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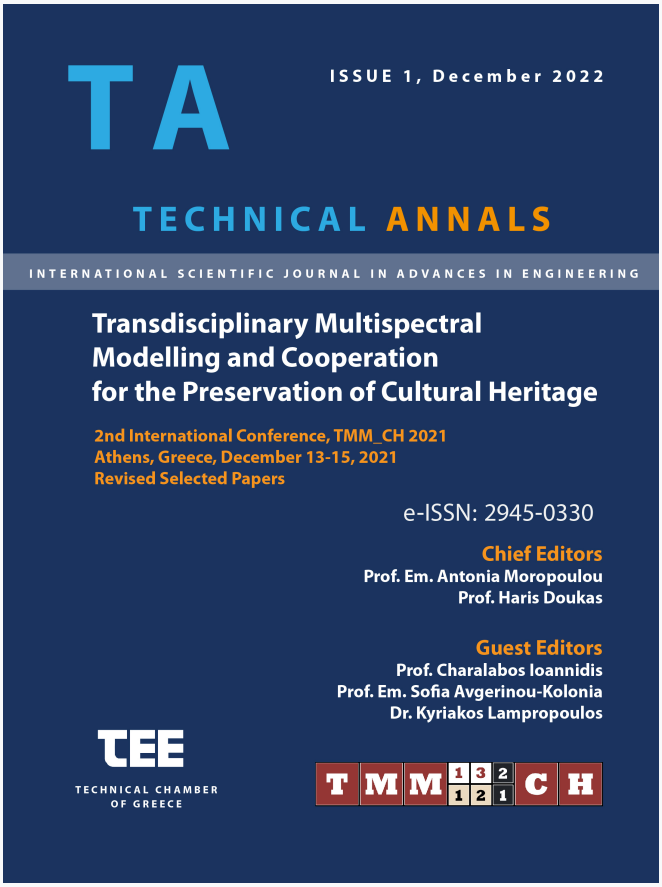

Promotion and protection of cultural heritage through interdisciplinary approaches: The case of Souli

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Promotion and protection of cultural heritage through interdisciplinary approaches: The case of Souli

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Abstract. "Mapping" a place, through systematic recording, analysis, evaluation and interpretation of its characteristics, is a necessary condition and basic tool for its protection and promotion.
"Reading" a place through different scientific areas, includes perspectives and interpretations that converge and interact. These approaches highlight multiple issues for a place, contributing to its "recognition" through time as well as its promotion.
The paper focuses on the contribution and importance of the interdisciplinary approaches and cooperation in cultural heritage management issues, on the occasion of a research carried out for Souli, one of Greece's most important historical sites.
Emphasis is given on the issues of Geometric survey and documentation and the relation to the overall levels of recognition and interpretation of space, through the example of the historic site of Souli. The correlation of geometric to interpretive approaches, quantitative and "metric" recordings to qualitative and intangible characteristics, also the production of a "tool" that contains as much as quantitative as quality features, are basic concerns of this paper.

Keywords: Promotion, protection, interdisciplinarity, documentation, mapping, Cultural Heritage, Souli

1. Introduction

This paper will discuss ideas of the contribution and importance of interdisciplinary approaches and cooperation in cultural heritage management issues. On the occasion of research carried out for Souli[153], one of Greece's most important

[53] The data and results presented in this paper, regarding the case of Souli, are involved in the

historical sites, the ways of "identify" a place will unveil, using interactive interdisciplinary processes and methods.

The paper will focus on the issues of geometric documentation and the relation to the overall levels of recognition and interpretation of space. "Reading" a place through different scientific areas includes perspectives and interpretations that converge and interact. These approaches highlight multiple issues for a place, contributing to its "recognition" through time as well as its protection, promotion, and management. In this context, key questions concern: The correlation of geometric to interpretive approaches, quantitative and "metric" recordings to qualitative and intangible characteristics.

2. The concept of mapping

Discussing some important terms for this subject, appears that different disciplines (in this case the surveyor and the architect) give the terms multiple interpretations. For example, the concept of **"mapping".**

Concerning topography and Data acquisition, since its birth, the scientific area of Geodesy - Topography, has as its object the correct geometric representation of both the Earth Surface and the structures located on it. This mission is composed of the triptych, data collection, data processing, analog or digital display in two or three dimensions. Today, using modern techniques - data collection methods (using total stations, GNSS receivers and unmanned aerial vehicles (UAV) or remotely piloted systems (RPS), can ensure both geometric accuracy and uncertainty, which can reach up to a few mm. The derivatives of this process, in two or three dimensions, whether they concern the depiction of the Earth Surface or individual structures, can be used for the more general and correct mapping. They can be embedded in special tools (ArcGIS) creating an ideal platform for mapping qualitative and quantitative characteristics of the study area.

Concerning architecture, the issue of mapping is directly related to the identification of the place and the components of its physiognomy and can be explored in different ways and at many levels (Konstantinidou et al, 2017). Moreover, mapping a place, through systematic recording, analysis, evaluation, and interpretation of its characteristics, is a necessary condition and basic tool for its protection and promotion.

It is not just a descriptive and metrical act, but a tool for recording, recognition, understanding, reproduction, display, and visualization of objective reality. Research methodologies use the process of mapping to expose the complex and often invisible layers of information that exist (Hadjisoteriou et al. 2015).

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research programme entitled: “RESEARCH OF THE HISTORIC REGION OF SOULI: PROMOTION, PROTECTION AND DEVELOPMENT OF ITS CULTURAL LANDSCAPE”, developed in collaboration of the Ministry of Culture and Sports of the Hellenic Republic, Region of Epirus, School of Architecture NTUA, 2020-2021 (Head of the research team :Elena Konstantinidou, Associate Professor NTUA.)

In his article ″The Agency of mapping, Speculation, Critique & Invention″ (Corner, 1999), James Corner talks of the map as having the power to ″Reformulate what already exists". Mapping is often understood as a technique for representing predetermined entities. This conception of mapping as a tool to visualize spatial concepts does not utilize the full potential that the map has to ″reveal″ the specific qualities of the site. In particular, mapping should serve as a process of identifying the elements that constitute the identity of a place, function eventually as a tool for its protection and promotion. Contemporary mapping research involves a process that is creative, evolving, and even interactive. Concerns not only tangible but also intangible elements of the place, and creates conditions of perception not only of its practical but also of its emotional and ideological image.

3. The case of Souli

3.1 The place

Souli is one of the most important historical places in Greece, related to the struggles for liberation and the recent history of the country. The significance of the place goes back in time, to the mythical beginnings of Greek antiquity. Furthermore, the place is symbolically identified with the highest expression of people with a free spirit and the demand for independence, associated with the overall political background of modern Europe and the Western world.

The region of Souli is located in Epirus, the prefecture of Thesprotia, in the northwest part of the Country. The settlements are located a few hundred meters above the river Acheron, at the top of steep hills, in a naturally fortified position (fig. 1). Tetrachori (Tetra- is the Greek word for Four. Chori- is the Greek word for Village. Tetrachori means Four villages.) (Souli, Samoniva, Kiafa, and Avarikos) is the core of the historic site, while during the heyday of the settlements (late 18th - early 19th century), four other villages in the northwest, also known as "Eptachori", joined the coalition of communities of Souli.

Today, the four settlements of the core, which are developed in about eight square kilometers from north to south, are almost destroyed. The extensive ruined area seems to cover a long period from the 18th AD, until the mid-20th century. A very interesting element of Souli is the existence of different tribes, named after their leader, placed on distinctive locations. The social structure was based on a patriarchal hierarchy adopted, mainly, from the need to survive and be organized in terms of fighting. The local economy was mainly based on husbandry. However, their most well-established engagement was in guns and war.

Authentic ruined houses, relics of castles and other constructions, water wells, churches and mosques, paths and forts and also agricultural facilities, sheepfolds, corrals, ruined huts, are the architectural reserve of Tetrachori. The inhabitants are few; it is an aging community, while the local economy is based almost entirely on husbandry. The natural landscape, rough, "Doric" is imposing and submits the strong impression of the direct interdependence of the historical becoming and the

natural environment. The area is a "historical place" and "cultural landscape" as it has settlements that maintain distinct historical traces and historical fortifications.

Fig. 1. General view of the area of Tetrachori of Souli

3.2 The research programme

The research program on "HISTORICAL REGION OF SOULI: PROMOTION, PROTECTION, AND DEVELOPMENT OF ITS CULTURAL LANDSCAPE" aims to ″recognize″ Souli, one of the most important historical monuments in Greece, in order to formulate proposals for the protection, promotion, and development of the region and its activation on the occasion of the celebrations for the 200 years of the Greek Revolution.

An expanded team that composed of faculty members of NTUA, University of Ioannina (Department of Architecture) as well as Metsovion Interdisciplinary Research Center (MIRC). Also includes representatives of the Ministry of Culture and the Region of Epirus, worked for the project, with about 40 specialized members of various scientific specialties. For the recognition of the special identity and the current situation of the place, tools of primary and secondary research were used, conventional and modern digital media, and mainly field research and recording.

The research revealed a number of elements, historical, natural, social, spatial, aesthetic, quantitative but also qualitative, tangible, and intangible. The final proposals, as the culmination of the research, based on the grid of natural and historical-cultural elements constituting the place of Souli. Proposals related to issues of protection of the natural landscape, preservation, and promotion of the historical elements of the place and the historical memory, also with the intentions of enhancing the visitation and the creation of cultural actions and cultural routes.

The research was structured in three (3) stages: The first concerned the collection of data (bibliography, data, existing studies and research for the area). The second stage concerned the **Identification – recognition** of the study area, the recording, and interpretation of the components of the place. Finally, in stage 3, the proposals for protection and promotion were formulated, based on the data of the previous analysis.

4. "Recognition" of the study area, interdisciplinary approaches

Interdisciplinary collaboration covered all phases of the research. This paper will focus on the 2nd stage, that of Identification of the study area, where the co-operation between surveyor and architect was crucial. Identification of the study area concerns the mapping of the structural characteristics of the place and its critical coefficients of promotion. It was based on primary and secondary research and was carried out using conventional and contemporary digital media.

The most important tool to understand the place was the acquaintance - the experience of the site, based on the fieldwork which included from the scale of the whole to the individual building. Mapping also included the collection of data from existing relevant sources of information (e.g. cadastral data, statistical indicators), also on personal contacts, and interviews with competent authorities and stakeholders as well as with the local community.

In particular, the systematic recording, analysis, and interpretation of the characteristics of the place include issues related to the historical significance, the Natural and structured environment, the particular identity, and Physiognomy of the place. Also, the economic and social reality of the region as well as the Institutional Status of ownership and protection. The main characteristics of the settlements and the problems were identified, as well as the critical questions and concerns for the future of the place.

The first stage of the identification of the study area concerns the creation of the appropriate geometric backgrounds, the **Topographic mapping of Tetrachori**, with the application of contemporary topographic and geodetic methods. The outcome of the topographic survey is used as the basic background of the **interpretive analysis** that follows. And not only. ***As we will see below, through specific examples, geometric and interpretive survey forms a dynamic interactive process.***

4.1 Built Environment

As already mentioned, today Tetrachori looks like an extensive ruin area. Kiafa and Avarikos are completely abandoned, while Souli and Samoniva have some newer constructions - houses and stable installations, corrals, and sheepfolds.

The condition of the place added a great deal of difficulty to the survey. In particular, the poor condition of the maintenance of the majority of buildings, roads, artificial configurations, accesses. In addition, the place access and the approaches to the buildings, both externally and internally, were difficult due to the vegetation, uncontrolled grazing, and use, but mainly due to the locally extensive collapse of the building stock. Soil erosion, the momentum of the streams that descend from the surrounding mountains, has altered the physical and technical passages. Many paths have been lost, while the existing ones are largely the result of intensive livestock activity. Thus, the space was not easy to perceive and capture, except in places where it was accessible.

4.1.1 Topographic mapping

Concerning topography, the research object is the surveying of the settlements of Tetrachori using contemporary geodetic methods and the representation in topographic diagrams. Thus, orthophoto maps and drawings of the three settlements were created, on a scale of 1: 1000 (fig.2, fig. 8), as well as drawings of parts of the settlements at a scale of 1: 200 (fig.5, fig.9).

For the creation of the orthophoto maps of the settlements[54], a UAV or remotely piloted system - RPS was used, specifically a quadcopter DJI PHANTOM 3 PRo 4. The course of the UAS flights was planned from the beginning. In Kiafa area flight altitude was set to 100m above the ground surface, resulting in a 2.82cm size of the pixel on the ground. Also, in Samoniva, flight altitude was 100m above the ground surface, resulting in a 2.98cm size of the pixel on the ground. In the area of Souli, flight altitude was 90m from the ground surface with the result of 2.53cm pixel on the ground.

The overlap between the aerial photographs, both in length and width selected to be 80%. A total of 15 control points were placed in Kiafa, 12 in Samoniva, 51 in Souli, while several 20 minutes flights were performed (1 for Kiafa, 1 for Samoniva, 17 for Souli). Also, a great number of photographs were collected, 290 for the Kiafa area, 305 for Samoniva, and 3738 for Souli.

Final drawings (scale 1: 1000, 1: 200), were created using the orthophoto maps in digital rendering, as well as terrestrial geodetic measurements. For the measurements of the above characteristic points, integrated total stations that can measure distance without a reflector were used. Approximately 2500 points were measured, for the creation of the 1:200 scale drawings for specific areas, in which all the information that was deemed necessary is presented. In the context of this integrated topographic survey, the possibility of producing 3D diagrams of specific areas was investigated, using a multi-station. The multi-geodetic station is a modern robotic geodetic station that also incorporates Laser Scanner features. The Trimble SX10 multi-geodetic station was used to create 3D imaging derivatives for specific points of interest so that they can then be used as backgrounds for restoration work.

The geodetic and photogrammetric methods used led to the creation of derivatives of high precision. Geometric characteristics of the area (such as roads, paths, historical landmarks, constructions, natural relief, etc.) were depicted in order to be used in the next stage for the integration of quality characteristics - information. In Orthophoto maps all the elements that constitute the place are displayed. Thus, at a later stage, can be used for the identification, not only of geometric but also qualitative qualities. Also, the 1:200 diagrams, lead to a detailed geometric representation of smaller areas of particular historical importance. The detailed information included (e.g., ruins of buildings, routes, boundaries, wells, characteristic trees), form the necessary background for the recognition of the area and the future formulation of the proposals for its promotion. They can also

[54] Kiafa, Samoniva & Souli at a scale of 1:1000, with an area of approximately 100, 100, 1100 acres

be used to compare and detect changes over time (before & after the time of the geometric documentation).

How, though, surveying presented above relate to the interpretation of the place, and how it contributes to its emergence? The example of the recognition of public space presented below, attempt to provide some answers.

4.1.2 Urban fabric, the network of roads and paths

In the topographic survey presented above, roads, paths, and other elements of the man- made environment were recorded, elements that are "visible" in the first level. ***However, the "revelation" of the historical network of routes, which was one of the primary issues in order to formulate the proposals for the promotion of the area, was substantiated through the research that followed.*** In particular, in addition to the topographic survey, the historical routes were documented through historical documentation and research in older recorded testimonies and studies. Also, through the knowledge of local residents and on- site observation, but also synthetic thinking about space and the possible correlations of individual points.

Thus, we observe that human activity in the settlement of Souli develops along the main road that runs through the whole Tetrachori. A newer paved road is configured in the current residential area. The rest of the road network includes dirt roads, which were opened mainly for access to livestock facilities. Finally, there's an extensive network of trails that are currently inaccessible, organic linings that form a complex route system. Their engravings, either follow the old paths or are re-shaped by the animal and human movement.

Several of the old paths can be identified by accompanying structures (stone steps, ascents). In certain places, authentic cobblestone paths are recognized (e.g. On the axis that connects the houses of Botsari and Dagli), also paths that led to churches (path to Agios Donatos-mosque, the path around the hill of Agios Donatos and Ag. Paraskevi, etc.), or on other major roads (path to Alogomantra, the path to Mourga and Ioannina, etc.). Many pathways, however, are difficult to recognize in terms of dating. Such can be considered the paths connecting the houses of important families (e.g., a path that connects the houses of Botsari and Dagli), as the often-hostile relationship between the tribes probably indicates the absence of their spatial connection.

In addition, according to the oral testimonies of the breeders of the area, there was a network of continuous paths on three levels, which ran through the entire mountain valley and the four settlements. This intersected in many places with the paths that communicated with the villages of the prefecture of Ioannina. Today, as already mentioned, the paths are often indistinguishable, due to the lack of cleaning and maintenance.

The interpretive "reading" of the place, revealed an "internal system" of interconnection, a network of main routes connecting the most important historical buildings, public spaces, and natural landscapes. Also, an "external system" of interconnection with other areas and points of interest, historical routes connecting the area with the hinterland and Acheron River, the mountaineering routes of the wider area, the old entrances to Souli, etc. (fig. 3.4)

Fig. 2 Orthophoto map of Souli settlement, scale of 1: 1000

Fig.3 Road network interpretation_Souli, 1:2000

Fig. 4 Landscape interpretation, 1:2000

Public space is the primary level of understanding a place, while it is also the basic and primary element for its promotion. Thus, it is proposed to highlight the networks mentioned above, before other interventions in the area. The "internal" network is the first that should be restored to highlight the site, as it will be the backbone of the movement, not only for visitors but also for all future interventions in the area and the development of archaeological research. This network runs through the whole area, connecting important monuments, such as churches, houses of prominent Souliotes, and special buildings, proposed to be restored for cultural uses.

Specifically, for the settlement of **Souli** (fig. 5-7), a movement network organized in small closed paths (loops) is produced escalates from the "center" (which is revived today at the point of the wells and the so-called parliament) to the periphery. Thus, the visitor can choose short routes that include nearby monuments, such as the church of St. Georgios, the School, and the Bousi House, or even more distant routes such as the Tzavella house to the north, the Souliotes cemetery at Panagia and Hasomeri.

Also, from Bousi House, the central path leads visitors to Botsari House, and from there to Dagli House, all significant landmarks of historical and architectural value, as representing homonymous tribes and have rarely typological elements. Specifically, Dagli house is located in the heart of the contemporary residential core of Souli, with easy access for visitors from the existing network of roads. The research team considers the promotion of the monument important, creating a museum or other cultural use, also by creating a central public space - a small square, concerning both the residential area as well as the central historical area.

Fig. 5 Topographic plan, 1:200

Fig.6 Promotion of public space, Center of Souli, plan 1:200

Fig. 7 Promotion of public space, Center of Souli, 3d rendering

Visitors can move through the new path created, through this small square, to the old path revealed by research, towards the old main path that leads North to the "Center" of Souli and South to " Koulies". The area of Koulies (South Towers) is one of the most impressive sites in terms of view, as it "supervises" the entire history of Souli, from Kougki to the Castle of Kiafa. The place is proposed to be used as an observatory.

The descent to the west and southwest crosses through the residential area to an area of imposing rock formations, probably a battlefield of the defending Souliotes. From there begins the authentic path up the hill to Kougi, one of the most important historical landmarks of Souli, since the epilogue of the heroic resistance before the final abandonment of Souli, was written there, with the explosion of the fortress by Samuel. The main proposal of the research team is to highlight and restore this route, which today is indistinguishable and not used.

Another interesting path is highlighted on the steep slopes of the hill of the Dragon, the homonymous district of one of the major tribes, at the eastern entrance of the village of Souli. These defensive houses had a view of the whole of northern Souli and its entrances, and today are not easily accessible or recognizable. The connection with the area of Souli is proposed through the revival of two paths: first the path on the ridge connecting with Kougi and Ag. Donato, and second the path that starts from the center of Souli in a northwesterly direction to the center of the Dragon ridge. The paths are also connected with historical routes, to Tsagariotikos river, Souli Mills, etc.

In general, all the routes in the settlement of Souli are circular, allowing the visitor alternative ways of discovering the area, ending up again in the center, completing a course in place and time.

A particularly important area of Tetrachorion is **Kiafa** (fig. 8-10). A unique beauty landscape, with intense relief, scattered with ruins. The landscape is dominated by two ancient trees and also an area with wells, as in Souli, built in the center of the settlement and at the highest point of the ridge. From this central area, various paths start, connecting with landmarks and points of interest, offering excellent visuals to the rest of Tetrachori due to the large altitude difference.

Fig. 8 Orthophoto map of Kiafa, scale 1: 1000

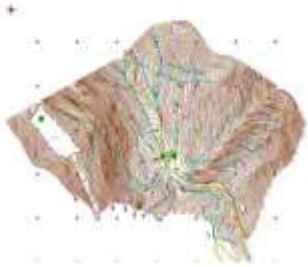

Fig.9 Topographic plan of Kiafa, 1:200

Fig. 10 Road network interpretation_Kiafa, 1:2000

Although, the most important event in the landscape is the ascent to the Castle of Kiafa, which dominates the area metaphorically and literally. In the course of the path, that leads from the area of the wells and the trees to the two gates of the castle of Kiafa, one can find the ruins of the church of Ag. Constantine's and Eleni (11a, 11b).

Continuing to the Castle, one arrives at the Zervas house, another important tribe of Souli. The house, located on the edge of the "Bira" ridge, overlooking Tetrachori from Souli to Avarikos, is proposed to be restored as a "museum of the history of the fortifications". As a reference to the particularity of the area as the place of fortification, every time Souliotes were attacked, during the war conflicts. The visit to the museum (possibly digital) and the ascent to the Castle of Kiafa, will offer a complete experience of historical tour and restoration of memory in the area.

Fig. 11a **Fig.11b**

Promotion of public space, Kiafa, 3d rendering

It could be said that the process of "revealing" this path highlighted to the maximum the issues of this paper, in relation to interdisciplinary cooperation in the field of heritage management.

5. Conclusion

The research on Souli revealed a place with important characteristics of a very strong historical, cultural, and political identity. Mapping revealed the special characteristics of the area, as well as its present identity, perceived as the base from where a potential development will be deriving. The creation of geometric derivatives, combining methods of measurement and processing, contributes to the design and implementation of proposals that will highlight the historicity of places.

The significance of experiencing and drawing the realities of the place through the procedure of recording was the actual process of discovering new narratives of the site. Consequently, past and existing events were brought together in a new light and allowed to coexist. This paper highlighted the approaches and interpretations on "reading" the historical place through different scientific areas. Different approaches revealed multiple issues for the place, contributing to its "recognition" through time as well as its promotion. Continuous and ongoing collaboration, as information comes from different disciplines is dynamic, evolving into the research in relation to the findings.

The survey is therefore an eminently interdisciplinary activity that is constantly evolving and is fed through the cooperation of the parties. The importance and necessity of interdisciplinary approaches and the contribution to the research are indisputable in cultural heritage management issues.

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