Riverscapes and Watersheds: Cultural Heritage Layers Along the River Guadalbullón (Jaén, Spain)

Pilar Chías and Tomás Abad

Abstract Humboldt went beyond the old concept of landscape as a mere visual scene. The modern notion aims to find a landscape's inner structure by means of dynamic visions provided by panoramas and itineraries. These prove to be particularly useful when applied to the analysis of riverscapes. According to Braudel, a landscape is a cultural construction in the guise of something natural, and this is particularly evident in the proposed case study. From the perspective of natural processes, the River Guadalbullón flows along a narrow valley with a variety of land forms and topographical features. From the cultural point of view, the river was the borderline between the Muslim territories and the Christian kingdoms throughout the Middle Ages. They were linked by means of an ancient royal road that was recently transformed into a highway from Madrid to Málaga, thereby subjecting the landscape to considerable strain. But the narrow valley still conserves old archaeological sites that date back to the Bronze Age. The old route is still in use and dotted with lodgings, bridges and watermills as described by the travellers since the 17th century. The castles that controlled passage through the valley also survive, as do the *atalayas* which sent out visual signals alerting to dangers. All of them share the same space as ancient crops like oil groves, elements of vernacular architecture such as *alquerías*, and ancient opencast mines. This study aims to prevent the disappearance of all these structures, to avoid the extinction of species, and to preserve the memory of territory and landscape.

Keywords Landscape · Sustainable development · Territory · Regional planning · Local identity · Ancient cartography

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1 Introduction. Concepts and Goals

Ever since Humboldt, the idea of a landscape as being merely a visual scene has been superseded by a modern conception which aims to discover its internal order. To do so it turns to the dynamic vision afforded by panoramas and itineraries, which prove to be of particular use when studying landscapes with a linear development, most especially, riverscapes.

A complementary approach tackles the evolution of the idea of landscape from a heritage-centred concept tied to monuments—to what is singular and exceptional—but also in terms of its broader territorial dimension [1], thereby going beyond aesthetics to include ethical, scientific, social [2] and pedagogical dimensions.

On the basis of this encounter between the natural and the human, thinkers like Braudel [3] regard landscape as a cultural creation in the guise of something natural since the direct or indirect impact of human presence has transformed unspoilt natural areas into areas at risk, when it has not effaced them all together.

Today it is this view of the land as a constructed or produced element [4–6] which prevails. Landscape is a palimpsest requiring an analysis which attends to the natural geographical support as well as the elements that have been built over time, and which assesses their degree of insertion and extension, the ways in which the new is grafted onto the old, and the extent to which the landscape has been transformed during the process of absorption or being put to new uses. To this end, methods must be used which adopt the essential evolutionary view, which is now commonplace in urban studies but has only recently started to be applied to territorial analysis [7, 8].

Consequently, we approach territorial analysis as the key component of local identity, as a deconstructive process requiring deep knowledge of a landscape's internal structures and thereby throwing light on long-past modes and conditions of life, skills and capacities, and assesses resources and the multiple ends to which they are put. Thus, territorial analysis becomes a source of historical knowledge about societies of the past [9].

The goal of this research is to prevent the territory from disappearing and to recover its memory as the first step towards developing it respectfully and sustainably for tourism, thereby regenerating the local economy.

1.1 The River Guadalbullón Valley: Historical and Geographical Context

Focusing on the how a territory and a landscape are constructed is particularly apt in the case of the Guadalbullón valley. Its river a tributary of the River Guadalquivir, the valley has been inhabited continuously since the Bronze Age (2nd millennium BCE) [10] and traversed since time immemorial by an important communications route joining the Mediterranean coast and the Central Plain (Figs. 1 and 2).

Fig. 1 Location of the Río Guadalbullón Valley in Andalusia, Spain. *Source* ESA/NASA Spain, Copernicus Sentinel Data, 2/3/2016. The red rectangle corresponds to the area studied here

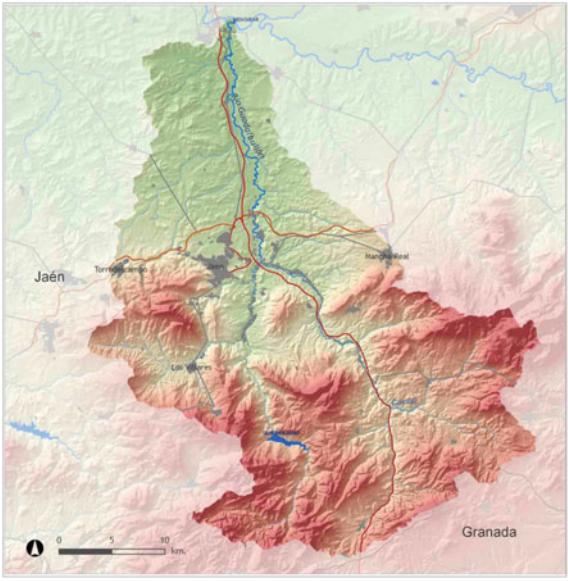

Fig. 2 The Río Guadalbullón Valley. *Source* The Andalusian Government's Centre for Landscape and Territorial Studies, 2012

It was when settled by the Iberos (7th-1st c. BCE) that the first territorial structure began to take shape along the lines of a *pagus*, with the building of a shrine at the river's source and the foundation of various *oppida* wherever there was fertile land for farming and ground of sufficient elevation to control the pathways and tracks [11].

After the Roman victory in the Second Punic War in 201 BCE, the main Iberian *oppida* were transformed into Roman settlements: *Iliturgi*—situated where the Guadalbullón flows into the Guadalquivir—was re-founded and converted into one of the area's principal markets; similarly, Puente Tablas, 18 km further upstream from Iliturgi, was inhabited almost without interruption until the Islamic period.

In order to safeguard communications between the upper Guadalquivir and the intra-Betic region, under the reign of Augustus Caesar a road was built between 8 and 7 BCE which followed the course of the Guadalbullón downstream towards the sea [12]. Evidence of this are the four milestones which have been found along the valley. These not only prove that it was part of the *Viniolis-Mentesa* section of the *Acci-Castulo* road, but also testify to the successive restorations and improvements carried out under the emperors Hadrian (136 CE), Maximinus Daia (305 CE), Constantine (307–317 CE) and Crispus (317–326 CE) [13].

The valley's strategic location led to the reinforcement of its system of vigilance. To this end, a line of 11 watchtowers was built, each four km from the next and visible the one from the other. This way, not only was transit along the valley controlled but visual signals could also be sent to transmit messages. The line stretched from Castillo de Arenas in the upper stretch of the river to Torre Bermeja, in the lower lying land around Jaén. A number of archaeological finds show that these towers were reused throughout the Middle Ages (Fig. 3). These finds have been duly geo-referenced in the maps we have drawn.

Nonetheless, the road was always a dangerous route because of the steep slopes of the valley's sides and occasional flooding. Moreover, the higher land's orography and plant cover made it home to bandits and renegades. As early as 765, documents attest the existence of uprisings in the Muslim district of *Wadi Abd Allah* or "Río of the Guard"—that is, of the Guadalbullón [14].

Fig. 3 Landscape where the highland and lowland zones meet in the River Guadalbullón valley. The tower "Torre de la Cabeza" in the village of Pegalajar, aligned with the Royal Road or "Camino Real". *Photograph* The authors

Between the second half of the 13th century and the late 15th century, the valley remained a frontier zone with shifting limits which separated Christian territory from the Nazari kingdom of Granada. It was the scene of constant skirmishes which forced the settlers to take refuge in the impressive fortresses of Jaén and Puerta Arenas. These skirmishes also led to a considerable slump in population and the appearance of large areas of wasteland, the valley's fertility notwithstanding. As a consequence, the centre of population that lay on the border enjoyed certain royal privileges in matters of taxation and franchises, and that transformed them into genuine emporia and encouraged resettlement.

Otherwise, the highland areas that spread out to either side of the valley were a mixture of woods with dense undergrowth, making them perfect hunting grounds, with, here and there, meadows for grazing.

When truces permitted, the valley was a thriving commercial hub between the Guadalquivir valley and Granada. Markets were held frequently and their locations survive in the place names of today. In fact, by the late 15th century two roads ran in parallel, one of either side of the river: the road on the left bank was known as the "Road of the Dale of the Gate of the Tower of the Star" (Camino de la Cañada del Puerto de la Torre de la Estrella), where the toll was charged; this was the route taken by the *almayales* or cross-border traders. The road on the right bank climbed up to Cambil—today's Carretón—Pass and was used by the Catholic Kings as a military route when engaged in the conquest of Granada, whose fall would culminate the Reconquest (Fig. 4).

Peace brought appreciable changes to the valley's physiognomy. The economy and people's ways of life were changed, while the re-population of either old or newly founded settlements entailed significant changes to the landscape, which translated chiefly into the disappearance under the plough of large areas of woodland and meadows. New socio-economic ties were struck between the settlements in the valley which led to the legal independence from Jaén of other neighbouring settlements which had thitherto formed part of its "alfoz", or dependent villages.

The roads were subject to intense traffic in the following centuries, the one on the left bank becoming a Royal Road and, later, the main N-323 road, many stretches of which follow the course of the original. During the 18th century, King Philip IV and a host of other travellers to Granada—among them François Bertaut in 1659, who was followed by many more until the late 19th century—left records of their journeys through the valley.

As for geography and natural processes, the Guadalbullón boasts a number of fascinating singularities in so far as the valley is part and parcel of the territory and has a very varied geomorphology and geology (Fig. 5).

A look at the longitudinal cross-section of the river's bed shows how its drop in altitude—almost 500 m in Little more than 70 km—is significantly greater than those of the Guadalquivir's other tributaries. Yet in terms of its longitudinal gradients, it is a most homogeneous river.

As for the course of the Guadalbullón, it can be divided into three landscape types: the upper section, about 37% of its total length, from the source of its

Fig. 4 Gaspar Salcedo de Aguirre 1587: *Geographia o description nueva del Obispado de Jaén*. Biblioteca Nacional de España, Sign. MR/42/639. Manuscript map. The north is towards the bottom, the edges are graduated in leagues; approximate scale 1:350.000. The rectangle corresponds to the area studied here, with the city of Jaén as the centre-point

Fig. 5 The upper section of the valley seen from the road to Carchelejo. *Photograph* The authors

different branches to La Guardia is a riverscape typical of high mountains and highlands; in its middle section, about 36% of its total length, from La Guardia to Jaén, the river flows through lower-lying land, between hills or hillocks; the lower course may be subdivided into an undulating riverscape, 21% of its total length, until it reaches the floodplain of the Guadalquivir, and its final section of 1 km as far as the village of Mengíbar [15].

As for its physiognomy, the valley is notable for its irrigation agriculture—records of which survive from the 15th century—chiefly in the alluvial valleys and the floodplains to either side of the river between La Guardia and its outlet at Mengíbar. The uppers section of the river flows through natural landscapes with abundant trees and bushes. In this connection, the most extensive transformations have affected agricultural uses due to changes in the relative amounts of land devoted to irrigation and cultivated species.

Finally, the valley is home to unique aquatic and terrestrial fauna and flora, which need to be protected and are to be fond as well in the neighbouring Natural Park of Sierra Mágina and the Peri-Urban Park of Monte la Sierra.

All the foregoing is evidence of the valley's wealth of cultural strata, of that palimpsest drawn and built over a period of four thousand years, which more than justifies its analysis.

2 Methodology

Territorial studies are approached from different perspectives, among them those of geography, ecology … and territorial organisation and transformation, the perspective which concerns us here in view of our stated goals of recovering the memory of the territory as the first step towards developing it respectfully and sustainably for tourism, thereby regenerating the local economy.

In our case we have applied a methodology that has already been tried out successfully in other geographical areas of the Iberian Peninsula [16]. This methodology makes use of information and communication systems and other digital means offering ways of approaching heritage and its imaginary on different scales [17]. We implemented a geographical information system for heritage and organised the methodology into various steps.

As a starting point we delimitated the area of study with precision and decided to include in the research noteworthy features of physical geography—for example, points of high ground with invisibility the whole length of the valley, such as La Serrezuela (1127 m), the Sierra de Grajales (1660 m) and Monte Prieto (980 m)—, together with elements built by man through the ages. This was done by means of a thorough inventory of geo-referenced resources which was cross-checked with other inventories and existing plans.

The next step, consisting in the collection of data, entailed exhaustive documentary research encompassing written, graphic and cartographic resources, as well, of course, as the obligatory fieldwork which enabled us to verify the existence

or otherwise of the documented features and elements, to record their current characteristics, and to geo-reference them. Reminiscences, the collective memory and traditions were also considered. All this data is reflected in the relevant sketches at different scales and is stored in multiformat relational databases (Fig. 6).

The digital cartography on which the SIG was based was carried out on the National Topographical 1:50.000 Map Series-sheets 926, 947 and 969. The oldest

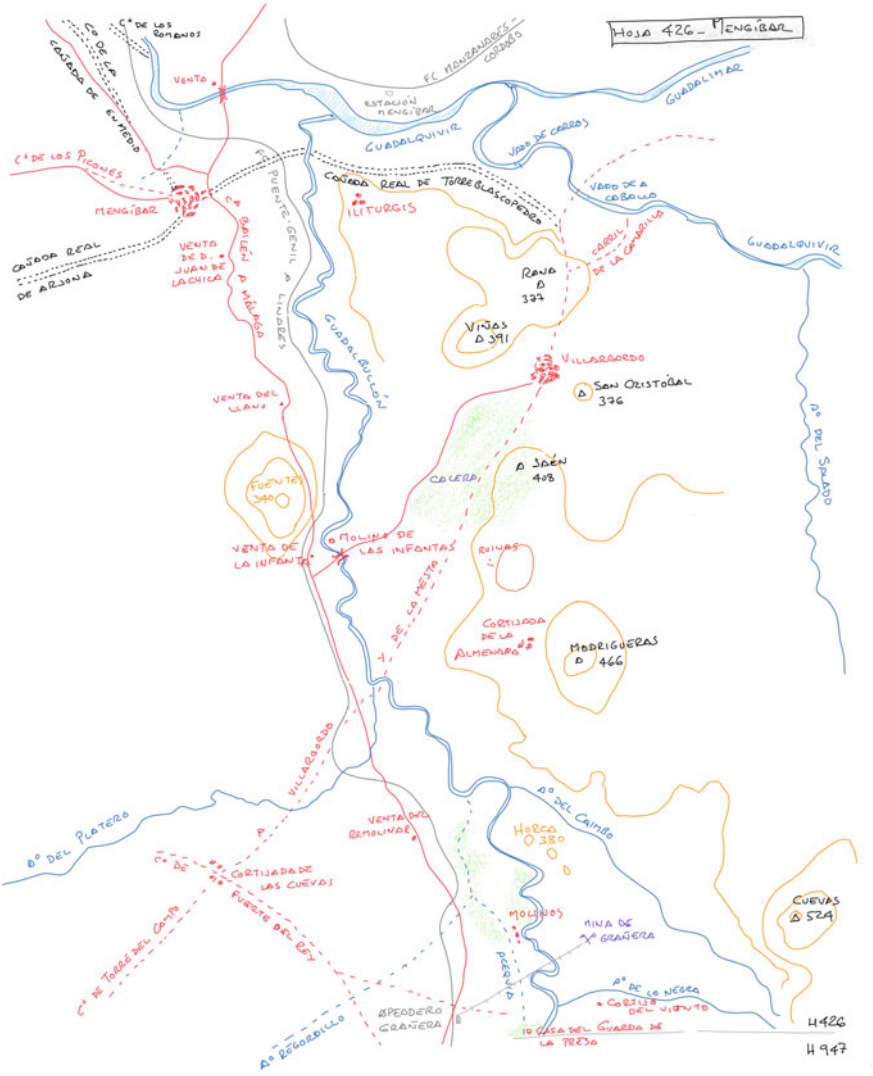

Fig. 6 P. Chías y T. Abad 2017: field sketch showing the heritage elements in the middle-lower course of the River Guadalbullón. The north is towards the top. Original scale 1:50.000

editions available were used with a view to recovering the toponymy. We then incorporated into the map the data collected from the different sources and the field work [18].

After referring as and when necessary to the SIG databases, we managed to obtain the information and to perform the analyses required to frame a regeneration proposal.

3 Analysis and Action Proposal

Our analysis was focused on locating and defining the weaknesses of the structured and dynamic system which makes up the valley, as well as on identifying its sources of potential.

Its most egregious weakness is the impact of edification since the river is under considerable strain around the built-up areas of Cambil, Jaén and Mengíbar, where spaces traditionally devoted to agricultural uses have been occupied by buildings which at times actually encroach upon the riverbeds. It is particularly urgent that the over-exploitation of aquifers should be avoided if the springs are to be preserved—a case in point being the unique hydraulic system of Pegalajar—, and that crop transformations be controlled in order to weaken the monopoly of the olive grove and its pernicious effects on market gardens and orchards.

One of its sources of potential include a group of features which make it unique and worth preserving, reinterpreting and revaluing. Moreover, the river enjoys great ease of access, and that smooths the way for proposals for recreational and leisure activities such as fishing in the lowland trout preserves around the headwaters or bird-watching in the area of Puerta de Arenas-Santa Lucía.

Other noteworthy public uses and festivals of interest to tourists include the Santa María Magdalena de Mengíbar pilgrimage, which takes place on 14 July and includes an open-air celebration on the riverbank. In this connection it might be remarked that in an effort to support tourism, the European Union, the Ministry of the Environment and the Government of Andalusia have published a guide to the region's gastronomy and designations of origin, not to mention other local and regional tourist guides, and that there is an ample supply of accommodation, including campsites and hotels in the main centres of population.

On the basis of our analyses and inventory of heritage resources, our conclusion is that the most valuable action for regenerating the valley should focus on proposing the creation of a heritage park capable of uniting the different periods of the river's shared history and of providing a coherent and attractive interpretation of it, which is borne out by the available resources [19].

As in the previous steps, we carried out exhaustive documentation of the historical periods which are best represented in the valley before defining a series of thematic sub-areas with a common link serving as the backbone to a specific narrative.

Fig. 7 Correspondence concerning the 1774 suit over the demarcation of the vale of Cazalla, Jaén. Archivo Histórico Nacional, Madrid, Sección Nobleza, Bookmark BAENA C.254, D.159–176

Thus, we were able to define clearly distinct sub-systems in a territorial area contained within the valley as a whole and the park. Among the sub-systems we propose are: 1/the sub-system formed by the group of fortifications and defensive towers that punctuate the valley; 2/the hydraulic system of Pegalajar, comprising the Fuente de la Reja, la Charca and la Huerta, which, organised into terraces supported by dry-stone walls or *jorfes* and prolonging the urban areas, constitutes an ecosystem and irrigation scheme which is unique in the Mediterranean; 3/the ranches, farmsteads and other types of popular architecture in the Dehesa de Cazalla, which together conserves an age-old system of land ownership (Fig. 7).

To define the project, we used the elements recommended by Lynch [20], namely *landmark*, *region*, *node*, *path* and *edge*, all of which have the additional advantage of lending themselves to SIG representation with the aid of dots, lines and areas, as well as to topographical verification.

All the foregoing has allowed us to devise paths to be followed using forms of transport which are related to the history as it is told—on foot, on horseback, by boat or by bicycle—since it is essential to get a feel of the route. The aim of all these paths is to enhance the image and uniqueness of each place while at the same

time maintaining a design in which everything fits the overall proposal. Finally, the resources inventoried which are not important to the sub-narratives were joined together later by means of secondary paths.

4 Conclusions

Although the River Guadalbullón valley is included in the Andalusian Watersheds Master Plan, and despite its unique collection of heritage and the need for economic development in the upper stretches, there is still no regional development project in place.

In this regard, one of our studies main conclusions is that the time is ripe for the creation of a heritage park in view of the results of our analysis of weaknesses and sources of potential.

A heritage park would attract visitors and investment alike, creating opportunities for further actions and areas for new projects.

And, with strict respect for the territory's features, the park should integrate the preservation of heritage resources by means of education, leisure, tourism and the economic development required to make living in the area a feasible and attractive option.

Finally, the adequate solution to each landscape lies in its very essence.

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