Lands of the Middle Fiora Valley in Prehistory and Late Prehistory from Survey to GIS

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Abstract. The main aim of this paper is to anlyse the historical processes of the settlement of the Middle Fiora Valley, from Palaeolithic to Iron Age. To deal with this kind of subject the research team availed of specific instruments: a georelevant cartographic database in which the spatial and topographic information of each site are stored and which are organized into two types of forms, the Site Form and the Archaeologic Unit Form.

The study has as its principal goals the understanding of the transformation mechanism of the territorial structures during the different period of time and the recognising of the general trends regarding the population processes.

Nuccia Negroni Catacchio studied the methology of the project, Massimo Cardosa the archaeological contents and Alberto Tagliabue designed the Information Technology basis.

1. Introduction

This paper describes a research project realized by means of the GIS system application to the study of the population process in the lands of the Middle Fiora Valley from Palaeolithic to Iron Age.

The Fiora Valley is a very interesting landscape from an archaeological point of view and, in fact, in the surveyed area (Farnese, Valentano and Ischia di Castro – Latium) more than 120 sites ranging from Palaeolithic to Iron Age have been recorded in past researches.

This paper is structured in two parts: in the first one it is described the process of the realization of the georelevant database through the chosen metodology, the structure of the application and the aims of the project, while in the second part the main results of the study are described.
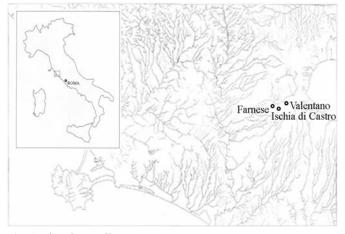

Fig. 1. The Fiora Valley.

2. Designing of the Georelevant Database

2.1 Metodology

With reference to the chosen metodology the attention of the work was based on two aspects:

1. the creation of an open architecture that could also be easily integrated with new data of different typology;
2. the definition of the particular grade down to which we wanted to get in the type of choice and information storage. To registrate, analyse and visualize the large amount of information collected through the research which in the future will be combined with all the data collected by the research group of the University of Milan, in the lands of the Middle Fiora Valley, coordinated by Prof. Negroni we wanted to elaborate a GIS platform bound to the integrated management of archeological data, concerning both the topographic research (Site Form, Archeologic Unit Form) and the activity of the excavation (Sector Form, Context Form, Structure Form, Findings Form, etc.).

In particular the information system is based on a cartographic database, elaborated with an Access routine, witholding information about space and time of the different sites organized by the Site Form and the the Archeological Unit Form.

The archaeological records analysed will be then overlapped to the modern digital cartography, ready to be used by different kind of purposes, such as, for example, scientists interested in the reconstruction of the social, economical, cultural organization of the ancient community, the ones having interest in safekeeping for the management of the archeologic heritage and, not less important, the non-scientific users.

The research has been divided into the following work phases:
1. information coding,
2. structure of the forms, database,
3. creation of a control vocabulary to ease the data-entry activity,
4. design of a user interface in order to simplify the data-retrieval operations and the data visualization,
5. data entry,
6. realization of the digital and georelevant cartography,
7. integration of the digital and georelevant data with the database.

2.2 Structure of the application

The second phase of the database realization is related to the analysis of the system structure.

The GIS platform is designed as a 'triangular' structure, whose vertex set up three different IT solutions, each one correlated to the others:
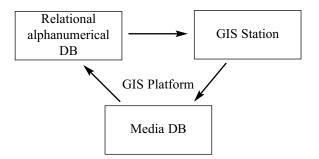
Let's clarify now how these three solutions are realized.

Relational Alphanumerical DB. The Relational Alphanumerical DB is composed of all the information files as part of topographical researches (Site Form, Archeologic Unit Form) or activity of excavations (Sector Form, Context Form, Structure Form, Findings Form, etc.).

All these files are correlated.

GIS Station. The GIS Station is designed on the Arcview suite (ESRI) that manages the georeferential data and can handle the different files DBF formatted using Access.

Media Database. The Media Database is composed of images, pictures, excavation plans, adequately stored on CDs, due to their extremely large size, and ready to be utilized.

2.3 Application's achievements

One of the major achievment of the application is the creation of a 'distribution sitemap', as in the tradonal arecheological cartography. It represents an ITcartographic support containing the topographic units.

Both historical research and safekeeping cannot be satisfied only by traditional cartographical tools.
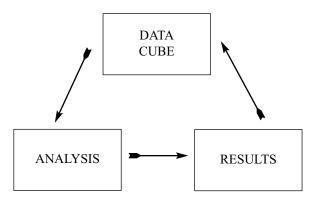
They need instead more sophisticated instruments like the 'synchronic' maps described, fundamental to detect the positioning and orientering of each site in relation to the others, and the peopling evolution during the different ages.

The "phase" maps we have implemented and showed hereafter are simple to reproduce and very useful for eye balling analyses of the sites distribution.

Two other very important aims achieved are:
a. having created a data cube:
   As already mentioned the open structure ease the data entry process, grouping and sorting the information collected.
b. having created a handy consultation tools such as:
   1. quick and easy data management either in data entry, updating, and anlysis;
   2. real time and customised output of models for data analyses;
   3. re-cycling and reusability of the 'raw' results to be used in new analysis.

3. Conclusions

The analyisis of the sites has been done in a chronolocial diacronic way.

Statistics has been drawn considering three site features, when available:
a. morphological parameter;
b. distance from the main rivers (Fiora, Olpeta);
c. findings classes;
d. settlement patterns related to a) and c).

The evidences collected confirm an intensive frequentation of the Middle Fiora Valley, with a stable human presence since the Paleolithical era.

We briefly summarize the evolution of the distribution and density of the settlement in the valley from Palaeolithic to Iron Age.

During the Palaeolithic a large number of sites has been identified, particularly distributed along the Olpeta river, mainly in plain and slope areas, without any natural barriers.

During the Neolithic the preference for plains in the neighbourhood of rivers seems to continue.

Recently a large number of sites has been disclosed, among which is worth mentioning the site of Poggio Olivastro, a very important site on a high naturally defended crag, but situated out of the area considered in this project, Grotta di Settecannelle, a sacred place and Grotta di Carli, with a ritual function.

Starting from the Chalcolithic the site location pattern changed dramatically, in favour of high grounds.

A significant feature during this period is the relevant number of necropolis, like the Ponte San Pietro one.

As a contrast, the small number of settlement gives little kowledge about the housing structure of the period.

Ancient Bronze Age sites are located on high grounds, as well as during Chalcolithic, but on the contrary they are settlements.

Furthermore it is highlighted the development of metallurgical activities signalled by a particular kind of finding, the hoards, such as in the Cartalana – Ponte dell'Arsa site.

Middle Bronze Age is characterised by a continuous positioning of the sites on high grounds.

Among the sites, the settlements keep on being predominant, though, a greater frequentation of natural caves has to be registered as a new feature: Grotta Nuova, Grotta Misa, Infernetto.

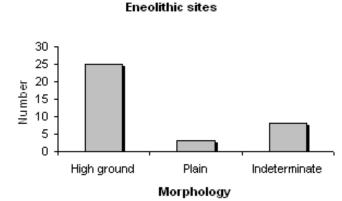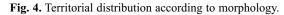These sites are distributed within three areas:
1. along the Fiora river;
2. along the mid-course of the Olpeta river, the most important area for the number of recoveries;
3. along the upper course of the Olpeta river, within the Latera's caldera.
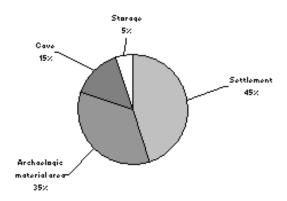
Also for Recent Bronze Age, considering the few analyses done, the trend for the choice of plains is confirmed, with a predominance of necropolis over settlements.
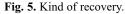
The recession of the number of settlements starts in final Middle Bronze Age (10 sites found versus 19 in initial Middle Bronze Age).

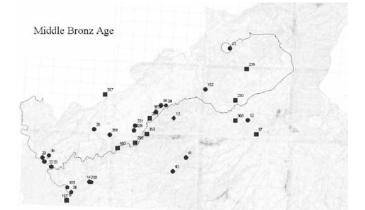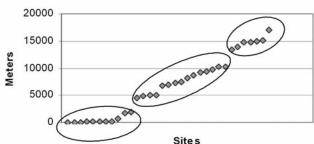**Fig. 1.** Palaeolithic site distribution.

Fig. 4. Territorial distribution according to morphology.

Fig. 2. Territorial distribution according to morphology.

Fig. 5. Kind of recovery.

Fig. 3. Territorial distribution according to morphology.

Fig. 6. Middle Bronze Age sites distribution.

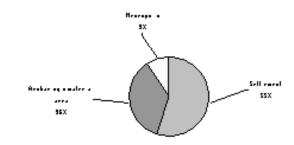**Fig. 7.** Sites distribution according to the distance from the Fiora river.

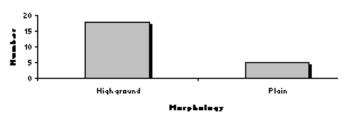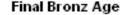
Fig. 8. Kind of recovery.

Fig. 9. Territorial distribution according to morphology.

During Final Bronze Age, we can see an increase of the sites, diversely spread out over the whole area; with an almost exclusive preference for high grounds.

However still little settlements if compared to necropolises. Some more hoards appeared, with their new role as bronze collectors (Pianizza site).

The presence of dwellings (e.g.: Sorgenti della Nova) and monumental burials (e.g.: Crostoletto di Lamone) could represent the birth of a more complex society.
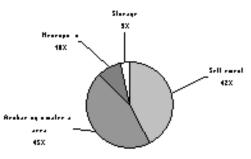

Fig. 10. Kind of recovery.

A deep split divides Bronze Age from Iron Age. No sites are detected during the first phase of Early Iron Age and only one for the second phase of Early Iron Age.

In fact, during this period, the process that lead to the birth of cities and put an end to Late Prehistory with the rising of the Etruscan civilization had already come to an end.

In fact the inhabitants of the small villages had abandoned their sites to move on to the wider plains, closer to the Tyrrhenian coast, and had started up a few larger settlements.

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