

Actualité scientifique/Scientific news

Résumé de thèse/Thesis abstract

SANZ M. 2013. — *Upper Pleistocene faunal assemblages in the north-east of the Iberian Peninsula (Garraf-Ordal Massif)* [PhD in Catalan language: *Patrons d'acumulació de restes de fauna del Plistocè superior al nord-est peninsular (àrea del Massís del Garraf-Ordal)*]. PhD thesis, University of Barcelona, Barcelona, 505 p.

Human and carnivore interaction during the Pleistocene has become one of the main topics in the analysis of ancient hominin behaviour. Vertical shafts and caves have been used by humans and carnivores and, as such, are potential places of encounter. Caves are used by several carnivores as maternity dens, shelters or places for hibernation. Hominins also used caves for short-term occupations, which would have given rise to the co-occurrence of human and predator activities. This co-occurrence is recorded in a variety of ways and at different intensities.

This PhD thesis examines Pleistocene deposits and the co-occurrence of a small number of lithic artifacts and numerous large mammal bones that present frequent carnivore damage. The main objective of this study is to analyse the Upper Pleistocene deposits (from MIS 5 to MIS 2) in the north-east of the Iberian Peninsula to determine the role of carnivore and human agency in the faunal assemblages. The analyses are conducted in the Cova del Rinoceront (Castelldefels), the Cova del Gegant (Sitges) and the Cova del Coll Verdaguer (Cervelló) in the Garraf-Ordal Massif (Barcelona, Catalonia) (Fig. 1). This massif forms part of the Catalan Coastal Range, a low-relief mountain chain (<600 m high) and represents one of the most important karst systems in the north-east of the Iberian Peninsula. These sites present clear diagnostic features that can be used to examine human and carnivore interactions in caves. To establish the role of the biological agents in these deposits, taphonomic and zooarchaeological analyses of bones, together with the description of coprolites, are reported at these sites.

As a result, carnivores are plausibly the main agents responsible for carcass accumulation at the sites studied (Table 1). The Cova del Gegant and the Cova del Coll Verdaguer were primarily hyena dens, where the bone damage inflicted is in keeping with the patterns described in modern and fossil hyena assemblages. Long bones have been turned into cylinders as a result of ravaging, with the shafts of these bones, of obviously high nutritional values, being more prominent than both extremities. Moreover, the greater robustness of large-mammal bones resulted in a low degree of breakage, as in the

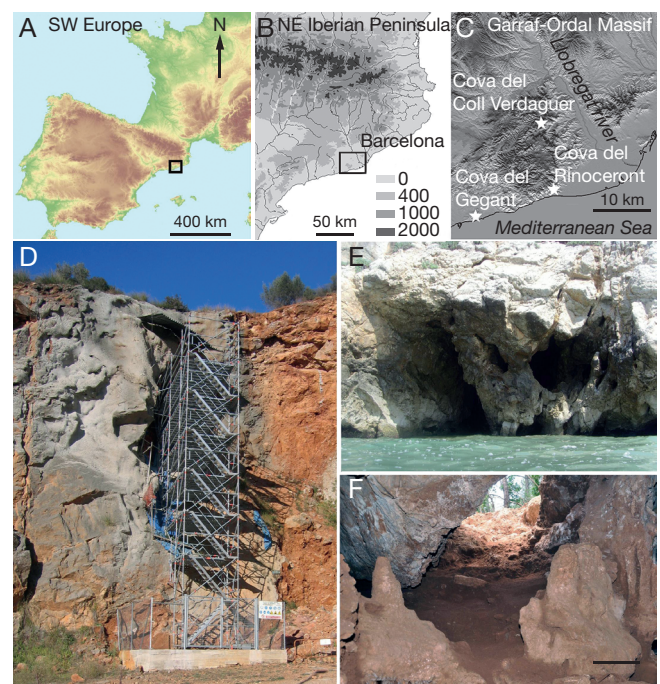


FIG. 1. — **A–C**, location of the studied sites in the north-east of Iberian Peninsula; **D**, Cova del Rinoceront with scaffold access; **E**, Cova del Gegant entrance; **F**, original entrance of Cova del Coll Verdaguer. Scale bar: F, 30 cm.

TABLE 1. — Summary of hominin and carnivore activities in the assemblages studied. —, absent; +, low; ++, moderate; +++, strong. Abbreviations: **CAR**, carnivores; **UNG**, ungulates; **NISP**, number of identified specimens.

	C. Rinoceront	C. Gegant	C. Coll Verdaguer
Hominins			
Burned bones	—	+	+
Anthropogenic marks	—	—	—
Lithic tools	+	+	+
Carnivores			
Gnawing	++	+++	+++
Coprolites	++	+++	+++
Juvenile carnivores	—	++	++
Ratio CAR:UNG (NISP)	<10%	>10%	>10%

Cova del Gegant, while the small- to medium-sized ungulate bones resulted in a higher degree of breakage, as in the Cova del Coll Verdaguer. Hyena bones, partly digested bones and

coprolites are documented in the Cova del Gegant; however, in the Cova del Coll Verdaguer the hyena is documented only by coprolites, the gnawing pattern on the bones and partly digested bones. In addition, the presence of other carnivores and other scat morphotypes suggest a variety of carnivore activity in the assemblages.

In the Cova del Rinoceront other carnivores form part of the ungulate accumulations. Their taphonomic features, including the presence of articulated elements, the low level of reduction of long bones, the presence of non-hyena coprolites, the absence of partly digested bones and the dominance of small deer suggest two tentative biological agents: a) canid; or b) felid – the second option being consistent with a secondary access of canids, which would have disguised the felid signature.

At the three sites analysed, bear remains are documented, the caves having been used for winter hibernation. At the Cova del Coll Verdaguer, the abundance of deciduous teeth reflects a denning behaviour with female and cubs having occupied an internal chamber.

At these three sites no hominin scavenging activities are observed and, accordingly, the lithic assemblages are not related to the marginal scavenging of ungulates from carnivore dens. In the Cova del Rinoceront and Cova del Coll Verdaguer the physical association of the few artifacts with the gnawed ungulate remains and coprolites indicates an unconnected relation perhaps attributable to slope wash from the entrance. The undertaking of knapping activities in the excavated area can be discarded and can be assumed as having been produced either in another area of the cave or outside the cave in the context of very sporadic human visits to the sites.

In the Cova del Gegant, tool making was non-existent, the tool kit being configured and transported to the cave. It is plausible that the main human activity would have been

limited to the entrance of the cave, which today has been heavily modified by encroachment and sea wave action. Yet, there is also evidence of anthropogenic activity inside the cave, as documented by the fireplaces. These points to the use of several spaces in the cave by both carnivores and hominins, although it does not imply temporal coexistence. Human fossils belonging to a minimum of 4 individuals have been recovered in different areas of the cave and attributed to Neanderthals. The hypotheses concerning the origin of these human remains can be reduced essentially to just two: a) accumulation by carnivores as prey or scavenged corpses; or b) intentional depositions with subsequent carnivore disturbance and post-depositional processes. Here, the dominance of subadults may reflect the profile of the living community rather than any special treatment for corpses in this age range.

Human presence at the Cova del Gegant points to a somewhat more continued human presence (or, perhaps, several short periods of occupancy) than at the other sites. The landscape of the area surrounding the cave, characterised by a large littoral and interior plain with a rich biomass, as evidenced by the ungulates documented in the assemblage, may have given human groups a reason for seeking refuge or visiting the cave on their seasonal displacements. The location of this site would have provided an optimal point from which to travel across the interior plains and in a south-westerly direction.

Thus, no evidence of hominin scavenging activities can be observed at these sites and accordingly the lithic assemblages are not related to the marginal scavenging of ungulates from carnivore dens. The scarce presence of lithics and the few anthropic marks suggest very sporadic human visits to the caves, and there is no evidence of carnivore competition.

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