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Adaptation strategies to climate change in the tourist sector: The case of coastal tourism in Spain

Abstract

Tourism activities, that are very important in the Spanish Mediterranean coast since 60s, have been described as highly vulnerable to climate change. Diversification of the tourism and tourist products are often presented as a possible strategy for adapting to the effects of climate change. The present study explores the initiatives in product diversification that are being put into practice in the Spanish Mediterranean coastal tourism sector. To this end, the study focuses on the analysis of the experiences of the rural tourism sector as an alternative to sun-and-sand tourism in the Alt Empordà (Costa Brava, North-eastern Spain). Methodology of this research is based in two aspects: a) desk research of relevant public documents aimed to promote the diversification of the tourist sector; b) regional survey of rural tourism establishments. The analysis reveals a process of diversification that is characterised by spontaneous developments that lack planning and shows an absence of product structuring in accordance with a segmentation of the market. Given these characteristics, the process of diversification that has taken place will not contribute to increasing adaptation's capacity of tourism to climate change or, consequently, to reducing its level of vulnerability.

Key words: rural tourism; sun and beach tourism; climate change; adaptation; diversification; Spain

Introduction

The tourism that has grown along the Spanish Mediterranean coast in the last 50 years constitutes a sector that is vulnerable to climate change. This is a result of its high level of dependence on and sensitivity to the climate and climate change; but it is also due to the lack of spontaneous action undertaken to date to adapt to the direct and indirect impact of the predicted future climate (Ministerio de Medio Ambiente, 2005). Faced with the risk that the situation represents, planned adaptation is the most appropriate response. In this context, planned adaptation is understood as those adjustments that take

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place in the tourist sector in response to the predicted climatic triggers or their effects, and which are the result of deliberate policy decisions that mitigate the harmful effects or maximise opportunities. They are thus based on an understanding that conditions have changed or are going to change and that measures are required to maintain, achieve or return to a desired situation.

Diversification of the tourism and tourist products on offer is often presented as a possible strategy for adapting to the effects of climate change (Belle & Bramwell, 2005; Dubois & Ceron, 2006; Becken & Hay, 2007; Scott, Amelung, Becken, Ceron, Dubois, Gössling, *et al.*, 2008; Scott, Hall & Gössling, 2012). This adaptation strategy, which is to be developed in the fields of policy and management practices and entailing a modification of the business models employed, may be able to enhance the competitiveness and sustainability of coastal tourism as it is practiced in the new changing scenario of the Spanish Mediterranean. The present study explores the initiatives in product diversification that are being put into practice in the Spanish Mediterranean coastal tourism sector. To this end, the study focuses on analysis of the experiences of the rural tourism sector as an alternative to more traditional sun-and-sand tourism in the Alt Empordà (Costa Brava): a Mediterranean coastal area of Catalonia in north-eastern Spain. Within the study area, diversification of the tourism on offer has been suggested by experts and through the tourism policies of both the Spanish government and the regional Catalan authorities – as can be seen from the conclusions of the working groups on Tourism of the respective Programmes of Adaptation to Climate Change: *Tercer Programa del Plan de Adaptación Nacional al Cambio Climático* ("Third National Plan for Adaptation to Climate Change") (Ministerio de Medio Ambiente, 2014) and *Estratègia Catalana d'Adaptació al Canvi Climàtic* ("Catalan Strategy of Adaptation to Climate Change") (Generalitat de Catalunya, 2012b) – as one of the most important options in response to the phenomenon of climate change. These national and regional policies are part of the European Union Strategy on Adaptation to Climate Change (European Commission, 2013), whose definition process started in 2007 with the Green Paper on Adaptation (European Commission, 2007) and continued in 2009 with the White Paper on Adaptation (European Commission, 2009).

This research aims to establish whether the process of diversification of tourism carried out in the Alt Empordà (Costa Brava) within the field of rural tourism has worked and, therefore, whether it has served to increase the capacity for adaptation of the tourist system of this coastal area and reduce its vulnerability to climate and climate change. After this introduction, the defining characteristics of tourism within the area of the Costa Brava are presented, together with some issues concerning its vulnerability to climate change. The issue of the strategy of adaptation related to diversification is addressed; the methodology used for this research is explained; and the results are present, followed by the initial conclusions of this exploratory study.

Study area

Tourism in the Alt Empordà (Costa Brava)

Spain is one of the leading tourist destinations in the world: in 2012 it was fourth in the world in terms of the number of visitors it received and second in terms of income (UNWTO, 2013). The number of foreign visitors entering Spanish territory was estimated at 100 million, of which 60.6 were tourists (IET, 2013). As well as this demand from abroad, Spanish national tourism needs to be taken into

account. According to FAMILITUR statistics (IET, 2012), in 2012 the Spanish went on 158.7 million trips, the vast majority of which (146.5 million) were to a destination within Spain. The leading position that Spanish tourism enjoys has traditionally been based on a model in which the majority of the tourism on offer is specialised in sun-and-sand tourism, which has shifted between the coast of the Spanish mainland, and that of both the Spanish Mediterranean islands and the Canary Islands. Notwithstanding, it should be noted that over recent years (since 1990) coastal tourism in Spain has become progressively more complex and diverse in type, moving away from the traditional idea of it being all mass sun-and-sand tourism and opening up to very different types of tourism (AECIT, 2011).

Catalonia, a region that occupies the north of the Spanish mainland Mediterranean coast, is the most popular destination in Spain in terms of the number of foreign tourists and the second most popular with domestic Spanish tourists. It is therefore one of the most important of the 17 autonomous regions in Spain for the tourist industry (IET, 2012, 2013). Tourism accounts for around 12% of the GDP of Catalonia, making it the most important region in Europe as a tourist destination. Within Catalonia, the area covered by the Costa Brava tourism brand name is second in terms of foreign tourists who visit it (21.1%) and also in terms of the number of overnight stays by foreign tourists (24.8%). Similarly, it occupies the third position in terms of the number of tourists from the rest of Spain who visit and stay overnight (11.3% and 12.7% respectively) (Generalitat de Catalunya, 2012a). In the far north-east of the territory that is covered by this well-known Costa Brava tourist brand name, is the *comarca* (county) of the Alt Empordà which is the subject of this study (Figure 1). The Alt Empordà is bounded by the Mediterranean Sea to the east, the Roussillon and Vallespir (France) to the north, and the Spanish *comarcas* of the Garrotxa and the Pla de l'Estany to the west, and the Gironés and the Baix Empordà to the south. The area has a long tradition as a tourist destination and is an important part of the tourist industry. It consists chiefly of an alluvial plain that is crossed by the rivers Muga and Fluvià; which opens out between the Sierra de Albera in the Pyrenees and a strip of low-altitude land to the north, and the small Sierra de Valldavià and the Montgrí mountain to the south. The territory is therefore characterised by the proximity of both the sea and mountains. The Alt Empordà, with a surface area of just 1,357.5 km², contains a wide selection of different tourist accommodation which gives it an outstanding position within Catalonia and the zone covered by the Costa Brava tourism brand (Table 1).

Table 1
No. of tourist establishments in Catalonia, Costa Brava and Alt Empordà (2010)

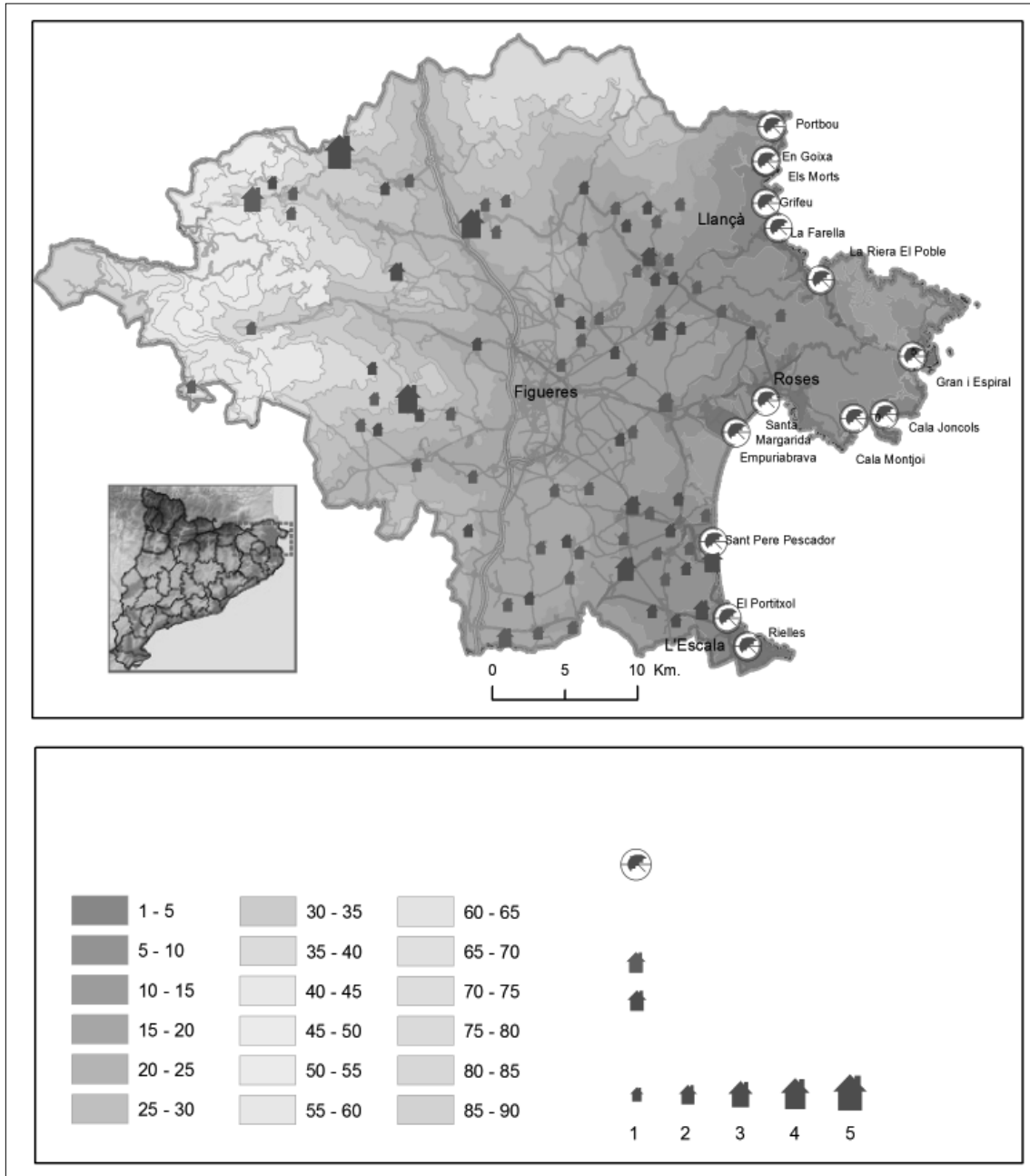
Tourism brand	Hotels				Camping				Rural accommodation group			
	No.	%	Capacity	%	No.	%	Capacity	%	No.	%	Capacity	%
Costa Brava	717	25.4	74,069	25.8	110	30.4	105,513	44.6	370	18.2	3,096	19.5
Alt Empordà*	213		14,537		34		38,385		142		1,184	
Catalonia	2,825	100	286,949	100	362	100	236,667	100	2,029	100	15,847	100

Source: Generalitat de Catalunya (2012a.).

*IDESCAT, 2011 (data corresponding to 2011 for the Alt Empordà).

Figure 1

Isochrones of beach access times and distribution of rural tourism establishments in the Alt Empordà (54 rural tourism establishments interviewed and 52 not interviewed)



In the Alt Empordà, and the whole of the Costa Brava, mass sun-and-beach tourism exploded on the scene in the 1950s and expanded up until the nineteen-eighties. Over that period, the first stage of growth of tourism brought with it a radical transformation of the territorial structure that had existed up until then. There was spectacular growth in the amount of built-up area and a modification of the

system of urbanisation. That has resulted in a high concentration of urban areas near the coast, the construction of homes on a massive scale – especially second homes – , the development of accommodation infrastructure exclusively in the areas on the seafront and a significant growth in the population, although it is not as large as the growth in the built-up area or available housing (Cuadrado, Durà & Estalella, 2006). A more recent stage, which started at the beginning of the 1990s, represents a break from the previous model of development that the area had experienced up until then. Mass sun-and-beach tourism, which is characterised by very strong seasonality, started to show symptoms of saturation due in part to the overall transformations that were taking place in the sector. As opposed to the Fordist model, massive and standard, diversification of the tourism on offer in the area has become preferred and new forms of tourism have sprang up, governed by a quest for difference and greater respect for the natural environment and cultural heritage. In this way, coastal tourism – which up until that time had been limited to a narrow strip right next to the coast and inextricably bound to sun and sand – has moved inland, offering new experiences such as rural tourism.

Hence, we can trace the start of rural tourism in the Alt Empordà back to the early 1990s, with the opening of the first establishments that were closely linked to agricultural activity. The pioneers who introduced rural tourism into the area saw the activity mainly as a means of complementing income from agricultural activity and, in numerous cases, the services offered to tourists went beyond simple accommodation or the letting of a house to include additional catering services (breakfast or half board). From the end of the 1990s and up to the present, the rural tourism sector has experienced a strong growth throughout the whole of the area, just as has happened in the other counties located in the northern half of Catalonia. Growth in the Alt Empordà has been such that at present, it occupies the top position among all the *comarcas* (catalan microregion similar to counties) in Catalonia in terms of the volume of rural tourism on offer, with a total of 142 establishments (106 Rural tourism establishment and 36 Agrotourism establishment) with a capacity to accommodate 1,184 people (IDESCAT, 2011). Such a powerful rise in rural tourism can be attributed to a combination of causes: a) the support the rural tourism sector has received via public policies of local and rural development within the framework of the European Union – the LEADER and PRODER programmes; b) the consolidation of a new model of tourist development characterised by the diversification and complementarity of tourist products and services as a novel strategy of economic and territorial development; c) in the specific case of the Alt Empordà, the presence of a well-developed and consolidated sun-and-sand and also residential tourist destination that leads to synergic development with other types of tourism (rural, active and cultural). In this way, over the last decade there has been a sharp increase in the rural tourism on offer, but the great majority of this – more than 70% of the accommodation – is not connected with agricultural activity. The type of tourist accommodation that is predominant is apartments or houses for hire.

Vulnerability of tourism to climate change in the Alt Empordà (Costa Brava)

Studies of climate change in the Costa Brava (using the model HadGEM1; scenario A2) indicate that, in the coming years, the temperature will tend to increase, as it already has over recent years

(1975-1998: +0.7°C/decade); the spatial and temporal variability of the precipitation will increase; and the sea level will continue to rise (2.5 mm/year over the last 15 years) (Ribas, Calbó, Llausàs & López Bustins, 2010). Regional forecasts for the period 2010-2050 suggest that in this study area the temperature will increase by an average of 1°C -1.5°C, while that change could reach 3°C-4°C for the maximum summer temperatures. These changes in temperatures are predicted to be more pronounced in inland areas than on the coast. Precipitation will decline considerably, with a possible reduction of up to 40% over the summer (Ribas *et al.*, 2010).

Theoretical studies of the possible effects of climate change on different coastal factors also indicate that small changes in the parameters that define the impact of wave action on the coastline, together with the possible increase in the mean sea level, could have important consequences on the coastal region. The most important effects that climate change may have on the beaches in the study area are: on the one hand, a variation in the flood level with values of between 0.1 and 0.15 metres; and, on the other, a receding coastline (Losada, Baquerizo, Santiago, Ávila, Moreno & Ortega, 2008; Ministerio de Medio Ambiente, 2004).

The predicted changes in the study area could have a direct and an indirect impact that may affect the tourist sector in opposing ways. Changes in climate parameters mentioned will cause significant changes in climate-tourism potential of the area. These could materialize in a favorable expansion of tourist seasons due to the extension of the length of the summer (with a decrease in comfort levels) and, especially, spring and fall (Amelung & Viner, 2006; Gómez-Martín, Armesto-López & Martínez Ibarra, 2014; Moreno & Amelung, 2009; Ruddy & Scott, 2010). This new scenario could represent an opportunity to reduce the strong seasonality that has traditionally characterised the tourist sector in the Costa Brava region (Gómez-Martín & Martínez Ibarra, 2012; Hein, Metzger & Moreno, 2009; March, Saurí & Llordès, 2013). In contrast, the reduction in precipitation could lead to a reduction in the water supply that would make it necessary to reassess tourism development models and to reassess management of the current water resources in order to deal with the future, possibly increased, demand for water (Ayala-Carcedo & Iglesias, 2001; García-Ruiz, López, Vicente, Lasanta & Beguería, 2011; Gössling, Peeters, Hall, Ceron, Dubois, Lehman & Scott, 2011; Hof & Schmitt, 2011; Iglesias, Garote, Flores & Moneo, 2007; Iglesias, Garote, Diz, Schlickerieder & Martín, 2011; Rico-Amoros, Olcina & Saurí, 2009).

The results of changes in the parameters that define the effects of wave action on the coast, together with a possible increase in the average sea level, could have important consequence (Ribas *et al.* 2010; Vargas & Salat, 2007). This is especially true if we take into account the fact that coastal municipalities in the Alt Empordà, which represent just 18.6% of the territory in the *comarca*, are home to 38.3% of the population, 44.5% of the establishments offering tourist accommodation, 88.1% of the beds and the majority of the tourism facilities and infrastructure. These municipalities, which are extremely exposed and which operate according to a model of tourism that is highly sensitive to climate and climate change, would be highly vulnerable compared to the inland municipalities in the area, which would be somewhat less vulnerable due to the greater distance that separates them from the coast and their (apparent) different territorial and tourism structures.

Diversification of tourism as a strategy of adaptation to climate change in the Alt Empordà (Costa Brava)

Adaptation, together with mitigation, is the response that the tourism sector has in order to deal with the positive and negative effects of climate change. Adaptation can allow opportunities to be maximised while reducing the threats the phenomenon poses. In the field of adaptation, there are six areas of intervention within which the tourist sector can work (technology, management, policy, knowledge, education and behaviour). It should be understood that the measures taken in each one of these areas can be aimed at the different agents involved in the tourist experience; and also that the measures of adaptation are to be implemented across the board at all levels (Scott *et al.* 2008).

The diversification of tourist products is named as one of the basic strategies of adaptation to climate change in the fields of policy and management practices as well as business models (Scott *et al.* 2008). This measure, which can extend different product lines into a tourist destination or region (products with different atmospheric requirements and less dependency on weather conditions), could give the sector less vulnerability to climate change and climate variability (Belle & Bramwell, 2005; Dubois & Ceron, 2006; Becken & Hay, 2007; Moreno & Becken, 2009). Diversification of tourist products could also reduce the seasonality of the tourist industry and expand the area available for tourism. Both of these factors would reduce the risks posed by the effects of climate and climate change for tourism.

As other authors have noted (Scott, De Freitas & Matzarakis, 2009), research into strategies of adaptation to the phenomenon of climate change in the tourist sector are few compared to the measures adopted by other sectors of the economy. There are many studies in the literature that assess the effectiveness of some of the strategies of adaptation that exist to reduce the vulnerability of the tourist sector to climate change. The majority of them focus on the skiing sector of the tourism industry and assess the short- and long-term effectiveness of strategies related to the artificial production of snow (Elsasser & Burki, 2002; Scott, McBoyle & Mills, 2003; Steiger, 2011; Steiger & Trawöger, 2011). Papers that evaluate actions related to strategies of diversification of tourist demand and the tourist products on offer represents a minority (Scott & McBoyle, 2007; Scott, Lemieux, Kirchhoff & Milnik, 2011). In the case at hand, coastal tourism, it should be noted that there have been few studies that aim to assess the measures of adaptation implemented at tourist destinations in order to reduce vulnerability to climate change (Becken, 2005; Uyarra, Côté, Gill, Tinch, Viner & Watkinson, 2005) with none at all examining the strategy of diversification.

In the studied area, the guidelines and plans that set out tourism policy at both the national and regional levels take the problem of climate change into account. It is considered from the point of view of both adaptation and of mitigation (Ministerio de Medio Ambiente y Medio Rural y Marino, 2011; Generalitat de Catalunya, 2012b), in accordance with the Programmes of Adaptation to Climate Change that are being implemented at both levels. In reference to adaptation, the Spanish Tourism Plan 08-12 (developed within the framework of the Spanish Tourism Plan Horizon 2020) includes within its *Sustainability of the Model* section, the programme "Reducing Seasonality and Socio-territorial Readjustment" that aims to add value to those resources that promote the socio-territorial balance of tourism, creating new categories of products that are capable of operating all year round and reducing the seasonality of the industry. Similarly, the Spanish Integrated Plan for Tourism 2012-15, in order

to achieve the desired vision of "Destination Spain", establishes a series of objectives for the Spanish tourism sector that will be backed by a set of measures. Objective 7, aims to promote the reduction of the seasonality of tourism improving and diversifying the tourist products on offer. In Catalonia, the Strategic Plan for Tourism incorporates the predicted impact of the climate, together with the measures for adaptation to it, and considers diversification and reducing seasonality as two vital fronts for action.

However, in the face of climate change and when considering strategies of adaptation for the tourist sector, it is at the local level that we find the majority of instruments and measures that can be put into action. The Local Agenda 21 programmes that are drawn up by local administrations are the basic instrument for channelling, via municipal policy, sustainable development in all the different ambits (social, environmental and economic). For the specific case of the Alt Empordà, it is the Diputació de Girona provisional authority together with the local municipalities who, since 1998, have driven the process of drawing up and approving the Local Agenda 21 programmes. The internal structure of the Local Agenda 21 programmes is always very similar and they all start with an initial diagnostic study to then draw up the Local Plan of Action. The Local Plan of Action defines basic strategic axes and each strategic axis establishes one or more programmes of action that cover a series of very specific short-, medium- and long-term actions, with a description of each one. Fighting climate change, increasing awareness of its probable impact on the tourist sector and building preventive actions into tourist policies (promoting local economies through tourism with a diversity of products, less seasonality and greater quality) are recurrent strategies throughout practically the entirety of the Agenda 21 programmes analysed. With respect to their territorial implementation, at the beginning of 2012, 50 of the 68 municipalities that make up the Alt Empordà (nearly three quarters) had approved their respective Local Agenda 21 programmes and the remainder were either in the process of initial studies or were drawing up their own Agendas.

However, the diversification of product lines, in addition to being conceived as a strategy for tackling climate change, is also a basic practice in order to counter the bankruptcy of the mass model of sun and sand. Diversification is a primordial strategy in many coastal destinations for overcoming the limitations of the cash crop that the sun-and-sand product represents and for renovating, redesignating and restructuring many consolidated tourist destinations (Getz, 1998; Sharpley, 2002; Bramwell, 2004). In the Alt Empordà, as explained in the preceding section, diversification is a strategy that has been adopted since the 1990s to keep tourists loyal to this destination and also to attract new tourists. That is how coastal tourism in the Alt Empordà, which until then was limited to a thin coastal strip and bound almost exclusively to sun and sand, started to spread inland with new offers, including rural tourism.

At first glance it would seem that the diversification of the tourist products and tourism on offer that was put into practice in the Alt Empordà one way or another, should improve the capacity for adaptation of the tourist sector faced with the uncertainties of the climate and climate change. The capacity of adaptation refers to the degree of preparation that the tourist system has undergone to adjust its characteristics or behaviour in order to be able to stand up to the changes brought about by present climate variability or future changes in the climate. The increase in the capacity of adaptation of the tourist sector in the geographical area in question should reduce its vulnerability when faced with climate change. The present work aims to verify or reject that hypothesis.

Methodology and data

Our objective was to examine whether the process of diversification in the tourist industry that has taken place in the Alt Empordà in the field of rural tourism has increased the capacity of adaptation of the tourist system and, consequently, reduced its vulnerability to climate change. To this end, 54 people were surveyed by means of a structured interview. Interviews were conducted face to face, although in a few cases, due to restricted availability of the interviewee, they were conducted over the telephone. The subjects were selected by simple random sampling from the owners of rural tourism establishments (106) that are integrated within the rural accommodation group (therefore, agrotourism establishments were excluded) in the Alt Empordà according to a list provided by the *Departament d'Empresa i Ocupació* (Department for Business and Employment) of the Generalitat de Catalunya regional authority. The theoretical size of the probabilistic sample depends on the values used in the population variance (maximum indeterminacy, $p=50%$ and $q=50%$), the confidence level ($\pm 2\sigma$ of the mean value for the normal distribution curve, which covers 95.5%), the sample error ($\pm 2%$) and the size of the universe (106 establishments).

9.2% of owners surveyed made the opening of business in 1990-1995, 33.3% in 1996-2000, 20.3% between 2001 and 2005, and finally, 37.2% at made after 2005. Report the same way that 50% of owners surveyed were female, 18.5% were men and 31,5% were female and male. 18.5% of the owners were aged less than 40 years old; 38.9% aged between 40 and 55 years old, and 42.6% were over 55 years old.

The interview consisted of 60 questions – both open and closed – organised by subject into different blocks that covered aspects related to the perception the owners of this type of tourist establishment had of climate change; and there were several questions related to adaptation and mitigation. In this paper, only those results that relate to the block of questions that examined strategies of adaptation related to the diversification of tourist products are presented. It should be noted that in addition to the interview, the visit included a visual inspection of the establishments and an analysis of their web pages.

We wanted to be able to relate the answers supplied by the owners of the establishments to their position with respect to the seafront. Therefore, we drew up a map of the Alt Empordà showing the time required to access the nearest beach from the whole of the territory, divided into zones of similar access times, and showing the location of the rural tourism establishments within these isochrones (Figure 1). The accessibility isochrones were established by calculating "service areas" using the Network Analyst module of the ArcGis 10 software package. The transport network was generated based on points of origin from the 1:25,000 Topographic Map of Catalonia (*Mapa Topogràfic de Catalunya*; ICC) and on a digital model of the territory generated from the 1:5,000 Topographic Map of Catalonia (*Mapa Topogràfic de Catalunya*; ICC). The layer of network positions used to calculate the service areas corresponded to 15 specific beaches or creek destinations, with coordinates in the ETRS 89 system of reference.

The attributes assigned to the transport network were: hierarchy of routes (divided into three levels), theoretical speed (km/h) and actual or topographic distance (metres). In addition, the parameters of time in minutes (time to travel by road) and permitted directions were used as impediment costs.

Results

Temporal distribution of demand at rural tourism establishments

When the interviewees were asked about the temporal distribution of the tourists who visit their establishments, they all (100%) indicated that the months with the maximum number of clients staying there were August, July, June and September. Furthermore, the second peak in demand coincided with the Easter holiday period. This seasonal distribution, as indicated by the owners of rural tourism establishments, coincides perfectly with the calendar of sun-and-sand tourism activity in the area: throughout the summer period is when those in charge of managing the beaches (generally the town councils) aim to provide all the services and equipment that will guarantee the safety of users and facilitate their enjoyment of these spaces. These services are set in motion according to a calendar of use established by the competent administration: for the majority of the beaches in the Alt Empordà these services start towards the end of May and continue through until the second half of September (at some urban beaches along the coast of the Alt Empordà the season extends into the first half of October to coincide with the festivities celebrated throughout Spain on Columbus Day: 12th October) (Martínez-Ibarra & Gómez Martín, 2012). The data provided by the Spanish Institute of Statistics (*Instituto Nacional de Estadística*) and previous research in the same field (Armesto, Cors & Gómez-Martín, 2011) are in agreement with the answers provided by the owners: the seasonality experienced by rural tourism in the Alt Empordà and the Costa Brava in general is very similar to that of the traditional sun-and-sand tourism (Table 2).

Table 2
Monthly distribution of overnight stays as percentages of the annual total in the tourist region Costa Brava (2011)

	Months											
	J	F	M	A	M	J	Jl	Au	S	O	N	D
Rural tourism establishments (%)	2.0	2.8	3.6	7.5	7.4	10.6	16.0	27.5	5.5	6.0	4.5	6.7
Hotels (%)	1.1	2.3	4.2	8.6	8.0	12.8	18.0	20.3	12.7	7.4	2.6	2.0

Source: IDESCAT (2011).

Motives driving demand at rural tourism establishments

When the interviewees were asked about what motivates the tourists who stay at their establishments, they indicated that their clients give considerable importance to peacefulness and tranquility (73%) and medium being in natural surroundings and the quality of the environment (64%); with little importance given to the possibility of interact with local families (83.5%) (Table 3). According to studies carried out on the profile of the demand for rural tourism in Spain, contrary to the findings in this case, all these motives are usually assigned very high levels of importance in this sector (Barke, 2004; Díaz, Molera & Albadalejo, 2004; Molera & Albadalejo, 2007).

Table 3

Motivation behind tourist demand at rural tourism establishments

Motivation	Degree of importance	%
Peace and quiet	High	73.0
	Medium	16.0
	Low	11.0
Natural surroundings and environmental quality	High	15.0
	Medium	64.0
	Low	21.0
Contact with locals	High	1.0
	Medium	15.5
	Low	83.5

We also found that 73% of the owners said that the tourists staying at their establishments were more interested in practicing leisure activities related to sun, sand and sea (sunbathing, swimming in the sea, diving, surfing, sailing, kitesurfing, kayaking, etc.) than in practicing activities associated with rural tourism (taking part in agricultural or farming tasks, hiking, horse riding, cycling, etc.). In fact, they indicated that during the high season, the tourists staying at their establishments went to the beaches within the *comarca* almost every day, setting aside only the odd day for cultural activities or leisure activities involving the rural surroundings or protected natural spaces nearby (in the Alt Empordà there are three protected nature sites with a high ecological value: Els Aiguamolls de l'Empordà Natural Park, Cap de Creus Natural Park and L'Albera Natural Habitat of National Interest).

Characteristics of the rural tourism activities on offer

The activities connected with rural tourism are a first-order factor when it comes to attracting tourists. In general, the activities have been divided between those that are practiced within the establishments and those that take place elsewhere. In connection to the former, it should be noted that in order for the accommodation to be not solely a place to rest and sleep, the establishment must be equipped for tourists to engage in various activities. Such activities can be of a very general character (reading, attending concerts, sampling local produce, painting or photography courses, etc.) or they can be more specific to a rural tourism setting (routes on horseback, trekking, taking part in agricultural or farming tasks, etc.). Rural tourism establishments must also be capacitated to provide information (through their web pages or *in situ*) relating to other companies that carry out activities either in the specific rural tourism setting, or in a broader tourism framework.

The analysis of the rural tourism activities on offer in this specific sample within the study area indicated that these are scarce and poorly articulated. This is not the case for activities linked to the weather, the sea and the beach. Thus, of the 54 establishments analysed, 26% offered no on-site activities of their own (either general or more specific in character), and neither did they offer information on outside companies organising rural tourism activities or any others. We found that 48% of the establishments offered no on-site activities of their own (either general or more specific in character) although they

did offer information on outside companies that organise activities, within which those that specialise in activities that take place along the seafront predominated. Only 6% offered their own activities of a general character as well as information on outside companies that organise activities related specifically to rural tourism or more general activities. Finally, 20% of the establishments offered their own activities specifically related to rural tourism as well as information on outside companies that specialise in rural tourism activities.

Rural tourism: An alternative to sun-and-sand tourism or complementary to it?

The owners of rural tourism establishments were asked whether their business was conceived as an alternative to the more traditional sun-and-sand tourism with a customised set of specific activities on offer that fitted the rural tourism business model; or whether, in contrast, it was conceived as complementary to the main activity of sun-and-sand tourism and therefore aimed chiefly at the sun-and-sand segment of tourists with few activities on offer associated with rural tourism. The majority of the interviewees (67%) considered that their rural tourism business was complementary to sun-and-sand tourism. The other 33% considered that it was an alternative.

From the analysis of the relation between the responses given and the spatial distribution of the establishments with respect to access to the seafront, it should be noted that 44% of the owners of establishments located less than 15 minutes from a beach said that they saw their activity as an alternative to sun-and-sand tourism; and the other 56% of them saw it as complementary to it. For establishments located more than 15 minutes from the beach, 23% of the owners considered their activity as an alternative to sun-and-sand tourism; and 77% saw it as complementary. These results, which at first sight seem to fly in the face of all spatial logic, can be understood if we bear in mind that none of the rural tourism establishments in the Alt Empordà is located more than 60 minutes from the beach.

Degree of dependency of rural tourism on sun-and-sand tourism

The interviewees were further asked to assess, on a scale of 0 to 10, the degree of dependency of their business on sun-and-sand tourism (with 0 being totally independent of it and 10 signifying total dependency). The most common assessment, accounting for 28% of the owners' responses, was 6; and responses of 6, 7 and 8 together accounted for 52% of the answers (Table 4). Assessments of 0 to 4 accounted for 20%; 5 for 24%; and scores of 6 to 10 were awarded by 56% of the owners. As a general reading of these data, it could be said that the owners of rural tourism establishments in the Alt Empordà recognise a considerable dependency of their business on sun-and-sand tourism; with, in this case, a qualification relating to the distance from the seafront. This spatial tendency can be seen in the fact that of all the establishments located less than 15 minutes from the beach, 12% gave dependency scores of less than 5; 38% awarded a 5; and 50% gave a score of more than 5. This is in contrast to the establishments further from the beach (those located more than 15 minutes away): 36% gave scores of less than 5; 5% awarded 5 exactly; and 59% of the owners assessed the dependency of their business on sun-and-sand tourism by a score of more than 5.

Table 4

Assessment of the degree of dependency of rural tourism in the Alt Empordà on sun-and-sand tourism

	Scale										
	0	1	2	3	4	5	6	7	8	9	10
Degree of dependency (%)	1.9	3.7	9.3	1.9	3.7	24.1	27.8	16.7	7.4	0	3.7

Conclusions

Diversification of tourist products is cited as one of the basic strategies of adaptation to climate change in the fields of policy and management practices as well as business models. This measure, which can extend different product lines into a tourist destination or region (products with different atmospheric requirements and less dependency on climate conditions), could give the sector less vulnerability to climate change and climate variability. Within the area included in this study, a process of diversification was observed that is characterised by spontaneous development that lacks planning and shows a lack of structuring of products in accordance with a segmentation of the market. With these characteristics, the process of diversification that has taken place will not contribute to increasing the capacity of adaptation of tourism to the climate and climate change and, consequently, to reducing its level of vulnerability.

In the case of the Alt Empordà (Costa Brava) studied here, and in reference to rural tourism, it can be seen that the process of diversification that has taken place has not functioned as such. In this study area, the predominant process of diversification of the products on offer consists of promoting and enhancing tourist resources that are complementary to sun-and-sand tourism at the costal destinations. It is, therefore, very closely linked to weather conditions and very close to the coastline. Despite the efforts made to implement new activities in the territory linked to the specific practices of rural tourism, there has not been a sufficient increase in the tourist products on offer and they have not been packaged as a tourist product that could exist in the market separate from the star sun-and-sand product. In short, in the light of the claims of the owners of this type of establishment, the rural tourism developed in the area functions more as a complement to the main activity of sun-and-sand tourism, or even simply as a new type of accommodation for it – more economical and with a slightly different feel to it – than as an alternative. But rural tourism should not be reduced to accommodation. For rural tourism to become an alternative form of tourism that aids the diversification of the tourist products on offer, it must connect with its rural surroundings (Cánoves & Villarino, 2000; Pulido & Cárdenas, 2011). That is to say, it must offer the chance to connect with the local people and get to know the particularities of the territory and its landscape, to create and promote activities linked to the rural surroundings and move towards the creation of a specific product. For this to happen, the national, regional and municipal tourist administrations must get involved not only in the creation of political frameworks for intervention, but also in the planning and creation of the product; tasks that do not correspond only to the owners of the establishments themselves.

On the other hand, the process of the diversification of the tourist products on offer does not seem to have been accompanied by a parallel process of diversification of demand; that is of capturing new segments of the market motivated by things other than sun and sand. It would be extremely difficult for

this task to be successfully tackled by a sector whose business structure is characterised by fragmentation and the predominance of small family businesses. That is why greater involvement of public administration is needed in this process. This aspect, which seems to be of the utmost importance if the process of diversification of the products on offer is to be successful, is all too often overlooked in strategies of adaptation to climate change within the area of intervention of policy and management practices, as well as that of the predominant business models. That is why the strategy in question should target the process of *diversification of tourist supply and demand* and not simply the *diversification of the supply*.

In short, in the product diversification that has taken place in this coastal region, certain inertial forces that impede the process can be detected, including: a) a continuing and excessive emphasis on leisure products and modalities that are complementary to the traditional formula of sun and sand, instead of the consolidation of alternative and different products such as rural tourism; b) a lack of specific action related to some intervention policies, together with the evident lack of coordination between public policies and the measures taken by businesses on the ground; and c) the influence of a consolidated tourist brand – Costa Brava – with an image that is fundamentally linked to sun-and-sand tourism.

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