

# Mammal fauna with *Elephas (Palaeoloxodon) antiquus* from the lower levels of Ambrona (Soria, Spain)

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**SUMMARY:** This paper deals with the fauna of macromammals from the lower levels “Lower Member Complex”) of the Ambrona Middle Pleistocene site. *Elephas (Palaeoloxodon) antiquus*, remains are the most abundant in almost all the levels, varying between 28% and 38% of the total. Although elephants predominate, the Ambrona assemblage contains a very diversified fauna with at least nine different species.

## 1. INTRODUCTION

The site of Ambrona is situated in the province of Soria, in the north side of the Castilian branch of Cordillera Iberica (Iberian Range), in the Masegar (also called Arroyo de la Mentirosa) river valley. The Masegar is a left side tributary of Jalon river.

Elephant remains mentioned here come from the lower levels (“Lower Member Complex”) of Ambrona (Santonja & Pérez-González 2000, in this volume), where the levels AS1, AS1/2, AS2, AS3, AS4, AS5 y AS6 were defined from bottom to top. (Pérez González *et al.* 1995-97).

The name of Ambrona, like the site of Torralba in the nearby, is associated to an archaeological settlement with plenty of elephant remains interpreted classically as a kill and butchering site since the beginning of the XX century (Cerralbo 1913), till Howell *et al.* (1995). We proposed that Ambrona is an elephant natural burial site, many remains have been transported while others remained *in situ* (Pérez González *et al.* 1995-97). Nevertheless, some of the animal remains appear to have been butchered or scavenged by man.

## 2. THE MAMMALIAN FAUNA

The micromammalian fauna of the Ambrona “Lower Member Complex” is *Crociodura* sp., *Microtus brecciensis* (Giebel 1847), *Arvicola* aff. *sapidus* (Miller 1908), *Apodemus* aff. *sylvaticus* (Linnaeus 1758) *Oryctolagus* sp. (Sesé 1986) The age defined by this fauna is of a typical or advanced Middle Pleistocene in the sense of Sesé & Sevilla (1996).

The identified macromammals from the recent excavations held by the authors from 1993 to 2000 are: *Canis lupus* Linnaeus 1758, *Panthera* sp., *Elephas (Palaeoloxodon) antiquus* Falconer & Cautley 1847, *Equus caballus torralbae* Prat 1977, *Stephanorhinus hemitoechus* (Falconer 1868), *Capreolus* sp., *Cervus elaphus* (Linnaeus 1758), *Dama* cf. *dama* (Linnaeus 1758) and *Bos primigenius* Bojanus, 1827. The association of *Elephas (Palaeoloxodon) antiquus*, *Stephanorhinus hemitoechus*, *Equus caballus torralbae* and *Bos primigenius*, confirms the Middle Pleistocene age for Ambrona.

### 3. ANALYSIS OF THE MACROMAMMAL FAUNA

Elephant remains are undoubtedly predominant among all the macromammals remains. Nevertheless, the distribution of remains by species is very different among the levels. (Tab.1).

The most abundant and better preserved elephant remains are found in the levels AS3 y AS4. In 1995 was found in AS3 an assemblage of about 90 bones corresponding to an MNI of 3: one juvenile, one adult female and one adult male. The remains of the last one formed the so-called "concentration alpha", with almost a whole carcass: cranium, the whole mandible, both tusks, 17 vertebras and many ribs, both scapulas, the right humerus, ulna and radius of both sides, some carpal and metacarpal bones, the whole pelvis and a distal fragment of the right femur that could be related to the complete left femur found in the 1993 campaign and one tibia. Finally one fibula found in the 1993 campaign could correspond to this individual. In sum it would be there 3 individuals: the individual A determined exclusively by a cranial remain, the individual B by a male tusk and the individual C, an adult male to which belong all the above-mentioned remains.

This is a singular concentration because almost all the anatomic parts are represented, many of them in their anatomic natural position and some in connection, this indicates no or little transport. This kind of concentration has

never been found in other areas of the site where the remains are more disperse and fragmentary.

The dispersion of the bones of the "concentration alpha" is similar to those of Shabi Shabi and specially to those of Nehimba described by Haynes (1991).

On the other hand, from a total of 1320 fossil specimens, the identification percentage varies between 42.47% in AS2 and 53.55% in AS1. That gives an idea of the fragmentation grade of the bones. The last figure is very similar to the obtained by Cruz-Urbe & Klein (1986) and Howell *et al.* (1995) in the Lower Member Complex.

The best preserved faunal remains were found in the levels AS3 and AS4 associated with the more clayey facies. Meanwhile in the more detritic facies the remains are very fragmented and eroded (Villa *et al.*, 2001).

Regarding the Table 1, we can make the following considerations:

AS1 and AS2 are very detritic levels, thus the remains are more fragmentary than in others.

In AS1, 105 out of a total of 338 remains are of elephant, which represents 31.07%. The following best represented species is *Dama cf. dama* with 12 remains, that is: 3.55%. In this level was found the unique identifiable remain of rhinoceros: a mandible of *Stephanorhinus hemitoechus*.

In AS1/2, 14 out of 50 records are of elephant, that is 28%.

Tab.1 - Number of remains and percentage by taxa in each level.

TAXA	AS1		AS1/2		AS2		AS3		AS4		AS5		AS6	
	NISP	%	NISP	%	NISP	%	NISP	%	NISP	%	NISP	%	NISP	%
<i>Canis lupus</i>	0	0,00%	0	0,00%	0	0,00%	0	0,00%	3	0,79%	0	0,00%	0	0,00%
<i>Panthera sp.</i>	0	0,00%	0	0,00%	0	0,00%	1	0,22%	1	0,26%	0	0,00%	0	0,00%
<i>Carnivora indet.</i>	0	0,00%	0	0,00%	0	0,00%	1	0,22%	2	0,52%	0	0,00%	0	0,00%
<i>Elephas antiquus</i>	105	31,07%	14	28,00%	23	31,51%	175	38,04%	112	29,32%	2	33,33%	0	0,00%
<i>cf. Elephas</i>	3	0,89%	0	0,00%	0	0,00%	0	0,00%	4	1,05%	0	0,00%	0	0,00%
<i>Equus caballus torralbae</i>	6	1,78%	0	0,00%	1	1,37%	6	1,30%	8	2,09%	0	0,00%	1	100,00%
<i>cf. Equus</i>	1	0,30%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
<i>Dicerorhinus hemitoechus</i>	1	0,30%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
<i>Capreolus sp.</i>	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,26%	0	0,00%	0	0,00%
<i>Cervus elaphus</i>	6	1,78%	2	4,00%	1	1,37%	8	1,74%	2	0,52%	0	0,00%	0	0,00%
<i>cf. Cervus</i>	18	5,33%	0	0,00%	0	0,00%	6	1,30%	0	0,00%	0	0,00%	0	0,00%
<i>Dama cf. dama</i>	12	3,55%	1	2,00%	2	2,74%	8	1,74%	26	6,81%	0	0,00%	0	0,00%
<i>cf. Dama</i>	3	0,89%	1	2,00%	0	0,00%	2	0,43%	5	1,31%	0	0,00%	0	0,00%
<i>Cervidae indet.</i>	9	2,66%	3	6,00%	4	5,48%	18	3,91%	16	4,19%	0	0,00%	0	0,00%
<i>Bovidae indet. cf. Bos/Bison</i>	15	4,44%	0	0,00%	0	0,00%	4	0,87%	10	2,62%	1	16,67%	0	0,00%
<i>Bos primigenius</i>	2	0,59%	4	8,00%	0	0,00%	4	0,87%	2	0,52%	0	0,00%	0	0,00%
<b>NID</b>	<b>157</b>	<b>46,45%</b>	<b>25</b>	<b>50,00%</b>	<b>42</b>	<b>57,53%</b>	<b>227</b>	<b>49,35%</b>	<b>190</b>	<b>49,74%</b>	<b>3</b>	<b>50,00%</b>	<b>0</b>	<b>0,00%</b>
<b>TOTAL</b>	<b>338</b>	<b>100,00%</b>	<b>50</b>	<b>100,00%</b>	<b>73</b>	<b>100,00%</b>	<b>460</b>	<b>100,00%</b>	<b>382</b>	<b>100,00%</b>	<b>6</b>	<b>100,00%</b>	<b>1</b>	<b>100,00%</b>

In AS2, 23 out of 73 records are of elephant, that is 31.5%.

In AS3, 175 out of 460 records are of elephant, that is 38.04%.

In AS4, 112 out of 382 records are of elephant, that is 29.32%. It is worthwhile to mention that this is the only level where *Capreolus* sp. is represented by a single remain. It is remarkable that this is also the level that shows the highest faunal diversity, where almost all the taxa, except the rhinoceros, are present. This fact, added to the relative abundance of some species characteristic of temperate climatic conditions, as for instance *Dama* cf. *dama* and *Capreolus* sp, seems to indicate a relatively better climate.

In AS5 only 6 specimens were found and two of them are elephant remains.

In AS6 there is only one horse remain.

Elephant is, as the Table 1 shows, the most abundant species in each Lower Member Complex level from AS1 to AS5. Its NISP is near or above 30% of the NTSP in each level.

The following species most abundant by NISP are: *Dama* cf. *dama* and *Cervus elaphus*, both occur in each Lower Member Complex levels from AS1 to AS4. *Dama* cf. *dama* is the best represented cervid species at the site. The percentage of *Dama* cf. *dama* remains reaches 6.81% in AS4. *Bos primigenius* and *Equus caballus torralbae* are the following species in abundance.

Carnivores are sparse: *Panthera* sp. is represented by one remain in AS3 and other one in AS4 which could belong to the same individual; *Canis lupus* with three remains in AS4 and small carnivores non identified in AS3 and AS4.

### 3. CONCLUSIONS

The elephant, *Elephas (Palaeoloxodon) antiquus*, is the predominant species among the macromammals in all the levels of the "Lower Member Complex" at the Ambrona Middle Pleistocene site. Nevertheless, the macromammals assemblage of Ambrona is a very diversified fauna with two species of carnivores at least, one species of elephant, two perisso-

dactyles and four artiodactyles. This variety, and the abundance of some species of cervids, indicates a relatively temperate climatic conditions, specially in some levels as the AS4 that shows the highest diversity. We suggest that the dispersion of the bones of the "concentration alfa", an almost complete carcasse of an adult male elephant, is similar to some actual concentrations of bones described in Africa (Haynes 1991).

### 4. REFERENCES

- Cerralbo, Marqués de. 1913. Torralba, la plus ancienne station humaine de l'Europe?. *Congrès International d'Anthropologie et d'Archéologie Préhistoriques de Genève XIV*: 227-290.
- Cruz Uribe, K. & Klein, R.G. 1986. Pascal programs for computing taxonomic abundance in samples of fossil mammals. *Journal of Archaeological Science*: 13: 171-187.
- Haynes, G. 1991. *Mammoths, Mastodons and Elephants. Biology, Behavior, and the Fossil Record*. Cambridge University Press.
- Howell, F.C., Butzer, K.W., Freeman, L.G. & Klein, R.G. 1995. Observations on the Acheulean occupation site of Ambrona (Soria Province, Spain) with particular reference to recent investigations (1980-1983) and the lower occupation. *Jahrbuch des Römisch Germanischen Zentralmuseum Mainz* 38: 33-82.
- Pérez-González, A., Santonja, M., Mora, R., Soto, E., Sesé, C., Ruiz Zapata, M.B., Alexandre, T., Villa, P. & Gallardo, J. 1995-1997. Investigaciones recientes (1990-1997) en los yacimientos achelenses de Ambrona y Torralba (Soria, España). *O Arqueólogo Português* 13/15: 11-34.
- Santonja, M. & Pérez-González, A. 2001. La industria lítica de los niveles inferiores de Ambrona. Aspectos tafonómicos. *This volume*.
- Sesé, C. (1986). Insectívoros, roedores y lagomofos (Mammalia) del sitio de ocupación achelense de Ambrona (Soria, España). *Estudios geológicos* 42: 355-359.

Sesé, C. & Sevilla, P. 1996. Los micromamíferos del Cuaternario peninsular español: cronoestratigrafía e implicaciones biostratigráficas. *Revista Española de Paleontología*, nº

*Extraordinario*: 278-287.

Villa, P., Soto, E., Pérez-González, A. & Mora, R. 2001. Taphonomy at Ambrona: new perspectives. *This volume*.