Flat land by Pablo Altaba Tena.

The perception of heritage values and their analysis by using GIS tools in vernacular heritage landscapes

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ABSTRACT

The main objective of the study is to assess, independently of the scenic beauty, the importance and composition of the different attributes within a given landscape. For this purpose, the study focuses on Penyagolosa where we have selected three areas of evaluation to determine the importance of distance in the determination of heritage values of the landscape. Using Geographic Information Systems (GIS) determines what values are detectable on the basis of the terms of proximity and remoteness and how they are applied in three cases of assessment. Thus, 5 criteria have been set to analyze these values: 1. the overview of the landscape, 2. dominance or intensity of elements, 3. the aesthetic composition of space, 4. The selective interpretation of the visual and 5 variables. The fragility or alterations induced in the landscape. Ultimately, criteria are discussed from dynamic and static fields of the authenticity and integrity of the landscape that they affect or neglect.

KEYWORDS

1.   INTRODUCTION

People play a fundamental role in shaping landscapes. The Mediterranean case is not an exception. These landscapes are formed by the superposition of layers accumulated secularly by its inhabitants. At present, Mediterranean mountain landscapes are experiencing an abandonment processes. The intense decline in the use of land, including extreme neglect, is explained at the local level by a combination of social-ecological factors (Mac-Donald et al., 2000; Rey Benayas et al., 2007), such as low productivity and the aging of population. These factors not only interact with each other but also with the ecological dynamics creating positive feedback circuits, which increase the irreversibility of the abandonment of farmland (Navarro & Pereira, 2012) increasing forest areas and creating more natural landscapes (Lasanta- Martínez et al., 2005). The inhabitants of areas that coexist with abandonment can find it bleak, lacking in hope and with a very limited capacity to transmit values.

Based on the observed environment, Matsuoka and Kaplan (2008) spoke of the preference of people towards natural settings compared to urban environments. The medium affects the aesthetic experience of landscapes. This context includes both the effects of different types of landscapes (natural, agricultural, cultural and urban landscapes) and the effects of different activities or personal and social situational concerns. Some contexts provoke aesthetic experiences that have traditionally been called scenic beauty, while other contexts provoke different aesthetic experiences, such as perceived attention, attachment and identity (Gobster et al., 2007). Tveit et al. (2007), observed nine key visual concepts presented in a framework of four levels of abstraction described through the visual dimensions of those concepts; attributes of the landscape and potential visual indicators suggested to map and quantify the referred concepts. Although, some other studies such as the one from Fry et al (2009) speak of superposition of meanings, Tveit et al (2007) speak of the use of these levels of abstraction as tools to describe different characteristics of visual landscapes instead of presenting normative values in order to evaluate the quality of landscapes.

We cannot comment a landscape without considering the subjective preferences. In the same way, we cannot speak of perception if it is not aimed at elements that are weighted. In this sense, talking about visibility, as the landscape's capacity of communication, the objectivity approximates to the capacity of perception. Some studies have been based on the communication capabilities of the landscape through its values. Fredheim and Khalaf (2016) reviewed the literature on values and speak of a systematic rigidity leading to an incomplete understanding of the values. They defend the dynamism of these through perceptual rearrangements.

Nowadays, values are conceived as social constructions (Parkinson, et al., 2016), integrity and authenticity concepts are changing into new perspectives (Garcia-Esparza, 2016, 2017). In this sense, ICOMOS (1994) recognized the need of a change and conceptual evolution regarding to the perception of the authenticity of cultural goods in order to search a broader view. Authenticity, commonly understood as the opposite of theming, is related to the truth and the preservation of functions and meanings (Silva and Fernandez, 2017). Conceiving as an experience and heritage as a cultural and social representation so that people get involved actively (Smith, 2011). Likewise, it is defended that places possess innate characteristics, but no cultural significance (de la Torre, 2013), adding that population recognize values in a certain place based on their own needs or desires, modeling them according to their social, cultural or economic circumstances (Spennermann, 2006). Therefore, it is important to emphasize that the conservation of a site should identify and take into consideration all the items of its cultural and natural significance equally (ICOMOS, 2000).

In this sense, integrity could be included as other quantifiable factor in landscape studies. Gullino and Larcher (2013) speak about the different points of view and levels of integrity according to the areas of knowledge where the landscape is evaluated. They choose the multidisciplinary as the mid-point to assess the integrity of the landscapes, since integrity

is concerned to the conservation and it is one of the fundamental values to consider for the analysis of landscape and heritage. Having said that, the value is not an innate quality by itself, but the network, the object or mean are the carrier of meaning imposed externally, specifically cultural or historic, determined according to perception of a certain time frames (Gibson and Pendlebury 2009).

In this way, the perception of cognition cannot be separated. Perception is always conditioned by our knowledge, our experience, and this perception is judged implicitly, an assessment of the individual. The perception and the aesthetic appreciation of landscape depend on many factors, some of them are commonly used and they are stable in time and space. Some factors are determined by the social context in which a person who lived and others are tied to the experiences or training in adulthood. Nassauer (2011) suggests that the visible evidence of care and attention towards the landscape evokes an aesthetic response that makes the viewer feel well. However, the land management has not the sole purpose of producing economic benefits, it responds to the multifunctional needs of society, such as recreation and quality of life. As shown by Domon (2011), while the ability to produce goods was the basis for the appreciation of the landscape, now they are qualities aesthetic, environmental, and economic determinants in the appreciation of rural areas.

This mentioned makes the term design being used to define the "intentional change of the landscape" (Nassauer and Opdam, 2008). These changes are usually linked to the real estate development or the management of natural resources. The most striking of these changes is that they condition the lives of those who live in the landscapes. These changes are tried to be introduced into the use of methods of study. Although the opposite is intended to establish, methodologies are fully subjective and vary according to the scale of the landscape, the location of the same and the criteria of the authors (Gulink et al 2001). In the same way, although the evaluation of landscape using maps or indicators-based on maps can provide information that helps monitor aesthetic values, it cannot quantify all the sensory aspects of a landscape

(Uuemaa et 2013).

Thus, as the main objective, the study aims to evaluate, regardless of the scenic beauty, the importance and composition of the different attributes within a particular landscape. Among all the scales of landscape phenomena, the scale on which humans perceive the patterns of landscape, the "perceptible realm", is decisive for landscape change (Gobster et al., 2007). This landscape scale links daily experience with other environmental phenomena that are not perceived directly. For this purpose, the research team and other people linked directly to the landscape observed and catalogued the diversity of ethnographic and architectural elements related to the agrarian world and specifically, the usage of water. Besides, endemic species, changes in biodiversity and geology were catalogued as well.

In order to provide an objective view of a specific landscape, the research launched four questions:

1. Is it an evaluation based on landscape standards feasible? Can it provide reliable results?
2. How does abandonment affect the perception of landscape attributes?
3. Is it possible to boost this abandonment for a more complete and authentic landscape?
4. Do personal factors affect the results of the visual evaluation?

2.   MATERIAL AND METHOD

2.1   STUDY AREA

The place where the study is carried out is Penyagolosa Mountain and its area of influence, in Castellón, Spain (Fig. 1). The area, 288 km2, ranges from 400 to 1,800 meters high. These variations condition the climate and produce four different bioclimatic floors depending on the altitude and orientation, generating a natural environment with a great biodiversity. Orographically, the area is limited by mountain ranges and ravines, with few plateaus. The municipalities settled in the territory surrounding this

Figure 1.

Study area
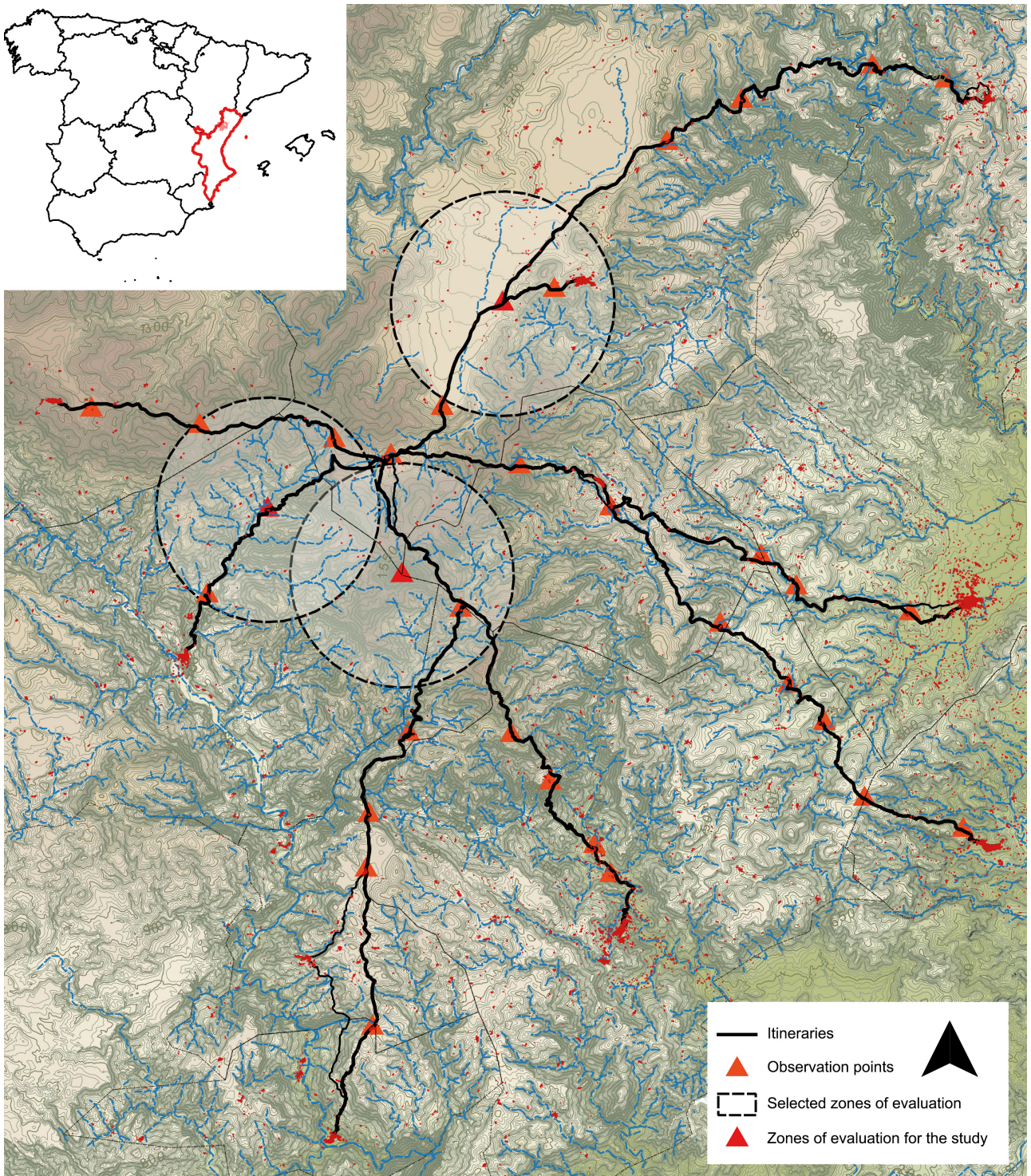
peak suffer the consequences of a strong migration to large urban nuclei. So that, currently there is a loss of population together with the abandonment of rural life as it was known in the last century.

According to the analysis carried out, 6 phases or strata of transformation that have marked the landscape to the present can be observed:

1. The Arab period. Before the 13th century, the study area was populated by Arabs. There are no material remains of this population, but the methods of cultivation, settlement and irrigation have been preserved.
2. The Christian conquest. It is from the first third of the thirteenth century when a change on the system of life happened, as it is known today. Farmhouses and hermitages were built and believers started to pilgrim. From this time, some vestiges can be seen in the area of study, although they are scarce.
3. Livestock. From the thirteenth century to the eighteenth century the main activity in the area was livestock. Inherited corrals, gullies, trails, fountains and the fractionation of the territory that served to enclose the cattle are still present in the landscape.
4. Agriculture. From the eighteenth century on, there was a socioeconomic change that made agriculture the main activity of the area. From that moment on, not only farmhouses and their terraces for crops were shaped on the slopes of the mountains, but also the forest usage and the commercialization of goods, profiled a new landscape.
5. The exodus. At the beginning of the 20th century the maximum population in the area, both scattered and small hamlets, was reached. Nonetheless, the rural exodus to cities began more profusely between the decades of 40s and 70s.
6. The rediscovery of nature. Although the area has always had hiker activity, currently it lives processes where social values and rural tourism are booming. This implies a change in the way heritage spaces are managed.

2.2 METHOD

There are many methodologies to assess the landscape. Examples of these could be developed by Stephenson (2008), Swanwick (2002), Tudor (2014) or Wagtendonk and Vermaat (2014). In the same way, participation is served to obtain better deductions of the material reality of the landscape and to translate them cartographically as the work of Brown and Fagerholm (2015) and Brown, Weber and de Bie (2014). Using the participation for the evaluation of photographs from a specific territory according to models developed by Tempesta (2010), Stewart et al., (2004) or Dupont et al., (2015). Using photographic analysis and geographic information systems (Martin et al., 2016), and also by means of analytical studies on the perception of visual basins on routes (Chamberlain and Meitner, 2013). Finally, mathematical models have also been studied for a better adaptation of the visual basins in digital terrain models (Nutsford et al., 2015). The study understands that participatory processes can be useful to manage the landscape as a run-up to a patrimonialization. The article aims to provide an objective view of the elements that define the daily experience perceived by the authors. In this case, GIS tools are used to display the scope of objective perception of the landscape at different distances graphically. Color green is used for short visual basins, (1000 meters), and color red is used for long visual basins, (up to 3000 meters). Also it differs between three scenarios: peaks, plains and ravines (Fig. 1). Visual basins in consecutive points along all routes were used in a first trial. It was concluded that they were not useful to appreciate the different approaches that the studied landscape can have.

The different observation points made in the study area can be seen in figure 1. These points have significance for the local population. They are places of stop pilgrimages, unique buildings, geographical locations with cultural significance, relevant river basins or itineraries with a considerable historical and cultural tour. In this sense, it is should be clarified that an 'objective' selection of resources does not mean that it is unambiguous or the 'authorized'. Pendlenbury (2013), holding in studies of Smith (2006, 2011, 2013),

raises that a characterization 'authorized' landscape reduces it to a monument outside values or cultural meanings of the place.

Thus, the research has set 5 criteria to diagnose the landscape of Penyagolosa:

1. Landscape overview. A disaggregated analysis must be completed with a global vision.
2. Intensity. Analysis of the dominance of elements. What defines the aesthetic essence?
3. Space. Aesthetic composition.
4. Visibility. Selective interpretation of visual variables.
5. Fragility. Induced alterations or impacts on the landscape.

▼ Figure 2.

Visibility test of the area of the Penyagolosa peak. Model of elevated areas.

► Figure 3.

Visibility of the area of the Penyagolosa peak.
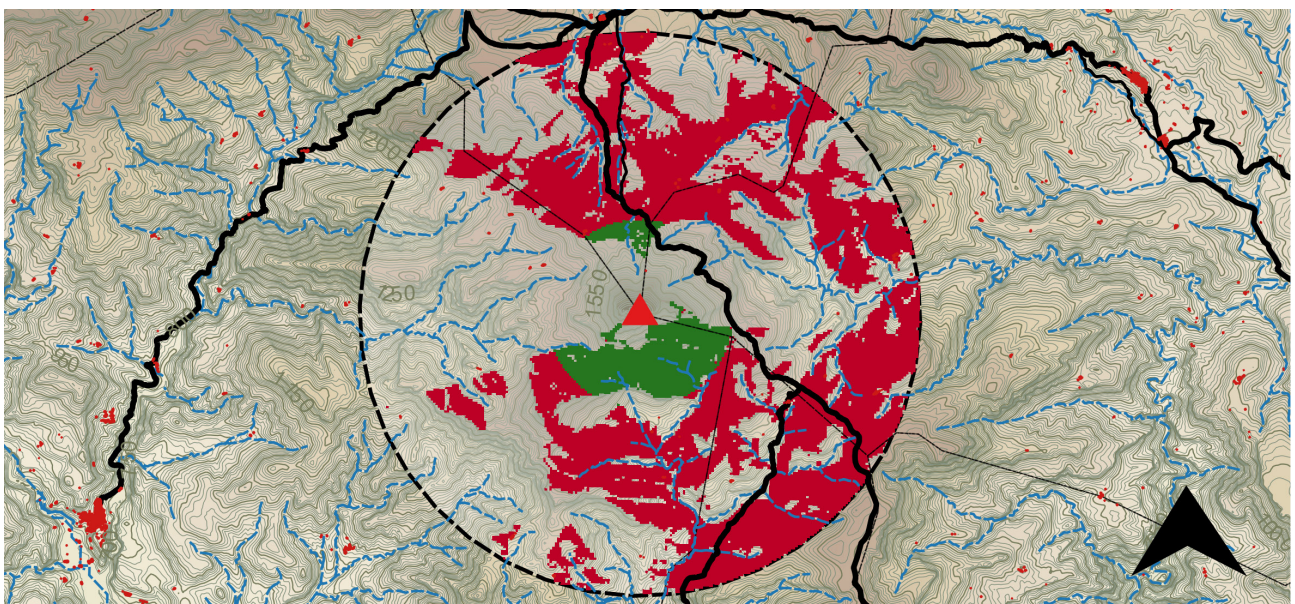
3. RESULTS

3.1 EVALUATION OF THE ELEVATED AREAS: THE CASE OF THE PENYAGOLOSA PEAK

The steep areas, as the case of this study, offer dimensions where visibility is very high. These places provide 360° panoramic views approximately. From them, you can get an overview of the whole landscape. In figure 2 you can see what it is described previously graphically. The vision at 3000 m appears in red and the vision at 1000 m appears in green. You can see the panoramic view that it is generated by type of places for an observation always conditioned by the altitude. Although the aesthetic composition is more difficult to define, these areas provide uniformity. Paradoxically this uniformity often contributes to having one feeling beyond the objective reality of the environment This hinders the selective interpretation of the visual variables by subtracting the attributes of authenticity and integrity to the goods that can be observed. Alterations induced by people, like infrastructures, new urban developments, etc., can be

seen more easily because there are fewer obstacles. The case of Penyagolosa, since it is the highest point of the area of study (1814 m), has a panoramic view of the area (Fig.3). From this point, the value that prevails is the nature. The different morphological patterns in the area, the environmental variety according to orientation and climate and fauna and flora of these altitudes can be differentiated. Although to a lesser extent which in other units of landscape, you can also appreciate values such as the ethnographic and productive, historical or cultural in a catalogue of suitable constructions to the environment. Among these buildings there are fridges, glaciers, springs and to a lesser extent, farmhouses. Summits bring global vision to the aesthetic value. In this case, the aesthetic value is linked to the social value. The summit is the place that thousands of people choose for hiking and even it is a racing scenario. Culturally, Penyagolosa has been and still is a benchmark for intellectual writers and scholars of multiple disciplines, this gives it a symbolic value or identity that transcends its area of influence to a regional level.

3.2 EVALUATION OF THE FLAT AREAS: THE PLAIN OF VISTABELLA

The study area has a few plains which represent the landscape harmony. In perceptual terms, the harmony is understood as the combination between uniformity and the contrast. The effect of some scenic compositions get interest and animation by the presence of a discordant element that breaks the homogeneity proportionately. In these cases, there are two perceptions described previously since you can have a global or disintegrated vision of the landscape, according to the subtlety of the observer and the perceptible guidelines. The authenticity and integrity of the assets of the area are perceptible both globally and focused on vernacular elements. The dominance is marked by rain-fed crops, which provide the continuity to the scene. Vernacular buildings appear as discordant elements, they are separated enough so as not to hinder agricultural activity. Harmony, in some ways, is fragile. Discordant elements, that update the pre-industrial constructions and impact
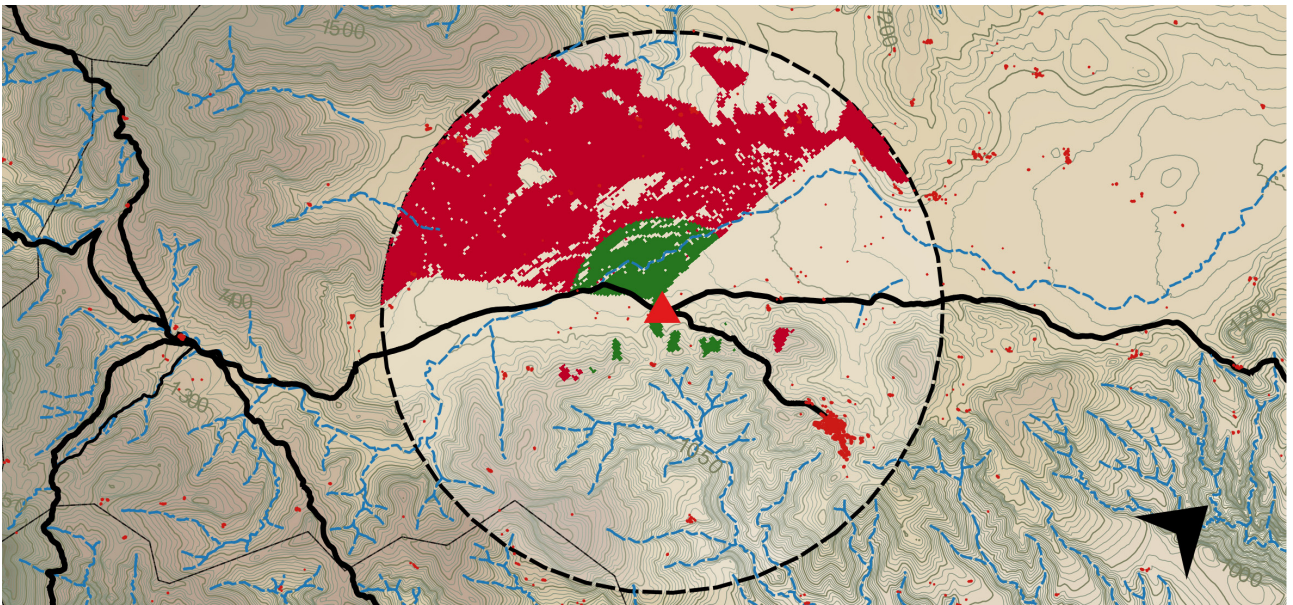
Figure 4.

Visibility test of the plain of Vistabella area. Model of flat areas.

Figure 5.

Photograph of an example of the flat land in the study area.

on the content of the landscape, are observed easily. In figure 4, it could be seen that the observer is conditioned by the mountain and the plain. From the point of observation, a 180° panoramic view of the flat areas is visualized. In this case, the color green shows a disintegrated vision of the landscape with a better appreciation and color red shows a global vision from this point of view.

The plain of Vistabella is unique so it is the only significant plain located at 1100 meters of altitude in the geographical region, and more specifically in the study area. The production values (Fig. 5) prevail as they are still growing with current agricultural techniques for reasons of accessibility. It has an important aesthetic value because it is visible from all the ranges which surround it and also it has a changing charm according to the chromaticism of the crop and the season of the year. It should be mentioned the cultural, ethnographic and historical value of this plain. Constructions such as farmhouses, wells, fountains, shepherd huts and the allotment of the territory with dry-stone technique can be observed in the plain. Three pilgrimages of two municipalities near the area run through the roads of the plain annually. It is also a sport racing scenario. Finally, its natural value should be highlighted. The plain of Vistabella is a polje, a plain where a seasonal River runs and it can be flooded in severe climatic conditions.

3.3 EVALUATION IN RAVINE AREAS: THE CASE OF THE CARBO RIVER.

This part of the study focuses in the ravine areas. According to the criteria previously exposed, these zones are conditioned by a biased overall vision and, therefore, a more precise disaggregated analysis can be carried out. These areas usually have a natural dominance, located on the slopes of the ravine and a powerful water environment since the landslides stop at the main water basin which dominates this landscape. The compositions with a structural order that is not very evident, complex, varied but entertaining prevail in this geomorphological group. Environmental processes are produced which originate a systemic organization with more or less ordered compositions. Relief modulations and vegetation floors can be observed depending on the heights, the orientations of the slopes, the presence of water, etc. Although it could be the area more damaged by the abandonment, less alterations induced by the human are observed and although impacts can be seen, they are totally reversible. Similarly, in these areas and because the visibilities are more limited and the recent intervention of the human is less than in other landscapes, the authenticity and integrity of the goods is perceived in an adjusted way to the reality of early twentieth century. In figure 6, the color red shows as the slopes of the ravine condition the global vision of the whole. It can be seen a much more conditioned vision than in the previous cases. In the same way, this approach adds subtlety to the observer, so they can focus on specific patrimonial aspects. Color green shows a more homogeneous mass where the details and the most communicative visualization of the heritage prevail.

In the area of study, and more specifically in the ravine of the river Carbo, very direct and readable aspects are observed. In addition to the natural values and biodiversity that provides a favorable water environment conditioned by the difference in height, it can be observed ethnographic values as farmhouses, mills, wineries, fountains or bridges (Fig.7). This value and the historical one are seen in architecture that gives form to the landscape: terraces, pebbled paths and dams. In terms of production value, it can be observed remnants of ancient cultures, especially vineyards and fruit trees on bioclimatic floors which are favorable to this type of agriculture. Culturally, it should be noted that the ravine areas, but steep, used to be places of passage where distances were reduced. Therefore, they were a place of exchange of goods and areas for the passage of small amounts of livestock.
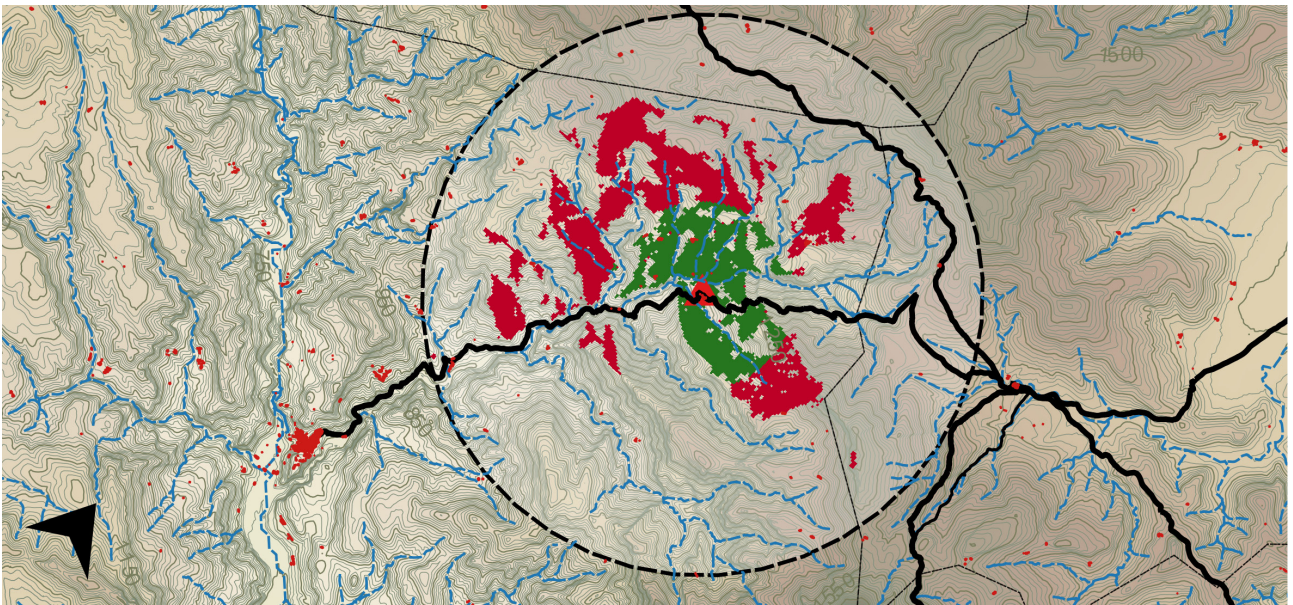
Figure 6.

Visibility test of the Carbo River area. Model of ravine areas.

Figure 7.

Photograph of an example of the steep landscape in the area of study.

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3.4 EVALUATION OF A DETAILED CASE: THE PELEGRINET FARMHOUSE

The organization of the land by the rural communities through history, using a set of agricultural and livestock areas, has arrived to the present to places hardly influenced by industrialization. Figure 8 shows the Pelegrinet farmhouse, located on the slope of a ravine, with carved terraces around it and mountain surrounding the described set. At the terraces, despite this, it continues to keep its shape. The bordering mountains used to be wood reserves, wood for construction and combined livestock exploitation. Buildings, simply functional, possess the austerity typical of other times with a fleeting viewing, it can be learned that proximity is the base of the architecture in this area so all the raw materials used in the building can be found in the surroundings.

4. DISCUSSION

As it has been described in the previous section, the three models of landscape of the study area are very different cases, with common historical and cultural features, with different current uses and different future prospects. From these three points of observation it is difficult to understand that it should have the same criteria and the same management as separate spaces: the plain landscape still belongs to the farmers. Their interest is the productivity. They are an added value to the landscape since they remain productive, cultural and ethnographic values of the study area. In the study area, social values are represented in the peak of Penyagolosa. The identity character which brings the mountain to the study area makes it is crowded of people seeking the recreational nature. These people would usually base their interest in the beauty, in tourism. Therefore, there are two different perspectives in the landscape of the study

Figure 8.

View of the Pelegrinet farmhouse.

area: the local view and the alien vision. The third area of study, the ravine areas, are a forgotten category so much personalized as in ecological conservation management.

The landscape has changed to very idealized positions among contemporary societies. You will pass a means of production to a means of socialization and in some cases of abandonment. The dynamics of abandonment are a reality difficult to stop, it should make that society would be prepared culturally to this challenge: understanding the heritage and landscape as something vital but volatile. Approaches (Council of Europe, 2000) suggest the union between the conservation, management and use. Although, the attitudes to the landscape are different. Productivism, utilitarianism, functionalism, formalism, patrimonialism or naturism (Folch and Bru, 2017) are only stereotypes that rarely coincide with approaches mentioned.

First, we should be considered temporality (Stenseke, 2016). When the study area was described, it has placed emphasis on the different stages that significant changes. It should be recognized, studied, understood and accepted the temporary of the heritage and landscape concepts (Harvey, 2010) for getting to understand it in depth. The development of the landscape over time is expressed by its temporary, lineal and continuous character, and thus it presents a picture of the activities of men in different periods or eras. Therefore, values not only should be based on attributes static, as a contrast between the ancient and modern, but dynamic, those that show how the landscape has been developed and is being developed at the time (Garcia-Esparza, 2017), where and how it is being renovated, being adapted (or not) to modern times (Coeterier, 1996). In this sense, in the assessment of the ravine areas this temporality can be seen better. The perception to a short distance brings subtlety. There are noticeable, but non-obvious patterns. For example, the growth of conifers with terraced slopes of ravines patterns indicates that there were terraces long time ago. A rigorous fieldwork provides these details and helps to qualify the perception to observe these changes of historical stages.

This same subtlety and the different points of observation, that the study has treated, make concepts as authenticity and integrity have a fundamental role in the management of spaces. The task of preserving the character of the abandoned landscapes consist in rethinking these concepts constantly (Garcia-Esparza, 2017) and in how to bind the intangible as permanent and visible factor in landscapes. Vernacular constructions and representations continue to give a powerful character to the landscape, but they have lost its original functionality virtually. Similarly, the area of study, like many other Mediterranean regions, are areas of pilgrimage. These events bring mysticism to the landscape, they give it character. They are intangible manifestations which are represented materially in constructions, milestones or own paths where they run. In terms of cultural significance, these pilgrimages and the landscape that surrounds them, are key elements in the identity of the area. Thus, identity is not necessarily associated with a landscape or architectures particular notable, also it could be an ordinary, damaged landscape (Plottu and Plottu, 2013) or abandoned.

What has been described previously is related with the perception of the observer. Static elements, its composition, perception and appreciation of the environment, will evoke meanings and different interpretations in each case. López-Martínez (2017), compiles the socio-demographic characteristics studied by different authors which include: place of birth, nationality, occupation, social class, motivational needs, gender or education. To assess landscapes such as the area of study, the last concept is key. Usually abandoned landscapes have a very complicated reading and usually its management is more linked to the natural environment than to the assets included in the heritage area. However, it is always about fossilizing all patrimonial space or even about restoring all goods whereas a failure of their loss. In any case, would could the readability of the landscape be enough through less obvious, subtler traces?

The answer may depend on whether the observer is looking for the cultural process of landscape, that is dynamic, or if he prefers the visual experience, which takes place in a spatially static landscape (Garcia-

Esparza, 2017). For the second case, it is understood better that the observer should use global visions as those defined in the evaluation of elevations. But as it has been said, its proven perception is less, and it would seek to homogeneous interpretation limited to the canons of beauty. On the other hand, understanding the cultural processes requires a less immediate analysis. Dynamism is the present perception, action, experience and the social practice of values of time and place (Gibson and Pendlebury, 2009). Dynamically real object is directly affected by its static value and socio-cultural processes which has been subject until the moment of their perception. Therefore, its value lies in how the object reflects the circumstances rather than on the importance of the element (Garcia-Esparza, 2017). Therefore, if the observer want is the perception of these dynamic guidelines, he should take distances less as those that occur in ravine and plain areas. It can be seen the contrast of so different aspects as the authenticity or integrity, dynamic and static interact to understand cultural landscape, the context, the time and the place where it comes from. This communication of the observer with the landscape shows that the perception, assessment and cultural recreation of the landscapes, and especially the abandoned, can depend on the knowledge and interpretation.

5. CONCLUSIONS

As it was mentioned previously, the methodologies are subjective and are linked to the idiosyncrasy of each heritage area. That said, an assessment based on geomorphological standards of the landscape is valid for the area of study because standardization is not complex, and it can be applied to only three categories. Analysis of three categories facilitates the work of evaluation since it allows to compare areas with relative ease. Additionally, although it is an area very variable orographically, it has many common features culturally and historically, which facilitates the comparison of states of conservation both biodiversity and heritage goods. In this case, the GIS tools are very useful so as it is shown in

figures 2, 4 and 6, the results from visual basins are very different. These results categorized spaces in a particular area of study. Categorization is understood to be applicable to different spaces heritage when categories are open to changes. On the other hand, it seems undeniable that personal factors affect the perception of the landscape. In this aspect, these factors will always be linked to the subjectivity of each person. The appreciation is personal and unique to each individual. But it be should emphasized the common features among individuals and how they will reach them. Individuals, who are taught to understand and interpret, understand certain complex attributes of the landscape and can draw a network of common values which, although they do not reach very high degrees of subtlety, can characterize a landscape with objective characteristics facilitating the learning and sharpening the perception towards disaggregated landscapes and with contrasts. Both the landscape and in the study of the goods it contains, it must be understood the abandonment as one phase of change processes that affect them. In this context, the abandonment difficult perception of static attributes. Moreover, the perception of biodiversity or heritage goods are linked to the state of conservation of the environment, so the better state, higher attributes. Nevertheless, and since the abandonment should be accepted as one more option, this should be managed as an option of the dynamic character of its authenticity and integrity. In this way, it means that landscapes should retain its credibility, and thus it should be worked towards a cultural integration of abandoned landscapes as an option for the recovery of their heritage values. Therefore, it is important to understand the ruin as a cultural stratum which is perceptible and decipherable through a close observation. These dynamic factors help to understand the linearity of the historical value of the landscape and the cultural goods that it contains and so the values can be contextualized in the present, the action, the experience and the social practice of every time and place. Still, this rural geography, ancient European cultural landscapes have survived the industrial intensification and are valuable ecosystems in danger of extinction, early 21st century.

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REFERENCES

Agnoletti, M. (2014). Rural landscape, nature conservation and culture: Some notes on research trends and management approaches from a (southern) European perspective. Landscape and Urban Planning, 126, 66-73.

Benayas, J., Martins, A., Nicolau, J., & Schulz, J. (2007). Abandonment of agricultural land: an overview of drivers and consequences. CAB reviews: Perspectives in agriculture, veterinary science, nutrition and natural resources, 2(57), 1-14.

Brown, G., & Fagerholm, N. (2015). Empirical PPGIS/PGIS mapping of ecosystem services: A review and evaluation. Ecosystem Services, 13, 119-133.

Brown, G., Weber, D., & de Bie, K. (2014). Assessing the value of public lands using public participation GIS (PPGIS) and social landscape metrics. Applied Geography, 53, 77-89.

Chamberlain, B., & Meitner, M. (2013). A route-based visibility analysis for landscape management. Landscape and Urban Planning, 111, 13-24.

Coeterier, J. (1996). Dominant attributes in the perception and evaluation of the Dutch landscape. Landscape Urban Planning, 34, 27-44.

Consejo de Europa. (2000). Convenio Europeo del Paisaje. Florencia (Italia).

de la Torre, M. (2013). Values and Heritage Conservation. Heritage & Society, 60(2), 155-166.

Domon, G. (2011). Landscape as resource: Consequences, challenges and opportunities for rural development. Landscape and Urban Planning, 100(4), 338-340.

Dupont, L., Antrop, M., & Van Eetvelde, V. (2015). Does landscape related expertise influence the visual perception of landscape photographs? Implications for participatory landscape planning and management. Landscape and Urban Planning, 141, 68-77.

Folch, R., & Bru, J. (2017). Ambient, territori i paisatge. Valors i valoracions. Barcelona: Editorial Barcino.

Fredheim, L., & Khalaf, M. (2016). The significance of values: heritage value typologies re-examined. International Journal of Heritage Studies, 22(6), 466-481. doi:10.1080/13527258.2016.1171247

Fry, G., Tveit, M., Ode, A., & Velarde, M. (2009). The ecology of visual landscapes: Exploring the conceptual common ground of visual and ecological landscape indicators. Ecological Indicators, 9(5), 933-947.

García-Esparza, J. A. (2016). Re-thinking the validity of the past. Deconstructing what authenticity and integrity mean to the fruition of cultural heritage. Vitruvio - International Journal of Architectural Technology and Sustainability, 1(1), 20-33. doi:http://dx.doi.org/10.4995/vitruvio-ijats.2016.4595

García-Esparza, J. A. (2017). Are World Heritage concepts of integrity and authenticity lacking in dynamism? A critical approach to Mediterranean autotopic landscapes. Landscape Research.

Gobster, P., Nassauer, J., Daniel, T., & Fry, G. (2007). The shared landscape: what does aesthetics have to do with ecology? Landscape Ecology, 22, 959-972.

Gulinck, H., Múgica, M., de Lucio, J., & Atauri, J. (2001). A framework for comparative landscape analysis and evaluation based on land cover data, with an application in the Madrid region (Spain). Landscape and Urban Planning, 55(4), 257-270.

Gullino, P., & Larcher, F. (2013). Integrity in UNESCO World Heritage Sites. A comparative study for rural landscapes. Journal of Cultural Heritage(14), 389--395.

Harvey, D. (2010). Heritage Pasts and Heritage Presents: temporality, meaning and the scope of heritage studies. International Journal of Heritage Studies, 7(4), 319-338. doi:10.1080/13581650120105534

Hourdequin, M., & Havlick, D. (2016). Restoring Layered Landscapes: History, Ecology, and Culture. Oxford: Oxford University Press.

ICOMOS. (1994). The Nara Document on Authenticity. París: ICOMOS.

ICOMOS. (2000). The Burra Charter: The Australia ICOMOS charter for places of cultural significance 1999: with associated guidelines and code on the ethics of co-existence. Australia: ICOMOS.

Lasanta-Martínez, T., Vicente-Serrano, S. M., & Cuadrat-Prats, J. M. (2005). Mountain Mediterranean landscape evolution caused by the abandonment of traditional primary activities: a study of the Spanish Central Pyrenees. Applied Geography, 25, 47-65.

López-Martínez, F. (2017). Visual landscape preferences in Mediterranean areas and their socio-demographic influences. Ecological Engineering, 104, 205–215.

MacDonald , D., Crabtree, J., Wiesinger , G., Dax , T., Stamou , N., Fleury , P., . . . Gibon , A. (2000). Agricultural abandonment in

mountain areas of Europe: environmental consequences and policy response. J Environ Manage, 59, 47–69.

Martín, B., Ortega, E., Otero, I., & Arce, R. M. (2016). Landscape character assessment with GIS using map-based indicators and photographs in the relationship between landscape and roads. Journal of Environmental Management, 180(15), 324-334.

Matsuoka, R. H., & Kaplan, R. (2008). People needs in the urban landscape: Analysis of Landscape And Urban Planning contributions. Landscape and Urban Planning, 84(1), 7-19.

Nassauer, J. (2011). Care and stewardship: From home to planet. Landscape and Urban Planning, 100(4), 321–323.

Nassauer, J., & Opdam, P. (2008). Design in science: Extending the landscape ecology paradigm. Landscape Ecology, 23, 633-644.

Navarro, L. M., & Pereira, H. M. (2012). Rewilding Abandoned Landscapes in Europe. Ecosystems, 15(6), 900–912.

Nutsford, D., Reitsma, F., Pearson, A. L., & Kingham, S. (2015). Personalising the viewshed: Visibility analysis from the human perspective. Applied Geography, 62, 1-7.

Parkinson, A., Scott, M., & Redmond, D. (2016). Competing discourses of built heritage: lay values in Irish conservation planning. International Journal of Heritage Studies, 22(3), 261-273.

Pendlebury, J. (2013). Conservation values, the authorised heritage discourse and the conservation-planning assemblage. International Journal of Heritage Studies, 19(7), 709-727.

Pendlebury, J., & Gibson, L. (2009). Valuing historic environments. En J. Pendlebury, & L. Gibson, Valuing historic environments (págs. 1-18). Farnham: Ashgate.

Plottu, E., & Plottu, B. (2013). Total landscape values: a multidimensional approach. Journal of Environmental Planning and Management, 55(6), 797-811. doi:10.1080/09640568.2011.628818 Silva, R., & Fernàndez, V. (2017). El nuevo paradigma del patrimonio y su consideración con los paisajes: Conceptos, métodos y prospectivas. Documents d'Anàlisi Geogràfica, 63/1, 129-151.

Smith, L. (2006). The uses of heritage. London: Routledge.

Smith, L. (2011). El "espejo patrimonial". ¿ilusión narcisista o reflexion es múltiples? Antipoda(12), 39-63.

Smith, L. (2013). Editorial. Internacional Journal of Heritage Studies, 325–326.

Spennermann, D. H. (2006). Gauging Community Values in Historic Preservation. CRM: The Journal of Heritage Stewardship, 3(2), 6–20.

Stenseke, M. (2016). Integrated landscape management and the complicating issue of temporality. Landscape Research, 41(2), 199-211.

Stephenson, J. (2008). "The Cultural Values Model: An Integrated Approach to Values in Landscapes.". Landscape and Urban Planning, 84(2), 127-139.

Stewart, W. P., Liebert, D., & Larkin, K. W. (2004). Community identities as visions for landscape change. Landscape and Urban Planning, 69(2-3), 315-334.

Swanwick, C. (2002). Landscape Character Assessment: Guidance for England and Scotland. The Countryside Agency and Scottish Natural Heritage.

Tempesta, T. (2010). The perception of agrarian historical landscapes: A study of the Veneto plain in Italy. Landscape and Urban Planning, 97(4), 258-272.

Tudor, C. (2014). An approach to landscape character assessment. Natural England.

Tveit, M., Ode, A., & Fry, G. (2007). Key concepts in a framework for analysing visual landscape character. Landscape Research, 31(3), 229-255.

Uuemaa, E., Mander, U., & Riho Marja, R. (2013). Trends in the use of landscape spatial metrics as landscape indicators: a review. Ecological Indicators, 28, 100-106.

Wagtendonk, A. J., & Vermaat, J. E. (2014). Visual perception of cluttering in landscapes: Developing a low resolution GIS-evaluation method. Landscape and Urban Planning, 124, 85-92.