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# AGROTOURISM AND DEHESAS: A STRATEGY TO FIX POPULATION IN RURAL AREAS OF EXTREMADURA (SPAIN)

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## **Abstract**

The dehesa is one of the main agricultural landscapes present in the autonomous community of Extremadura (Spain). It is a cultural landscape in which a traditional exploitation is carried out through agriculture, livestock, forestry or hunting. However, after the industrialisation process of the 20th century, this type of exploitation experienced a crisis in its productive efficiency, derived from the new changes in life. In this context, public administrations have shown their interest in developing initiatives that contribute to economic diversification, with the aim of maintaining these landscapes and contributing to rural development. Among these proposals is agrotourism. Despite this, in Extremadura there is no specific regulation that defines the aspects that delimit this type of tourism. The aim of the following work is to determine the socio-demographic and economic situation of the municipalities where the dehesa exceeds 5% of their surface area, as well as to analyse the possibilities for the development of agrotourism as a complementary tool to fix the population in these territories. To this end, official sources of information such as the Spanish Statistical Office, the Extremadura Institute of Statistics, the State Employment Service and the Directorate General for Tourism have been used. The data extracted from these sources have made it possible to certify the socio-demographic and economic crisis in which the municipalities

in the study area find themselves, as well as the possibilities that exist in this territory for the implementation of initiatives that promote agrotourism as a complementary activity to agricultural income.

**Key words:** Agrotourism, rural development, dehesa, Extremadura, demographic challenge.

## **AGROTURISMO Y DEHESAS: UNA ESTRATEGIA PARA FIJAR POBLACIÓN EN ZONAS RURALES DE EXTREMADURA (ESPAÑA)**

### **Resumen**

La dehesa es uno de los principales paisajes agrarios presentes en la comunidad autónoma de Extremadura (España). Se trata de un paisaje cultural en el que se realiza una explotación tradicional a través de la agricultura, la ganadería, la silvicultura o la caza. Sin embargo, tras el proceso de industrialización del siglo XX, este tipo de explotación experimentó una crisis en su eficiencia productiva, derivada de los nuevos cambios de vida. En este contexto, las administraciones públicas han mostrado su interés por desarrollar iniciativas que contribuyan a la diversificación económica, con el objetivo de mantener estos paisajes y contribuir al desarrollo rural. Entre estas propuestas se encuentra el agroturismo. A pesar de ello, en Extremadura no existe una normativa específica que defina los aspectos que delimitan este tipo de turismo. El objetivo del siguiente trabajo es determinar la situación sociodemográfica y económica de los municipios en los que la dehesa supera el 5% de su superficie, así como analizar las posibilidades de desarrollo del agroturismo como herramienta complementaria para fijar población en estos territorios. Para ello se han utilizado fuentes de información oficiales como el Instituto Nacional de Estadística, el Instituto de Estadística de Extremadura, el Servicio Público de Empleo Estatal y la Dirección General de Turismo. Los datos extraídos de estas fuentes han permitido certificar la crisis sociodemográfica y económica en la que se encuentran los municipios de la zona de estudio, así como las posibilidades que existen en este territorio para la puesta en marcha de iniciativas que fomenten el agroturismo como actividad complementaria a la renta agraria.

**Palabras claves:** Agroturismo, desarrollo rural, dehesa, Extremadura, cambio demográfico.

# NEKAZALTURISMOA ETA DEHESAK: EXTREMADURAKO (ESPAINIA) LANDA-EREMUETAN BIZTANLERIA FINKATZEKO ESTRATEGIA

## Laburpena

Dehesa Extremadurako (Espainia) autonomia erkidegoan dauden nekazaritza-paisaia nagusietako bat da. Paisaia kultural honetan ustiapen tradizionala egiten da nekazaritzaren, abeltzaintzaren, basogintzaren edo ehizaren bidez. Hala ere, XX. mendeko industrializazio-prozesuaren ondoren, ustiapen-mota horrek krisia izan zuen ekoizpen-eraginkortasunean, bizitza-aldaketa berrien ondorioz. Testuinguru horretan, administrazio publikoek ekonomia dibertsifikatzen lagunduko duten ekimenak garatzeko interesa agertu dute, paisaia horiei eusteko eta landa-garapena bultzatzeko. Proposamen horien artean nekazalturismoa dago. Hala eta guztiz ere, Extremaduran ez dago turismo mota hori mugatzen duten alderdiak zehazten dituen araudi espezifikorik. Hurrengo lanaren helburua dehesak bere azaleraren % 5 gainditzeko duen udalerrien egoera soziodemografikoa eta ekonomikoa zehaztea da, baita nekazalturismoa garatzeko aukerak aztertzea ere, lurralde horietan biztanleria finkatzeko tresna osagarri gisa. Horretarako, informazio-iturri ofizialak erabili dira, hala nola Estatistikako Institutu Nazionala, Extremadurako Estatistika Institutua, Estatuko Enplegu Zerbitzu Publikoa eta Turismoko Zuzendaritza Nagusia. Iturri horietatik ateratako datuei esker, aztertutako eremuko udalerriek bizi duten krisi soziodemografikoa eta ekonomikoa egiaztatzen ahal izan da, baita nekazaritza-turismoa nekazaritza-errentaren jarduerara osagarri gisa sustatzeko ekimenak abian jartzeko lurralde horretan dauden aukerak ere.

**Hitz gakoak:** Nekazalturismoa, landa garapena, dehesa, Extremadura, aldaketa demografikoa.

## 1. Introduction

Tourism is a major economic activity in the global context, as evidenced by global and national figures. By way of example, on a global scale, international tourism alone accounted for a total of 1.5 trillion dollars in revenue at destinations in 2019 and represented 7% of world exports (Turismo, 2021). For its part, tourism in Spain accounted for 12.4% of GDP and provided more than 2.6 million jobs in the pre-pandemic stage of 2019 (Instituto Nacional de Estadística (INE)). These figures have a significant direct impact on the geographical areas in which tourism activity takes place: coastal, urban and rural/natural areas. However, it should be noted that the impact of tourism is not homogeneous from a territorial point of view, given that there are urban and coastal areas where mass tourism has developed, while in rural/natural areas tourist flows are lower (Exceltur, 2023). In any case, tourism can be very important in peripheral or remote rural regions because of its capacity to generate employment and contribute to local development by receiving a significant number of

tourists, as shown by authors from different countries such as Spain (Andrés-Sarasa, 2014). For example, in European Union countries, rural areas accounted for a third of overnight stays in tourist accommodation in 2019 (European Union, 2021).

The development of tourism in Spanish rural areas throughout the 20th century was influenced by general and specific factors. On the one hand, improved accessibility was a determining factor in shortening travel times between urban and rural areas. It was also fundamental that rural territories were seen as recreational spaces, in a context of social demand for quality natural spaces (López Ontiveros y Mulero Mendigorri, 1997) and other types of resources such as landscape, fauna, tranquillity, local culture and agri-food products. Moreover, the development of tourism in Spain's rural areas coincided with a period of crisis in agricultural prices, migratory movements towards the big cities because of the growth of the service sector and irregular industrial development, and a scarce supply of jobs in the smaller towns. For this reason, during the 1960s, a programme called Casas de Labranza (farmhouses) was set up to enable farmers to obtain supplementary income through tourism, offering accommodation at affordable prices to people from urban areas (Guarnido-Olmedo & Vilchez-Carmona, 1997).

However, it was not until the 1990s that there was an exponential growth in the supply of accommodation and demand in rural areas in Spain, while the demographic decline of rural areas continued to be a reality (Herrera, Blanco Romero & Cánoves Valiente, 2005; Ibarra, 2006). This growth must be contextualised in two areas:

-The implementation of rural development policies, one of the fundamental axes of which was support for economic diversification through aid aimed at promoting emerging economic activities such as tourism. In Extremadura, an autonomous community characterised by its low population density, constant population loss and the importance of its primary sector, the role of the Leader programmes, which have been financed by the European Union, was very important in promoting tourism activities. The balance sheets carried out show outstanding investments in this sector, within the framework of the strategies aimed at activating the economy of rural areas (RED EXTREMEÑA DE DESARROLLO RURAL, 2016).

-The growth in demand for rural landscapes in the context of an intense process of revaluation and management (Hernández-Hernández, 2009). In these environments, lifestyles are completely different from those prevailing in urban areas. Sustainable tourism models have been implemented in these areas, based on the existence of multiple resources, including agricultural landscapes and their quality products: olive oil tourism (Tregua, D'Auria, Marano-Malcolini, 2018), wine tourism (De Jesús.Contreras, Thomé-Ortiz, Medina, 2020), certified quality agri-food products (Lopes, Rengifo-Gallego, Leitao, 2021) or dehesa (Sánchez-Martín, Blas-Morato, Rengifo-Gallego, 2019).

One of the tourist activities practised in rural areas is agrotourism, linked to farming and livestock farming. In Extremadura, the abundant presence of dehesas, which form a unique ecosystem in the world from which agricultural, livestock, hunting and timber uses

are extracted, offers the possibility of promoting agrotourism in a scenario of serious demographic crisis in the rural environment (Paniza Cabrera, 2015; Serrano-Montes, J. L., Martínez-Ibarra & Arias-García, 2019).

In this context, the starting hypothesis of this research is as follows: “The rural municipalities in Extremadura that have dehesas show a demographic decline due to the lack of employment opportunities, so that, taking into account the tourism potential of the dehesas, agrotourism is configured as a possible complementary tool that contributes to the fixation of population in these areas”.

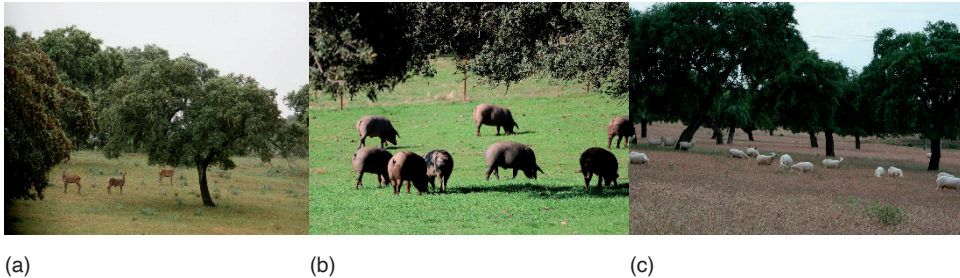
In accordance with the previous hypothesis, the aim of this article focuses on analysing the main demographic variables of the resulting study area, the economic situation, as well as the distribution of tourist accommodation in order to establish a discussion on whether the development of agrotourism can complement the economy of these areas in sustainable terms.

## **2 Materials and Methods**

### **2.1. Study area.**

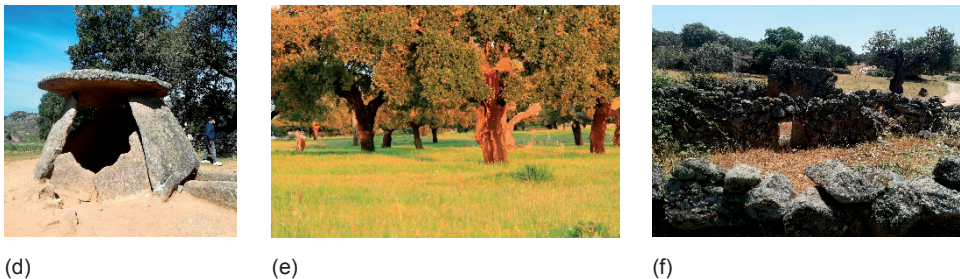
The dehesa is one of the most widespread landscapes in the Extremadura region, covering between 25% and 29% of the regional surface area (López-Rodríguez, Mateos-Rodríguez, 2019). This superficial difference is due to the conceptual nuances that define this ecosystem. In this sense, the Green Book of the Dehesa identifies it as a: “Livestock and/or hunting exploitation system in which at least 50% of the surface area is occupied by grassland with scattered adult acorn-producing trees and with a fraction of the area covered of between 5 and 60%” (Pulido & Picardo, 2010). It follows that this type of cultural landscape is based on the exploitation of agricultural resources, so its conservation is closely linked to the maintenance of these uses and, therefore, to the exploitation of the natural resources that exist in it (Leco-Berrocal, Pérez-Díaz, Mateos-Rodríguez, 2008) (Figure 1 a,b,c).

**Figure 1.** (a) Dehesas with hunting, Aliseda; Torrequemada; (b) dehesa with Iberian pig farming, Aliseda; (c) dehesa with sheep farming, Sierra de Fuentes. Source: Prepared by authors.



Although the natural component predominates in the dehesa, due to its agricultural or hunting use, the amount of cultural heritage to be found in such a considerable area cannot be underestimated. In this sense, it is worth noting that in the cork oak wood pastures there are still ancestral trades, such as cork harvesting, the production of high quality charcoal and, of course, a variety of heritage in the form of monuments from different periods, including vernacular architecture, Mesteño hermitages and Visigothic churches (Figure 1 d,e,f).

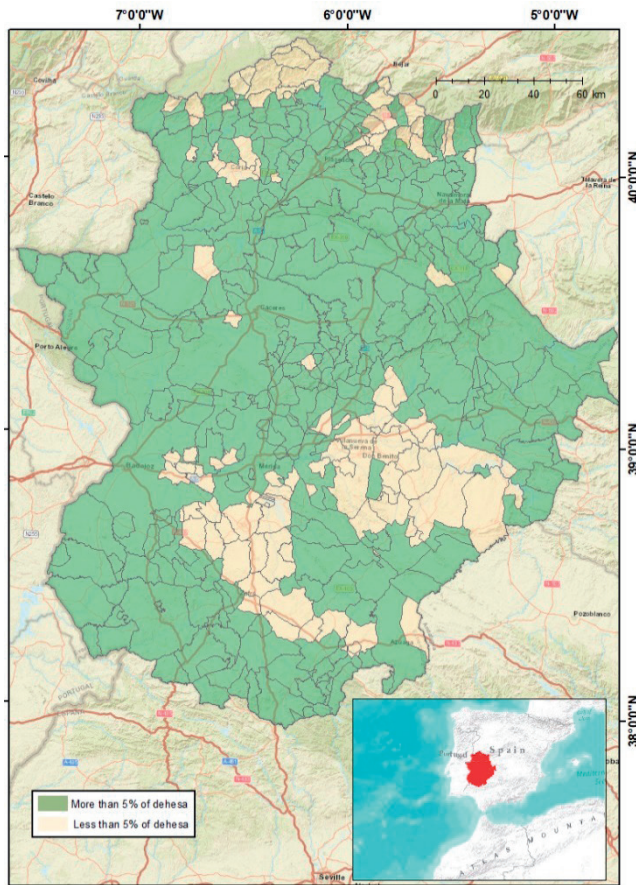
**Figure 1.** (d) Dehesas with vernacular buildings, Valencia de Alcántara; (e) dehesa with cork oaks, Aliseda; (f) Dehesas with ancestral buildings (corralas), Torrequemada; Source: Prepared by authors.



However, the industrialisation of Spain during the 1950s led to a production crisis in the dehesa, following the establishment of new ways of life which had a series of consequences. This was due, among other things, to the substitution of firewood or charcoal for other sources of heat, the constant abandonment of the countryside and traditional practices, and the fall in the price of wool. (De Muslera-Pardo y Cruz-Guzmán, 1980). At the same time, the rural environment was affected by socio-demographic and economic problems, including population loss, ageing and high unemployment rates (Gurria-Gascón, Sánchez-Martín, Blas-Morato, Hernández-Carretero, & Rengifo-Gallego, 2019). These demographic

changes were mainly due to the inability of the rural environment to diversify its economy at an accelerated pace, in line with the changes undergone. These problems have worsened with the passage of time, making it necessary to implement emerging activities that not only contribute to the conservation of these areas, but also act as a complement to the agricultural economy, including the possible development of agricultural tourism (Millán-Escriche, 2002). Against this backdrop, the study area (Figure 2) included in this study is made up of those municipalities in which the area of dehesa represents more than 5% of the total municipal area. This condition is met in 285 municipalities in Extremadura.

**Figure 2.** Study area.



Source: Infraestructura de Datos Espaciales (2021)

## 2.2. Sources of information and survey techniques

The empirical testing of the initial hypothesis to be corroborated in this paper has been carried out using the data published in the information sources shown in table 1.

**Table 1.** Sources of information.

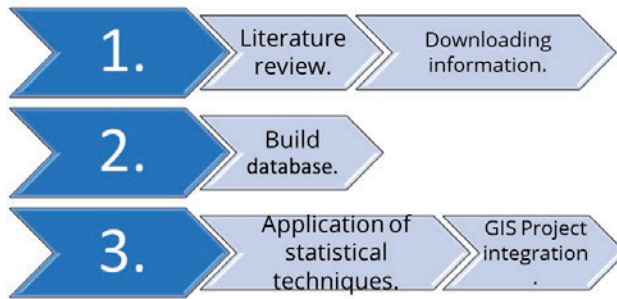
Source	Information	Date
Spanish Statistical Office	Municipal census (population)	2021
Institute of Statistics Extremadura	Population by age group	2020
	Birth rate	2019
	Death Rate	2019
	Household disposable income per capita	2019
Directorate-General for Tourism	Tourist accommodation in Extremadura	2021
State Public Employment Service	Municipal unemployment data	2021
National Geographic Institute	National Cartographic Base 1:100,000	2020

Source: Prepared by de authors

The methodological process was divided into three phases which are described in figure 3. The first of these consisted of reviewing the scientific literature and downloading the data which constituted the base information for this work. Secondly, different databases were created in which the downloaded information was collected according to each of the topics analysed (population growth, birth rate, mortality, ageing, unemployment, economic sectors, and tourism supply). Finally, this information was processed using statistical techniques, specifically univariate and bivariate descriptive techniques, as well as its integration into a GIS project which has enabled the generation of thematic cartography on some of the items analysed.



**Figure 3.** Methodological process.



Source: Prepared by authors.

### 3. Results

#### 3.1. Socio-demographic analysis

The study area is made up of a total of 285 municipalities that represent 73.4% of the localities in Extremadura. Most of them are located in rural areas, as described in Law 45/2007 (BOE, 2007) for the sustainable development of rural areas, the definition of which classifies it as:

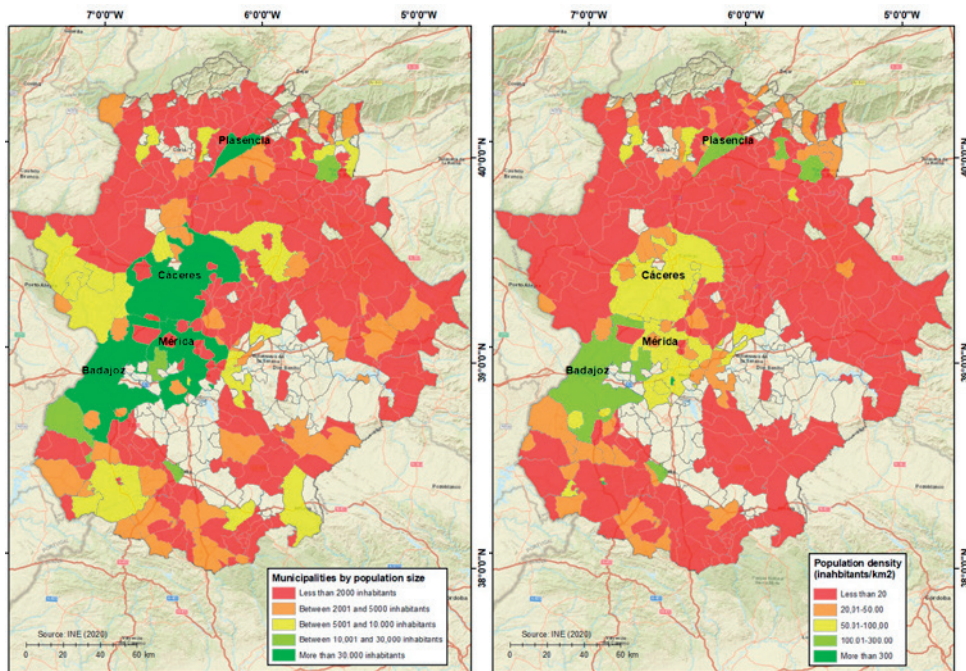
“The geographic space formed by the aggregation of municipalities or smaller local entities defined by the competent administrations that have a population of less than 30,000 inhabitants and a density of less than 100 inhabitants per km<sup>2</sup>”.

Figure 4 shows the predominance of rural areas, where the only localities that reach a population of more than 10,000 inhabitants within the study area and therefore fall into the category of non-rural nuclei are eight (Plasencia, Cáceres, Badajoz, Mérida, Navalmoral de la Mata, Olivenza, Zafra and Montijo).

Population density is another of the variables that allows us to analyse the socio-demographic situation of a territory. Figure 5 shows the low population density of most of the municipalities in the study area, with the exception of Plasencia, Jaraíz de la Vera, Navalmoral de la Mata, Badajoz and Zafra, which have more than 100 inhabitants per km<sup>2</sup>. Some of the factors that may explain these figures are as follows (Gurria-Gascón, Sánchez-Martín, Blas-Morato, Hernández-Carretero, & Rengifo-Gallego, 2019):

- The large surface area of some localities, such as the city of Cáceres or Mérida.
- The predominance of extensive farming systems.
- The concentration of the population in those areas with the greatest economic development.

**Figure 4.** Municipalities by population size. **Figure 5.** Population density.



Source: Prepared by authors based on Spanish Statistitcal Office.

### 3.1.1. Population developments

The evolution of the population residing in the study area shows a downward trend over the last 20 years, such that the average reflects a 16% reduction in the number of inhabitants (table 2). However, this scenario differs markedly from one locality to another, with values ranging from a positive growth of 42% in Romangordo, the municipality with the highest percentage increase in population, to Valdecañas del Tajo, a municipality with a 65% decrease. At the same time, the general characteristics of the study sample highlight the differences between the larger and smaller municipalities, with the former reaching 150,984 inhabitants in 2020, while the smaller one had only 75 residents. Under this scenario, it is interesting to know the particular situation experienced by the population depending on the size of the municipality.

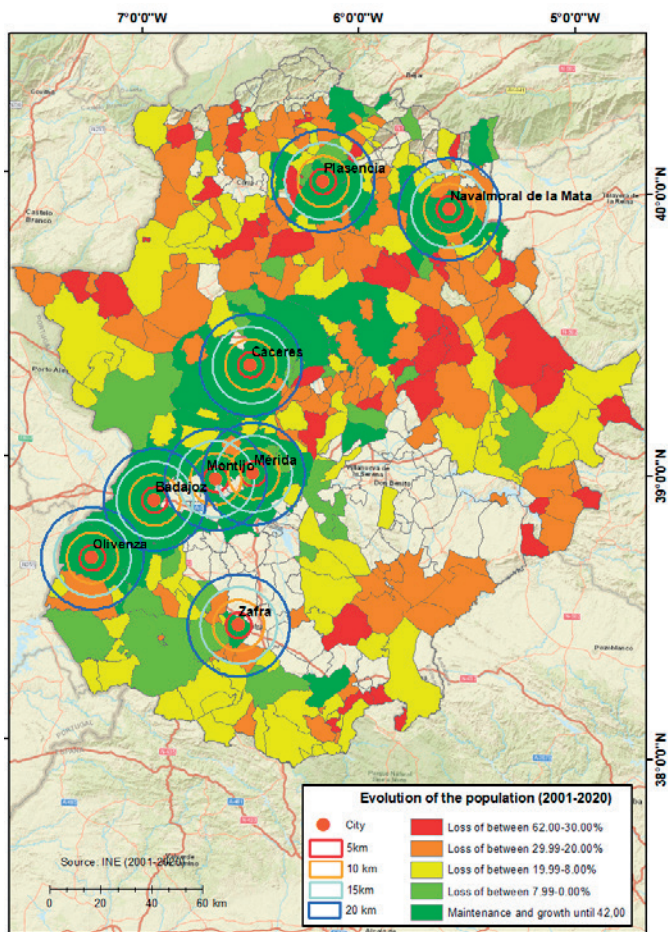
**Table 2.** Descriptive statistical results of the study sample.

<b>Statistics</b>	<b>Total population 2020</b>	<b>Growth 2001-2020</b>
Total number of cases	285	285
Minimum value	75	-65.67%
Maximum value	150,984	42.16%
Media	2,741	-16.09%
Standard deviation	11,458	14.54%

Source: Prepared by authors based on Spanish Statistical Office.

Figure 6 shows the evolution of the population in the municipalities that make up the study area and identifies the influence exerted by Extremadura's cities on the localities located at a distance of up to 20 km. The image expresses the general trend towards growth in those localities considered to be non-rural, including Plasencia, Navalmoral de la Mata, Trujillo, Cáceres, Badajoz, Olivenza, Montijo, Zafra and Mérida, which are joined by other municipalities with smaller populations, located at a short distance from these urban centres. At the same time, the population growth in some municipalities in the north-east of the province of Cáceres, located outside its urban area of influence, is striking. This scenario may be due to the development of rural tourism, which has had a significant impact in these areas as a result of the presence of tourist attractions that are highly valued by demand (Rengifo-Gallego, Sánchez-Martín y Sánchez-Rivero, 2013). On the other hand, the rest of the rural localities are tending towards population loss or stagnation. In the case of the reduction in numbers, it should be noted that this has a greater incidence in the province of Cáceres, most notably affecting the regions of the Sierra de San Pedro and Villuercas-Ibores-Jara. This may be due to the difficult accessibility characteristic of these areas, located on the margins of the main A-5 and A-66 roads, among other factors.

**Figure 6.** Evolution of the population in the study area (2001-2020)



Source: Prepared by authors based on Spanish Statistical Office.

The application of Pearson’s correlation index corroborates the influence of cities within a radius of 20 km (Euclidean distance) on population growth in rural areas (table 3). The results show the existence of a negative correlation between both parameters, in such a way that as the distance from the urban centre increases, the level of growth of the population living in these areas decreases.

**Table 3.** Pearson correlation between population growth and distance to the urban centre.

	Population development	Distance
Population development	1	-0.466**
Distance	-0.466**	1
N=81		
**. Correlation is significant at the 0.01 level (bilateral).		

Source: Prepared by authors.

Table 4 shows in detail the situation of the population according to the size of the municipality. Among the main results, it is striking how, as the size of the municipality increases, there is, at the same time, a constant growth in population. Thus, rural localities show a constant tendency towards population loss, while the main cities in Extremadura tend to increase. This situation is a current problem affecting not only Extremadura, but all European rural regions (Pinilla y Sáez, 2017; (Del Romero Renau, 2018; Vassberg, 1992). The greater supply of services and job opportunities means that the population tends to concentrate in the large cities, leading to a constant loss of population in rural areas. This situation, added to the fact that this type of locality only represents 1.4% of the study area, highlights the worrying trend of population loss experienced by the rest of the localities that represent most of the sample.

**Table 4.** Situation of the population according to the size of the municipality in which they reside.

Population	Number of municipalities	Study area municipalities (%)	Total population	Population (%)	Population development
Less than 2000 inhabitants	231	81.05	169,795	21.74	-18.65
Between 2001 and 5000 inhabitants	30	10.53	96,117	12.31	-9.02
Between 5001 and 10,000 inhabitants	16	5.62	107,390	13.74	-6.19
Between 10,001 and 30,000 inhabitants	4	1.40	61,389	7.85	9.76
More than 30,000 inhabitants	4	1.40	346,647	44.36	13.40
Total	285	100.00	781,338	100.00	-10.70

Source: Prepared by authors.

### 3.1.2. Analysis of socio-demographic variables

In order to carry out the population analysis, it has been necessary to evaluate the situation of some demographic variables, including the proportion of people over 55 years of age, birth rate and death rate. Table 5 shows the results obtained for each of these indicators in the total sample, as well as the data broken down by size of municipality.

The birth rate indicates the number of births per thousand inhabitants in one year (2019) and the trend of this rate can determine the future of each of these municipalities. The average birth rate of the localities that make up the area of this study is 6.92‰, which is very similar to the regional average of 6.97‰. However, if we compare this data with the national average, we can see a drop of almost one point, so that the birth rate in Spain reached 7.62‰ in 2020 (Instuto Nacional de Estadística, 2020). This situation is aggravated in small municipalities (less than 2000 inhabitants) where it falls to 5.11‰. It can thus be seen that the crude birth rate increases in relation to the number of inhabitants of the municipality. These data may be due to the reduced presence in some of these municipalities of young people of childbearing age, since, although the group of people over 55 years of age is high in the whole of the study sample, with an average of 37.65%, ageing is more pronounced in the smaller municipalities.

As with the birth rate, the proportion of people over 55 years of age plays a more prominent role in smaller municipalities. Thus, the average representation of the over-55 age group affects 45.42% of the population in those localities with less than 2,000 inhabitants, while this figure is reduced in large cities (more than 30,000 inhabitants) to 32.88% of the population.

At the same time, ageing conditions the death rate, which represents the number of people who die per thousand inhabitants in a year. This demographic variable is negatively correlated with the size of the municipality, as is the presence of people over 55 years of age. Thus, the death rate decreases as the resident population of a given municipality increases. The sample average is considerably higher than the national average, which stood at 9.18‰ in 2020. However, there are notable differences between smaller and larger municipalities. In this sense, those with populations of less than 10,000 inhabitants show death rates that significantly exceed the national average, while this indicator falls below the national average in the cities present in the study area.

**Table 5.** Behaviour of demographic variables in the study area.

Population	Number of municipalities	Study area municipalities (%)	Total population	Population (%)	Birth rate	Death rate	Over 55 years old (%)
Less than 2000 inhabitants	231	81.05	169,795	21.74	5.11	16.14	45.42
Between 2001 and 5000 inhabitants	30	10.53	96,117	12.31	7.10	13.07	40.26
Between 5001 and 10,000 inhabitants	16	5.62	107,390	13.74	7.17	11.39	37.36
Between 10,001 and 30,000	4	1.40	61,389	7.85	7.78	8.74	32.36
More than 30,000 inhabitants	4	1.40	346,647	44.36	7.47	8.03	32.88
Total	285	100.00	781,338	100.00	6.92	11.47	37.65

Source: Prepared by the authors based on INE data (total population and over 55s, 2020; birth and death rates, 2019).

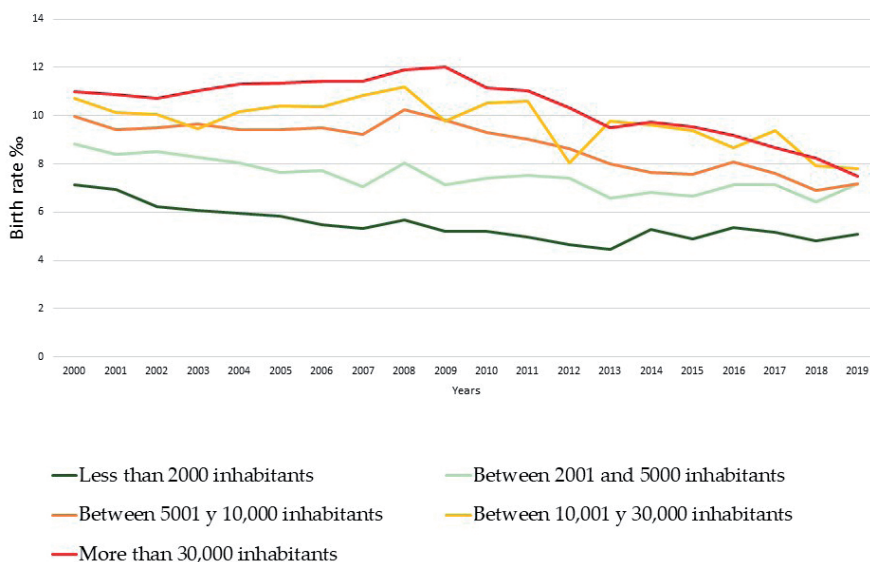
However, the overall situation of these demographic variables has undergone some changes in the period between 2000 and 2020. It is therefore necessary to determine the evolution of each of them.

Figure 7 shows the evolution of the birth rate. The analysis of birth rate trends allow us to make some remarks:

-On the one hand, the cities that make up the study sample (towns with more than 10,000 inhabitants) experienced an increase in this rate until 2008 (municipalities with between 10,001 and 30,000 inhabitants), and 2009 (municipalities with more than 30,000). From this point onwards, there has been a constant fall in the birth rate. These data may be due to the onset of the economic crisis from 2008 onwards, which led to the emigration of a large part of the young population (Díaz-Hernández, Domínguez-Mujica y Parreño-Castellano, 2015), as well as the return of the immigrant population to their countries of origin (Cerrutti y Maguid, 2016; Medina-Moral, Herrarte y Vicens, 2010).

-On the other hand, the smaller municipalities (less than 10,000 inhabitants), which make up the study area, show a fall in the birth rate since the beginning of the 21st century, albeit with some ups and downs.

**Figure 7.** Evolution of the birth rate (2000-2019).



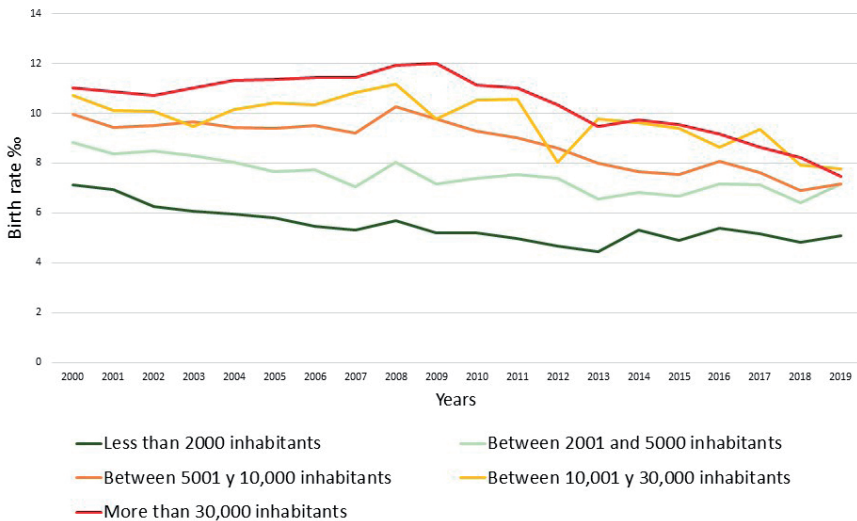
Source: Prepared by authors.

Regarding the death rate (figure 8) shows a very different trend, as detailed below:

- On the one hand, rural municipalities with less than 10,000 inhabitants have a higher death rate, which has been constant since the beginning of the 21st century. This invariable increase, during the first decades of this century, is due to the ageing of the population, which is more evident in this type of municipality than in the cities, due to the lack of generational replacement.
- On the other hand, cities have also experienced a slight increase in the death rate, but not with the same intensity as in the rest of the municipalities. These data are due to the lower percentage of people over 55 years of age in this type of locality.



**Figure 8.** Evolution of the death rate (2000-2019).

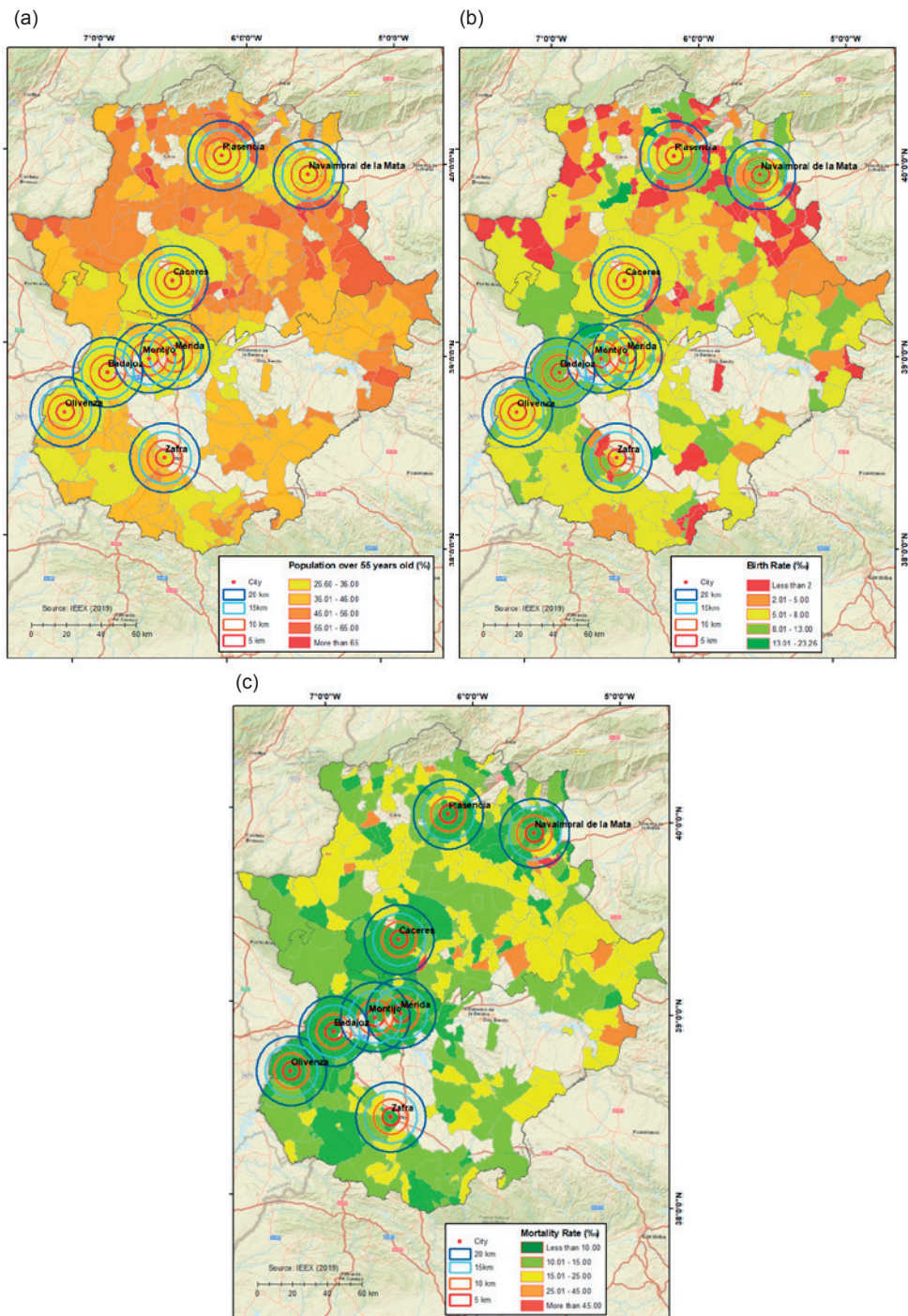


Source: Prepared by authors.

The different behaviour of these variables is not only seen in terms of the size of the municipality, but is also observed, as shown in Figure 9, on a territorial scale. Although the proportion of over-55s is a factor affecting most of the municipalities in the study sample, figure 9a shows how this phenomenon is more widespread in the province of Cáceres. This situation is mainly because the municipalities in this province are smaller than those in Badajoz.

On the other hand, the behaviour of the birth rate (Figure 9b) is another of the serious problems in the study area, since in most of the municipalities it is below 8‰. However, the situation is worse in the localities of Cáceres, where the birth rate falls below 2‰ in most of them. As for mortality (9c), it should be noted that it is low in most of the municipalities in the study sample due to the increase in life expectancy in recent decades, currently standing at 86 years in the case of women and 80 years in the case of men.

**Figure 9.** Demographic indicators. (a) Population over 55, (b) Birth rate and (c) Death rate.



Source: Prepared by authors based on Spanish Statistical Office.

In a complementary manner, an analysis has been carried out to determine whether there is any relationship between the demographic indicators studied and the distance to the cities in the study area (table 6). On the one hand, mortality showed a notable correlation with the rest of the demographic indicators studied. Thus, the proportion of people over 55 years of age is identified as one of the main causes of the increase in the death rate, with a logical positive correlation. At the same time, this parameter is related to the birth rate; however, unlike the case of ageing, this correlation is negative. Therefore, as mortality increases, the birth rate falls. This scenario is not surprising given that those localities with a high death rate are characterised by an ageing population, which leads to a lower presence of young people of childbearing age. Consequently, the results obtained show how the birth rate is conditioned to a large extent by the presence of people over 55 years of age, so that it decreases when this age group increases. However, proximity to urban centres has no significant correlation with any of the indicators.

**Table 6.** Pearson correlation between demographic indicators and distance to the nearest urban centre.

	<b>Mortality</b>	<b>Over 55s</b>	<b>Birth rate</b>	<b>Distance</b>
<b>Mortality</b>	1	0.406**	-0.208*	0.181
<b>Over 55s</b>	0.406**	1	-0.368**	0.106
<b>Birth rate</b>	-0.208	-0.368**	1	-0.063
<b>Distance</b>	0.181	0.106	-0.063	1
**. Correlation is significant at the 0.01 level (bilateral).				
*. Correlation is significant at the 0.05 level (bilateral).				

Source: Prepared by authors.

These data show the critical demographic situation in which most of the municipalities in the study area find themselves and where, at the same time, the dehesa represents more than 5% of their surface area. This scenario highlights the need to create economic alternatives that allow for diversification and, therefore, the generation of employment that will contribute to maintaining the local population.

### 3.2. Registered unemployment and economic indicators.

Unemployment and the lack of job opportunities are two of the factors conditioning the loss of population and the ageing of the rural environment. It is therefore interesting to determine the specific employment situation in the study area.

The data on unemployment by municipality size (table 7) show how, regardless of population size, the average unemployment rate exceeds the regional percentage of 13.12% in all cases (Servicio Estatal de Empleo, 2021). Thus, the average unemployment rate of the study sample, in December 2021, exceeds the regional rate, reaching 14.02% of the active population. Moreover, this unemployment rate is higher among the female labour force, with the average for the sample standing at 29.58%, while for men it is 17.60%.

Among the sectors most affected by unemployment is the service sector, where the average of the total study sample covers 66.35% of the population in this situation. In this sense, as the size of the municipality increases, the incidence of unemployment in this sector rises, due to its greater prominence in large cities. In spite of this, in all cases it is one of the sectors most affected by unemployment, a situation which may be due to the importance of the service sector in Extremadura, where more than 67.62% of companies are related to it (Directorio de empresa de Extremadura, 2019). The same happens in the case of agriculture, because, although the percentage of the unemployed population working in this sector is low, with respect to the total sample, it is necessary to take into account that only 9.55% of the companies under the legal form of limited companies, cooperatives and associations are dedicated to this activity.

Lastly, the ageing that characterises small municipalities means that the unemployed who have no previous activity are under-represented. In this respect, the higher percentage of young people in the larger localities would explain the trend towards an increase in the previously unemployed population there.

**Table 7.** Unemployment by size of municipality December 2021.

Population	Unemployment rate %	Men (%)	Women (%)	Agriculture (%)	Construction (%)	Industry (%)	Services (%)	No previous employment (%)
Less than 2000 inhabitants	14.35	17.42	28.83	13.13	10.80	6.17	66.30	3.60
Between 2001 and 5000 inhabitants	14.86	19.75	36.67	14.20	8.20	6.30	66.40	4.90
Between 5001 and 10,000 inhabitants	13.39	15.86	27.98	13.30	9.17	6.96	65.54	5.03
Between 10,001 and 30,000 inhabitants	14.33	20.01	32.59	14.30	6.32	6.42	66.75	6.21
More than 30,000 inhabitants	13.17	17.12	22.77	6.02	6.93	4.85	74.58	7.62
Study area	14.02	17.60	29.58	13.38	10.29	6.14	66.35	3.84

Source: Prepared by authors based on SEPE.

Regarding household disposable income per capita (table 8), the data show the differences existing between the different municipalities, where a notable increase can be seen in cities with more than 30,000 inhabitants, with respect to the rest of the localities. In fact, these types of municipalities are the only ones that exceed the average household income of 11.768 €/inhabitant in the case of men and 11.595 €/inhabitant in the case of women (INE, 2019).

**Table 8.** Economic indicators of the municipalities in the study area.

Population	Average household disposable income per capita (€/inhabitant)
Less than 2000 inhabitants	10,383
Between 2001 and 5000 inhabitants	9,584
Between 5001 and 10,000 inhabitants	10,143
Between 10,001 and 30,000	11,009
More than 30,000 inhabitants	13,097
Studio area	10,843

Source: prepared by authors based on Atlas socioeconómico de Extremadura 2021.

### **3.3. Rural tourism and agrotourism as economic activities that contribute to the development of the dehesa areas.**

The concept of rural tourism encompasses a multitude of nuances, which is why there are different conceptions due to the different tourism activities that can be practised (Rengifo-Gallego, Sánchez-Martín, Sánchez-Rivero, 2013). As a conceptual reference, this research has taken the UNWTO concept, which states that “Rural tourism is a type of tourism activity in which the visitor’s experience is related to a broad spectrum of products generally linked to nature activities, agriculture, rural lifestyles and cultures, angling and sightseeing” (Organización Mundial de Turismo, 2021). At the same time, the UNWTO notes that rural tourism takes place in rural environments characterised by low population density where activities linked to agriculture and forestry prevail. Despite the lack of consensus in its conceptualisation, this is not the case about the economic benefits generated by this activity in rural areas ( Curcic, Svitlica, Jandzиковic, 2021; Zeng, Ryan, Cui, Chen, 2015). Thus, rural tourism is seen as an opportunity for the economic diversification of rural areas. For this reason, the European Union implemented a series of policies aimed at promoting rural development through measures channelled through the Leader I (1991-1994), Leader II (1994-1999), Leader + (2000-2006) and FEADER (2007-2013 and 2014-2020) programmes. At the same time, at national level, the PRODER programmes (Programme for the Development and Economic Diversification of Rural Areas) were launched for the periods 1996-1999 and 2000-2006 with the same purpose.

In Spain, tourism is a regional competence, so each region has its own legislation when it comes to regulating the types of accommodation defined as rural. In the specific case of Extremadura, these are set out in Decree 65/2015 (Consejería de Fomento, 2015), which identifies two categories: the rural hotel and the rural house. In addition, within the latter typology, two subcategories can be found: the hut and the rural flat. In this scenario, table 9 shows the evolution of the creation of rural accommodation located up to a radius of 5 km from the study area, where since the beginning of the 21st century there has been an exponential growth in the number of accommodations, as well as in the total number of bed places. At the same time, there has been a constant reduction in the size of these accommodations, so that the average number of bed places before the beginning of the 21st century was 14.35, decreasing to 9.95 at present.

**Table 9.** Evolution of the creation of bed places in rural accommodation located within 5 km of dehesa.

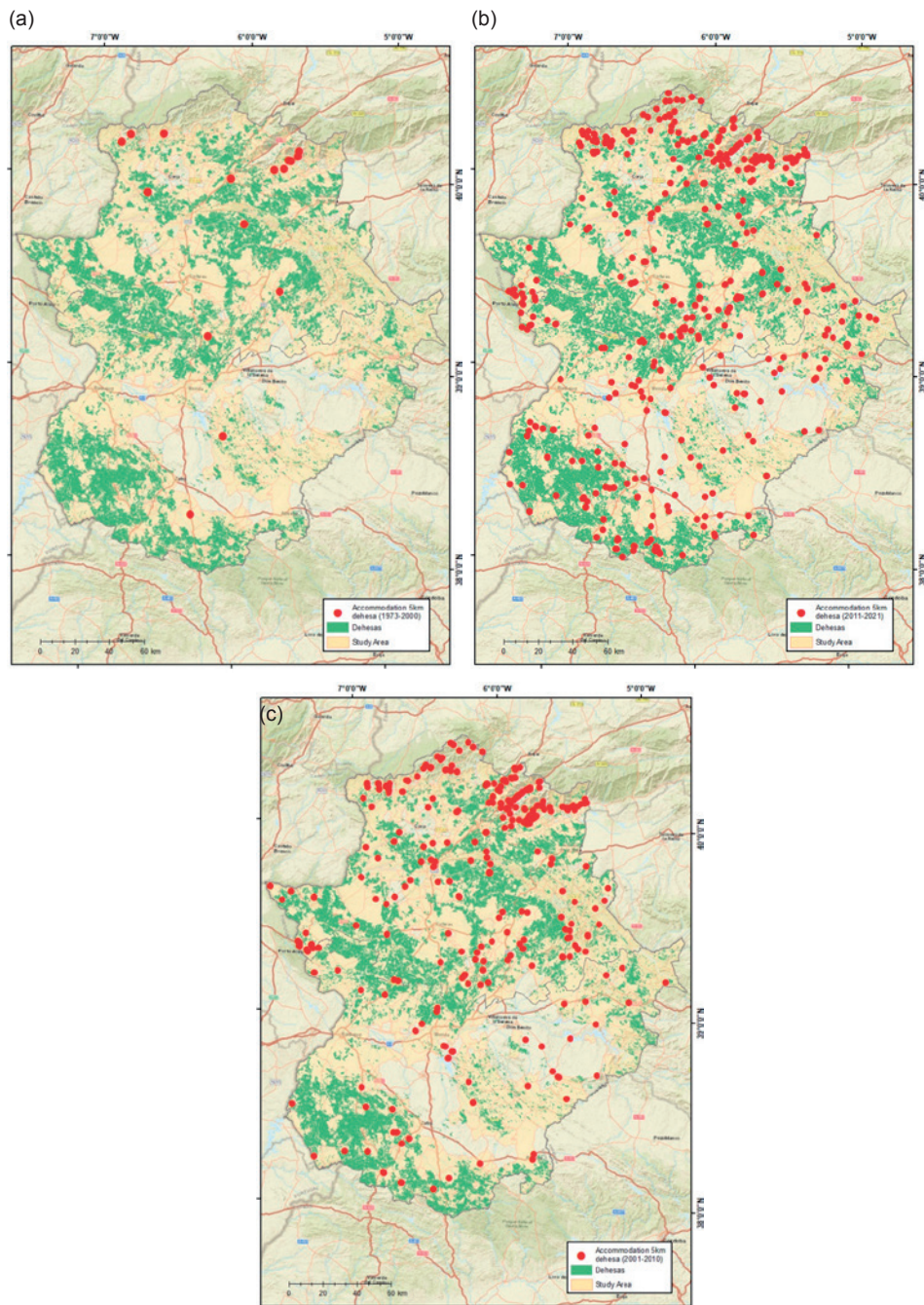
Time interval	Total number of accommodations	Minimum places	Maximum places	Total Places	Average number of places	Standard deviation
1973-2000	17	6	52	244	14.35	11.28
2001-2010	411	2	48	4,703	11.45	7.37
2011-2021	577	2	60	5,056	8.76	6.79
Total accommodation at present	1,050	2	60	10,003	9.95	7.28

Source: Prepared by authors based on Directorate-General for Tourism.

On the other hand, the location of this accommodation (Figure 10) in the study area shows a tendency to be in mountain areas located in the northern part of the province of Cáceres. This situation is not surprising given the great tourist potential of these areas (Rengifo-Gallego, Sánchez-Martín, Sánchez-Rivero, 2013). Despite this, from the beginning of the 21st century onwards, it can be seen how rural development policies influenced the creation of rural accommodation in the rest of the study sample, regardless of their tourism potential. This scenario is repeated in the whole of the Extremadura region, where accommodation has followed a random location strategy without considering the true potential of each of the areas in which it is located (Rengifo-Gallego, Sánchez-Martín, 2019).

**Figure 10.** Evolution of the location of rural accommodation within 5 km of the dehesa areas.

(a) 1973-2000; (b) 2001-2010; (c) 2011-2021.



Source: Prepared by authors based on Directorate-General for Tourism.



Among the specific modalities that are recognised within rural tourism is agritourism. In this case, there is no clear consensus on the definition of agrotourism either, but rather a multitude of concepts (Rodrigues-Ferreira, Sánchez-Martín, 2020; Guerrero-Velasco, Campón-Cerro, Hernández-Mogollón, 2012). This situation, together with the fact that each autonomous community in Spain has its own legislation, gives rise to the existence of many different concepts.

From a regulatory point of view, in the Basque Country it is stated that (Parlamento Vasco, 2016): 'agrotourism consists of the provision of tourist accommodation services with or without catering by farmers and stockbreeders in their farmhouses, integrated into an agricultural holding, at a price'. It specifies that accommodation for agritourism must be located on an agricultural holding, acting as a complementary source of income to the other agricultural or livestock farming activities carried out on that holding. These requirements are also identified in the specific bibliography, which also recognises the economic benefits generated by their development in rural areas (Ponce-Sánchez, 2009; Gómez, Rodríguez y Acosta, 2012; Sánchez-Martín, Blas-Morato, Rengifo-Gallego, 2019; Burbano, Cevallos y Romero, 2020). In Extremadura, there is no specific regulation of this type of tourism, although the regional law establishes the promotion of this type of tourism as one of its main objectives (Junta de Extremadura, 2011). For this reason, the dehesa is identified as one of the main agrarian landscapes with agrotourism potential in Extremadura, where income from tourism can complement income from extensive livestock production (Escribano, y otros, 2006). One of the main objectives of agrotourism is to bring tourists closer to quality agri-food and livestock products (Rodrigues-Ferreira, Sánchez-Martín, 2022), as well as to the cultural and natural heritage of rural areas (Ponce-Sánchez, 2009)

For this reason, a specific analysis has been carried out on the location of tourist infrastructures within the dehesas of the study area, as well as the presence of cultural and natural attractions at an optimum distance from these types of farms, in order to ascertain the current situation and examine the possibilities for the development of agrotourism in the study area.

Despite the economic benefits and the possibilities that the development of agrotourism in the Extremadura dehesa would generate, contributing to the conservation and environmental and social sustainability of these areas, table 10 shows the scarce existence of accommodation that meets the agrotourism requirement by being located within this type of agricultural exploitation. Thus, there are currently only 32 rural accommodations located within dehesa dehesa in Extremadura, with a total of 346 tourist places. Although the evolutionary data show a growth in the last decade, there is evidence of the lack of development of this type of tourism, which could encourage the population to settle in those municipalities with this type of landscape, a situation which may perhaps be determined by the lack of specific policies in the region to promote this type of tourism.

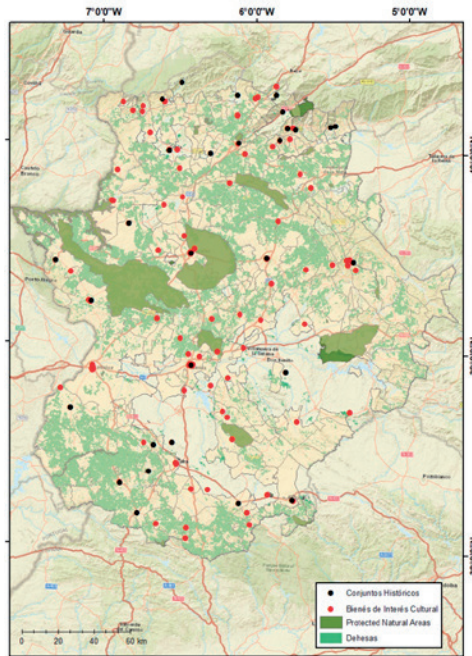
**Table 10.** Evolution of the creation of bedplaces in rural accommodation located within the dehesa.

Time interval	Total number of accommodations	Minimum places	Maximum places	Total Places	Average number of places	Standard deviation
1998-2010	15	2	32	164	10.93	6.56
2011-2021	17	5	18	182	10.71	3.62
Total accommodation at present	32	2	32	346	10.82	5.21

Source: Prepared by authors based on Directorate-General for Tourism.

Despite the scarcity of accommodation located on dehesa farms, Figure 11 shows the potential of this type of tourism in the Autonomous Community of Extremadura, where, in addition to the large surface area of dehesa, the presence of both cultural (protected cultural assets) and natural (protected natural areas) tourist attractions located at an optimum distance of 5 km from these areas is noteworthy. The availability of these attractions would allow the creation of tourist products complementary to those related to agricultural activity. In this way, the agricultural economy could be complemented with the offer of tourist accommodation, as well as complementary activities such as those related to the use of natural resources (hunting, livestock farming, or agriculture), visits to Protected Areas and cultural heritage. At the same time, the economic diversification generated by the development of this type of tourism could act as a tool for the fixation of the population in rural areas.

**Figure 11.** Tourist attractions located within 5 km of the dehesas.



Source: Prepared by authors based on Directorate-General for Tourism.

## Discussion

Rural tourism is an economic activity that has aroused the interest of the scientific community, especially regarding a line of research that analyses its contribution to the sustainable development of rural areas. Proof of this is that the Web of Science contains 594 scientific papers with the words tourism and rural development in the title. The oldest paper dates to 1979, although most have been published in the last 15 years (2007-2022). If the search with identical words is focused on the abstract, the number of papers increases to 3001 references (search 23/03/2022). Among other benefits, rural tourism contributes to transmitting a positive image of the territory, as it is associated with a non-mass activity, to fixing the population and to promoting the maintenance of the essence of rural culture (UNWTO, 2020). In the territory on which this work is focused, many small municipalities have been integrated into the tourism market by opening rural accommodation, improving basic infrastructure, investing in the rehabilitation of cultural and natural heritage assets, and building small facilities such as museums, interpretation centres and tourist information points. Proof of this is that in Extremadura, 261 municipalities, mainly with less than 5,000 inhabitants, currently have at least one rural tourism accommodation, following a period of rapid growth that was particularly intense in the first ten years of the 21st century (Rengifo-Gallego, Sánchez-Martín, Sánchez-Rivero, 2013). These accommodations offer more than

10,000 beds, distributed between the provinces of Cáceres (7,629) and Badajoz (2,555). These figures are representative of the development of rural tourism, although they do not show a homogeneous distribution over the territory, nor are they linked, for the most part, to agricultural and livestock farms in pasture areas. For this reason and taking into account the potential of the dehesa as an agro-tourism destination, and the surface area it represents, specific strategies should be designed for its development. The objectives of these strategic plans must consider the different perceptions of the actors related to this cultural landscape: local population, landowners, and visitors (Silva-Pérez, 2010). In any case, the strategies should contain proposals that go in the following directions:

To increase demand so that, through agrotourism, complementary income can be obtained in addition to the traditional income of the dehesa, which comes from extensive livestock farming, agriculture, and hunting.

To inform the owners of livestock farms in dehesa about the opportunities offered by tourism as a source of income and to contribute to their training.

To promote the conservation of the dehesa agroecosystem, which is enormously valuable from a cultural and environmental point of view, as it is home to a great diversity of protected species and traditional forms of exploitation.

Increasing employment levels in areas where demographic decline is severe.

This last aspect is of particular importance for rural areas that must face, in the short term, important challenges related to demographic decline resulting in a high rate of ageing and loss of young people due to a lack of opportunities. This situation is a cause for concern at European level (European Committee, 2020) as well as in Spain (Economic and Social Council, 2021) and Extremadura (Economic and Social Council, 2019), which is why policies aimed at mitigating this situation are being promoted through actions included in strategies in which tourism undoubtedly plays a leading role. This is shown in recent documents such as the opinion of the European Committee of the regions (2020), which specifies the role of sustainable rural tourism in the construction of diversified rural economies.

In the light of the results obtained in this work and in line with other publications (Sánchez-Martín, Gurría-Gascón, Leco-Berrocal, Pérez-Martín, 2001; Pérez-Díaz, Leco-Berrocal 2013), the dehesas offer an opportunity for agrotourism to contribute to economic diversification and to fix the population in the rural areas concerned.

However, despite the undoubted development potential offered by dehesa areas for tourism, in few cases is the tertiary use of these landscapes used. Undoubtedly, a tourism policy is needed in this regard to enhance their value for tourism, although they are not included in the Second Tourism Plan for Extremadura 2021 - 2023 (Junta de Extremadura, 2021), which aims to establish a sustainable tourism strategy for the region, but only as a mere indication of the possibilities for ecotourism, closely linked to ornithological tourism and even astro-

tourism, ignoring the cultural interest of the same. It is incomprehensible that such a vast expanse of territory should be relegated to a mere complement to other forms of tourism.

## 5. Conclusions

The results obtained in this research allow the following main conclusions to be drawn:

-The number of municipalities with more than 5% of their municipal area under dehesa agroecosystems is numerous (285) and widely distributed throughout the region.

-From the point of view of the number of inhabitants, most of them are small rural municipalities with a population of less than 10,000 inhabitants, although there are eight population centres with more than 10,000 inhabitants.

-The main demographic variables presented by the rural nuclei has a negative trend. Specifically, a gradual loss of population can be seen over the 20-year period studied.

-The behaviour of the eight centres with more than 10,000 inhabitants is different, as they show a dynamism that, in many cases, has been positive.

-On the other hand, the influence of the most important population centres on those rural municipalities located within a radius of up to 20 km has been observed. As a result, it can be concluded that the greater the distance from the most populated centres, the greater the loss of population.

-The low birth rate and the high percentage of inhabitants over 55 years of age are other problems present in the rural municipalities located in the study area, and the results obtained show a negative correlation between both indicators.

-The death rate reaches very similar values in the whole sample, although higher rates have been detected in rural areas in relation to the presence of a higher percentage of people over 55 years of age. Consequently, the natural growth of many populations is negative.

-In addition to demographic problems, the study area has a higher unemployment rate than the regional average and a lower disposable household income per inhabitant.

-Rural tourism has developed considerably in the study area, especially in the northern part of the province of Cáceres. However, the same does not occur with the specific type of agritourism, since in Extremadura there were only 32 rural establishments that could correspond to this category. Despite this, the analysis of the availability of cultural and natural tourist attractions shows the potential of these areas for the development of this type of tourism and the opportunity that this would represent for the creation of wealth and employment with the region.

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