

Article



The Assessment of the Tourism Potential of the Tagus International Nature Reserve Landscapes Using Methods Based on the Opinion of the Demand

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Abstract: There are different methodologies to assess landscape preferences, however there is no consensual methodology that can be replicated to identify their tourism potential. Recent studies have focused on agricultural landscape preferences due to their cultural characteristics. Although agricultural activity conflicts with the management models of natural protected areas, traditional models and sustainable practices reveal opportunities to boost tourism in this area, both for their aesthetic value, and for the opportunity to preserve biodiversity and maintain "lively landscapes". The present study focuses on a double approach to collect data to measure the preferences for landscape typologies to realize outdoor/recreative activities in Tagus International Nature Reserve (TINR), among them, agricultural landscapes, such as the agro-silvopastural system "Dehesa/Montado" or olive grove. The preference of the landscapes were evaluated through photographs with pairwise comparison and without photographs observation, in which 174 respondents were consulted with. The different methodologies applied allowed for the extraction of different results, which led to the assumption that in fact there is no single methodology to assess preferences. However, the application of the analytic hierarchy process (AHP) methodology with photographical pairwise comparison allowed for the extraction of more robust results when considering attractions with tourism typologies, revealing that "Cultural tourism/Rural mixed" and "Agritourism" were the most valued. This information is pertinent to support TINR managers and local tourism promoters to plan and structure products and services based on button-up methodologies.

Keywords: agritourism; agricultural landscape; analytic hierarchy process (AHP); cultural heritage; nature protected areas; tourism potential; tourist preferences

1. Introduction

Protected natural areas are widely recognized as spaces for recreation, landscape and nature contemplation; spaces with the opportunity to discovery traditions and local history, as well to promote biodiversity conservation [1]. In fact, they are authentic natural and cultural reserves [2], which has motivated their increased demand in recent years, gaining particular interest when positively affecting the development of rural areas [3] and cross-borders regions [4]. This aspect configures new interests for the traditional agricultural landscapes due to the historical and cultural values preserved, especially in remote areas [5]. In effect, studies dedicated to agricultural landscapes have generated significant interest in the literature [6–9], particularly motivated by the discovery of perceptions about the external effects of food production, but also environmental assets and the scenic beauty related with agricultural activity. Indeed, the attractiveness of remote areas for tourism and leisure can be associated with the image of rurality, the idea of unspoiled nature, and authentic livelihood [10]. That is, the demand is motivated by the desire to enjoy an aesthetically pleasing and peaceful environment [11]. Despite the several challenges that have been placed in the management process of agricultural activity in protected natural



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Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). areas due to competition for land use and the impact on nature conservation [12], the literature argues that land use management based on biodiversity protection can provide ecological networks where production and nature conservation can be guaranteed at the same time [13,14]. Thus, the mechanics of the management of protected natural areas are important tools to maintain agricultural practices that preserve cultural landscapes [15], which are authentic reservoirs of biodiversity [16] and vehicles to preserve traditions [17]. Additionally, a recent study [18] confirmed that the value of sustainable farming has an influence on the choice of vacation destinations due to its positive impact on landscape quality, contribution of soil preservation, and the provision of cultural services such as traditional knowledge, ecotourism, and aesthetic pleasure [19]. Thus it is important to note that changes in the landscape should take traditional farming systems [20,21] into consideration, especially as due to the abandonment of agricultural activity as a result of the production processes and intensification [21], the evidence of which makes it important to identify and implement actions that promote sustainable development. As the literature argues, the management of protected natural areas have the opportunity to preserve traditional farming and agricultural landscapes as a resource and a mechanism to preserve biodiversity and local traditions. For example, the Mediterranean agricultural landscape is widely recognized in the literature for its cultural values that greatly favour nature conservation [8,22]. Based on this evidence, a wise combination of cultural and natural, aesthetic, and productive elements, proper to the physiognomy and functionalism of agricultural landscapes, could be the basis to design strategies to promote the protected natural areas, that are also faced with the challenges of sustainable development.

Indeed, the landscape can offer a variety of services and experiences that can influence the perception, preferences, and degree of satisfaction of its enjoyment. For this reason, it becomes interesting to understand why some landscapes may be more attractive than others. For example, the scenic beauty of rural landscapes has an important meaning, for different reasons, for urban people and for rural people [23]. Some researchers have concluded that natural landscapes are the most preferred [9,24], others reveal that the water element is a determining factor in the choice of tourist destinations [10,24] while other research has highlighted the importance of the agricultural landscape [4]. These facts have led to the recognition of the importance in understanding, not only the changes that occur in the landscape, but also how this affects social, economic and environmental spheres [25] as well as demand motivations [26]. In fact, the landscape potential to promote recreational activities and local development dynamics has been included in management and planning policies [27], in the monitoring of agro-environmental actions [23], and in tourism plans [28]. In the literature it is possible to identify different methodologies for assessing tourism potential, although most focus on tourism resources or attractions inventories as a starting point [29]. Arising in the 70s in Ibero-American countries, the OEA model was pioneered as a natural and cultural touristic attractions inventory (cultural events, natural sites, museums, monuments and other heritage with historic value, costumes and traditions manifestations of local inhabitants) and evaluation of touristic potential, classified into four hierarchies [30]; the LEADER approach was developed in 90s targeted at local action groups of the LEADER II program of European Union. This model's intent was to assess tourist potential in two phases: (1) analysis of the tourism situation, a phase in which supply, demand, competition and market trends were examined, (2) the diagnosis, which, by comparing the results tourism situation, made it possible to identify the strengths and weaknesses of the territory, the opportunities and the risks, and lastly, decide whether or not to develop tourism in the area [31]. Briefly, it is possible to mention other methodologies in the literature that aim evaluate the tourism potential based on natural factors analysis [32,33], or economic variables [34,35], or landscape preferences analysis [36,37], applying different techniques and tools of statistical or territorial analysis such as, for example, the application of multivariate statistics [5,6] and multicriteria analysis [38,39], sometimes with the application of geographic information systems [7,28,40,41]. Therefore, assessing landscape preferences has raised interest in the literature, for the pursuit of

different research objectives, such as: the potential of landscapes for recreational use [24,42]; aesthetic value [43,44]; scenic beauty [9]; contribution to human well-being [8,45]; perception about ecosystem services [5,20,46–48] and willingness to pay to enjoy the amenities of a rural landscape [22].

As pointed out above, the literature argues that management tools are fundamental to preserve natural areas, their heritage, and improve the population's quality of life. For their implementation, it is fundamental to understand the interests and needs of the local population [49] and their potential demands [37]. Based on this knowledge it is much easier to design systemic strategies, especially those capable of fostering sustainable activities with positive impacts on the landscape [50]. However, identifying the tourism potential of natural areas based on knowledge of landscape preferences has not been sufficiently explored [51]. Despite the efforts carried out by the great diversity of research studies developed to evaluate the preferences of landscapes with recreational potential, there is no methodology with a general acceptance [27]. Several perception-based methodologies have been developed to assess landscape visual preferences, using on-site assessments [52,53] or using photographs [7], providing valuable insights into the aesthetic characteristics of a landscape and its scenic value [48]. To answer these challenges, this investigation focuses on the landscape of Tagus International Nature Reserve (TINR) (Extremadura, Spain and Centro, Portugal) to conduct a study of landscape preferences and its own assessment on the tourism typologies with potential, based on the preferences expressed by different land use configurations. This approach is based on the assumption that visual processes are fundamental to understanding landscape perception [54], an assumption that has been used in preference analyses of Mediterranean landscapes [7,12,20]. Specifically, the present study focuses on (1) revealing the tourism potential of the TINR by evaluating the tourist attractions of different landscapes, among them agricultural landscapes; (2) identifying which landscape typology is preferred; and (3) using different methods and examining results that allow for the identification of the most appreciated tourist attractions in natural areas.

The paper is structured as follows: Section 2 describes the main features of study area, the attributes of landscapes evaluated and explains the methodology applied in the research. Section 3 explains the main results obtained. Section 4 discusses the results of empirical application. Finally, Section 5 presents the main conclusions.

2. Materials and Methods

2.1. Study Area

The study area is delimited by the cross-border municipalities that integrate the Tagus International Nature Reserve (TINR) area, which integrate the NUTS II Centro (Portugal) and Extremadura (Spain). The TINR extends over an area of approximately 516 km², which corresponds to 10% of the municipalities' total area.

The area that comprises the TINR is characterized by modest demographic size, totalling 76,300 inhabitants, of which 45% reside in the urban parish of Castelo Branco (Figure 1). The trend of population dynamics in the municipalities surrounding the TINR, has recorded losses of 10% during the last decade, accompanied by the trends of population aging (approximately 30% of the resident population is 65 or older) [55,56].

Being a low-density area, the territorial system is polarized by the city of Castelo Branco. However, this area is an isolated territory, sparsely populated and distant from political decision centres. Vicissitudes that allowed for the conservation of landscapes and natural ecosystems, local traditions and the marks of a border once watched over, materialized by castles and fortifications, historic villages and "smuggling routes"—which are identity marks for local residents and elements of enjoyment and contemplation for those who visit this territory [57], are also important tourist resources that consolidate products such as the network of Historical Villages of Portugal or the pedestrian routes of the "PR4—Rota do Contrabando, in Marvão and Valéncia de Alcántara", for example.



Figure 1. Localization and characterization of study area. Source: Authors' own elaboration.

In contrast to the areas of highest altitude where compact patches of species such as maritime pine (*Pinus pinaster*), eucalyptus (*Eucalyptus*) and scrub dominate, its observably comprised of flat landscapes with an essentially agricultural function [57]. In these areas there is a great diversity of Mediterranean-based land uses, where cereals, olive groves, small orchards, and vineyards are often mixed. Their layouts are configured in a mosaic system, sometimes divided by walls of schist stone, granite, quartzite, or clay (example: the walls of "Taipa" in Malpica do Tejo), that are authentic indicators of the geological heritage of this region. On the Spanish border, rain-fed arable crops and pastures predominate with essentially agro-forestry uses, and are generally grazed. The *Dehesa/Montado* are frequent in this cross-border region and the scrub that appears in abandoned areas are yellow (*Cytisus striatus*), white (*Cistus ladanifer*) and purple (*Lavandula pedunculata, Lavandula stoechas*),

appearing in springtime to herald the hot summer days, which are generally dry, with average summer temperatures above 35° maximum [58].

Despite the change in structure of the traditional system of land exploitation based on the agro-silvopastoral trilogy resulting from the progressive abandonment of agricultural activity in recent decades [58], it is possible to detect small bangs of a high nature value agriculture. According to the Office of Planning and Foresight (GPP) [59], this type of agriculture is characterized by the low density use of machinery, fertilizers, and pesticides; the presence of grazing animals; and the presence of semi-natural vegetation with pastures and important natural elements and diversity of soil cover. These characteristics were important to integrate a huge part of this study area in the Bio-Regions International Network (since 2018), an area that values the sustainable farming (www.ecoregion.info/, accessed on 1 December 2021). Reflecting this are the numerous examples of products, from olive oil (PDO "Beira Baixa", PDO "Gata-Hiurdes"), lamb meat (IPG "Borrego da Beira", IGP "Cordero de Extremadura") goat meat (IGP "Cabrito da Beira"), cheese (PDO "Queijos da Beira Baixa", PDO "Queijo de Castelo Branco"), products of the Dehesa/Montado (PDO "Dehesa of Extremadura"), and wine (DOC "Beira Interior"), among other products with "NATURAL.PT" labels, which is the brand for agri-food products produced in protected natural areas (https://natutal.pt, accessed on 1 December 2021).

In fact, the land use is a particular and distinctive element of the TINR, with a preponderance of agro-silvopastoral landscapes whose tourism potential is important to determine.

2.2. Attributes of Landscape

This study compares the preferences of six landscape typologies for tourism activities. For the identification, land use was analyzed using the cartographic data CORINE LAND COVER (CLC) (2018) because it is a recent and common database between Portugal and Spain. This work was complemented with fieldwork to support the description of each of the landscape typologies that characterize the territory. However, some deviations were detected in the marking of important areas in the study area, a disadvantage also noted in previous studies that used the CLC database [60,61]. Considering this limitation, we resorted, in a second phase, to official information sources to determine the location of the landscapes under study:

- The latest edition (2014) of the Spanish Land Use/Land Cover maps (SIOSE) [62].
- The latest edition (2018) of Portuguese Land Use/Land Cover maps (*Carta de Uso e Ocupação do Solo*, COS) [63].

Some land use classes were aggregated corresponding to each of the landscape typologies considered in the study (Table 1). ArcGIS (ESRI, Redlands, CA, USA) software was used to visualize and analyze the spatial data.

Table 1. Land use categories SIOSE, obtained from the Land use/cover maps of Portugal and Spain.

SIOSE Category	COS Category	Landscape Typology	
311-Broad leaved trees 340-Combination of vegetation 260-Combination of crops with vegetation 320-Pasture or grassland	 4.1.1.1 Agroforestry surfaces of Cork Oak 4.1.1.2 Agroforestry surfaces of Holm Oak 4.1.1.3 Agroforestry surfaces of Oak Trees 4.1.1.6 Agroforestry surfaces of Cork oak and holm oak 4.1.1.7 Agroforestry surfaces of other mixtures 5.1.1.1 Cork oak forest 5.1.1.2 Holm oak forest 5.1.1.3 Oak Forest 5.1.1.4 Chestnut forest 3.1.2.1 Spontaneous grazing 	Dehesa/Montado	

SIOSE Category	COS Category	Landscape Typology	
	2.2.3.1 Olive grove		
234-Olive	2.3.1.3 Temporary crops and/or improved pastures	Olive Grove	
	associated with olive groves		
	5.1.1.5 Forest and Eucalyptus		
	5.1.1.6 Invasion Forest		
313-Forest mix	5.1.1.7 Other hardwood forest		
312-Coniferous forest	5.1.2.1 Pinus pinaster forest	Forest and scrubland	
330-Scrub	5.1.2.2 Stone Pine Forest		
	5.1.2.3 Other coniferous forests		
	6.1.1.1 Matos		
511-Water Course	9.1.1.1 Natural watercourses	Dissense og disserten his dis	
513-Reservoir	9.1.2.3 Reservoirs and dams	Rivers and Water bodie	
111-Settlement	1.1.1.1 Continuous built	Dunal Cattlana anta	
113-Settlement discontinued	1.1.2.1 Discontinuous built	Kurai Settlements	

Table 1. Cont.

The agro-silvopastoral system occupies around 48% of the study area. The forest area occupies around 34% and the olive grove occupies approximately 5.5% (Figure 2).



Figure 2. Main land uses of soil in study area. **Source**: Authors' own elaboration based on COS and SIOSE data.

In a more detailed analysis, we can describe the landscape typologies considered in the TINR area (Figure 3), identifying some of their characteristics as tourism products:



Figure 3. Main land uses of soil in TINR. **Source**: Authors' own elaboration based on COS and SIOSE data.

- "Agro-silvopastoral systems" (*Dehesa/Montado*): that occupies 68% of the TINR. The dominant species of trees are cork oak (*Quercus suber*, L.), holm oak (*Quercus ilex*, spp. *Rotundilfolia*, L.), shrubs and pastures. Traditionally this system is exploited by multiple land uses, combining the exploitation of tree cover, both cork and wood for charcoal, and a rotation of grazing, cultivation and fallow in the undercover and forage for the cattle, sheep and Iberian pig [64]. This system secures important social functions for the local population as it is used by hunters, beekeepers, and mushroom pickers, as well recreational and relaxing functions due to the natural characteristics that allows for multiple active tourist activities [20,65].
- "Traditional olive grove": The olive grove is a paradigmatic cultural landscape [65]. In the study area olive groves occupy around 4%, representing 1957.80 ha. In this territory, the olive groves are characterized by a low density of trees, with rainfed regimes and scattered patterns of occupation. The olive groves occupy the slopes of the main rivers (Tagus, Erges/Eljas, Ponsul, Ocreza), in terracing marked by drystone walls which preserve native cultivars (*Galega* and *Manzanilla-Cacereña*, for example), and at the borders of settlements. A huge portion of these olive groves are abandoned or semi-abandoned and, in general, mixed with grazing and stockbreeding. Near the rural settlements the olive groves have small dimensions. Olives and olive oil represent a product category with characteristics that could project a particular image in the minds of potential tourists and allow for a diversity of activities related to gastronomic or educational activities [7,66].
- "Forest and scrub": This cross-border region is characterized by its natural ecosystems, where different species cohabit, such as *Quercus ilex*, *Quercus suber*, *Arbutus unedo*, *Olea europea var. sylvestris*, *Pistacia lentiscus*, *Lavandula stoechas*, *Cytisus* spp., to list same examples. These areas are important refuges of autochthonous wildlife and natural ecosystems. These landscapes range from natural forests to productive forests where *Pinus pinaster* and *Eucalyptus* dominate. This landscape typology occupies around 8696.50 ha, that represent 31% of TINR.
- "Rural Settlements": This investigation intends to understand the role of rural settlements as a leverage to assure sustainable growth through touristic activities in this

territory. In fact, rural settlements still preserve marks of rural and agricultural traditions. Despite the population aging and population loss, many of them are equipped with reasonable cultural infrastructures, remarkable historic patrimony such as castles, and vernacular architecture; and a singular cultural heritage represented by their gastronomy, traditional music, or the orality proper to cross-border territory that consolidates them as unique. In this area, highlights include historic villages such as Monsanto and Idanha-a-Velha (that ares included the Portuguese historic villages network), and Alcántara, for example.

 "Rivers and water bodies": The rivers assume an important role as a reservoir of water and biodiversity. In the study area, the Tagus River is a protagonist, it delimits the cross-border between Portugal and Spain, and simultaneously assumes a structural role in this region from environmental and scenic points of view. It is possible to identify other rivers, for example Pônsul, Erges/Eljas, Ocreza, Salor, Sever that have a structural role in defining natural corridors with autochthonous fauna and flora. Thus, this landscape typology has huge potential as a touristic resource [67], providing a wide range of activities [68].

2.3. Landscape Preference Valuation

The study of the local population and tourists' perceptions takes on relevance in low density destination, due to their capacity to offer a wide range of products based on their uniqueness, often dependent on the characteristics of the surrounding landscape. Knowing the perception of those who live or visit the territory is therefore essential for the identification of its most valued elements, which may culminate in the construction of offers of products and experiences where their potential is widely recognized. Despite the low number of studies that use this methodology [69], its use has produced interesting results that reveal that tourists have increased interest in rural landscapes for tourism activities [22,23], or even the recognition of its potential by the local population for its contribution to their quality of life and well-being [70]. Knowing their opinions allows for the extraction of important information to support territorial management models.

During 2019, fieldwork was conducted to collect representative photographs of each of the landscape typologies (Figure 4), and which take the following designations: (A) *Dehesa/Montado*; (B)-*Dehesa/Montado* with stockbreeding; (C)"Traditional olive grove"; (D) "Forest and scrub"; (E) "Rivers and water bodies"; and (F)"Rural settlements". The selection of photographs used in the questionnaire was made with the support of local stakeholders' opinions (N = 9) who identified the photographs of each of the landscape typologies that characterize the territory.

The use of photographs to assess landscape preferences has been used in several studies [7,20,64,71,72]. Although controversial, as it ignores the potential of direct contact with the landscape [73], this methodology has led some studies to conclude that evaluating the perception of preferences through photographs produces results similar to those obtained on site [7]. However, it should be noted that in the present study, only the population who is familiar with this territory, either by living there or visiting, was interviewed. In this case, the use of photographs allowed for the improved control of the conditions in which the landscape was perceived when evaluated, and greater clarity about the preferences declared [64].

To collect the information, a questionnaire (Table S1) was designed that allowed for two types of analysis on landscape preferences for outdoor/recreational activities:

- A preference test using photographs, compared pairwise, according to the AHP methodology, and
- A preference test without photographs to realize the descriptive analysis.



(D)

(E)

(F)

Figure 4. Representative pictures of the most common landscapes typologies at the study area used to evaluate the preferences (photographs). (**A**) Dehesa/Mounted (Photo was taken on spring of 2019); (**B**) Dehesa/Mounted with stockbreeding (Photo was taken on spring of 2019); (**C**) Traditional Olive grove (Photo was taken on summer of 2019); (**D**) Forest and scrubland (Photo was taken on winter of 2019); (**E**) Rivers and water bodies (Photo was taken on summer of 2019); (**F**) Rural settlements (Photo was taken on autumm of 2019).

Questions about socio-demographic characteristics were also included and other information that permitted identification of the level of knowledge and experiences in this territory. This information was used to extract conclusions drawn about the tourism typologies that are valued based on the potential of the landscape.

As in previous studies [9,20,74], photographs representing each of landscape typologies were used (Figure 4). However, pairwise landscape evaluation, using representative images, is still poorly explored in the literature [7].

To analyze the landscape preferences a qualitative research approach was conducted by simple random probabilistic sampling, using a questionnaire with around 20 questions, available in Table S1, applied to the local population and tourists. Initial tests were carried out to validate the questions and the expected time for its filling (about 5 min). Data collection took place during the period from February 2020 to August 2020, which coincided with the most problematic period of the COVID-19 pandemic management. In total, 174 individuals participated in this research, of which 53% were male and 47% were female, represented by various age groups. It is noteworthy that the majority held a higher level of education (76%) and around 50% of the participants were residents in rural areas (Table 2).

2.4. Methods and Techniques

The different landscape typologies under study generate different effects on the tourism potential. Thus, the information obtained through the questionnaires made it possible to establish two distinct types of analysis following the methodological scheme presented below (Figure 5).

Sociodemographic Indicators		n	%
	Male	92	52.9
Gender	Female	82	47.1
	Elementary school	6	3.4
Study level	Middle school	36	20.7
·	High school or above	132	75.9
	18–25	13	7.5
	26–35	27	15.5
4	26-45	41	23.6
Age	46-55	42	24.1
	56-65	27	15.5
	+65	24	13.8
1	Predominantly Rural	88	50.6
Area of residence ¹	Predominantly Urban	86	49.4

Table 2. Basic demographic information about the interviewees.

¹ Territorial unit was defined according to the percentage of population in local units (local units with a population density below 150 inhabitants per square kilometer): predominantly urban, if the share of population living in rural local units is below 15%; and, Predominantly rural, if the share of population living in rural local units is higher than 50%. (Source: OECD, 1994. Creating rural indicators for shaping territorial policy, OECD. Paris).



Figure 5. Methodological approach and AHP decision hierarchy.

In the first phase an analysis was carried out with the aim of analyzing the differences in the participants' opinions in order to know:

- the preferences of each landscape typology to realize outdoor/recreational activities;
- the social factors that may explain the preferences of each landscape typology.

2.4.1. Descriptive Analysis and Chi-Square Test

In a first step, the data were used to evaluate the landscape preferences without photographs but with a descriptive analysis of through weighted sums. This analysis allowed for the positioning of preferences expressed by the participants. This method only allowed us to recognize which the preferred landscape was, ignoring the order of preferences, the comparison between different landscape typologies, and the typology of tourism activities that may be the basis for the choice of landscape.

In a second step, to compare and distinguish landscape preferences, the *Chi-square test* was applied (with a *p*-value 0.05), which allowed us to understand their relationship with the socio-demographic variables. This analysis allows us to establish some patterns of activities according to the sociodemographic variables analyzed.

2.4.2. Multicriteria Decision Analysis—AHP

In a third step, the multicriteria methodology AHP was applied. This method was developed by Tomas Saaty in the 1970s. The literature reveals some disadvantages of AHP, specially related with the criteria number and process of alternatives' choices [75], however, this methodology offers huge advantages and allows a large number of decision factors to be evaluated by measuring the importance of each factor that influences a decision [35].

In fact, this methodology can be used to assess preferences based on pairwise comparisons of hierarchical decision-making levels and has been widely used in studies with different objectives [28,46]. This research aim to assess landscape preference according to the perception of ecosystem services, while other authors [7] sought to identify the olive grove production system preferred using representative photographs.

At the tourism level, AHP methodology can support decision making, especially when it involves several factors, as shown by examples in the literature:

- To know the tourism potential of a region [28,41,74,76].
- To identify the preferred tourism typologies of tourists [35].
- To identify the potential of cultural heritage tourism [5] or ecotourism [32,33].
- To make decisions regarding the development of tourism support infrastructure [29].

This methodology analyzes pairs of importance priorities as a function of a common attribute or criteria represented in the decision hierarchy, using a square decision matrix based on the importance scale ranging from 9 (extremely preferable) to 1 (preference equality) [77,78]. This technique decomposes the decisions in the process according to a hierarchical evaluation system that includes objectives, criteria, and alternatives.

In the present research, the defined objective is to know the incidence of the opinions about the landscape typologies considered for outdoor/recreational activities, taking as criteria six landscape typologies (A—Dehesa/Montado; B—Dehesa/Montado with stockbreeding; C—"Traditional olive grove"; D—"Forest and scrubland"; E—"Rural settlements"; and F—"Rivers and water bodies") that were incorporated in the questionnaire. In practice, in the questionnaire each participant evaluated all comparison possibilities of each set of six photographs by choosing the preferred photograph in pairwise comparison (AB, AC, AD, AE, AF, BC, BD, BE, BF, CD, CE, CF, DE, DF, FE). In the research model designed, four alternatives were proposed: "Generic Rural Tourism", "Cultural tourism/Rural mixed", "Agritourism in Dehesas/Montado", Agritourism in Olive grove/Oleotourism". For each of the alternatives, potential touristic activities were identified, as summarized in Table 3.

Criteria	Alternatives	Justification	Potential Activities
Landscape E—Rivers and water bodies Landscape D—Forest and scrub	Generic Rural tourism	Promote the tourism in the countryside that embraces the rural environment as pivotal to the product offered. They can also include nature-based activities, such as aquatic sports, fishing, trekking and others. Provides an opportunity to experience the rural area and appreciate the landscape.	Fishing Aquatic sports Hunting Bird watching Hiking trails/Cycling Active tourism (adventure sports)
Landscape F—Rural settlements	Cultural tourism/rural mixed	Allows a multi-faceted activity that includes the direct contact with local traditions, rural communities and local lifestyle, local gastronomy, services, and accommodation as well as nature-based activities and enjoyment of the historical and cultural values.	Itineraries by historical monuments Visits to ethnographic muse- ums/interpretative centers Gastronomic events/routs Restaurants and local products Contact with local people
Landscape A—Dehesa/Mounted Landscape B—Dehesa/Mounted with stockbreeding	Agritourism in Dehesas /Montado	Farm-based tourism that comprises special interest with agriculture activities, eco-tourism activities and educational programs privileging the direct contact with farmers and rural communities. This modality valorizing the sustainable and extensive agriculture and puts in evidence the autochthones resources.	Agricultural activities participation Livestock and wildlife observation/contact Educational activities Hiking Hunting Contact with farmers Restaurants and local products
Landscape C—Traditional Olive Grove	Agritourism in Olive grove/Oliveotourism	Promote the tourism products that offer a symbiosis between gastronomy, territory, and sustainability. Oleotourism is focused on olive grove and olive oil as a touristic resource. This modality gives a wide range of nature-based activities that can be complemented with wellbeing, cultural and rural modalities.	Agricultural activities participation Livestock and wildlife observation/contact Educational activities Hiking Hunting Contact with farmers Restaurants and local products Oli mills visits

Table 3. Determination of alternatives based on landscape typologies.

Following the AHP methodology, the first step was to calculate the weighted average of all answers obtained in the questionnaire for each criteria evaluated, using the Likert scale (1 corresponds to the minimum value and 5 to the maximum value), applying the following formula:

Weighted average =
$$\{(a_{x1} \times 1) + (a_{x2} \times 2) + (a_{x3} \times 3) + (a_{x4} \times 4) + (a_{x5} \times 5)\}/n$$
 (1)

In a second step, each of the six criteria was compared pairwise considering the research objective (Table S2). The results of the comparisons are presented in the results section where the maximal eigenvector using Saaty's method is defined. The results obtained were normalized into the preference matrix. The preference vector *w* determined

the preferences order of each criteria (Table 4). Next, we determined the consistency degree (CI) that allowed us to find the consistency ratio index (CR), given that RI6 = 1.24 [78]. In this phase the following formula was applied:

$$\lambda_{max} = \frac{1}{n} \sum_{i=1}^{n} \frac{(Aw)i}{w_i} = 6.093,$$

$$CI = \frac{\lambda_{max-n}}{(n-1)} \times 100 = \frac{6.093-6}{(6-1)} = 0.0185$$

$$CR = CI/RI = 0.0185/1.24 = 0.015$$
(2)

Table 4.	Ranking	of land	lscape	preferences.
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ID	Landscape	Pairwise Comparison	Landscape Preference without Photo	Diff.	Landscape That Conveys Positive Feelings	Diff.
F	Rural settlements	20.3%	13.2%	7.1%	17.8%	3.1%
В	Dehesa/Montado w / stockbreeding	19.3%	8.6%	10.7%	20.1%	-0.8%
А	Dehesa/Montado	18.3%	17.8%	0.5%	37.9%	-19.6%
С	Traditional olive grove	16.7%	3.4%	13.3%	8.0%	8.7%
D	Forest and scrubland	13.5%	17.2%	-3.7%	7.5%	6.1%
E	Rivers and water bodies	11.8%	39.7%	-27.9%	8.6%	3.1%

It can be admitted that the calculations of the pairwise comparison matrix for each of the criteria defined in the project were consistent because the value of CR is less than 1.

The next step of the AHP was to evaluate the specific alternatives of this research against the presented criteria. For each of the criteria separately, we evaluated all alternatives to find their eigenvector. Finally, a new matrix was built with the eigenvector of each alternative multiplied by the criteria preference vector. Thus, we obtained the final preference vector for each variant of the research project (Table 5).

	Ε	F	D	Α	В	С	Weights wi	Preferences
Е	0.031	0.037	0.022	0.029	0.034	0.019	0.03	6°
F	0.281	0.333	0.311	0.413	0.276	0.380	0.33	1°
D	0.063	0.048	0.044	0.041	0.046	0.032	0.05	5°
А	0.219	0.166	0.222	0.206	0.276	0.190	0.21	3°
В	0.250	0.333	0.267	0.206	0.276	0.285	0.27	2°
С	0.156	0.083	0.133	0.103	0.092	0.095	0.11	4^{o}

 Table 5. Normalised comparison matrix for the project evaluation criteria.

3. Results

3.1. Landscape Preference Ranking

When analyzing the results of the landscape preferences evaluation with pairwise comparison, it appears that there is greater affinity of respondents with the cultural landscape associated with rurality, where traces of a vast historical heritage resulting from human occupation predominate (20.3%) (Table 4). The cultural landscape is characterized by a heterogeneity of elements, from the historical elements such as castles, fortifications, vernacular architecture and agri-food production, livestock farming, and forestry. This landscape typology is the one that supports most of the local inhabitants' daily activities and assumes multifunctional roles, for example by receiving urban visitors and foreign tourists who seek the rural settlement's other functions: accommodation, restaurants, and access to culture infrastructures.

This is followed by the preference for landscapes dominated by the "green" with emphasis on the *Dehesa/Montado* agro-silvopastoral system, with 37.6% of the preferences.

It is worth noting that the landscape with the presence of animals had the highest score, reinforcing the tendency towards cultural landscapes preferences. Besides the unquestionable natural and environmental richness, the configuration of the *Dehesa/Montado* landscape itself has an enormous cultural and patrimonial value. The presence of stone walls, grain silos, the configuration of the dispersed settlement, the rich ethnographic heritage of traditional crafts related with activities such as the extraction of cork, pig raising, shepherds, are some marks still present, and that constitute its unique identity, and this seems to be valued by the demand.

When compared to other typologies, the landscapes associated with water and forest have lower scores, even though they offer favourable physical conditions for recreational use.

In turn, when participants were challenged to identify their preferred landscape for outdoor activities, but without photograph observation, the choice of participants focused on, with a significant advantage, the landscape associated with water (39.7%). This choice represented a difference of around 27.9% between the two forms of analysis used to evaluate landscape preference (Table 4). That is, the water landscape when compared with other typologies does not gain attention, but it is recognized as the preferred landscape for outdoor activities when analyzed in isolation. Also, the landscape associated with the forest had deviations between the analyses performed, gathering more attention when analyzed from the perspective of landscape as a setting for outdoor activities than when compared with other landscape typologies.

It is also worth mentioning the case of the traditional olive grove landscape which is clearly the least preferred for outdoor activities (3.4%). However, when compared pair by pair it gains some prominence, probably due to its cultural character (deviation of 13.3% between compared methods).

The case of the landscape associated with "Rural settlements", despite winning in the pairwise comparison (with photograph observation), ranks 4th in preferences for outdoor activities when analyzed without photography.

In the case of the *Dehesa/Montado* landscape, the results are apparently consistent between the two analyses (deviation of 0.5%), which may reveal that it is a landscape with characteristics that participants enjoy for its visual quality combined with its potential for outdoor activities. This typology is also the one with the highest score for a landscape that transmits positive feelings, corroborating its aesthetic and recreational value and impact on life quality perception. The same relationship does not happen in the case of the *Dehesa/Montado* with stockbreeding landscape. Despite having greater prominence in the pairwise comparison, it does not have the same protagonism as a stage for outdoor/recreational activities (deviation of 10.7%). That is, despite its potential as a tourist resource, validated by the score obtained in the indicator "positive feelings" (20.1%), the results may reveal that the presence of animals can be considered as an inhibiting factor to realize outdoor activities (8.6%).

Sociocultural Factors behind Landscape Preferences

According to the results obtained with *Chi-Square* contingency table analysis (Table S3) that analyzes the relationship between the variable "preferred landscape for outdoor/ recreational activities" without photography observation data, and the sociodemographic variables (gender, age, education and residence) for *p*-value < 0.05, it is possible to conclude there is an association between the sociodemographic variables and the choice of landscapes, particularly regarding participants' place of residence (X2 = 19.17, *p*-value = 0.002), age (X2 = 51.37, *p*-value = 0.001), and level of education (X2 = 34.63, *p*-value = 0.000). The main results extracted the following patterns:

- The population living in rural areas prefers the landscape of "Rural settlements" (28.4%), followed by *Dehesa/Montado* (18.2%).
- The urban participants choose, with high expression of preferences, the "Rural Settlements" landscape (51.2%) and does not choose "Traditional olive grove" (0%).

- "Forest and scrub" are the preferred landscape of the inhabitants of rural areas (63.3%) and water is the preferred landscape for urban people (56.3%).
- Younger participants (18–25 years old) do not choose "Traditional olive grove" and "Forest and Scrub" for outdoor activities. Their preferences highlight the *Dehesa/Montado* option (69.2%), followed by "Rural settlements" (15.4%).
- The "Rivers and water bodies" landscape is most valued by participants aged between 36–45, with Forest and scrub landscape as the second choice (33.3%).
- The "Traditional olive grove" is most valued by participants aged 46–55. Contrarily, age groups 56–65 and +65 do not choose the olive grove as a setting for outdoor activities. Probably for aging people the olive grove is more associated to olive picking activity, that is non-recreational activity.
- Dehesa/Montado has a balanced distribution among the different age groups, although it is more valued by the younger ones.
- Dehesa/Montado with stockbreeding is more valued by the 46–55- and 56–65-year classes.
- Participants with basic education levels do not value the *Dehesa/Montado* landscape, olive groves, and water.
- Population with higher education levels identified the *Dehesa/Montado* (80.2%), "Rural settlements" (82.6% and "Rivers and water bodies" (100%) as landscapes preferred.

3.2. Analysis of the Evaluation Factors—AHP

The main results highlight that landscape preferences declared are different, which makes it difficult to select a methodology for evaluating landscape preferences. Therefore, it becomes necessary to determine a weighting factor for each of the criteria, taking the participants' opinion as a reference. To do this, the AHP methodology was used.

According to the AHP methodology six criteria (landscape typologies) and four alternatives (tourism typologies) were selected to evaluate which landscape was preferred or recommended for outdoor/recreational activities. The starting point for the selection of criteria and alternatives is the project objective, as shown in Figure 5. Thus, in a first step, the criteria were pairwise evaluated in relation to the project objective based on the opinions collected through the questionnaire (Table S1). Then, the maximum eigenvector (*wi*) for the defined criteria was determined, following the Saaty method, which allowed us to rank the criteria in order of preference (Table 5): F—"Rural settlements"(33%); B—*Dehesa/montado* with stockbreeding (27%); C—"*Dehesa/Montado*" (21%); C—"Traditional olive grove" (11%); D—"Forest and scrub" (5%); and finally E—"Rivers and Water bodies" (3%). Large differences were found among the criteria defined, with "Rural settlements" and *Dehesa/Montado* as the most weighted. Therefore, this result reveals that these landscape typologies need more attention by local stakeholders to protect and promote them as a tourist resource.

This methodology has also found coincidences in the evaluation of the landscape typologies by pairwise comparison, showing the potential of the cultural landscape as a touristic resource of the territory, as well as the aesthetic and recreational value attributed to the *Dehesa/Montado*. In turn, the landscape related to water and forests deserves some attention from the territorial planners, as they have a low score.

Table 6 summarizes the AHP results of the final valuation of each of the criteria according to the proposed alternatives. The first idea emphasizes the similarity that exists between the final value of the alternative's "Cultural tourism/Rural mixed" (32%) and "Agritourism" in *Dehesa/Montado* (31%), which are the most valued typologies.

Also noteworthy is the lowest value obtained by the "Generic rural tourism" typology (10%), based on criteria such as the presence of water and forest areas. This type of tourism with the potential for activities such as hunting, fishing and water sports, and active tourism is the least valued. This result may be related to the management practices of forest areas that, in recent decades, have invested in monocultures (with a strong focus on eucalyptus) and, therefore, with lower levels of biodiversity that compromise some activities, such as bird watching or nature photography, for example, and consequently, decrease its attractiveness.

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Landscapes Typologies	Ε	F	D	Α	В	С	Relative Weights
Rural tourism	0.08	0.09	0.09	0.15	0.06	0.12	0.10
Cultural tourism/Rural mixed	0.18	0.23	0.20	0.49	0.32	0.33	0.32
Agritourism in Dehesa/Montado	0.25	0.33	0.35	0.24	0.32	0.33	0.31
Agritourism in Olive grove/Oleotourism	0.48	0.35	0.36	0.13	0.31	0.23	0.28
wi	0.03	0.33	0.05	0.21	0.27	0.11	

Table 6. Results of the pairwise comparison of the project alternatives.

On the other hand, the most attractive criteria are those related to the presence of rural settlements, linked to non-seasonal tourism that values the cultural heritage, patrimony, local products, and gastronomy, and contact with the local people—that is, the "Cultural Tourism/rural mixed" typology.

It is also interesting to note the enormous importance attributed to the alternative of "Agritourism", developed in the Dehesa/Montado system, which according to this result highlights the *Dehesa/Montado* system with stockbreeding and the traditional olive grove. This modality can include contact with agricultural activities, environmental education activities, and contact with the great diversity of products of the Dehesa/Montado and the olive grove. Both landscapes, besides their function of food supply, have important functions to preserve the biodiversity and a high aesthetic and recreational value. The creation of tourism products supported by agricultural activity have a particular interest, as suggested by the participants in this investigation. Finally, it is important to highlight the potential of oleotourism, which allows the opportunity of creating a set of products that can be differentiated based on traditional olive groves landscapes and olive oil products. In this case, it is possible to identify several agri-products with quality certifications and respect for sustainable principles of farming. Although it has potential, it is a product without structured supply, so it deserves the attention of local tourism players to promote tourist products and services that combine agri-food products, education for sustainability, and territory.

For the creation of recreational offers based on the "Cultural tourism/rural mixed" typology, the research identified a greater need for articulation about the landscape and cultural potential of Dehesa/Montado and "Traditional olive grove", due to the vast heritage associated with agricultural landscapes. In the case of "Agritourism" valorization, the need to valorize forest/natural spaces, particularly the valorization of systems such as Mediterranean forest and traditional olive grove, as well as the articulation about existing or potential cultural services and activities in "Rural settlements", is highlighted. This segment allows for the opportunity to generate offers based on agricultural, pastoral and forestry activities, gastronomy, local products, heritage, and local culture and, therefore, allows for a wide range of intervention from various local agents who can design networked products between farmers, tourism operators, accommodation, restaurants, and cultural promoters. For the valorization of the "Oleotourism" typology, it is particularly interesting to verify the need of natural resources valorization, such as "Rivers and water bodies". This aspect is particularly interesting since most of the traditional olive groves are located on the slopes of main rivers, offering uniqueness and exceptional aesthetic conditions with cultural landscape features. Therefore, this is a segment with potential for oleotourism products that can be enhanced with the valuation of flora and fauna associated with rivers and take advantage of their natural features to create recreational opportunities from a holistic perspective.

3.3. Differences among Perceptions According to Different Methodologies

Many methodologies have been used to assess the preferences and potential of landscapes for tourism activities. In the present study, the first approach used evaluates landscape preferences using photographs, with pairwise comparison, while the other approach evaluated the landscape without photographs. In addition, participants were asked which landscape conveyed positive feelings. This information allowed us to draw some conclusions about the evaluation carried out in each approach.

The analysis techniques used allowed us to highlight the following results that are illustrated in Figures S1–S3:

- The analysis using photographs (pairwise comparison) and the analysis without photographs shows a discordance of results obtained on the preferences expressed. The first approach highlights the "Rural settlements" landscape, while the second highlights the "Rivers and water bodies" landscape.
- In fact, the analyses point out some contradictions in the results obtained, particularly in the case of the landscape associated with water. These differences can be explained by the global analysis that was done at the time of the evaluation and that involves the human-environment relationship, as explained by other authors [79]. In this case, it may be the management situation of expectation vs. reality. That is, although the participants recognize that it is the preferred landscape for outdoor activities (evaluated without photography), probably it may be associated with the tourism typology "sun, beach and sea". Then, the result does not apply to the time and place of evaluation.
- The AHP analysis is more robust since it integrates weighting factors. With this methodology the valuation of the landscape typologies stands out: "Rural settlements" (33%) and *Dehesa/Montado* (48% in the two typologies analyzed).
- The analyses carried out in each methodology are unanimous related to agritourism potential, expressed by the appreciation of agricultural landscapes. The results emphasize the *Dehesa/Montado* that, curiously, occupies the first place as a landscape that conveys positive feelings.
- To sum up, our findings show the potential of cultural tourism and agritourism as interesting segments for this territory. This would imply the creation of products that value the landscape, but above all, the cultural values associated with the rural and agricultural activities.

4. Discussion

This study wanted to find out the opinions of respondents regarding landscape preferences of protected natural area to realize outdoor/recreational activities, conducted with different methods to rank their preferences (based on photograph observations with pairwise comparison and without photographs for observation), and by applying different analysis techniques (descriptive analysis and AHP).

Landscape preference analysis is documented in the literature, pursuing different objectives, and involving different participants. For example, research has been conducted to identify tourist preferences about landscape elements, such as the presence of vegetation, human influence and typicality [9]; another study [20] investigated which landscape was preferred by local inhabitants related to ecosystem services and which attributes were more valued, such as aesthetics, biodiversity, or therapeutic values. Another study [68] was conducted to identify landscape values perceived from the perspective of rural inhabitants. In general, the results obtained in this study identify the preferred landscape for developing recreational activities. Under the first approach, the obtained results show that the functional expectation, that each person has with the landscape, can influence their preferences, as was also concluded by other authors [71]. However, a knowledge of preferences can be strategic in the formulation of landscape management strategies [68]. For this reason, the present study brings the novelty of landscape preference analysis with the specific objective of promoting its use for recreational and tourism purposes of a natural protected area where traditional agriculture still preserves same visible forms of traditional farming, and with cultural landscape attributes preserved. Although the role of landscape in tourism is recognized, its valorization as a tourism resource is still devalued [80]. Therefore, the main

contribution of this study is to contribute more knowledge about landscape preferences, mainly in relation to different tourism typologies.

Different methodologies have been used to assess the landscape preferences: application of rating scales [9,48], with some criticism about the ranges used [9], and ranking on an ordinal scale [20,22,81]. In the present study, the landscape preferences were evaluated by pairwise comparison with photographs that permitted the application of the AHP methodology. This methodology allowed for the extraction of important information about the effect of landscape preferences on tourism potential. However, weighting the criteria of tourism potential is one of the main challenges of multicriteria evaluation [28]. As reported by previous studies [7,82], the analysis of the participants' opinions was used to define the weight of the defined criteria.

As mentioned, to analyze the landscape preferences a pairwise comparison of photographs was performed, which allowed the application of the AHP methodology. Although the use of photographic representations is clearly established in preference analysis methodologies [9], pairwise comparison is still not widely used. The use of AHP presents a theoretical limitation since it allows the evaluation of up to nine photographs at the same level of hierarchy. In this case, there would be 36 pairs of photos to evaluate, making it difficult to capture the participants' attention and their interest [7,46,74]. Although this weakness related to the number of relative measures of the hierarchical process [75], the application of AHP has been adopted by a number of notable of research papers from different scientific disciplines worldwide, that confirm their advantages facing a complex decision-making process [16,20]. The use of participants' opinions in the decision-making process is clearly beneficial [83] and this is an important contribution of this study. Another challenge of this study was related to the process of selecting the photos to be evaluated, because we found different configurations in the same landscape typology with physical and human aspects with huge potential interest. At same time, these landscapes also change with the influence of the passing of seasons, which in turn has an influence on the preference statements, as shown in other studies [72], but which this investigation did not analyze. However, recognizing the opinion of local stakeholders, as other authors recommend [48], allowed us to approximate the different hypotheses of the choice of photographs applied that could be considered as representative of the territory. Thus, according to the analysis of land uses and the stakeholders' opinions, six photographs were used without manipulation, totalling 15 pairs of photographs for pairwise evaluation. The results obtained show that the opinions of the participants with photograph pairwise comparison are more consistent. With this evidence, improvements in this methodology in future investigations will make it possible to identify different landscape typologies, for example the agricultural mosaic landscapes, or cultural landscape elements and different configurations of the Dehesa/Montado that represent different exploitation models.

The present study allowed us to compare the opinions of the participants through different methodologies. The results showed remarkable differences for landscape preferences according to each of the methodologies applied. The main difference was particularly notable in case of the "River and water bodies" landscape, that wins as the preferred landscape typology when analyzed without photography observation (39.7% of the preferences). This result was consistent with findings from other studies, confirming the trend of preferences for landscapes associated with water [44,54]. However, our results showed that when we compared the same landscape typology with others analysed, it ranked among the last positions of preferences (11.8%). One of the main methodological criticisms pointed out in the literature about the evaluation of landscape methods, is due to fact that the participants' expectations at the moment of the evaluation are dependent on their needs, tastes or beliefs, often influenced by previous experiences and stereotyped imaginings [84]. In this regard, the literature [9] states that the results are more reliable if the evaluated landscape matches the expected or sought landscape at the time of evaluation. In this specific case, the choice of the "Rivers and water bodies" landscape may be related to the sense of observers shaping expectations to tourism motivations that clearly reveal the

recognition of the territory's potential being oriented towards the enhancement of cultural aspects. Another aspect to note is the perception that participants have about the quality of this resource. Although TINR is a protected natural area, there are frequent environmental problems occurring in the main rivers, that inhibit its use for aquatic activities.

Complementarily, it is interesting to verify that the least valued tourism typology is the "generic rural tourism". This type of tourism is associated with the landscapes: "Forest and scrub" and "Rivers and water bodies". This result strengthens the influence of landscape quality on the preferred tourism typology. Although it is a valued landscape, when analyzed without photography observation, the pairwise evaluation reveals a certain devaluation of landscapes tending to be uncharacterized with production forest species or abandoned forest areas. According to the results obtained, we consider that the design of tourism products based on the forest landscape or water resources deserves public attention. It is urgent to implement measures that promote the enhancement of biodiversity, the preservation of native species and the aesthetic value of the landscapes, since these are features highly valued by demand, as demonstrated by other studies [20].

In contrast to previous studies [9,24] that indicate natural landscapes are among the most preferred, the pairwise comparison results showed a preference for landscapes where human influence and cultural elements predominate, especially "Rural settlements". In this type of landscape, it is possible to take advantage of a set of physical elements, such as: villages, built heritage and monuments, vernacular architecture, tourism infrastructures and enjoy intangible elements related to culture and local traditions, opportunity to contact with the rural people, orality, gastronomy, and local products. This increases the possibility of their consumption and impacts on the local economy [85]. The preference for scenarios, as "Rural settlements" may be related to the experience that one seeks to live in that landscape. In this case the experience may be influenced by the desire to return to origins and make contact with the authentic [11], or may be an opportunity to access traditional knowledge sources [86,87].

The comparative landscape preference ranking reveals that agricultural landscapes with the presence of animals are highly appreciated, revealing the importance of agriculture beyond its productive functions, in particular, its aesthetic value [22]. This fact contrasts with the results obtained in other investigations [9,88] who found that agricultural activities are not valued by tourists visiting farms as an activity. In turn, these results are in line with the findings of other studies [42,89] that show precisely that agritourism with the presence of animals is an attraction for visitors, while allowing for a wide range of products and services (e.g., the processing of products for on-site consumption or for sale, contact with animals, participation in activities such as milking, etc.) to be offered, and assumes an important role in the protection and valorization of native breeds. In fact, for many tourists, animals are an integral part of their recreational activities, either as an opportunity to observe, or interact with them [90]. In the first group, it is possible to list some activities, such as: birdwatching or other wild species (deer, boar, wolf, fox, Iberian lynx, for example) in natural or artificial environments. In the second group, we can include activities related to hunting and fishing, but also horseback riding, or participation in agritourism activities (sheep shearing, milking or farmed animals, for example). Thus, livestock farming can be considered as an interesting agritourism product to develop in the Dehesa/Montado landscapes, enabling new revenue streams for farmers, while promoting more sustainable production systems.

In the study area, the *Dehesa/Montado*, an agro-silvopastoral system in an extensive regime predominates. In fact, the results obtained reveal that agricultural landscapes are among the most valued to develop tourism activities and convey positive feelings. In the case of *Dehesa/Montado*, its potential is recognized in the literature for its aesthetic value [71,91], for contribution to well-being [8], and its high natural heritage value and biodiversity [20]. These characteristics give it the status of a cultural landscape [87,92], a fact that deserves more attention from the public authorities involved in rural landscape management and the promotion of sustainable tourism activities. In fact, recent studies

point out that tourism activities in *Dehesa/Montado* have increased [87] due to the fact that this landscape typology constitutes an interesting scenario for the development of agri-ecotourism products, constituting an alternative for those who value multifunctional landscapes [93], typical landscapes [9] and cultural landscapes [20]. *Dehesa/Montado* is an excellent touristic resource in TINR since it potentiates a great diversity of activities, for example, the potential for hunting [64,70], that could be integrated with agritourism, gastronomic tourism, and cultural tourism that explores the traditional values, identity and memory of the places. It should also be emphasized that the results obtained revealed that this landscape gains potential interest among young people, providing an interesting opportunity to develop products that combine tourism, agriculture, and education. This opportunity sets up scenarios to bring different generations closer, promote contact with traditional knowledge sources, and stimulate sustainable patterns of consumption.

Concerning agricultural landscape valorization for tourism activities, the literature confirms that the tendency to increase the efficiency of agricultural production, tending to be in more intensive production models, will decrease its attractiveness [73]. The valorization of a place's identity and the landscape's aesthetic value, seem to be related to the preservation of traditional production methods, as in the example of traditional olive groves, which is one of the most valued Mediterranean landscapes [7,20,71]. The results obtained reveal that the traditional olive groves in this cross-border region can be an important tourist resource, particularly if agritourism and oleotourism activities bet on the landscape and the agrifood products as a cultural base and anchor to develop tourist products combining health and well-being, gastronomy and valorization of knowledge (know-how), as already happens in other regions [94]. In general, it is interesting to verify the valorization of agricultural landscapes as a tourist resource and their potential for agritourism supported either in activities related to the management of the *Dehesa/Montado*, or the olive grove.

The approaches taken in the study provide valuable insights about the preferences expressed between the physical characteristics of the territory and the aesthetic values of the landscape. Another important contribution of this study consisted of the mapping of the different evaluated scenarios (Figures S1–S3). On the one hand, landscape mapping allows for the identification of generic landscape characteristics, and on the other hand, it allows for the extrapolation of a methodology for application in other areas [47].

The local agricultural heritage is an anchor for the development of cultural tourism [95], which gains a new dimension when analyzed on the territorial scale of the UNESCO natural reserve (Biosphere Reserve). The TINR area integrates this network with its designation as Cross-Border Reserve of the International Tagus, and assumes the challenges of contributing to landscape conservation, ecosystem enhancement, and territorial development. This area also integrates other protected areas, such as the Naturtejo Geopark Network and integrate a Eurobird cross-border project, gaining a new territorial dimension to develop integrated strategies.

Finally, despite the differences in the methodologies applied in this study, it is possible to extract a set of important data to support decision-making, particularly related to planning tourism actions, both by the management agents of the TINR, extending to the whole area of the UNESCO Tagus Biosphere Reserve due to the similarity of landscape attributes (Figure 2). It is important to emphasize that an important contribution of the present study particularly related to the AHP methodology results. As the results show, the holistic perspective of the territory, in its natural and cultural dimensions, reveals a high potential for cultural tourism and agritourism. In fact, contact with the local inhabitants and farmers enhances a set of experiences, opportunities for learning and co-creation that need to be considered by the promoters of recreational activities.

This investigation shows that the cross-border region, particularly the TINR as a natural protected area, has a set of natural and cultural values that are an alternative to mass tourism, starting with the example of a local culture strongly influenced by the local livelihood typical of cross-border areas. Definitely, the landscape is an important

touristic resource, but the demand also highlights its cultural values. In the face of this result, the local traditions, sustainable practices, and know-how related to agricultural activities are strong differentiating elements of this natural park and should be seen as key to local development.

5. Conclusions

The individual perceptions of landscape preferences in the TINR allowed for the extraction of relevant information to assess its tourism potential. First, the application of different methodologies reveals different results, which seems to depend on a more robust contextual analysis as shown by the results of the AHP methodology that confronts landscapes with tourism typologies. It is worth mentioning the importance of the photo pairwise comparison technique to evaluate preferences of attractions. This information provides the basis for establishing weightings to other variables applied in the AHP and that allowed a more detailed analysis of the demand opinion. In the case of preference evaluation without photographical observations, the results seem to depend more on the participants' expectations than on an analysis of the real context.

In general terms, the following considerations about the preference assessment of landscapes using different methods can be highlighted:

- Landscape-based tourism can be seen as the sum of the biophysical and socio-cultural elements of the territory, and can assume different configurations: rural tourism, cultural tourism, agritourism, or oleotourism.
- The attractions "water" and "forest", although they tend to be the most valued by the public seeking natural areas, in this study it was revealed that these resources deserve more attention by local agents to mitigate the actual management models with negative impacts and promote practices that improve their touristic vocation.
- Agricultural landscapes, particularly associated with extensive management systems and traditional practices, promote ecosystem resilience and sustainable productivity while maintaining their heritage and aesthetic values. Their characteristics are valued by the demand and should therefore be integrated with natural areas management policies.
- Agricultural landscapes that configure cultural landscapes characteristics are a distinctive tourist resource of protected natural areas. In TINR, the *Dehesa/Montado* and the "Traditional olive grove" are distinguishing signs, landscapes valued due to their authenticity and traditional character.
- Agritourism, despite its focus on agricultural activity and agri-food products, also encompasses the social, cultural, and economic dimensions that can be considered inextricably linked to generic cultural/rural tourism. This activity can be an opportunity to fix prosperity and preserve traditional landscapes.
- To enhance agritourism in the TINR it is important to reinforce synergies between agricultural owners, the promoters of tourism activities, and tourist accommodations in order to strengthen synergies and create qualified offers taking advantage of agricultural landscapes' multifunctionality.
- Considering that TINR is a protected natural area without borders, cultural/rural tourism gains an opportunity to create products that enhance the history that crosses between the two countries, the cultural ties of the local livelihood, and its gastronomy, specially based on the products of the *Dehesa/Montado*.

To conclude, the development of tourism plans for natural areas should be based on knowledge of landscape preferences. The methodology applied can be replicated in other territorial contexts seeking a sustainable tourism planning approach.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/ 10.3390/land11010068/s1, Table S1: Variables collected in survey used to describe the landscape references; Table S2. Preference matrix for the evaluation criteria; Table S3. Results of Chi-Square Contingency Table Analysis; Figure S1. Landscape preferences by pairwise comparison and AHP methodology; Figure S2. Ranking of landscape preferences evaluated without photo; Figure S3. Ranking of landscape that conveys positive feelings.

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