



POLITECNICO
DI TORINO

Honors thesis

DEGREE IN SUSTAINABILITY DESIGN

Abstract

Architecture and nature of archaeological landscapes

Spatial analysis integrated into the WEB-GIS for storing and communicating historical memory:

The Archaeological Mine Park of San Silvestro

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This thesis is based on the study of the Archaeological Mine Park of San Silvestro, in the province of Livorno, a few kilometres from the coast, located in the area of the Val di Cornia Parks (a system of archaeological and natural parks and museums in the south-west of Tuscany).

This place is deeply marked by the history of many populations that, from the Palaeolithic to the last century, settled in this area in search of minerals (for instance: copper, lead and silver).

This heritage, came to us, is the result of man-made changes in the nature of the territory and, therefore, needs to be valued.

The work was born from the experience of surveying on the field, thanks to the stage organized by the Team Direct (Disaster Recovery Team). The initiative aims to contribute to the protection of the territory, the historical buildings, the environmental, architectural and archaeological heritage.

The park was born thanks to the archaeological site discovered by the University of Siena. The area is part of the landscape and it represents an high cultural value, subject to the requirements of ordinary maintenance and risk of deterioration.

The study uses methods and techniques of geomatics to provide digital tools for the knowledge, the fruition and the communication in order to promote the cultural heritage, the architecture and the landscape indeed.

The survey techniques adopted by the Team Direct are used in this thesis to obtain tools targeted to data processing. These tools, and the use of GIS (Geographic Information System), can be included in a reference system and, afterwards, they can be used as spatial monitoring tools and to create an historical database, as a witness of the great and long history of these territories.

At the heart of this study there is the intention to understand the reasons of the creation of the park and the need to value and protect the archaeological heritage and the landscape. It's imperative to adopt search strategies for the smart and sustainable preservation of the cultural heritage, methodologies and techniques to study and value the sites, techniques for the preservation and communication of the memory, in order to integrate protection and a sustainable development. So the thesis aims to create support tools for the communication of the signs left by the people who inhabited the hills of Campiglia in the past.

The aim of the thesis is to lay the foundations to develop a WebGIS, a GIS published on the Web, that lets the user integrate geographical data from different disciplines within a single information platform. This study is therefore devoted to the establishment of a database that witnesses the growth of the Park.

In summary, this process of thesis aims to provide a territorial heritage valuing process, an archaeological and historical support of the Campigliese landscape that began with the birth of the Val di Cornia Parks System.

The creation of an integrated database also aims to propose a case of study applicable to other territories, architectures and landscapes. The data collection, a steady site monitoring, its protection, conservation, knowledge and usability are synonyms of an environmental, social and economic sustainable development.

The potential of this WebGIS model lies in the opportunity of integration, updating the database with new data acquired during previous or future stages (for instance, in the case of the park, those of a future Team Direct), and in the access to an Open Source system upgradeable also by less skilled users.

WebGIS of the Archaeological Park of San Silvestro might become in the future a complete and usable geoportal: the Geopark.
