

Integrated archaeobotanical studies in a protohistoric settlement of Central Spain: El Llano de la Horca (Santorcaz, Madrid)

Paloma Uzquiano^{1,2}, Cosimo D'Oronzo², Girolamo Fiorentino², Blanca Ruiz-Zapata³, M^a José Gil-García³, Gonzalo Ruiz-Zapatero⁴, Gabriela Märten⁵, Miguel Contreras⁵ and Enrique Baquedano⁵

- 1 Dept. Prehistoria, Universidad Nacional de Educación a Distancia, 28040 Madrid, Spain; p_uzquiano@hotmail.com
- 2 Lab. of Archaeobotany and Palaeoecology, Università del Salento, 73100 Lecce, Italy; girolamo.fiorentino@unisalento.it
- 3 Dept. of Geology, Universidad de Alcalá de Henares, 28871 Alcalá de Henares, Spain; blanca.ruiz@uah.es
- 4 Dept. Prehistoria, Universidad Complutense, 28040 Madrid, Spain; gonzalor@ghis.ucm.es
- 5 Museo Arqueológico Regional de la Comunidad de Madrid, 28800 Alcalá de Henares, Spain; gabriela.martens@madrid.org

Summary: This paper presents a series of archaeobotanical analyses (pollen, charcoal and seed/fruits) carried out in central Spain at the site known as “El Llano de la Horca”, a protohistoric settlement with Bronze Age (BA) and Late Iron Age (LIA) occupations. Archaeobotanical data was integrated to relevant information concerning settlement patterns and economy of similar sites in the study area.

Key words: archaeobotany, El Llano de la Horca, central Spain, Bronze Age, Late Iron Age.

INTRODUCTION

El Llano de la Horca is located in the north-eastern part of Madrid, Central Spain (Märtens *et al.*, 2009), on the top of a plane hill at 879 m asl. It covers virtually all the 14 ha of the hill, stressing a defensive function and the visual control of the surrounding territory (Fig. 1).



FIGURE 1. General view of El Llano de la Horca and its exploitation territories.

High moorlands and plateaux with deep slopes and edges, plains, shelves and valley bottoms characterize the area, showing a clear-cut partitioning of the landscape. *Juniperus thurifera* formation proliferates in the northern exposures whereas *Quercus ilex* vegetation formations are more characteristic in the southern exposures and areas with more developed soils. *Quercus faginea*, *Acer monspessulanum* and river bank vegetation formations are located in valleys, shady slopes and hollows (Blanco Castro *et al.*, 1997).

Extended digs are nowadays concentrated in an extensive area covering 1500 m² (Sector I) where the most complete stratigraphic sequence was recorded. The oldest occupation (3600±80 BP) corresponds to a BA smaller settlement. The Carpetanian settlement (LIA) is found over this stratum. Four occupation phases were recorded, covering a period between the 3rd and 1st centuries BC. (Märtens *et al.*, 2009). All the archaeobotanical samples were recovered from this sector.

RESULTS AND DISCUSSION

Pollen analysis indicated an open landscape dominated by NAP taxa, *Juniperus* and an important representation of NPM *Glomus fasciculatum* related to deforestation processes. Pollen results were regrouped according to their ecological affinities and human activities. Several kinds of land-use were observed along the LIA occupation phases of this settlement: a strong herding character is dominant during phases I-II, whereas it decreases during phase III to become dominant again during phase IV.

Anthracological studies (Fig. 2) revealed *Juniperus thurifera* and *Quercus ilex* as main the arboreal taxa managed, indicating an alternation between the exploitation of northern and southern exposures of plate hills during the LIA occupation phases. *Pinus sylvestris-nigra*, *P. pinaster-pinea* were also present in very low amounts. Charcoal analysis also revealed relevant amounts of *Quercus faginea* and the presence of *Fraxinus angustifolia* suggesting the frequentation of valleys and thereby the exploitation of the nearby alluvial territories. *Quercus suber*, *Erica* sp. and Fabaceae appeared only in the Carpetanian period (LIA).

Carpological analysis evidenced mainly cereals with some sporadic legumes and weeds. Naked wheat was dominant followed by hulled barley in minor amounts, and some erratic occurrences of hulled wheat.

MAIN CONCLUSIONS

Archaeobotanical data was correlated with the geographical setting and archaeological context of the site (Märtens *et al.*, 2009). The evolution of settlement patterns in Central Spain (Urbina, 2007), as well as the economy of other Carpetanian sites (Cerdeño *et al.*, 1992; Quero *et al.*, 2005), was also considered to evaluate territory management regarding vegetal resource potentiality since the Bronze Age (BA). Changes were expected as a consequence of different socio-economic realities in this site, especially when the settlement became an important Carpetanian *oppidum*.

The combined results pictured a subsistence system based on cereal agriculture. Furthermore, livestock breeding and metalwork activities seemed to have resulted in an important deforestation in order to gain place for crop fields and cattle feeding to cope with the needs of the Carpetanian growing community.

REFERENCES

BLANCO CASTRO, E., CASADO GONZÁLEZ, M.A., COSTA TENORIO, M., ESCRIBANO, R., GARCÍA ANTÓN, M., GÉNOVA FÚSTER,

M., GÓMEZ MANZANEQUE, F., MORENO SAIZ, J.C., MORLA JUARISTI, C., REGATO PAJARES, P., SAINZ OLLERO, H., 1997. *Los bosques ibéricos. Una interpretación geobotánica*. Ed. Planeta, Barcelona.

CERDEÑO, M.L., MARTIN, E., MARCOS, F., ORTEGA, J., 1992. *El yacimiento prerromano de Santorcaz*. Arqueología, Paleontología y Etnografía, 3. Serie de la Consejería de Cultura de la Comunidad de Madrid, Madrid.

MÄRTENS, G., CONTRERAS, M., RUÍZ-ZAPATERO, G., BAQUEDANO, E., 2009. El Llano de la Horca (Santorcaz). Un asentamiento carpetano en los albores de la romanización. In: *Actas de las III Jornadas de Patrimonio Arqueológico en la Comunidad de Madrid, 2006*, 201-222. Dirección General de Patrimonio Histórico de la Comunidad de Madrid.

QUERO, S., PÉREZ, A., MORÍN, J., URBINA, D., 2005. *El Cerro de la Gavia. El Madrid que encontraron los Romanos*. Ayuntamiento de Madrid. Madrid.

URBINA, D., 2007. Claves de la secuencia del poblamiento de la Edad del Hierro en el centro de la Península Ibérica. In: J. Morín, D. Urbina, N. Bicho (Eds.), *As Edades do Bronze e do Ferro na Península Ibérica. Actas do IV Congresso de Arqueología Peninsular, Faro September 2004*. *Promontorio Monográfica* 09, 15-28. Universidade do Algarve.

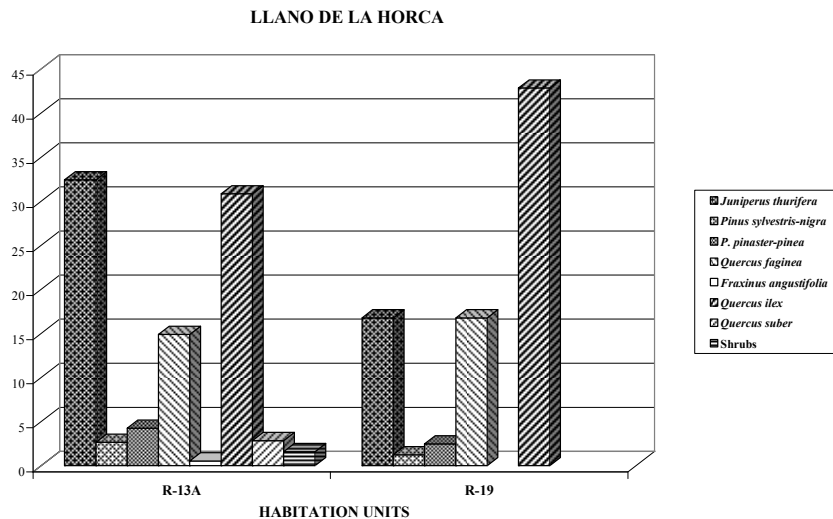


FIGURE 2. Anthracological data obtained in the Bronze Age (R-19) and Late Iron Age (R-13A) occupations phases of the settlement.