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# Local Development in Mediterranean Mountain Areas and Protected Spaces in Spain: Opportunities and Dangers

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## ABSTRACT

From the standpoint of local development, this paper analyses the factors impeding Mediterranean mountain areas from benefiting from the opportunities offered by their designation as protected natural areas. In addition, it describes opportunities for improvement, taking into account the Europe 2020 Strategy and the Natura 2000 network. Focusing on a natural park in southern Spain, the analysis highlights the following causes of the above problem: the weak interaction between local human capital and park management systems; the scant involvement of users of the park's public facilities in the local economy; and low level of visitor's interest in the biodiversity values offered by the park, in clear contradiction with the goals of its management body. To overcome these shortcomings, we propose new forms of management applicable to mountain areas, both those containing specific biodiversity assets, and thus eligible for protection, and those subject to less restrictive regulations but nevertheless featuring fragile territorial resources, which is the case of the Mediterranean mountains. These new forms of management should be aimed at regaining the relationship between *ager* and *saltus* with respect to closing the production cycle, traceability and achieving compatibility between environmental quality and food quality.

## 1. INTRODUCTION

In Spain, setting up most of the natural parks in Mediterranean mountains is a consequence of the evolving functions played by these areas in the territorial systems of industrial and post-industrial capitalism. As a result, although these developments have produced greater visibility and therefore more competitiveness in the supply of recreational areas of high environmental value as demanded by urban post-industrial societies, various factors prevent this opportunity from becoming an effective tool for overcoming their problems.

This study has three main objectives: 1) to consider the above problematic factors from the viewpoint of local development; 2) to apply this analysis to a case study carried out in the natural park of Sierra

de las Nieves, Málaga, Spain; and 3) to propose new forms of management aiming to overcome the problems and improve the present situation. These new forms of management are based firstly on the recommendations of the Europe 2020 strategy [1] and secondly on expanding the protected area of mountain landscape established with the application of the Natura 2000 network and under the 2007 Natural Heritage and Biodiversity Act [2].

## 2. THEORY AND METHODOLOGY

The above objectives are addressed through the interrelated application of two theoretical frameworks: that of local development, in terms of territorial capital and its components [3], and that of the changes in these components in response to the

evolution from an organic economy [4] to one based on industrial and post-industrial capitalism [5].

In the context of the organic economy, the role of Mediterranean mountain regions was the production of food and raw materials based on the interaction between *ager* and *saltus* within a single community (the *concejo*, or council, administering an area of about 1000 km<sup>2</sup>) which drafted and applied management standards. In this stage, agents and territories were therefore related by management connection. Industrial capitalism reduced or even eliminated the competitiveness of these spaces, thus causing two major consequences: a population shift away from the land (leading to the loss of human capital, in both qualitative and quantitative terms) and the segregation of the *ager/saltus* interaction, the former suffering increasing neglect due to the lack of profitability of its produce, whilst the latter frequently became the subject of forestry policies undertaken by new agents unrelated with the land and its trajectory, and applying management systems based on scientific and academic understanding (regulated knowledge) rather than the specific knowledge of the biotic and abiotic components of territorial capital (local cognitive capital). Moreover, these forestry policies were often focused on benefiting areas beyond the mountains, via measures such as flood prevention to protect cities located in floodplains or work to prevent the silting up of reservoirs built for this purpose. Finally, post-industrial capitalism entails a complex and contradictory sequence of functions to be performed in mountain areas. In chronological order of their introduction, the first is the paradigm of *conservation*, of which the most significant example may be considered the IUCN proposals made in 1978 [6]. But the second function developed almost simultaneously, derived from urban society's appreciation of the *rural goods and services* [7] that came into demand for tourism and recreational purposes. Although this feature is common to all rural spaces, as its name suggests, mountain areas are ideal locations for this function due to the scant presence of technological activities in their production processes, as noted above. This process could be considered as one of the factors of the multi-functionality of rural areas. Finally, since 1992 we have witnessed the formulation of the *sustainability* paradigm that theoretically provides a basis for the compatibility of functions of use and of conservation in areas with high environmental values.

The combination of these three paradigms in terms of theory of local development, as applied to Spanish mountain areas, can be expressed as follows. First, the conservation paradigm is reflected in the dispersed distribution of natural parks in mountain areas, under the Conservation of Natural Areas and Wildlife Act of 1989 [8] as applied by the regional governments. The application of this law in terms of

land management has led to the systematic employment of professional foresters as agents and the acceptance of the above-cited IUCN 1978 proposal [6], which is to prioritise conservation and environmental education as fundamental goals, to the disadvantage of local communities, whose development is also in theory one of the aims of land management. Thus, the designation of national parks boundaries highlights the *ager/saltus* divide already introduced by forest management leading to the distinctive pattern of "islands of protection". Second, this goal of environmental education has in turn converged with the demand for rural goods and services by external (urban) societies, so that the agents exercising powers of land management should not become part of the human capital of the territory affected by the protection measures adopted. However, with respect to the third consideration and especially to Spain, the assimilation of the sustainability paradigm has not led to a practical reinforcement of the role of the local communities in the management of protected natural areas. On the contrary, the following reasoning has been applied: reinforcing the recreational role of natural parks through public use plans will increase the number of visitors and indirectly boost the demand for private services provided by local production facilities such as: hotels, restaurants and other leisure-oriented enterprises [9]. Nevertheless, the problem does not seem to be exclusive to Spain; thus, Benós, Cazenave and Milian inquired: "How does protection contribute to our understanding of rural matters, as a category of reasoning and geographic selection? How does protection interact with other structural components? In what way does protection modify the other structural components?" [10].

These considerations were taken into account in formulating the objectives and methodology of the project described in this article (see Acknowledgements). The project is focused on testing means of measuring the suitability and capacity of land for recreational uses and is applicable to the planning and management of resources in protected natural areas. Taking a broad view of the concepts of load capacity, in line with the goal of reconciling economic activity and protection (which would subsequently be ratified by the Europe 2020 Strategy) an essential part of our evaluation is the possible involvement of recreational practices in the development of the communities associated with these areas. Our intention, thus, is to determine the actual level of interrelation between management models, the promotion of recreational and tourism activities and local development [11]. With respect to the latter objective, we carried out three analyses on the following issues: management rules, behaviour of hikers in relation to the rural productive context, and this rural productive context with special attention to the actors and sectors associated with recreational activities. In

this article, we present the results of the first two analyses, which were applied to the study area of Sierra de las Nieves Natural Park (Andalusia, Spain, see fig. 1). This particular area was selected for study for various reasons, one being its significance with respect to the new functions of mountain areas referred to above. A survey was carried out here (producing a total of 350 responses between October 2010 and June 2011).

The questionnaire included three sections related to the main aims of the project: visitor characteristics (place of origin, age, sex, and profession), their motivation for visiting the area and their perception of its saturation. These aspects are all fundamental in order to determine the social carrying

capacity and the satisfaction with the progress made to date.

The fourth and final section, which is the subject addressed in this article, approached the theoretical framework of sustainable rural development and sought to identify the structure and amount of spending money hikers and other trail users brought in the economies of the local municipalities and their level of satisfaction with the services provided, both public (park facilities) and private.

Finally, for a comprehensive data analysis, we took into account previous studies and the national and regional contexts of the management of natural parks and their impact on rural development.

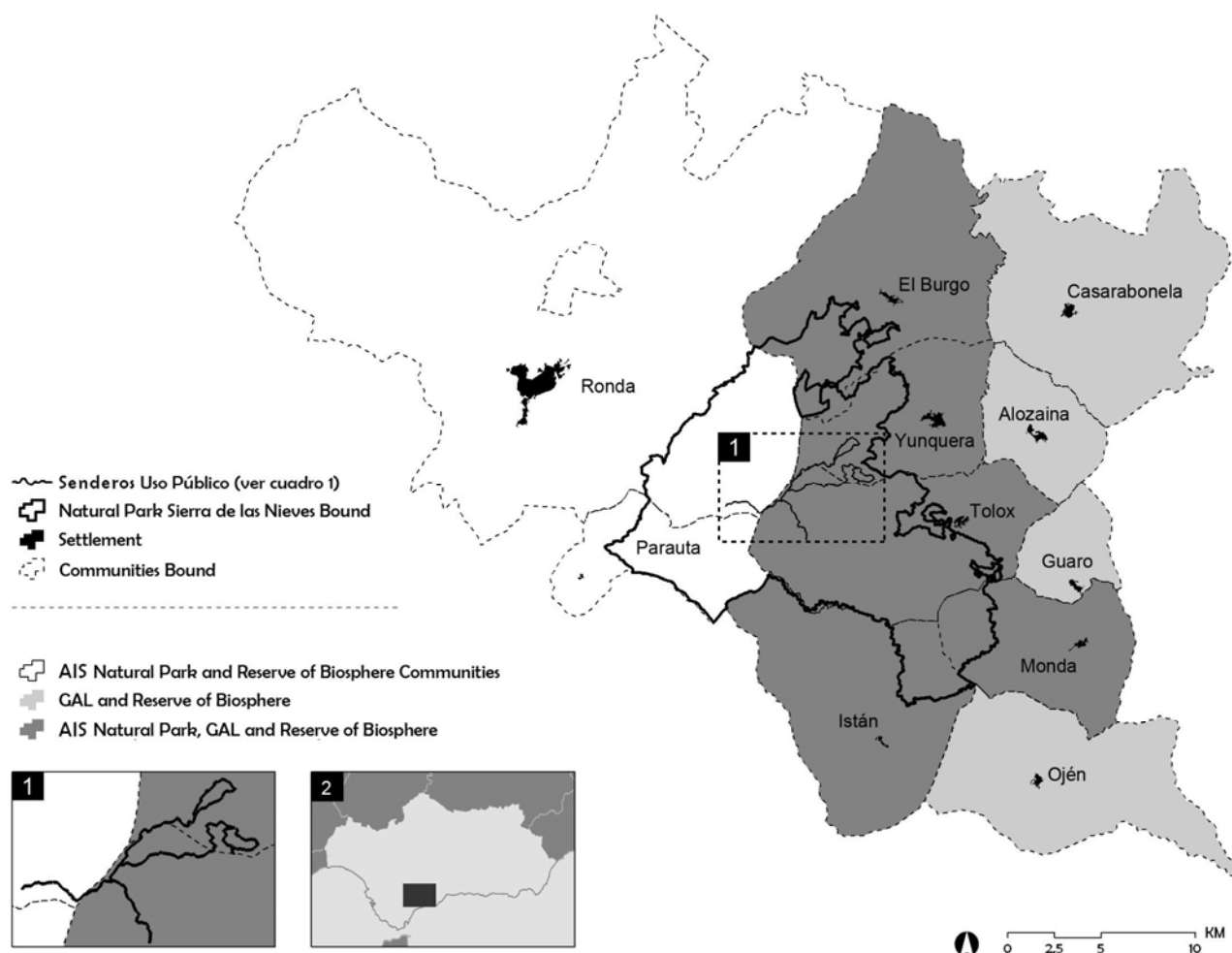


Fig. 1. Sierra de las Nieves Natural Park.

### 3. RESULTS AND DISCUSSION

#### 3.1. Why are natural parks not contributing to the socio-economic revitalization of the Mediterranean mountains in Andalusia?

In response to two of the questions posed by Benós, Cazenave and Milian (*How does protection interact with the other structural components? and In what way does protection modify the other structural*

*components?*) we reviewed and analysed the literature in the field. After 23 years since the enactment of the Inventory of Protected Natural Areas in Andalusia, in accordance with the Conservation of Natural Areas and Wildlife Act of 1989 [8], the territorial development rating for Andalusia reveals that Mediterranean mountain areas with natural parks have evolved in two ways [12]. On the one hand are the communities located in natural parks that receive large numbers of tourist visitors. Here, socio-economic change consists in

demographic and economic growth, but this has little effect on agriculture or environmental activities; young people do not wish to work in these areas, because incomes are higher elsewhere. Thus, the increased visitor numbers do little or nothing to benefit the continuity of the agricultural systems that constitute the foundation for the characteristics of the territory. Nevertheless, this situation affects a relatively small proportion of the natural parks. On the other hand, there are communities located in natural parks with few visitors and here the socio-economic structures reflect the same level of stagnation as existed before the constitution of the natural park. This situation is present in the majority of communities within the borders of natural parks.

These findings clearly reveal that the natural park as a tool for conservation is not interacting positively with the other components of the rural socio-economic context. In our opinion, this lack of synergy is caused by the following factors:

a). The demographic basis. As a result of the very significant population shifts away from rural areas, with the rise of industrial capitalism, the human capital has aged and is in quantitative decline. Thus, the areas are becoming depopulated and there is no dynamic entrepreneurial structure capable of identifying the new economic activities associated with the functioning of the natural park.

b). Protection mechanisms are not coordinated with the basis of the production system. Therefore, they neither counter nor compensate for the lack of profitability of the *ager*, while the productive management of the *saltus*, which is often categorized as a protected area, has little impact on the income of the local communities. As a result, there is a net loss of the land uses that could underpin the agro-environmental system based on which protected areas have been established.

c). The hysteresis between local policies and the IUCN's initial principles of land management, the latter being considered unsuitable for the territorial and social structures of the European Mediterranean mountains. Whereas the new IUCN guidelines emphasised on the need to strengthen local inhabitants' participation in the management of natural parks [13], the Spanish legislation maintained the traditional principles in the 2007 Natural Heritage and Biodiversity Act [2]. Under this measure, local communities were sidelined as stakeholders in park management, whilst priority was given to increasing visitor numbers, subject to the aims of environmental education and preserving biodiversity. In other words, the perceived function of Mediterranean mountain areas as natural parks was to foster biodiversity and promote the supply of outdoor recreation spaces for urban inhabitants against the integration of local inhabitants into the wider framework.

### 3.2. Case study: Sierra de las Nieves Natural Park, Málaga (Southern Spain)

The Sierra de las Nieves Natural Park (fig. 1) is identified and managed in accordance with the Conservation of Natural Areas and Wildlife Act of 1989 [8]. As decision-making in this field has been transferred to the Andalusian government, the latter Act is applied in the region through Act No. 2/1989, approving the Inventory of Protected Natural Spaces in Andalusia together with additional measures for protection [8]. This regulation is equivalent to the IUCN Protected Areas Category V: Protected Landscapes/Seascapes [6]. Consequently and in accordance with the chronology set out above, the applied criteria prioritised conservation over sustainable development, a concept that was yet to appear although it was inherent to post-industrial society. In fact, the association of public use plans with the above legislation is very recent and conservation objectives still prevail.

Specifically, it is the threat of extinction two species are facing: the pinsapo or Spanish fir (*Abies pinsapo bois*) and to a lesser extent the gall oak (*Quercus faginea ssp. Faginea*) which is put forward as the main justification of the conservation effort. The pinsapo is a relic of the Tertiary age and is only to be found in certain parts of the Ronda Mountains (Grazalema, Sierra Bermeja and Sierra de las Nieves) and in the Yebala range in northern Morocco. Thus, it is considered highly valuable in terms of biodiversity especially due to the continuous deforestation since the fifteenth century, which has produced an evident risk of the disappearance of this species, a threat of which the national forestry administration has been aware for several decades. Although in 1995 the (extended) area was declared a Biosphere Reserve, in Spain this classification did not produce specific zoning and management regulations, and consequently the territorial configuration of the area was determined by the regulations applicable to natural parks. In the case of pinsapo population the aim was to combine the isolated pockets and create a large protected area on the easternmost slopes of the Ronda Mountains, with shaded valleys at an altitude and orientation providing the humidity and cool temperatures required for their survival. Following the criteria of protectionist zoning, these formations constituted the focus of highest protection in the zoning system set out in the Natural Resources Management Plan [14], although this Plan also assigned the highest level of protection to other isolated areas containing valuable flora thus creating a peripheral area to the pinsapo location.

Over the centuries, the status of the current protected area has not remained constant. In the political-territorial organisation corresponding to the organic economy period (after the repopulation of the area by the Christians, in the late sixteenth century)

[15], due to its considerable altitude and dimensions the Sierra de las Nieves constituted a natural boundary point dividing the *concejos* (municipalities) of Marbella to the south, Ronda to the north and Málaga to the east approximately following the watershed divide. From this historical perspective – reflecting very different functions from those carried out today – it is understandable that the main human settlements should be located outside the current boundaries of the natural park. With the exception of Ronda (which was excluded from this study due of its mainly urban characteristics, typical of the small-medium sized towns located in the Intra-baetic Depression since historical times), the towns and villages in this area reflect a habitat that has been consolidated since the late Middle Ages, with communities situated close to springs, often associated with travertine formations, resulting from the superposition of permeable rocks (marble and limestone in summit areas) overlying impermeable ones (schists and gneisses, in the foothills) linked to the Internal Units of the Betic Ranges that make up the southern and eastern sections of these mountains. Another factor influencing the human habitat is the geographic orientation, with sunny east and west-facing land being preferred and shaded areas avoided. Thus, private smallholders of the *ager* worked the foothills, growing irrigated crops (horticulture on the travertine soil and in the terraces lining deep valleys) and non-irrigated crops (arboriculture: almonds, figs, grapes and olives), while the *saltus*, which was collective public property in the highest areas provided each of the *concejos* with grazing and pasture land for the use of seasonal workers – mainly shepherds, charcoal makers and snow collectors. Furthermore, the central position of the Ronda Mountains made the area a focal point for the tracks and roads used to transport horticultural produce from the eastern valleys and fish from the coastal communities to the inland areas of Ronda and those to the north of Cádiz and to the south of Sevilla. To sum up, what is now the national park was once a wooded, sparsely populated area that was valued as a transit route between widely separated populations, where upland agriculture was the main activity.

Today, the municipalities within the natural park are very similar in size (between 1,500 and 3,500 inhabitants) after experiencing phases of demographic transition reflecting the change to a model of industrial capitalism, with a considerable exodus from the country to urban areas between 1958 and 1975, and an ageing declining population in the 1980s and early 1990s. This was followed by the immigration of elderly population, consisting of returning emigrants and foreigners buying second homes from the late 1990s. The relative proximity to Costa del Sol (a tourist centre of global importance that is home to around a million permanent residents) and the low earnings provided by agricultural activities have severely influenced the productive system of the area. The predominance of smallholdings together with

the low prices currently received for their products [16] make it impossible for a farm to provide a rural family's sole source of income. Thus, family incomes in the area are obtained from the sum of those provided by agriculture (only 18% of the working population are active in this sector, according to the Population Census of 2001, the latest one available), the construction sector (28%), industry (9.7%), hotels and catering (9.6%) and commerce (10%). But the real problem of these municipalities, as of most rural municipalities in Andalusia whether they are located in mountain areas or not, is the unemployment. Figure 2 shows that unemployment rates were lowest during the recent housing boom but soared when the current economic crisis began, reflecting the greater involvement of these municipalities' economies with activities in the coastal regions than in their own localities.

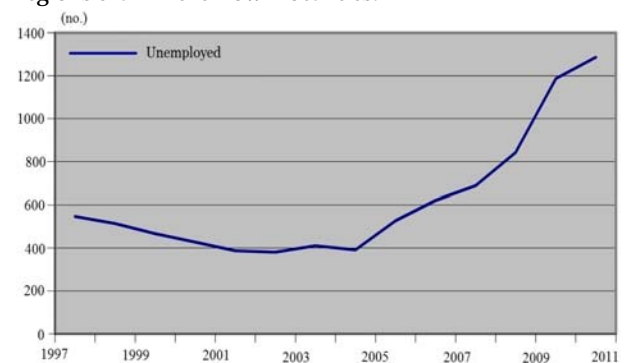


Fig. 2. Evolution of unemployed people (1997-2010) [18].

A further consideration regarding the above factors is that the goals of the natural park's management body are outdated with respect to the new approaches set out by the IUCN. Table 1 illustrates the absolute predominance of the goals of conservation and environmental education for visitors, against any goals related to sustainable development. But there is another element of this management system that clearly reveals the weak interaction between the system and the local actors: this is the structure of the administrative boards of natural parks in Andalusia, as established in the legislation of the region (fig. 3).

The representatives of local communities are restricted to a presence of 10% in these administrative boards, the remaining governors corresponding to representatives of other government bodies and civic associations, not necessarily related to the municipalities located within the boundaries of the natural park. For example, it is stipulated that there should be one representative on behalf of business associations and another one for the trade unions, but their respective companies do not need to be located in the area of influence of the park. Therefore, we are far from seeing any significant participation of local actors in the management of the natural park, as recommended by the IUCN.

Table 1. Classification of the objectives of management figures (2003) under their general management criteria (*in Italics: Concepts linked to local communities*).

General management criteria	Natural resources management plan objectives	Use and management guiding plan objectives
Preservation of natural and cultural resources	<p>1. <i>Abies pinsapo</i> forests continuity in view of their high ecologic value and emblematic formation of the Natural Park</p> <p>2. Forest conservation and regeneration as a means of preventing both soil erosion and climate change</p> <p>4. Conservation of geodiversity and biodiversity, especially of habitats and species included in the list of protected areas.</p> <p>5. Maintenance of good quality water resources</p> <p>10. Appropriate development of buildings and infrastructures in the Park, in order to protect its landscape both from the visual standpoint and in terms of its identity.</p>	<p>1. To encourage the regeneration and rejuvenation of autochthonous woodland: <i>Abies pinsapo</i>, <i>Taxus bacata</i> and <i>Quercus faginea</i>, especially against herbivores</p> <p>2. To maintain the current level and trend of <i>Abies pinsapo</i> growth.</p> <p>3. To encourage the evolution of pine woods, ecologic conditions permitting, to achieve a heterogeneous woodland with a high number of <i>quercus</i></p> <p>4. To encourage bush formations and improve pastures.</p> <p>5. To preserve ecosystems as a tool for hydrologic protection and a support for important ecologic processes</p> <p>6. To counteract the erosive processes detected, and to assure vegetable cover, while avoiding the introduction of new species.</p> <p>7. To rationally protect <i>Capra Pyrenaica</i>, and, to do so, to improve the health condition of herds and adapt their level to those appropriate to the resources of the natural park.</p> <p>8. To preserve habitats of ecologic interest, especially those included in Annex I of Directive 92/43/CEE, May 21, Annex II and Annex IV and also the species included in Annex I of Directive 79/409/CEE of April 2. Habitats and species classified as priority will be taken into special account.</p> <p>9. To recover <i>Capreolus capreolus</i>, <i>Oryctolagus cuniculus</i> and <i>Alectoris rufa</i> populations.</p> <p>16. To correct or minimize, under landscape integration criteria, the negative impact of buildings and infrastructures on the natural environment in which they are sited.</p>
Sustainable use	<p>3. <i>To make uses and activities compatible with the preservation of natural resources.</i></p> <p>6. <i>To facilitate socioeconomic conditions avoiding the uprooting of rural communities and fostering their progress, promoting socioeconomic land use compatible with the preservation of natural resources</i></p> <p>8. <i>To take advantage of the cultural heritage of the Natural Park from an integrated view point, as a potential resource for policies of sustainable development, promoting its rational use as a tool for cultural and economic development provided this use provokes no harm to natural values.</i></p>	<p>10. <i>To foster the use of natural resources on principles of sustainable development, seeking to achieve diversification of uses and the involvement of local communities in the Natural Park.</i></p>
Rural tourism and active tourism	-	-
Public use and environmental education	<p>7. To foster the role of the Natural Park in developing public use activities in a way compatible with the preservation of natural resources, allowing citizens to use them and to appreciate the natural and cultural values.</p> <p>9. To integrate natural and cultural heritage values in the development of educational programmes that promote public awareness in favour of their preservation</p> <p>10. Appropriate development of buildings and infrastructures in the Park, in order to protect its landscape both from the visual standpoint and in terms of its identity</p>	<p>11. To develop programmes, services and equipment in support of public use of the Natural Park.</p> <p>12. To minimize the potential impact of public use activities</p> <p>13. To establish and implement all necessary measures for safe and secure use of public equipment by visitors.</p> <p>14. To develop environmental education programmes based on the natural and cultural heritage as an educational resource</p>
Infrastructures	-	-

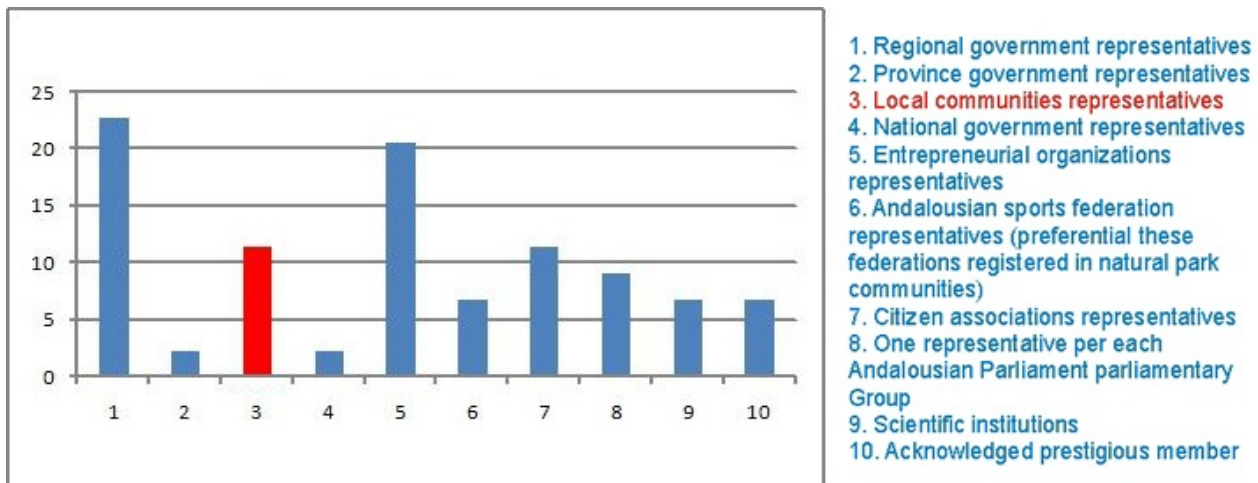


Fig. 3. Governing body composition according to its links with local stakeholders [20].

Finally, the results of our survey highlight two facts that call into question the direction followed by the park's management board and, as mentioned above, the capacity of this "visibility" of the area conferred by its designation as a natural park to activate the productive sectors of the rural municipalities in which it is located.

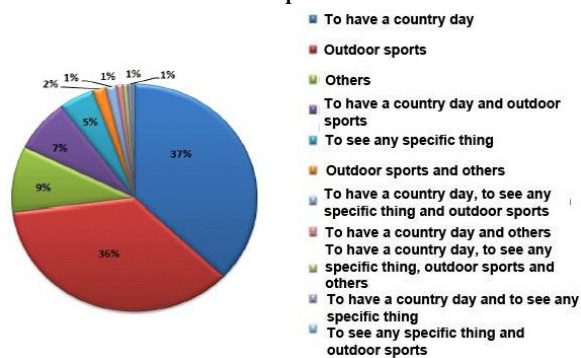


Fig. 4. Visitors' opinion about their visiting reason [19].

Figure 4 shows the results of the survey with a view to the reasons for making use of public paths and trails. It can be seen that much fewer users are motivated by an interest in the natural or cultural values of the park than those who simply want to be close to nature, to participate in outdoor sports or to be with their friends. Therefore, urban users of the park are not really seeking environmental education from this protected area.

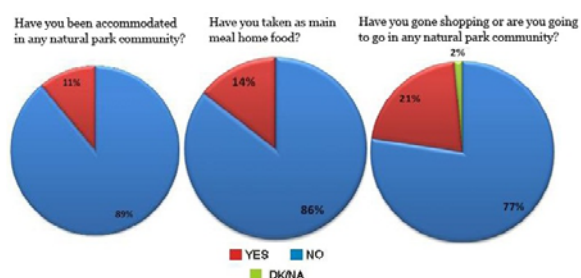


Fig. 5. Visitors' answers about touristic resorts used in their visit [19].

Figure 5 shows the results of the survey with respect to the impact of public use of the natural park (hiking) on the local economy. As can be seen, 75-80% of the hikers had not used any of the private services offered: they neither used accommodation, nor eaten in restaurants or made any purchases in local shops. However, other studies conducted in the framework of the project, involving interviews and economic studies of these private services, have shown that they have many customers who do not make use of the park's public use facilities. Thus, the answer to the question posed by Benós, Cazenave and Milian is that the interaction between environmental protection measures and the components of the socio-economic structure is very low, and that it does not function according to the principles of local development.

### 3.3. Discussion

Recovering the alliance of *ager* and *saltus* and the leading role of the local community may be achieved by returning the food production system to profitability.

We believe the current status of Mediterranean mountain areas may improve with the implementation of Europe 2020 [1] and the extension of the protected mountain areas, following the application of the Natura 2000 network and that of the 2007 Natural Heritage and Biodiversity Act [2].

The Europe 2020 ideas for economic growth furnish, at least in theory, a new basis to address the situation beginning with the concept of *sustainable growth* common to all activities and territories. In accordance with this principle, the preservation function, which has given rise to favoured "islands" of protection, should be replaced by more active policies, from the economic standpoint. This would be facilitated by the fact that most of the Mediterranean mountain landscape currently protected is not wild, but rather consists of the anthropogenic areas in which the pre-capitalistic agro-environmental system was

implemented. Moving on to the concept of *smart growth* there is room for innovation in two related ways, both related to sustainable growth: its application to productive procedures and the enhancement of human resources. The better use of information and communications technologies and strengthening the link between academic-applied knowledge and informal local knowledge are the premises for achieving growth that is both profitable and sustainable. Thus, awareness of natural cycles at the local level makes it possible to make proposals for quality products that are compatible with environmental stability and with landscape diversity. Finally, *economic governance* implies that a new and strengthened role should be assigned to local stakeholders in land management, highlighting the relation between visitors and the opportunities to sell local products and services, this being a key factor in achieving compatibility between tourist visits and the agro-environmental system. These three principles provide the foundations on which to accomplish the fourth: *inclusive growth*, by which the Mediterranean mountain landscape can be integrated into the European socio-economic area.

These opportunities arising from the socio-economic proposals of Europe 2020 could be extended to address a very significant area. The relation between Mediterranean mountain areas and protected spaces is growing closer for two main reasons: on the one hand, an increasing proportion of protected areas are in Mediterranean mountain regions and on the other hand mountain areas (whether Mediterranean or not) receive particular attention in the 2007 Natural Heritage and Biodiversity Act. On the medium and long term, both facts will tend to blur the boundaries between different preservation tools and their respective management systems, and thus there will be a need for new management systems, in line with the Europe 2020 principles.

Consequently, the current system by which natural parks in Spain are managed should be modified in order to realize the potential for economic revitalization that is highlighted by linking the concepts of visibility and of demand for rural goods and services in Mediterranean mountain areas.

#### 4. CONCLUSIONS

The theoretical perspective of local development provides a suitable interpretation of the reasons why the possibilities of economic revitalization implicit in the location of most natural parks in Spain in Mediterranean mountain areas are not being materialized. From this perspective, two interrelated factors are responsible: the quantitative and qualitative deficiencies of human capital, and a management system in which the presence and participation of the local municipalities' "relational capital" is limited, both

by the configuration of their representation (governing boards) and by the scant powers assigned to them.

In this management system, the priority objective of providing environmental education does not correspond to the motivation of the users of these public facilities. In fact, these users are more oriented toward the concept of rural goods and services. This fact could be interpreted as offering fresh opportunities for mountain areas with high environmental qualities, whether or not they are protected in accordance with criteria of biodiversity. However, providers of goods and services cannot rely exclusively on tourist-oriented activities, as our results show spending is weak in this area.

Accordingly, the application of the strategic formulations set out in the Europe 2020 strategy, together with an enlarged radius of protection in mountain areas, should be the basis for implementing new forms of management in order to recover the former interaction between *ager* and *saltus* in production systems, thus combining environmental quality and production quality (traceability), based on the use of new technologies and the greater participation of local actors.

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