

# Settlement evolution, field systems and sedimentary processes in a Mediterranean mid-mountain (Montseny Massif, Catalunya)

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## Abstract

This paper presents the first results of a current research project about human – environmental interactions in the Montseny Massif. Our work sets out to integrate two research lines in the studied area:

- Archaeological and archaeo-morphological surveys in a lower part of the mountains in order to characterize the evolution of the settlements and field systems.
- The geological and geomorphological characterization of the slope and terrace deposits in relation with field systems and archaeological data.

First results point out the intensive occupation of these inland areas during the Iberian and the Roman periods. Post-Roman sediments show different processes of erosion.

**Keywords:** Landscape, terrace, antiquity.

## Résumé

Cet article présente les premiers résultats du projet de recherche portant sur les interactions société-environnement dans le massif du Montseny (Barcelone). Le travail vise à intégrer les deux axes de recherche développés sur l'aire d'étude :

- L'analyse archéologique et archéomorphologique du piémont du massif dans le but de caractériser l'évolution du peuplement et du système agraire.

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- La caractérisation géologique et géomorphologique du versant et des dépôts des terrasses en relation avec le système agraire et les données archéologiques.

Les résultats préliminaires attirent l'attention sur l'occupation intense de ces terres intérieures pendant les périodes ibérique et romaine. Des sédiments postromains montrent différents processus d'érosion.

**Mots clés:** paysage, terrasses agricoles, Antiquité.

## Introduction

In this paper we present the integration of the preliminary results of three research projects developed by members of the Research Group in Landscape Archaeology at the Catalan Institute of Classical Archaeology in their training stage. The first is focused on settlement dynamics and archaeo-morphological analysis of the road network in a pre-coastal plain region (FLÓREZ, 2010) ; a second one is focused on the formation processes of cultural mountain landscapes as a result of socio-environmental interactions (Garcia PhD thesis) ; finally, a third study is focused on the application of geomorphology and sedimentology on landscapes dynamics (Lladó Msc Thesis).

The common point of these three works is that the authors have coordinated all or part of their fieldwork in a specific area of study. In this way, we want to stress two points of view of how we consider that the landscape archaeology research must be conducted :

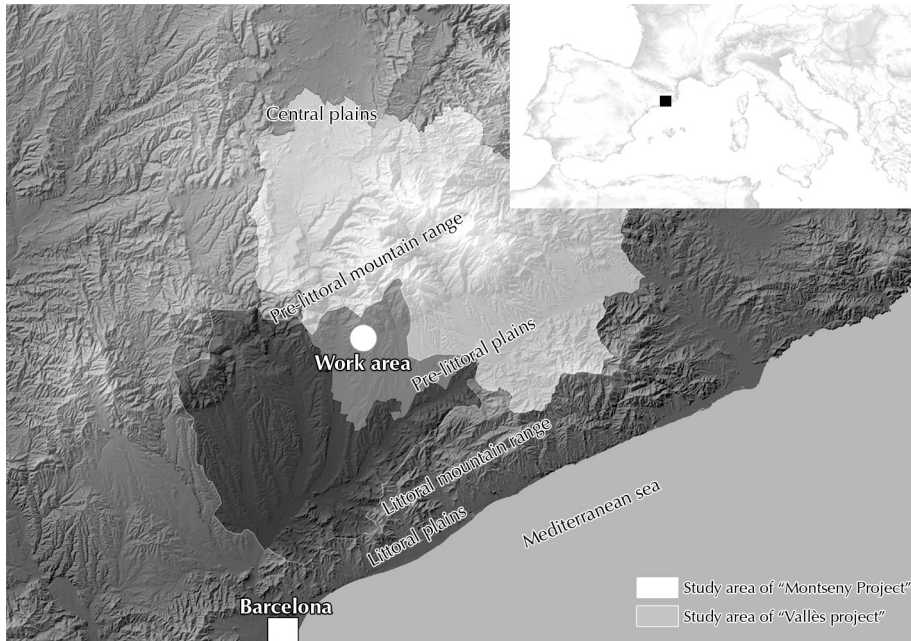
- The importance of collecting field data as the basis of archaeological work that allows to introduce new elements in the historical discourse.
- Multidisciplinarity, integrating data from different sources in a teamwork context in order to obtain a broad and accurate environmental, climate and human picture.

## Geographical context

The fieldwork was conducted in the lower part of Montseny massif (fig. 1), in contact with the pre-littoral plain (Vallès). Nowadays it is characterized by a mixture of farmland, forest and scattered settlement.

Although this area is not largely urbanized, the historical landscape forms are affected by the changes introduced by the mechanization of farming. Therefore, many areas of small terraces have become major fields. We can find the ancient morphology preserved inside today forested areas.

Montseny massif is a context of Mediterranean mid-mountain system defined as a Cultural Landscape. These middle-mountain areas (from 1000 to 2000 m a.s.l.) are largely extended in Mediterranean regions and they are characterized by geological, climatic and biological features, different from those known for low-mountain hills and plain areas. Historically, they have played a key role as a complementary resource for Mediterranean populations, providing food, forestry, charcoal exploitation, refrigerants (snow and ice), grazing and minerals. Therefore, settlement and land-use in this area follow specific patterns, being most of them scattered or



**Fig. 1.** *Situation.*

semi-scattered sites. However, these settlements and land-uses have been poorly studied owing to archaeological research has been usually focused on plain areas.

The Montseny Massif is located in a Pre-littoral mountain range in the region of Barcelona. The area is characterized by containing Mediterranean vegetation communities, but also vegetation typical from Central European environments (beech and chestnut woods) or from sub-alpine environment.

## Materials and methods

It is on course a bibliographic compilation of historical documents related to the studied area. We are also working on unpublished documents of the eighteenth and nineteenth centuries that belong to the land owners where we performed the surveys.

**Archaeomorphological analysis:** Using aereophotography and cartography (present-day and ancient) and specific surveys we are studying the main axes that served as road network.

In a initial phase of the studies, we developed a program of surveys in several archaeological sites in order to obtain a diagnosis about the “archaeological map”, evaluate the potential of different areas and identify possible problems.

In a second phase, an area of intensive survey was delimited. Each field was defined as a “unit of survey” and all the material was collected and classified. Results were statistically treated obtaining “density maps” which helped us to define “sites” and their characteristics.

For geomorphology and sedimentology, 58 profiles located in a geographical area that covers 1.2 square kilometres have been lithologically described in order to characterize the main sedimentary processes that were active during the different occupation periods and their temporal evolution. The lithological profiles were correlated using standard cartographic techniques.

We did three test pits in abandoned terraces which preserved the same morphology as that we found in the 18<sup>th</sup> century documentation. The objective was obtain a better knowledge about the origin and characteristics of these spaces. We collected samples from each level for sedimentological and anthracological studies.

Anthracological study: We have collected a large number of charcoal fragments that will be studied in the next months.

## Preliminary results

The different proxies give us positive results to characterize an ancient phase dated in late Iberian and Roman period (II<sup>nd</sup> B.C.-III<sup>rd</sup> A.D.)

Extensive survey shows an area of the lower-part of the mountain where it seems to be a concentration of sites that reminds to an intensive occupation, possibly from pre-Roman period. Intensive survey has allowed us to characterize the main features of this occupation (fig. 2):

- Land use remains spread for the entire studied area, with a well-delimited focus which is interpreted as settlement remains and storage and production structures.
- Most of ceramic contexts are dated in Republican and Early Imperial times. A different spatial distribution from each period must be pointed out. This fact could be related with changes in the occupation patterns (more concentrated around the “Puig Castell” hill during the Republican period and more scattered during the Early Imperial period).

Archaeomorphological analysis of the road network allows to define road traces, preserved as eroded and deep paths and stretches. Although we don't know their chronology, they are previous to modern road network and they join archaeological sites with the main Roman and Medieval road between the towns of *Barcino* (Barcelona) and *Ausa* (Vic) (the “Via del Congost”).

In this context, sedimentary processes suggest the presence of stable climatic conditions evidenced by the development of a caliche (B horizon of a soil) located just underneath the archaeological remains. Post-Roman sediments show different processes of erosion and deposition of alluvial sediments just covering the archaeological remains, possibly related to the unstabilization of the climatic conditions that occurred at the end of the Roman Period (fig. 3).

Preliminary valuation of pit survey results might confirm that these terraces have had a long use through the time and their origin could be in the Antiquity (fig. 4):

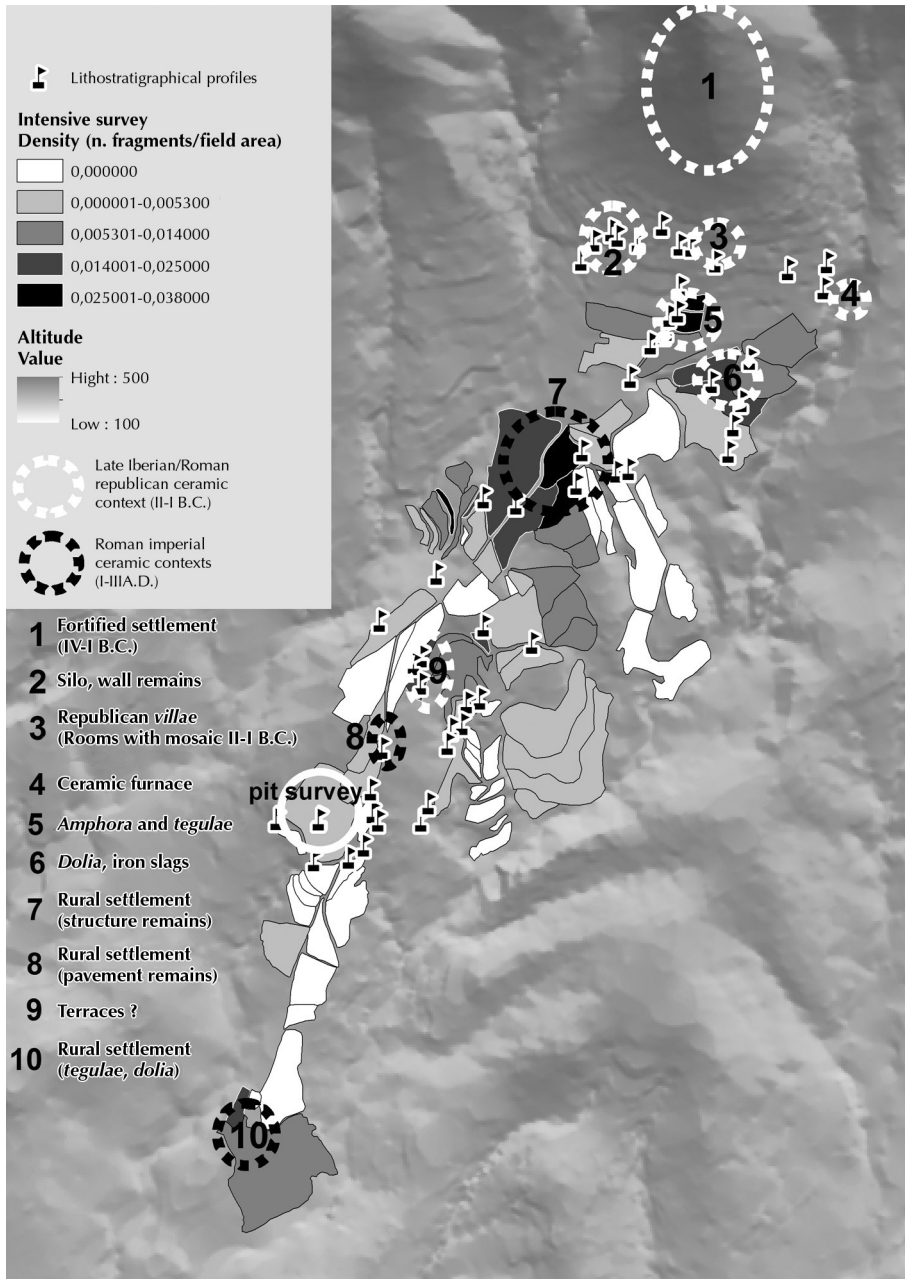


Fig. 2. Archaeological remains.



- Test pits stratigraphy shows a succession of layers that could be interpreted as paleo-sols. The ongoing sedimentological study will verify this first working hypothesis.
- Ceramic chronological context for the layers related to previous arrangements, construction and first use of the terraces is dated in Roman period.
- Modern use of the terraces is attested in the uppermost layers where eighteenth and nineteenth century pottery is documented, when the terraced system is also attested in written sources.
- Test pits do not almost contain constructive material as teguale or lime mortar. These kind of materials are common in other places where we have identified settlements, storage or transformation sites.

Profile 5

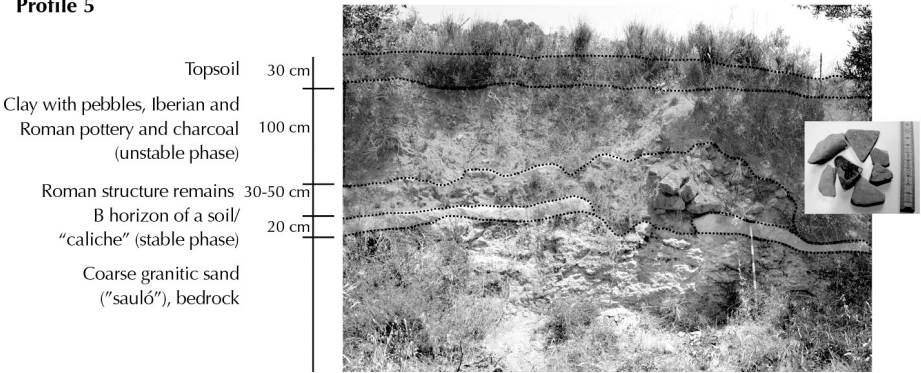


Fig. 3. Lithostratigraphical profile example.

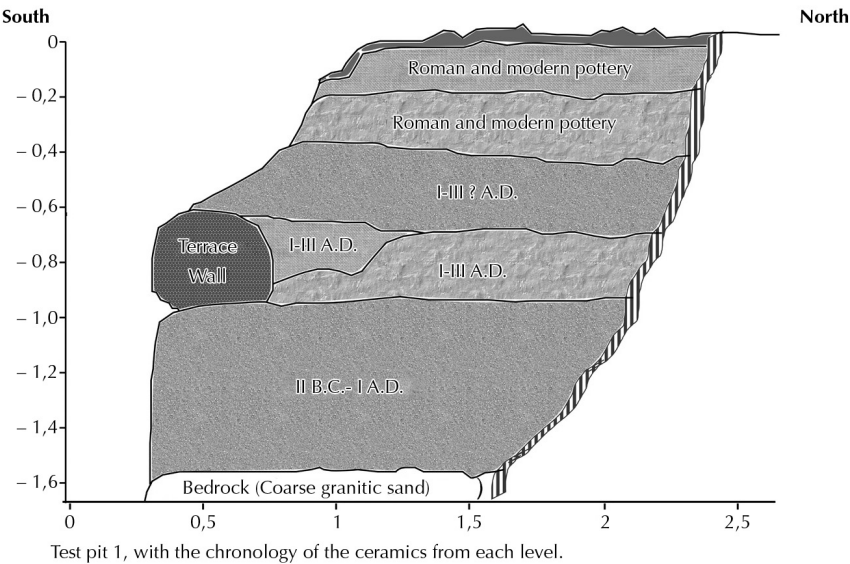


Fig. 4. Test pit example.

## Final remarks

The multiproxy approach allows us to introduce new elements to the study of this historical landscape. Results are situated in a microrregional complex context, different from the traditional identification of sites and chronologies.

Archaeological surveys in this area were historically focused first on the identification of “villas” and then on the identification of “sites” to include on the “archaeological map”.

Our aim is to advance in the understanding of the relationships that existed between the archaeological remains (that represent different types of settlement and spaces of economic activity such as production, storage and transformation) and landscape (clearly marked by different types of soils developed under different climatic conditions).

This kind of studies can provide significant elements for comprehension of social, economical and political dynamics of the Iberian and Roman period in an area where this period could be in the origin of present-day landscape.

Finally, our research in other sectors of Montseny Massif shows very different archaeological situations. In this sense, results presented here cannot be extrapolated to general Mediterranean mid-mountains contexts. Local dynamics have a key importance and show that the development of landscape multi-scale researches will improve our knowledge about regional dynamics.

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