POLITECNICO DI TORINO

Honors thesis

MASTER OF ARCHITECTURE FOR RESTORATION AND VALORIZATION OF HERITAGE

Abstract

3D MODELS, GIS TOOLS, AND CARTOGRAPHIC SOURCES FOR A DIACRONICAL INTERPRETATION OF THE VALPERGA CASTLE TERRITORY.

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The Castle of Valperga still today an architecture that is not well-studied but encloses in its secrecy a strong image of the past, tells the story of a land rich in its natural resources, its landscapes and its castles. The study approach and the territorial and architectural analysis of the same have been defined through three different depth scales, developed in the contents of three theses of Master Degree for Restoration and Heritage Valorization.

This first thesis corresponds to the first part of the work, carried out on a larger scale, which deals with the diachronic analysis of the Canavesano territory and the territory of Valperga, through the use of the GIS platform and processing the Ortofoto through the innovative Aerial Photogrammetry (UAV) technique with Drone's footage.

By developing and deepening this research strand combining different disciplines for the conservation of cultural heritage with computerized representation techniques, the Geomatics Laboratory, DAD's professors, collaborators and trainees conducted and completed the 4DILAN project. This is part of a wider application and subsequent diffusion of innovative digital technologies involving robotic systems. The objective was achieved through the innovative integration of methods to define new analytical strategies for knowledge of heritage and cultural landscape

The work is devoted to the careful study of the most significant cartography from the 17th to the 20th centuries, for the historical-territorial knowledge of the Castle of Valperga and its position of relevance within a strongly anthropic context. The proposed synthesis system has allowed to read the history of the Castle within the landscape in which it was made, through the creation of diachronic cartography through the GIS tools for cartographic restitution, which makes it possible to immediately make consultation systems and visibility of the historical territorial transformation processes brought to the present reality.

Information traces derived from maps and textual sources, crossed with the observation of the territory, allows to reconstruct the historical dynamics of land use and landscape transformations. Experience through the application of these survey techniques related to built spaces and artificial environments has been achieved with the aim of improving the ability to analyze transformations and layers that have occurred over time and are no longer directly legible or interpretable on evidence produced.

Initially, an in-depth study of the history and the important events that transformed the Castle of Valperga and its immediate context was carried out. Historical analysis has made it possible to locate the area of interest, from which it was found that the historic area to which the Valperga Castle belonged was much wider than that encompassed by the regional landscaping.

As mentioned earlier, the thesis provides a timely analysis of Valperga's site, which aims to highlight the most characteristic and significant elements of the landscape. In order to carry out the diachronic analysis, a layered reading was proposed, by direct comparison of the historical detail cartography with the current cartographic base. This was possible thanks to GIS tools that allow georeferencing raster cards without any geographic reference, starting from a previously georeferenced layer (vector or raster), finding reference points in both cards.

The ultimate aim of the theoretical and practical study on the Castle of Valperga is to contribute to the historical-territorial and architectural-structural knowledge of the good. The processing of unpublished materials has created new tools suitable for the preservation and enhancement of good in the future. From these theses can start new studies and research and other possible developments and insights.

figura 1_ Risultato finale dell'Ortofotocarta del Castello di Valperga.

Figura 3_ Risultato finale della georeferenziazione della mappa *tippo nel quale si dimostra il Castello di Valperga con tutto che si trova intorno ad esso (…).*
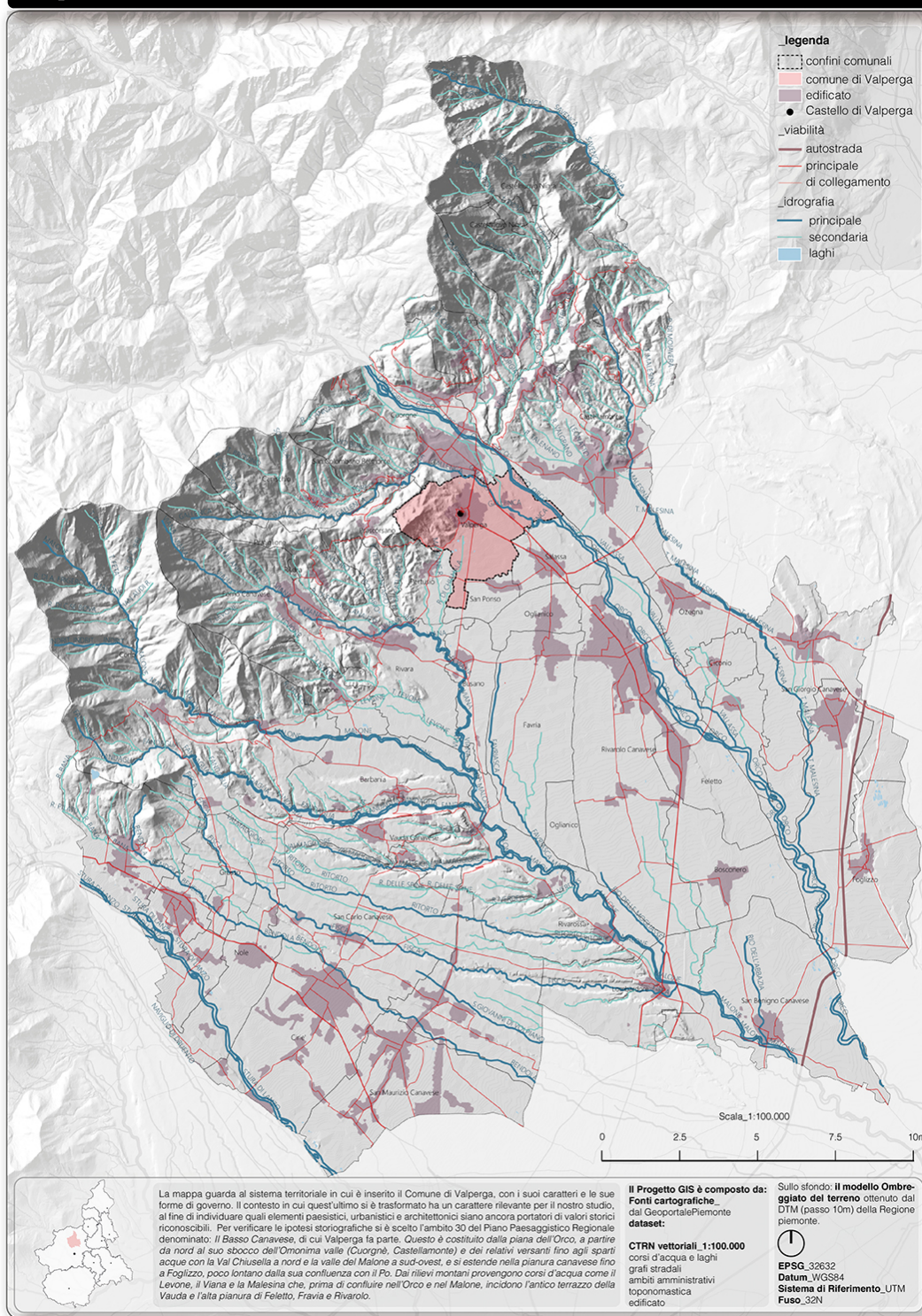
figura 2_ Carta di Inquadramento Territororiale: *Basso Canavese*.

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