analysed the international, domestic, and local nature tourists characteristics and how this can help ensure visitor satisfaction in Kruger National

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Park, South Africa. Literature reveal that independent and package nature tourists differed significantly in terms of gender, age, annual household income, trip length or in some travel activities and motivations (Mehmetoglu, 2006). Day visitors, i.e. those who don't stay overnight, also differ demographically from the overnight visitors (Kruger *et al.*, 2017), therefore it was considered relevant to analyse possible differences between these two segments. The following questions arise: are there differences in age, area of residence, occupation or visit group, between day visitors and tourists visiting protected areas in north-eastern Portugal?; and regarding satisfaction, are there differences between these two groups of visitors?.

Studies on nature tourists in Portugal are very scarce, namely on visitors to protected areas in the north-east of the country. The results of this research could be used by the managers of protected areas and by the Destination Management Organisations (DMOs) of the different municipalities to attract and retain different market segments and for managing all the protected areas in a more sustainable way.

These and other topics will be analysed in this article which is structured as follows. After the introduction, there is a section dedicated to the literature review where some concepts are presented and discussed, and the nature tourism is framed in the legal framework of Portugal; followed by the methodology section where the study area and the data collection and analysis process are presented and described. Section 4 analyses and discusses the results, followed by the conclusion with the main theoretical and practical contributions of this research.

## 2. Literature review

### 2.1. Nature Tourism and Nature Tourists

There are a multitude of expressions that have been used by different authors to define nature tourism (Valentine, 1992). Mehmetoglu (2005, p.358) refers that Laarman and Durst (1987) were the first scholars to present a nature-based tourism definition describing it as a "type of tourism activity that combines three specific elements, namely education, recreation and adventure". Lucas (1984 cit. Valentine, 1992, p.108) defines nature tourism as "tourism which is based on the enjoyment of natural areas and the observation of nature" and Valentine (1992, p.108) mention that "nature-based tourism is primarily concerned with the direct enjoyment of some relatively undisturbed phenomenon of nature". More recently Texas Parks & Wildlife (2023) describe nature tourism as the "responsible travel to natural areas, which conserves the environment and improves the welfare of local people". It is based on the natural attractions and include activities such as birdwatching, photography, stargazing, camping, hiking,

hunting, fishing, and visiting parks (Texas Parks & Wildlife, 2023).

In line with this perspective Sahebalzamani & Bertella (2018, p.1) referes that "nature tourism is understood in a broad way, comprising all forms of tourism centred on activities performed in wild nature". However, these authors also include activities performed in more domesticated nature such as adventure tourism or rural tourism, because the domestic outdoor recreation is strong enough to be the driving force of the commercial nature-based tourism provision (Margaryan & Fredman, 2017, p.85).

However, is interesting to note that Laarman and Durst (1987) nature-based tourism definition is aligned with Ceballos-Lascurain's (1987) definition of ecotourism which is related with "experiential and educational factors of the protected natural areas" (Diamantis, 1999, p.96). This means that ecotourism activities are performed in well-preserved or protected areas while nature tourism is more consumer-based and not ecologically sound (Ziffer, 1989, p.6, cit. by Diamantis (1999, p.97). For Lindberg and Mc Kercher (1997, p.67 cit. by Diamantis, 1999, p.98) "Ecotourism is tourism and recreation that is both nature-based and sustainable".

The existence of poor definitions, the heterogeneousness of the nature tourism market, or the lack of researches on the characteristics, preferences, and motives of broad "origin" populations are highlighted by Kruger *et al.*, (2017) as being responsible for the difficulty to get a clear profile of the nature tourist. However, the Portuguese tourism authorities recognises that there are two nature tourism markets in line with the Laarman and Durst (1987) proposal: the hard and soft tourists. Using the interest level and the degree of physical rigor, in the soft market the experiences are based on low-intensity outdoor activities such as walks, excursions, hiking, wildlife watching, among others; and in the hard market the experiences are related to the practice of nature sports such as rafting, kayaking, hiking, climbing, among others, and/or activities requiring a high degree of concentration or knowledge (birdwatching, among others) (THR - Asesores en Turismo Hotelería y Recreación, 2006). Mehmetoglu (2005) also distinguished nature-based tourists into specialists and generalists. Specialists travel mainly for nature reasons and generalists present other reasons than only nature for travelling. Specialist and generalist nature-based tourists also differed in terms of nationality, trip purpose, trip length and travel motives.

Several researches mention that nature tourists tend to be highly educated and high-income earning (Kruger *et al.*, 2017) and the main motivations of those who seek nature tourism are to live experiences of great symbolic value, interact and enjoy nature (THR - Asesores en Turismo Hotelería y Recreación, 2006). In the present study, a nature tourist is an individual who makes a responsible travel to natural protected areas,

stay there for at least one night, engaging in some activities such as birdwatching, photography, stargazing, camping, hiking, hunting, fishing, among others. If an individual does not stay overnight in natural protected areas, he is classified as a nature day visitor.

## 2.2. Visitor satisfaction

Satisfaction is defined as a pleasurable feeling of fulfilment as a result of the customer's comparison of product or a service performance to some prepurchase standard (Oviedo-García et al., 2014; Muranga et al., 2017), it is an index measuring the gap between prior expectations and perceived performance after consumption (Oliver, 1980). When performance differs from expectations, dissatisfaction occurs (Oliver, 1980). Satisfaction is an indicator of the quality of leisure and education services provided to society, that's why many authors researched and analyzed it (de Oliveira et al., 2020). Tourist satisfaction is an individual emotional state after experiencing the trip (Muranga et al., 2017). It has been defined as a function of pre-travel expectation and post-travel experience (Chen & Chen, 2010) and it is used in tourist behaviour researches to understand tourists' enjoyment and needs (Eagels and McCool, 2002; Pearce, 2005; Yoon and Uysal, 2006; Arnberger et al., 2018). There are three categories of tourist satisfaction: satisfaction with service and experience during the travel, satisfaction with the destination and satisfaction with the tourism experience (Chan et al., 2015). Tourist satisfaction is a guarantee of the destination's long-term sustainability (Gebreegziabher and Kumar, 2019). The higher the level of satisfaction with the tourism product, service or experience consumed or experienced in the tourist destination the better is the chance that tourist will revisit the destination again and recommended it to some else. In conclusion, the factors affecting tourist satisfaction are complex and multidimensional (Jiang et al., 2018). Hossain et al. (2021) research has proven that the standard of service and perceived value is precedent of tourism satisfaction with nature and the behavioural aspirations of potential visitors are positively linked to the visitors' satisfaction.

Therefore, two hypotheses were set:

- H1: There are differences in the overall satisfaction between nature tourists and nature day visitors;
- H2: There are differences in the ratings of visit in relation to expectations between nature tourists and nature day visitors.

## 2.3. Nature Tourism in Portugal

In Portugal, the concept of Nature Tourism was for the first time institutionally recognised as relevant in 1996, through the Council of Ministers Resolution 102/96 providing the support of recreational and leisure tourism practices that

are not harmful to environment (Resolução Do Conselho de Ministros n.º 112/98, 1998). Two years later, the National Nature Tourism Plan (PNTN) is created through the Council of Ministers Resolution 112/98 which is then defined as an environmental tourism product exclusive to the National Network of Protected Areas and which aims "the promotion and affirmation of the values that these spaces contain by specializing a tourism activity, under the denomination of 'nature tourism', and propitiating the creation of adequate tourism products" (Resolução Do Conselho de Ministros n.º 112/98, 1998, p.4348). The National Network of Protected Areas include different types of protected areas: National Park, Nature Park; Nature Reserve; Protected Landscape; and Natural Monument. In all country there are one national park, thirteen nature parks, nine nature reserves, two protected landscapes and seven natural monuments (Martins, 2022). Subsequently, the Decree-Law 47/99 regulates and establishes the basic principles that guide Nature Tourism, defining this type of tourism as: "the tourism product composed of accommodation establishments, activities and services and tourist and environmental animation carried out and provided in areas integrated in the national network of protected areas (...) it is developed according to various forms of accommodation, activities and complementary services of environmental animation, which allow to contemplate and enjoy the natural, architectural, landscape and cultural heritage" (Decreto-Lei N.º 47/99 de 16 de Fevereiro, 1999, p.806).

In the Council of Ministers Resolution 51/2015 a new National Programme for Nature Tourism is presented, adapted to current times and defining a strategy for the future, promoting greater dissemination of nature tourism in Portugal, in close articulation with the objectives of the *Natural.PT* brand that is then created. The Nature tourism, for the purposes of the PNTN, covers the exercise of tourist entertainment activities, throughout the national territory, which allow the contemplation and enjoyment of the natural, landscape and cultural heritage and the operation of tourist resorts in areas integrated in the national system of classified areas (SNAC) or in other areas with natural values (Resolução Do Conselho de Ministros n.º 51/2015, 2015). Unlike what happened before, when Nature Tourism was exclusive to protected areas, other areas with natural values are now included. Recognising the potential of Portuguese natural resources and the growing demand for nature tourism, the official tourism authorities have begun to include the Nature Tourism product in their tourism development strategy.

In 2007, in the National Strategic Tourism Plan (PENT), 10 strategic tourism products were identified taking into account Portugal's resources and distinctive factors. One of these strategic products was Nature Tourism (Portugal, 2007). According to this document, 21% of the Portuguese territory

is considered a protected area, however, Nature Tourism had clear deficits in infrastructure, services, experience and know-how and competitive capacity of companies operating in this field. In the PENT revision in 2013, is emphasised the need to structure the nature tourism supply through the contemplation and enjoyment of the countryside (rural tourism) and also more active segments, such as walks (on foot, by bicycle or on horseback), birdwatching or equestrian tourism, improving the conditions of visitation and the training of human resources (Turismo de Portugal, 2013). More recently, the Action Plan for the Development of Tourism in Portugal - *Estratégia 2027*, recognises nature as a differentiating asset, that is, as one of the anchor attributes that constitute the basis and substance of the national tourism offer (Turismo de Portugal, 2016, p.46). In this strategy, in the valuing the territory and communities axis, the line of action “Economically enhancing natural and rural heritage and ensuring its conservation”, refers to the development of nature and rural tourism through economic valorisation projects and active management of natural and rural heritage, which includes the network of national protected areas, biosphere reserves and UNESCO-recognised Geoparks, namely in the context of promoting the Natural.PT brand; and to the infrastructures and support services for nature tourism and/or rural tourism, signposting

and tourist-environmental interpretation elements (Turismo de Portugal, 2016, p.65).

As shown, despite legislative initiatives in recent decades and institutional recognition of the importance of nature tourism in Portugal, there is still no specific strategy for the creation and development of a nature tourism product. The institutional structures and interrelationships between the different levels of government and private sector in order to maximise the destination’s potential still lacking. This means that all the elements with which the visitor comes into contact in nature-based tourism destinations are not arranged and the combination or blend of multiple nature-based experiences still does not exist (UNWTO, 2011).

### 3. Methodology

#### 3.1. Study Area

The North-East of Portugal was selected as a study area due to its potential for nature tourism. In the districts of Vila Real and Bragança, there are 3 nature parks (Alvão, Montesinho and Douro Internacional), 1 Regional Nature Park (Vale do Tua) and 1 Protected Landscape (Azibo) where the UNESCO Geopark Terras de Cavaleiros is located. The vast majority of

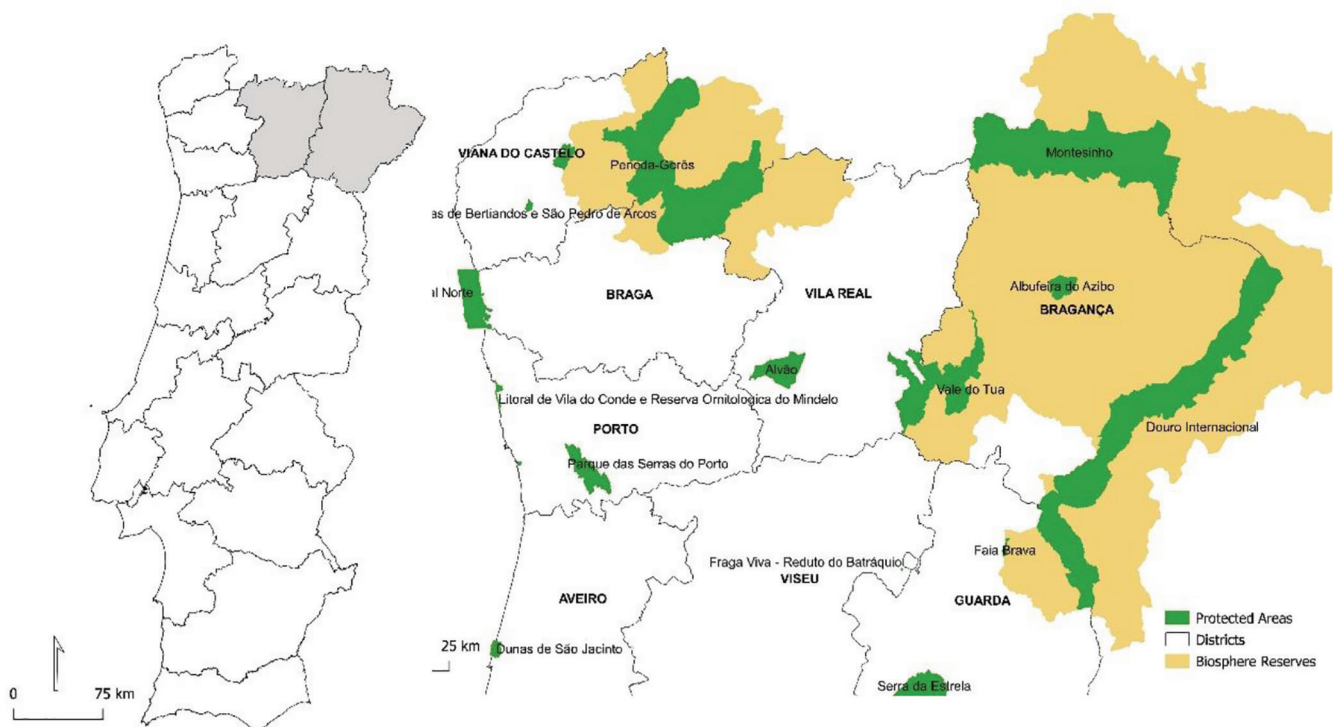


Figure 1. Protected Areas in the north of Portugal. Source: Authors.

the territory of the district of Bragança is also included in the Meseta Ibérica Transboundary Biosphere Reserve (Figure 1). In all these protected areas it is possible to find natural habitats with a floristic richness and an interesting and varied faunal communities, with some endemic species. In addition to its natural richness, it is important to emphasise the significant cultural treasures of all this territory, which results from the long human occupation that has transformed and adapted the landscape. In addition to its natural richness, it is important to emphasise the significant cultural heritage of all this territory, which results from the long human occupation that has transformed and adapted the landscape. The region's tangible and intangible cultural heritage deserves special mention due to its growing national and international recognition, such as the UNESCO intangible heritage classifications of the black pottery of Bisalhães (Vila Real) or the carnival of Podence (Macedo de Cavaleiros). In the limits of the Douro International Nature Park it is also possible to find the Palaeolithic Rock Carvings of the Côa valley, also classified as UNESCO World Heritage.

Although they have an important natural and cultural heritage, the municipalities located in the protected areas of north-eastern Portugal have experienced a substantial decrease in resident population (table 1). The continuous and strong reduction of the birth rate, the strong migratory flows abroad and to the main Portuguese cities and the progressive increase of the average life expectancy explain the depopulation and the increase of population ageing in the whole region.

Regarding the dynamics of tourism activity in all the municipalities included in the protected areas under study, there is an increase in the number of overnight stays between 2016 and 2019, with the exception of the municipalities of Freixo de Espada-à-Cinta and Vila Flor (table 2). During the pandemic period, there was a decrease in the number of overnight stays in all protected areas, although 2021 is already a year of recovery. In 2022, with the exception of the Montesinho Nature Park, all protected areas had already exceeded the values recorded in 2019. This rapid recovery may be justified by the increase in demand for low-density territories that occurred during the COVID-19 pandemic.

Regarding the number of visits to protected areas, there is only information for the Nature Parks of Alvão, Montesinho and Douro Internacional (Figure 2). The Institute for Nature Conservation and Forests (ICNF) collects the number of visitors, which includes the number of visitors in the reception structures of the parks, guided tours, participation in events, nature tourism activities and volunteer actions. All visitors who had no contact with the reception structures of the nature parks are therefore not included.

The most visited nature park is Alvão and the least popular is Montesinho. Between 2012 and 2022, 476 966 people visited these three nature parks: 236 453 in Alvão, 172 699 in Douro Internacional and 67 814 in Montesinho.

In order to understand if there's a relationship between the number of overnight stays in the municipalities included in the nature parks and the number of visitors counted by ICNF, the linear regression of these variables was calculated, obtaining a coefficient of determination of 0.64 for the Alvão Nature Park [ $P(F \leq f) = 0.0209$ ]. For the remaining nature parks, the coefficients are very low (0.09 and 0.05 for Montesinho and Douro Internacional, respectively). The results obtained seem to indicate the absence of a relationship between the increasing demand in the region and the number of visitors to its natural protected areas. In other words, although the number of tourists in the territories under study has increased in recent years, the number of visitors to the natural parks has not accompanied this evolution. This may have been due to shortcomings in the quantification of visitors to each nature park or due to the diversification of the offer. However, it is curious that in an area which is so rich in natural resources, nature tourism is not the most popular product.

After describing the evolution of demand in the territories under analysis, the methods used to collect and process the data are described below.

### 3.2. Sampling procedure and data analysis

The present study aims to delineate the profile of visitors to protected areas in the districts of Vila Real and Bragança, focusing on their sociodemographic characteristics and primary motivations for visiting. Data collection used the

**Table 1.** Resident population and density population (1960-2021).

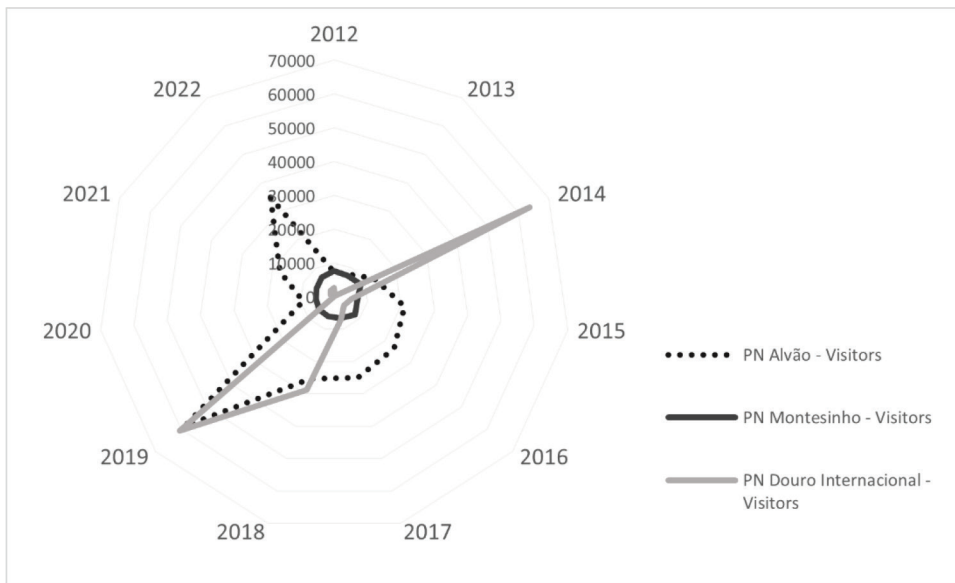
Protected Areas	Resident population					Population density (inhab./Km <sup>2</sup> )		
	1960	2001	% (1960-2001)	2021	% (2011-2021)	1960	2001	2021
PN Alvão	58 101	58 530	0,7	55 981	-4,4	93,4	91,2	84,1
PN Montesinho	64 130	45 396	-29,2	42 350	-6,7	35,1	22,5	20,4
PN Douro Internacional	59 068	30 625	-48,2	23 128	-24,5	30,1	15,6	11,9
PNRVT	89 961	62 446	-30,6	48 655	-22,1	55,0	36,0	27,6
Paisagem do Azibo/Geopark	26 199	17 449	-33,4	14 251	-18,3	37,5	25,0	20,4

Source: Pordata (2023a, 2023b). Authors.

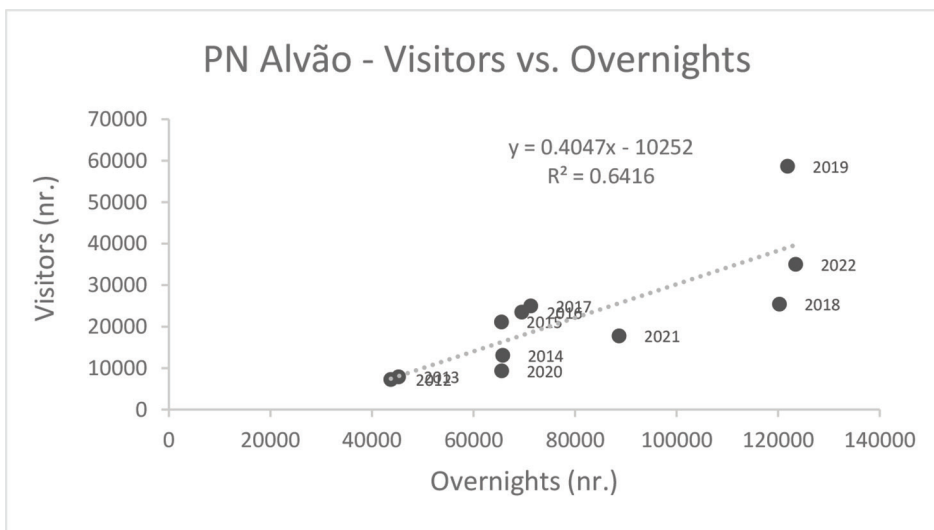
Table 2. Number of overnight stays in the municipalities of the Protected Areas (2016-2022).

PROTECTED AREAS	MUNICIPALITIES	2016	%	2017	%	2018	%	2019	%	2020	%	2021	%	2022	%
PN Alvão	Vila Real	69495	6,1	71 293	2,6	73 714	3,4	74 012	0,4	34 089	-53,9	50 088	46,9	71 633	43,0
	Mondim de Basto	s/d	s/d	s/d	s/d	46 537	s/d	47 844	2,8	31 453	-34,3	38 593	22,7	51 816	34,26
	TOTAL	69 495	6,1	71 293	2,6	120 251	68,7	121 856	1,3	65 542	-46,2	88 681	35,3	123 449	39,21
PN Montesinho	Bragança	90 502	19,6	90 743	0,3	99 134	9,2	111 434	12,4	58 525	-47,5	68 642	17,3	106 644	55,36
	Vinhais	10 072	276	8 933	-11,3	9 483	6,2	10 633	12,1	8 866	-16,6	10 361	16,9	11 529	11,27
	TOTAL	100 574	28,4	99 676	-0,9	108 617	9	122 067	12,4	67 391	-44,8	79 003	17,2	118 173	49,58
PN Douro Internacional	Mogadouro	4 083	7,1	0	0	3 443	0	6 871	99,6	6 996	1,8	11 251	60,8	12 747	13,30
	Miranda do Douro	30 817	23,8	30 700	-0,4	35 216	14,7	38 640	9,7	16 685	-56,8	25 094	50,4	32 376	29,2
	Freixo de Espada à Cinta	5 423	49,9	4 946	-8,8	4 541	-8,2	5 177	14	2 854	-44,9	7 459	161,4	17 810	138,77
PNRVT	Figueira de Castelo Rodrigo	8 514	-28,8	9 832	15,5	11 316	15,1	12 931	14,3	7 097	-45,1	9 922	39,8	10 862	9,47
	TOTAL	48 837	10,3	45 478	-6,9	54 516	19,9	63 619	16,7	33 632	-47,1	53 726	59,7	73 795	37,35
	Alijó	41 170	-2,4	46 911	13,9	45 992	-2	49 519	7,7	25 186	-49,1	28 393	12,7	45 387	59,85
Paisagem do Azibo/Geopark	Carraceda de Ansiães	5 960	32,9	9 761	63,8	6 310	-35,4	6 883	9,1	5 120	-25,6	8 764	71,2	14 245	62,54
	Murça	s/d	s/d	s/d	s/d	s/d	s/d	1 440	s/d	1 036	-28,1	s/d	s/d	3 435	s/d
	Mirandela	30 427	-5,1	39 231	28,9	40 654	3,6	42 538	4,6	24 165	-43,2	34 081	41	52 531	54,14
TOTAL	Vila Flor	8 658	51,4	4 721	-45,5	5 549	17,5	5 945	7,1	3 991	-32,9	6 091	52,6	7 850	28,88
	TOTAL	86 215	2,1	100 624	16,7	98 505	-2,1	106 325	7,9	59 498	-44	77 329	30	123 448	59,64
	Macedo de Cavaleiros	8 123	-26,1	10 619	30,7	10 445	-1,6	14 061	34,6	11 363	-19,2	13 746	21	20 837	51,59
TOTAL	618 365	11,2	644 761	4,3	774 223	20,1	841 795	8,7	463 489	-44,9	611 224	31,9	898 567	47,1	

Source: (Pordata, 2023b). Authors.



**Figure 2.** Number of visitors of National Parks (2012-2022). *Source:* Instituto da Conservação da Natureza e das Florestas, (2023). Authors.



**Figure 3.** Linear regression – visitors and overnight stays (2012-2022). *Source:* Authors.

convenience sampling technique, with an online questionnaire survey (Sthapit et al., 2022), conducted on social networks (n=204) between April and June 2023. The unit of analysis was visitors to protected areas in the districts of Vila Real and Bragança in the last five years. The questionnaire was distributed through Google Forms, and a pre-test was carried out with a select group of individuals. The questionnaire’s structure encompasses four main groups: sociodemographic, the visit, the stay, and destination preferences. To analyse the socio-demographic profile of visitors, the following variables were used: gender, age, occupation, and area of residence.

The data were analysed using the statistical software Jamovi, employing both univariate and multivariate statistical methods.

## 4. Results and discussion

### 4.1. Sociodemographic profile

The obtained sample of 204 valid questionnaires were collected from Portuguese visitors of the protected areas (Table 3). The age range of the participants were mainly from 17 to 66 years, with an average age of 35 (35.1) years. Remarkably,

**Table 3.** Socio-demographic characteristics (N=204)

	Frequency	%
<b>Gender</b>		
Male	60	29.4
Female	144	70.6
<b>Age</b>		
17-24 years	60	29.4
25-34 years	49	24.0
35-44 years	39	19.1
45-54 years	42	20.6
55 or more years	14	6.9
<b>Occupation</b>		
Student	64	31.4
Employee	114	55.9
Self-employed	15	7.4
Other	11	5.4
<b>District of residence (n=200)</b>		
Aveiro	7	3.5
Braga	8	4.0
Bragança	57	28.5
Castelo Branco	2	1.0
Coimbra	3	1.5
Évora	3	1.5
Faro	2	1.0
Leiria	2	1.0
Lisboa	23	11.3
Madeira	1	0.5
Porto	29	14.2
Setúbal	4	2.0
Viana do Castelo	2	1.0
Vila Real	52	21.1
Viseu	5	2.5

Source: Authors.

53.4% of the respondents belong to the 17–34 year age group in contrast with the results of a research conducted by Controlinveste (2015) with international nature tourists visiting Portugal, where 33% of respondents were up to 35 years old. Females represented 56% of international nature tourists (Controlinveste, 2015) while in this research the majority of respondents are female (70.6%). The prevailing occupation is employee (55.9%), while a substantial part are students (31.4%). Regarding the area of residence, the participants predominantly inhabit the districts of Bragança (28.5%), Vila Real (21.1%), Porto (14.2%), and Lisbon (11.3%). In 2015, the most important international markets were United Kingdom (14.4%), Germany (9.0%) and USA (7.7%) (Controlinveste, 2015).

## 4.2. The visit

This study includes individuals who have visited at least one of the following protected areas in the past 5 years: Montesinho Nature Park, Alvão Nature Park, Douro Internacional Nature Park, Vale do Tua Regional Nature Park, and Albufeira do Azibo Protected Landscape/Geopark Terras de Cavaleiros. Among them, the most visited protected area in the last 5 years, was Albufeira do Azibo Protected Landscape / Geopark Terras de Cavaleiros (N=109). Douro Internacional Nature Park follows with 95 visitors, while Vale do Tua Regional Nature Park had 83 visitors. Alvão Nature Park and Montesinho Nature Park were the least visited (N=70, N=53, respectively).

Most visitors (41.2%) made the visit together with their family members, 27.9% with their spouse/partner, 22.1% with a group of friends, 5.9% with a friend, and 2.9% alone, in line with the Controlinveste (2015) results. The main motivation for the visit was leisure, with 86.8% of respondents (N=177) indicating it, 5.9% mentioned health and well-being motivation and 3.9% indicated Business/Work.

To evaluate the statistical association between the visitor group and the main motivation for the visit, a contingency table was created, and a 100% stacked bar chart was utilized (Figure 4). The calculated Cramer's V value of 0.216 indicates a statistically significant association between these categorical variables. Among those who visited the nature parks with leisure as the main objective, 44% were accompanied by their family, and 29% visited with their spouse/partner. For those motivated by work/business, 75% travelled with a group of friends. When the primary motivation was health and well-being, 33% visited with family members, and an equal percentage visited with a group of friends. As for the main motivation of visiting family, 57.1% visited with their spouse/partner, and 42.9% visited with family members.

When asked to specify the motivation for their visit, nature-related activities, such as contemplation, hiking, photography, and birdwatching, were prominent among visitors (63.2%). Cultural interests, like exploring historical heritage and local traditions, were also significant (26.0%). Additionally, a small percentage of visitors were motivated by gastronomy and wines (5.4%), while an equal percentage engaged in sports activities in a natural setting, such as mountain biking, climbing, and canoeing (5.4%).

In the study area there is a large and diverse set of activities to carry out (figure 5). The most popular activities among visitors include hiking trails (65.1%), visits to river beaches (57.4%), and viewpoints (58.8%), indicating a strong preference for nature-related experiences. Cultural interests are also evident, with museum visits (18.6%) and architectural heritage visits (15.7%) being popular choices. Additionally, fauna observation (13.7%) and stars observation (2.9%) attract those interested in wildlife and astronomical experiences. Water activities (12.7%) and wine tasting (13.2%) are also

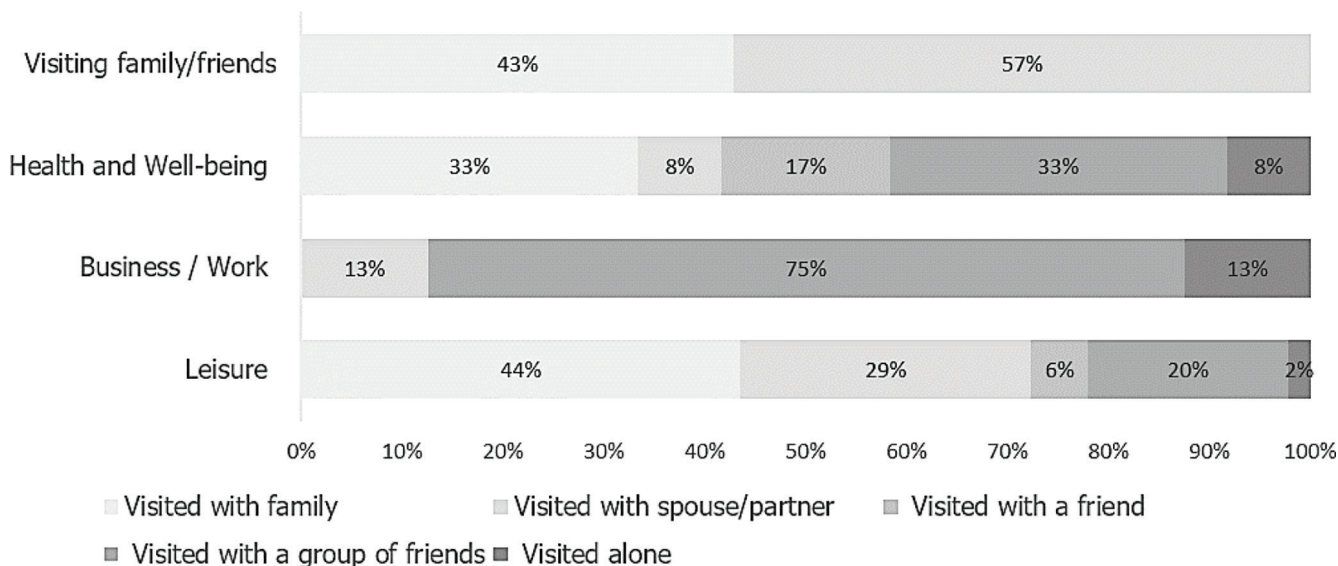


Figure 4. Group of visitors versus Motivations. Source: Authors.

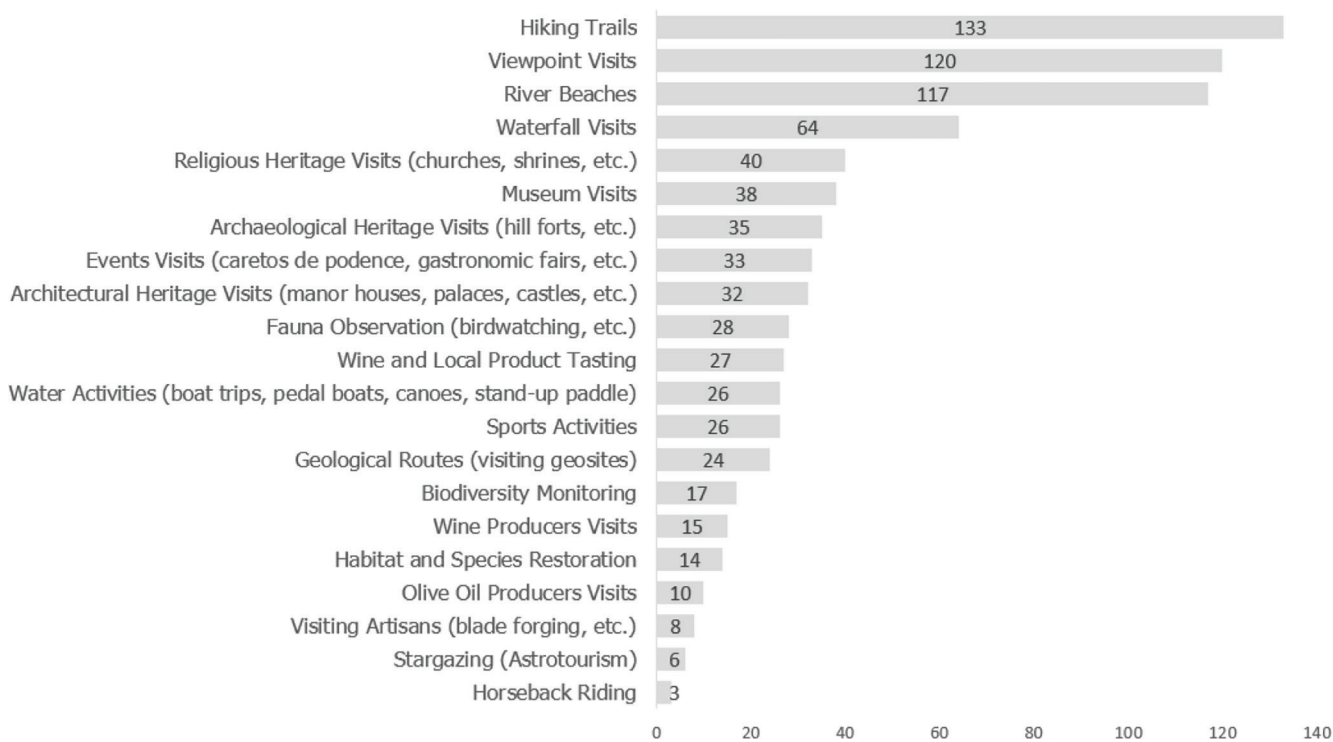


Figure 5. Activities in protected areas. Source: Authors.

well-received options, offering visitors diverse experiences to enjoy the protected areas. Regarding the multiple-choice question “What factors influenced your decision to visit these protected areas?”, the results show that the decision was primarily influenced by the captivating Landscape/Nature (83%) and the convenient

Location (51%). Additionally, the Experiences/Available Activities (25%) offered in the area played a significant role in attracting visitors, along with positive Word-of-mouth (14%) and reasonable Prices (14%). Online Reviews/Social Media Reviews (3%) also contributed to the decision-making process.

**Table 4.** Visitors' preferences in the protected areas

	N	Mean	Mode	Median	SD
Discovering the natural and scenic heritage	199	4.42	5	5	0.79
Exploring the historical and cultural heritage	194	4.20	5	4	0.91
Friendliness of the Hospitality	187	4.18	4	4	0.87
Environmental concern and sustainable practices	190	4.16	3	4	0.85
Quality of restaurants in the region	190	3.96	4	4	1.0
Engaging in soft nature activities such as hiking, wildlife observation...	197	3.89	5	4	1.03
Exploring the local gastronomy and wines	188	3.89	4	4	1.05
Quality of support infrastructure (tourist information, signage...)	189	3.83	4	4	0.99
Availability of local products (food, crafts, others)	190	3.81	4	4	1.0
Interacting with local communities, learning about traditional arts and crafts	190	3.81	4	4	1.01
Engaging in authentic, genuine, and creative experiences	188	3.80	4	4	1.04
Quality of accommodations in the region	183	3.63	4	4	1.15
Utilization of digital tools in the destination	190	3.52	4	4	1.09
Participating in festivals and events	187	3.35	5	3	1.19
Enjoying wellness facilities (e.g., spas, thermal baths...)	187	3.19	5	3	1.22
Engaging in hard nature activities such as mountain biking, cycling, climbing...	190	2.86	4	3	1.35

Source: Authors.

#### 4.3. Activities in protected areas: destination preferences

Regarding destination preferences (Table 4), the question corresponded to a Likert scale (from 1 to 5) where 1 means Not important at all; 2-Slightly important; 3-Neutral; 4-Somewhat important; and 5-Very important. On one hand, it is evident that the options "Enjoying wellness facilities (e.g., spas, thermal baths...)" and "Engaging in hard nature activities such as mountain biking, cycling, climbing..." are the least valued, having the lowest means of 2.86 and 3.19, respectively, and the highest standard deviations. Despite the excellent conditions for the practice of activities of a hard nature, i.e. activities with a degree of physical rigour such as hiking or cycling, or activities that require a great degree of concentration or knowledge such as birdwatching or starwatching, the visitors who participated in this study did not show interest in such activities.

**Table 5.** Tourists' preferences (n=61)

Protected area where visitors stayed overnight	N	%
Montesinho Nature Park	15	24.6
Alvão Nature Park	9	14.8
Vale do Tua Regional Nature Park	9	14.8
Douro Internacional Nature Park	24	39.3
Albufeira do Azibo Protected Landscape / Geopark Terras de Cavaleiros.	12	19.7
Accommodation	N	%
Local accommodation	17	23.6
Motorhome	4	5.6
Campsites	3	2.8
Friends'/family's House	8	11.1
Holiday home	1	1.4
Glamping	1	1.4
Hotels and other tourist establishments	25	34.7
Rural Tourism (Country house; agrotourism; rural hotel)	13	18.1
Accommodation reservation	Frequency	%
By phone	6	9.4
Online (booking website; e.g., Booking)	33	51.6
Online (accommodation website)	14	21.9
In person	1	1.6
By phone	10	15.6

Source: Authors.

On the other hand, the options "Discovering the natural and scenic heritage," "Exploring the historical and cultural heritage," "Friendliness of the hospitality," and "Environmental concern and sustainable practices" are the most valued, with means of 4.42, 4.20, 4.18, and 4.16, respectively. The data highlights the importance of nature and culture experiences to tourists while indicating lower interest in wellness and physically demanding activities.

#### 4.4. The stay

Out of the 204 respondents, 61 indicated that they stayed overnight in the protected and/or classified areas they visited (table 5). The most popular protected areas for overnight stays were Douro Internacional Nature Park with 24 responses and Montesinho Nature Park with 15 responses. As for the type of accommodation, hotels and other tourist establishments were the most popular choices with 25 respondents, followed by local accommodations with 17 responses. Online booking websites like Booking.com were the preferred method for making accommodation reservations, with 51.6% of participants using this option.

The distribution of socio-demographic characteristics among day visitors and tourists is presented in Table 6. The results reveal significant differences between the groups: the age

**Table 6.** Day visitors and tourists' sociodemographic (n=204)

	Day visitors (%)	Tourists (%)	Pearson chi-square Value; Degree of freedom; p-value
<b>Sex</b>			
Female	73.4	63.9	1.86; 1; 0.173
Male	26.6	36.1	
<b>Age groups</b>			
Less than 25 years	35.7	14.8	12.5; 4; 0,0104*
25-34 years	23.8	24.6	
35-44 years	16.1	26.2	
45-54 years	16.8	29.5	
55 or more years	7.7	4.9	
<b>District of residence</b>			
Aveiro	1.4	8.3	
Braga	4.3	3.3	
Bragança	28.6	28.3	
Castelo Branco	0.0	3.3	
Coimbra	0.7	3.3	
Évora	1.4	1.7	
Faro	0.7	1.7	
Leiria	1.4	0.0	
Lisboa	12.1	10.0	
Madeira	0.7	0.0	
Porto	12.1	20.0	
Setúbal	2.9	0.0	
Viana do Castelo	0.7	1.7	
Vila Real	30.7	15.0	
Viseu	2.1	3.3	
<b>Occupation</b>			
Student	35.7	21.3	4.40; 3; 0.222
Employed	53.1	62.3	
Self-employed	6.3	9.8	
Other	4.9	6.6	
<b>Group of visit</b>			
Visited with family	47.6	26.2	12.5; 4; 0.014*
Visited with spouse/partner	21.7	42.6	
Visited with a friend	4.9	8.2	
Visited with a group of friends	23.1	19.7	
Visited alone	2.8	3.3	

\*significant at the 0.05 level  
Source: Authors.

distribution of day visitors shows a majority in the young adult range, with ages ranging from 18 to 34 years. On the other hand, tourists exhibit an older distribution, with higher percentages of respondents aged under 35 and over 54 years. In terms of employment, 53.1% of day visitors are employed, and 35.7% are students. In contrast, the tourist group has

**Table 7.** Day visitors' and tourist levels of satisfaction

	Mean		Mann-Whitney U	Asymp. Sig. (1-tailed)
	Day visitors	Tourists		
What is your overall level of satisfaction with the visit you made?	4.49	4.59	3822	0.056**
Think about the expectations you had for your visit to the protected/classified area(s). How would you rate your visit in relation to your expectations?	4.18	4.38	3720	0.032*

Note.  $H_a \mu_{\text{Visitors}} < \mu_{\text{Tourists}}$ , \*- significant at the 0.05 level, \*\*- significant at the 0.10 level

Source: Authors.

a lower proportion of students and a higher percentage of employed and self-employed individuals. As expected, 58.6% of day visitors lives in the districts of Bragança and Vila Real (the study area), while this percentage is lower for the tourist group (43.3%). Nearly half of the day visitors (47.6%) visited the protected areas with family, while the tourist group shows a slightly different distribution, with 42.6% visiting with their spouse/partner.

The visitors' level of satisfaction with the protected areas under analysis was also assessed. In general, the majority of visitors reported high levels of satisfaction with their visit, in line with other studies (Controlinveste, 2015; Cheng et al., 2022; Sthapit et al., 2022; Arnberger et al., 2023). The Mann-Whitney test, a non-parametric version of the independent samples t-test, was applied to investigate if overnight stay influences the overall level of satisfaction with the visit and the expectations visitors had regarding their visit. The day visitors had a mean satisfaction level of 4.49, while tourists had a slightly higher mean of 4.59. When rating their visit in relation to their expectations, day visitors had a mean score of 4.18, and tourists had a higher mean of 4.38. The Mann-Whitney U test results demonstrate that there is a statistically significant difference in overall satisfaction between "Visitors" and "Tourists" ( $p = 0.056$ , significant at the 0.1 level). When rating their visit in relation to expectations, there is also a statistically significant difference between the two groups ( $p = 0.032$ , significant at the 0.05 level).

The results confirmed differences in the overall satisfaction between nature tourists and nature day visitors (H1), in line with Hambro Dybsand et al. (2021) and Cheng et al. (2022). H2 hypothesis was also confirmed, i.e., there are differences in the ratings of visit in relation to expectations between nature tourists and nature day visitors, in line with a study by Arnberger et al. (2023).

These differences in satisfaction seem to indicate that overnight stays in protected areas positively influence visitor

satisfaction. This may indicate that longer stays allow visitors to experience the territory in more detail, participating in more enriching and meaningful activities.

Cheng *et al.* (2022) have proven that there were significant between group differences in satisfaction level depending on length of stay, main reason for visiting, age, educational level, employment status and annual income. Visitors who stayed for more than three days in Zhangjiajie National Forest Park were more satisfied with the price and the overall experience compared to those who stayed for two or three days because they had more time and opportunities to explore and enjoy (Cheng *et al.*, 2022). Arnberger *et al.* (2023) result of research in the Bavarian Forest National Park showed that tourists with higher national-park affinity have more positive attitudes towards them and are more satisfied with specific park offers. Benz *et al.* (2016) compared the approach based on the expectancy theory and performance-only approach in whale watching and concluded that performance-only approach is easier to implement and provides better information for researchers. In Hambro Dybsand *et al.* (2021) research in Hornøya island in Norway authors suggested that other factors such as satisfaction with different part of the experience, age, weather visitors are tourist or Norwegian day visitors, and weather visitors were sufficiently motivated by general nature experiences were more important to loyalty than visitors degree of recreation specialization in birdwatching.

## 5. Conclusions

The purpose of this research is to analyse the nature-based tourism in the northeast of Portugal from the perspective of a demand, focusing on their sociodemographic characteristics, their motivations for visiting protected areas, and their satisfaction with protected areas. Regarding satisfaction, two hypotheses were tested and the results confirmed differences in the overall satisfaction between nature tourists and nature day visitors. The nature day visitors had a mean satisfaction level of 4.49, while tourists had a slightly higher mean of 4.59. The results are in compliance with research by Hambro Dybsand *et al.* (2021) and Cheng *et al.* (2022). Furthermore, when rating their visit of nature tourist and nature day visitors in relation to their expectations, there is a statistically significant difference between the two groups. The results indicate that longer stays allow tourists to experience the protected areas in more details and escape from their daily life, in line with a study by Arnberger *et al.* (2023).

The study has a theoretical and applicative contribution. In the theoretical sense, contribution lies in the literature review about nature tourism and nature tourists. The practical contribution

of this paper is in information about nature-based visitors in the north-east of Portugal and their characteristics. Managers of protected areas can use the results to attract and retain different market segments at these protected areas. This is useful information for managing all the protected areas in the region more sustainably.

This study has certain limitations which should be mentioned. The main limitation refers to the study sample. Research was conducted online so respondents were mostly Portuguese younger visitors living in the study area.

However, future studies should be carried out on a larger sample of tourist staying in protected areas. Research could also be conducted in different protected areas in whole Portugal or in comparison with protected areas in different countries. In addition to the mentioned, future studies could investigate the influence of other constructs, such as loyalty, place attachment, tourist experience, environmental attitudes, and environmentally responsible behaviour. The studies should be conducted continuously to consistently monitor the visitors of protected areas and their satisfaction. The lack of a structured nature tourism product in Portugal and in the north-east region in particular will also deserve a detailed analysis in order to take advantage of its full potential.

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