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Montane pine forests in NE Iberia during MIS 3 and MIS 2. A study based on new anthracological evidence from Cova Gran (Santa Linya, Iberian Pre-Pyrenees

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Abstract

This study aims to characterize forest landscapes during the Late Middle Paleolithic (LMP), Early Upper Paleolithic (EUP) and Magdalenian of the NE Iberian Upper Pleistocene. In this paper we present the results of anthracological analyses from Cova Gran (Santa Linya, Spain). Results show a dominance of *Pinus sylvestris* type suggesting that despite the occurrence of climate changes throughout the Upper Pleistocene forest cover was continuous. The data, from from Cova Gran is analysed from a regional perspective through comparison with other sequences in the NE Iberia region. The comparison suggests a dominance of *Pinus sylvestris* type from the coast to the Pyrenees. Comparison with other sequences from Northern Iberia showing differences regarding the presence of cryophillous pines in some phases and a higher diversity and the presence of other plant communities. This contributes to the understanding of the local environmental differences according to the biogeographical setting of the sites. The present study also suggests that pines were available in NE Iberia throughout the Upper Pleistocene and was systematically used as the main source of firewood.

Keywords: Montane pines, charcoal analyses, Iberia, Late Middle Paleolithic, Early Upper Paleolithic, Magdalenian

1. Introduction

Montane European pines include *Pinus nigra* ssp. *salzmanni* (Dunal) Franco, *Pinus uncinata* DC, *Pinus mugo* Turra and *Pinus sylvestris* L., the latter having the greatest distribution worldwide (Kurtto, 2009). The present-day distribution of montane pines is related to their natural development in northern Eurasia, Mediterranean mountain areas and artificial planting (Barbéro et al., 2000; Quézel and Médail, 2003; Blanco et al.,