To the West of Spanish Cantabria

The Palaeolithic Settlement of Galicia

Edited by

A. de Lombera Hermida
R. Fábregas Valcarce

BAR International Series 2283
2011

Published by

Archaeopress
Publishers of British Archaeological Reports
Gordon House
276 Banbury Road
Oxford OX2 7ED
England
bar@archaeopress.com
www.archaeopress.com

BAR S2283

To the West of Spanish Cantabria: the Palaeolithic Settlement of Galicia

ISBN 978 1 4073 0860 9

Printed in England by Blenheim Colour Ltd

All BAR titles are available from:

Hadrian Books Ltd
122 Banbury Road
Oxford
OX2 7BP
England
www.hadrianbooks.co.uk

The current BAR catalogue with details of all titles in print, prices and means of payment is available free from Hadrian Books or may be downloaded from www.archaeopress.com

Chapter 10: Caves and People. Archaeological Research at the Eastern Margins of NW Iberia

Arturo de Lombera Hermida

Institut Catalá de Paleoecologia Humana i Evolució Social (IPHES). Área de Prehistoria,
Universitat Rovira i Virgili.
Av. Catalunya 35, Tarragona 43002, Spain.
Email: alombera@iphes.cat

Grupo de Estudos para a Prehistoria do Noroeste (GEPN). Dpto. de Historia I,
Universidade de Santiago de Compostela.

***Abstract**: Since the final decades of the XX century several archaeo-palaeontological surveys were made in the caves located at the Eastern Mountains of Galicia. In the beginning few systematic approaches were made but in the recent years several archaeological and palaeontological projects were carried out in the karstic systems of NW Iberia. These approaches helped to achieve a better knowledge of the prehistoric human settlement and palaeoenvironmental evolution.*

***Keywords**: Upper Pleistocene, Karstic systems, cave-site, Middle Palaeolithic, Upper Palaeolithic, Chalcolithic, Human burials,*

***Resumen**: Desde las décadas finales del siglo XX varias intervenciones arqueo-paleontológicas han sido llevadas a cabo en las cavidades de la Galicia Oriental. Al principio se trataba de intervenciones no sistemáticas o hallazgos aislados pero en los últimos años nuevos trabajos arqueológicos y paleontológicos se han realizado en los sistemas cársticos del NW peninsular. Estas aproximaciones han ayudado al estudio del poblamiento prehistórico y evolución paleoambiental del NW.*

***Palabras clave**: Pleistoceno superior, sistemas cársticos, hábitat cavernícola, Paleolítico medio, Paleolítico superior, Calcolítico, enterramientos.*

Introduction

The Palaeolithic research in Galicia has paid little attention to the eastern mountainous region. The main study areas are located in the hinterland and coastal part of NW Iberia, specially linked to the Miño Basin and adjacent Tertiary depressions (Louro, Ourense and Monforte de Lemos). A third core area is the northern part of the Lugo province where several Upper Palaeolithic rock-shelters have been discovered. Thus, the research has been made on the basis of surveying open-air sites. The main problem with this approach lies in the poor preservation of these deposits, frequently disturbed and, secondly, due to the acid nature of the soils, organic remains are not preserved impairing the recovering of bone assemblages. Consequently, few suitable sites are available for radiometric datings (OSL, etc.).

The caves located in the limestone formations provide a great quantity and quality of information regarding different disciplines such as Palaeontology, Geomorphology and Archaeology. The systematic approaches made in the last fifty years have helped to the reconstruction of the paleoenvironmental evolution, providing a good framework for the study of open-air sites and the shifts in Palaeolithic settlement.

In this paper we focus on the history of the archaeo-paleontological surveys and the data provided by these studies. Though scarce, some patterns can be achieved from the study of the cave deposits and human occupation.

Limestone formations of NW Iberia

One of the main characteristics of Northwest Iberia is its great variety of geological regions providing different types of habitats. In this diversity of spaces is where the wealth and potential of our territory lays, allowing certain flexibility to the animals and plants for their adaptation to the incidences of the climatic changes occurring during the Pleistocene. Thus, in the coldest moments of the LGM, while the inland and mountains of Northwest Iberia were covered by ice sheets and steppe, milder conditions prevailed at the coastal strip and nearby fluvial valleys and depressions, acting as refugee areas (Ramil *et al.* 2005; Gómez *et al.* 2008). Besides, the intense glacial dynamics during these periods contribute to the deficient preservation of the archaeo-paleontological records, truncating or dismantling the deposits (Llana *et al.* 1992). Consequently, the Palaeolithic research had to focus in those areas where the quaternary sedimentation is better preserved (fluvial sequences, tertiary depressions,

and, to a lesser degree, karstic cavities) in order to obtain long stratigraphic sequences and, if possible, primary archaeological records. Nevertheless, the aforementioned erosive processes have altered most of the archaeological sequences often preventing us from getting suitable archaeo-paleontological contexts and absolute datings.

In this context, the oriental part of Galicia appears as one of the areas of biggest interest to understand the Paleolithic settlement of Northwest Iberia. On one hand, by its condition of border area with the Cantabrian Coast, western Meseta and north of Portugal, communicated by fluvial valleys (Sil, Navia, Limia), mountain passes (Pedrafita), depressions (Verín, O Barco, Ponferrada) and the coastal strip (Ribadeo) (de Lombera *et al.* 2008). On the other hand, the most important fluvial courses, the Miño and the Sil, along with their tributaries, structure a communication network among the different territories, which communicates the hinterland depressions and main fluvial valleys with the karstic formations of the mountains, allowing a residential and logistic mobility in this territory. But the main interest of the oriental part of Galicia, from a wider point of view, lies in the conjugation of the geological features that offer complementary data to the geoarchaeological research: the Tertiary depressions; the karstics cavities; the rock shelters; and the fluvial terraces. Habitats in which several archeological sites have been documented and that have provided data about the hominid technological evolution, settlement pattern, strategies of subsistence and paleoenvironmental reconstruction. As for paleoenvironmental reconstruction, the eastern karstic systems configure the main referent of the quaternary fauna, since most of the paleontological sites are found in these formations (Fernández, 1993; Grandal *et al.*, 1997). Meanwhile, the important development of the glacial and periglacial deposits identified in this area show the evolution of the climatic conditions in the interior of Galicia during the final Pleistocene and early Holocene (Pérez *et al.* 1993; Pérez and Valcárcel, 1997; Vidal *et al.*, 1999).

Although most of the Palaeolithic evidence in Galicia come from open-air sites, from the archaeological point of view the limestone formations are of special interest, since they have features usually not available at open-air sites: preservation of the organic evidences (especially macro and microfauna) and a better integrity of the archaeological record and deposits. This increases the information regarding paleoenvironmental reconstruction, chronology and, specially, economic and social data such as subsistence strategies, landscape exploitation and mobility, and, as seen at Valdavara and Eirós caves, symbolic or artistic evidences.

The limestone formations, unlike the Cantabrian region, do not have a widespread extension, occupying just the 0.5% of the territory, since in Galicia the igneous and metamorphic substrates are predominant. They are located exclusively in the eastern part of the provinces of Lugo and Ourense, as narrow stripes crossing from the NE of Ourense (Rubiá) up to the NE of the province of Lugo (Eo river mouth) (Figure 1). Three main formations can be identified, two of them formed in sea platform environments and another, smaller and of coral-reef origin (Taboada and Silva, 1999):

- Cándana Limestone: Carbonated deposits of the Middle Cándana series (Lower Cambrian). Limestones and marble formations appear as layers of variable depth, inserted among the Cándana slates. They present lateral changes in depth as well as in the number of carbonated levels among the sandstone and slate deposits. They are grey coloured with a certain lamination when the recrystallization is not very intense.
- Vegadeo Limestone: Lower Cambrian. It is the more widespread in the NW Iberia with big banks that stand out in the land. It has less lateral variability than the Cándana´s, although differences in thickness can be observed, being the deepest sector in Becerreá, with 220 meters. It is worth mentioning that in the upper units of this formation, flint sources have been described, tough their precise location is unknown (Marcos *et al.* 1980; Rodríguez *et al.* 2010).
- Aquitaine Limestone: Ordovician. Calcareous formation of possible coral-reef origin inserted within the Luarca slates and presenting a variable depth that can reach 200 meters. Formed by recrystallized limestones with calcite as main element and other accessory minerals (quartzs, sericitas). Its distribution is much restricted with respect to the previous formations and more disperse, maybe due to its reef origin.
- Other limestone formations: other formations of less developement are identified (Silurian and Devonian limestones), but due to their reduced extension large karstic systems suitable for human occupations are not linked to them.

According to their geographical dispersal on NW Iberia five main areas can be identified where the largest karstic systems and main archaeo-palaeontological sites are located: Mondoñedo (Lugo) standing out the Cave of the Rei Cintolo (Villar 2007); Louzara valley (Samos, Lugo), with Cova Eirós (Fábregas *et al.* 2009; Grandal 1993); Furco-Becerreá, where the caves of Valdavara, Furco and Cova da Venta are located (Fábregas *et al.* 2008; Grandal *et al.* 1997; Vaquero *et al.* 2009); Pedrafita-O Courel (Lugo), with numerous cavities with paleontological remains (Grandal *et al.* 1997); and finally the Serra de Encina da Lastra (Rubiá, Ourense) especially the cave of Pala da Vella (Fernández *et al.* 1993; Vázquez-Monxardín 1988).

Archaeo-palaeontological approaches to Galician cave systems in the XX-XXI centuries

Although the first scientific research in cavities goes back to the end of 19th century, with the intervention of Villa-amil y Castro in the cave of Furada dos Cas (Mondoñedo, Lugo), it will not be until the middle 20th century when the interest in the caves is taken up, following similar dynamics in the Cantabrian region. Despite their great potentiality for

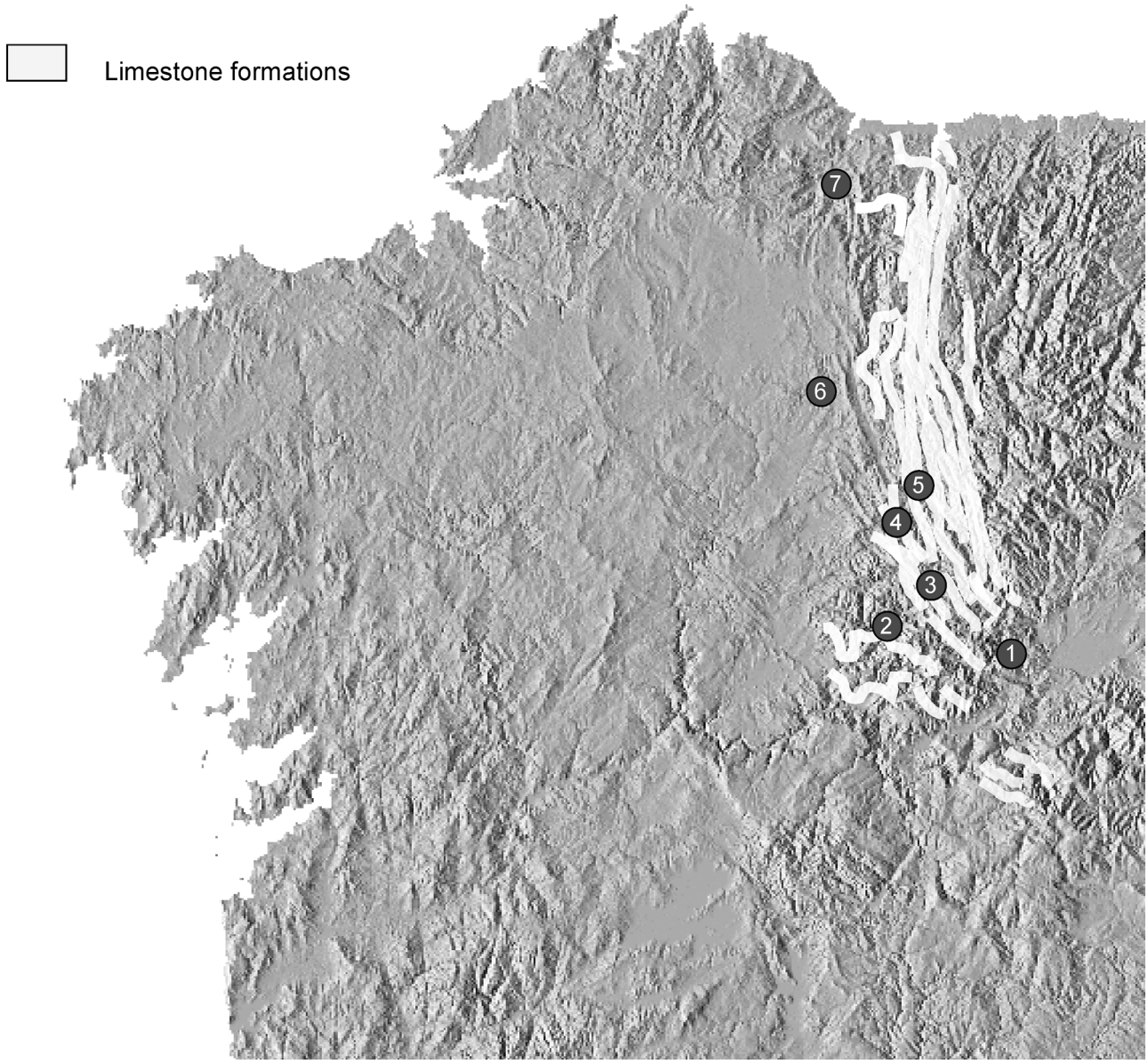

Figure 1: Limestone formations and main archaeo-palaeontological sites mentioned in the text. 1: Serra da Encina da Lastra, Pala da Vella (Rubiá, Ourense); 2. Serra do Courel, Cova de Xato (O Courel, Lugo); 3. Pedrafita, Liñares Sur (Pedrafita, Lugo); 4. Cova Eirós (Triacastela, Lugo); 5. Cova de Valdavara (Becerreá, Lugo); 6. Cova da Valiña (Castroverde, Lugo); 7. Cova do Rei Cintolo (Mondoñedo, Lugo).

the prehistoric research, only little interest was shown by Galician archaeologists on this type of sites. The first organized Galician speleological expedition took place in 1954 in the Cave of Rei Cintolo (Mondoñedo), the longest cave of Galicia (Masma 1988). Only in the 80s the work of the speleological groups (*Club Montañeros Celtas de Vigo, G.E. Vagalumes, Pena Trevinca, G.E.S. Ártabros, Grupo Maúxo*, etc.) gains momentum and topographical plans are made of numerous cavities and underlining the archaeo-paleontological importance of the karstic systems, especially in the Serra do Courel, Encina da Lastra (Rubiá, Ourense) and parts of Ancares. An evidence of the floruit of Speleology during those years are the specialized publications edited by the Federation and speleologist clubs where, with the collaboration of archaeologists and palaeontologists, the biological, geological and archaeological features of the karstic formations are shown didactically (v.g. *Furada*, *Boletín Informativo do G.E.S. Ártabros*).

The most remarkable aspect of these activities, along with the topographical study of the cavities, is their pioneer character. Through collaboration with researchers of the University of A Coruña they were behind the discovery of numerous paleontological sites leading to the initiation of studies on the Upper Pleistocene and Early Holocene fauna, particularly reflected in the journal *Cadernos do Laboratorio Xeolóxico de Laxe*. The studies are focused in the area of Pedrafita-Courel, where cavities with larger deposits are located, such as the caves

of Valdeabraira, Praducelos, Purruñal, etc. (Alberti 1985; Golpe and Vidal 1985; Montesinos 1983; de Torres 1983).

As a result of this collaboration, since the end of the eighties the first systematic paleontological interventions were undertaken in the site of Cova Eirós (Triacastela) and Liñares South (Pedrafita) (Grandal 1993; López 2003), as well as numerous surveys in several caves (Cova da Ceza, Valdeabraira, etc.). In most cases these finds are monoespecific, most often remains of bears, although there are caves with a larger array of taxa (Valdeabraira, Praducelos). Most of the paleontological remains seem to correspond with the Upper Pleistocene and Holocene, predominating the remains of bears (*Ursus spelaeus* and *Ursus arctos*), cervids (*Cervus elaphus*), as well as horses, suids and bovids, being remarkable by their diversity the cavities of Cova Eirós, Liñares Sur, Valdeabraira, Praducelos. (Grandal *et al.* 1997; López and Grandal 1998). On the other hand, the only Proboscidian remains (*Elephas primigenius*) of the NW Iberia were found in a limestone quarry at Buxán (Sarria, Lugo) (Torre 1962).

Despite the scarcity and irregularity of the finds, mostly monoespecific, the data provided by archaeological and paleontological excavations and the new analytical approaches led to a significant progress in the reconstruction of the Galician Pleistocene fauna, allowing the first certain inferences about Paleoecology and Paleodemography, too (Fernández, 1993b, 2003; Fernández *et al.* 1995; Fernández - Mosquera 1998; Grandal 2010; Grandal *et al.* 1997; Grandal and López 1998, 2001; López and Grandal 1998; López *et al.* 2006).

In the meantime, several archaeological finds in caves were made during the 70s and 80s, opening a new field of study about prehistoric and historical societies, although till the final 80s the digs were very scarce and punctual. In 1976 archaeological surveys directed by the University of Santiago de Compostela (USC) were carried out in order to understand the antiquity and evolution of the historical settlement in the Serra do Courel (Luzón *et al.* 1980). Although most of the finds are from the Iron Age and Roman period, linked to the important gold mining in the area (vg. Mina da Toca, Mina de Toribio), a series of cavities with evidences of prehistoric settlement were also surveyed. Among them stand out Cova do Oso, Longo de Meo, Cova do Eixe and Cova de Tras da Lastra. The superficial review of most of the caves did not offer materials of Palaeolithic age, though some of them present important sedimentary infills at their entrances. Despite the importance of Pleistocene paleontological remains in the cavities of O Courel, as shown before, the oldest archaeological remains are the ceramics of the Cova do Oso, adscribed to a final stage of the Bronze Age or Early Iron Age (Luzón *et al.* 1980, 69).

Further to the south, Vázquez-Monxardín in 1984 carried out a limited survey of the Encina da Lastra cavities (Rubiá, Ourense), finding several objects on the surface of the Palas de Pumbeira, Cubelas and Pala C caves (Vázquez-Monxardín 1988). These works will be the precedent of those ones carried out at the early nineties by the USC and leading to the excavation of the cave of Pala da Vella (Fernández *et al.* 1993).

In 1987 the first systematic archaeological excavation carried out in a cave (A Valiña, discovered in 1960) yielded a human occupation of the early Upper Palaeolithic as well as remains of hyena activity (Llana and Soto 1991; Fernández 1992/1993; Vázquez 1965/1966). This excavation is a milestone in the history of the Palaeolithic research in Galicia, undertaking the first interdisciplinary study based on the archaeological, zooarchaeological and pedological data (Llana *et al.* 1996). According to the radiocarbon datings and the character of the lithic assemblage the occupation was adscribed to the Chatelperronian, being the westernmost evidence of the early Upper Palaeolithic in the Cantabrian Coast (Llana and Soto 1991; Llana *et al.* 1996). Nevertheless, the recent review of the lithic assemblage stresses its Middle Palaeolithic character, based on the scarcity of lithic implements (around 90) and the ambiguity of the radiocarbon datings (Fábregas and de Lombera 2010; Maíllo 2008; Maroto *et al.* 2005; Zilhao, 2006).

At the same time, in 1989 and 1990, Soto Barreiro directed some surveys in different cavities in the vicinities of the Rei Cintolo cave (Mondoñedo, Lugo) (Soto 1995). The aim of these surveys was the surface revision and the accomplishment of small test pits in order to know the stratigraphy of the deposits and confirm the evidences of anthropic occupations. Although in some cases the results were negatives, in Cova Senar, and at the entrances of the Furadas caves (Marianeta I, II, II and IV) their stratigraphic sequences showed the existence of three levels, one of them an intact occupational layer with lithic industries similar to those found in A Valiña (Soto 1995). There are not references about the chronology nor functionality of the occupations, but these can be taken as a example of the importance of the cave habitats during the Palaeolithic in NW Iberia.

Following the same work schedule, in the beginning of the 90s the surveys at the cavities of Serra da Lastra (Rubiá, Ourense) are taken up, working in numerous caves and digging small test pits (1x1 m). The most important site is Pala da Vella, which yielded several archaeological levels ranging from the Upper Pleistocene to the Bronze Age. Its only Pleistocene level seems to be a carnivores den (Fernández *et al.* 1993; Fernández and Villar 2003). Nevertheless, some Palaeolithic evidence appeared at Pala I de Arroyo de Pardellán: some lithic remains in the interior of one of the mouths of the cave, as well as on the surface nearby, preliminarily adscribed to the Middle Palaeolithic, although the superficial character of the finds and the little standardisation of the lithics do not allow further inferences.

In 1993 a small test pit is carried out at the entrance of

Cova Eirós (Triacastela, Lugo) by a team from the USC University (Cano and Nogueira 1993; Nogueira 1997), some years after the first paleontological excavations made at the bottom of the same cave searching for cave bears remains (Grandal 1993a). That excavation yielded several archaeological levels, the upper adscribed to the early Upper Palaeolithic (levels II and III) and the underlying levels with Middle Palaeolithic lithic assemblages (level IV and V). Thus, Cova Eirós becomes the first reference of a Middle Palaeolithic cave site, as well as the only place in Galicia where the Middle and Upper Palaeolithic transition can be studied. Unfortunately, this project had not continuity and only the preliminary data of the Upper Paleolithic lithic assemblage were published (Nogueira 1997).

A decade after, in 2002, some test pits were done in the interior of the O Rei Cintolo Cave, within a project of archaeological heritage funded by the Council of Mondoñedo (Lugo) (Villar 2007). Some pits were dug in the same room where Soto Barreiro worked in 1993. At the entrance some ceramics and a hearth were found in the test pit, yielding new data about the medieval occupations of the cave. In a small test pit made in an interior gallery a bone assemblage was found (Camerín, S3) dated by radiocarbon in 7735±60 BP (Lyon-2731 (OxA)). Some of the bones presented clear cut-marks on their surfaces (Villar 2007), pointing out to the anthropic origin of this assemblage, but, according to their distribution and technical features, their interpretation as by-products of consumption activities was discarded (Villar 2007, 44). This circumstance, adding to the absence of artefacts, has led to the interpretation of this bone assemblage as an evidence of ritual or symbolic activities. These works did not have continuity, thus preventing the obtention of further knowledge about the depositional context of this interesting assemblage.

The recent discoveries in eastern Galicia: Cova de Valdavara, Cova de Xato, and Cova Eirós

Since 2007 a new archaeological project has been running in the eastern region of Galicia, focused on the study of open-air sites in the Monforte de Lemos Depression and the caves located towards to the East: Cova do Xato (O Courel, Lugo), Cova de Valdavara (Becerreá, Lugo) and Cova Eirós (Triacastela, Lugo) (Fábregas *et al.* 2007, 2008, 2009, 2010; de Lombera *et al.* 2008; Vaquero *et al.* 2008, 2009).

In 2007 the archaeological surveys started in the site of Valdavara, located in the right bank of the Narón river, one of the tributaries of the Navia, about 120 m high over the valley. Located in a small karstic system (Vegadeo Formation) three *loci* are identified (Vaquero *et al.* 2009; this volume). Valdavara 1 is a cavity with an entry of hardly 1,2m wide and 1,6m high giving access to a small chamber of about 5 x 3m. Two main occupational moments were identified, one dated in the Lower-Middle Magdalenian (levels 4 to 6), and another belonging to the Chalcolithic (levels 1 to 3) (Vaquero *et al.* 2009). The later corresponds to a burial deposit of three individuals. On the same slope two more *loci* exist, one of them yielding Bronze Age burials (Valdavara 2), and in the other (Valdavara 1/2) lithic and bone remains have been recovered. The latter was dated in 8920±50 BP and 8890±60 BP and adscribed to the Macrolithic Mesolithic complex. Despite the reduced extension of the Valdavara cavities and deposits, those have shown a great variety of functions, going from the domestic of Valdavara 1 and 1/2, to the funerary during different phases of the Recent Prehistory (Valdavara 2 and Valdavara 1 (levels 1-3). Finally, in a quarry 300m uphill from Valdavara 1, another site was identified (Valdavara-3). Though the extractive works destroyed part of the sediments, a vast number of faunal remains was recovered from the altered deposits and also in stratigraphic context. According to the macro and micromammal associations, a Final Middle Pleistocene-Upper Pleistocene chronology has been proposed. The find of some quartz and quartzite artefacts in stratigraphic context can be considered as evidence of human activities at the cavity, maybe related to short occupations as the faunal remains do not show a high degree of anthropic modifications.

The archaeological works carried out in Cova do Xato (O Courel, Lugo) have yielded a human occupation at the entrance dated in the III-IV century AD, possibly linked to a short occupation. Only bear remains either of *Ursus arctos* or *Ursus spelaeus* were recorded from the Pleistocene deposits, suggesting an Upper Pleistocene chronology. It is worth mentioning the presence of a bone presenting fresh breakage and cut-marks on the surface, suggesting an anthropic activity, but neither artefacts nor other human evidences were found at the site, so that we must be cautious about the presence of humans on the cave at the Pleistocene (Fábregas *et al.* 2008).

Severe erosive processes were identified in the infills of the cave and a 3.5m deep periglacial deposit was located at the entrance, showing the high influence of the glacial erosive dynamics during the LGM. We must bear in mind that Cova do Xato is located at 1080m asl and would be directly affected by the glacial phenomena identified in the Serra do Courel (Pérez *et al.* 1993). Thus, Cova do Xato can be considered as an example of the cold conditions and erosive processes affecting high altitude caves, and underlines the problems of the preservation of old deposits in those caves and their suitability for human occupations during cold periods.

Finally, in 2008 the archaeological works at the entrance of Cova Eirós confirmed the importance of this site, where six archaeological levels were identified (Level C, Level B, Level 1, Level 2, Level 3 and Level 4) ranging from the MIS5 to the final stages of the MIS 2 (Fábregas *et al.* 2009, 2010; Rodriguez *et al.* this volume). Consequently, Cova Eirós is the only place of NW Iberia where we can study the evolution of the Upper Pleistocene hunter/gatherer societies and the Middle/Upper Palaeolithic transition. Although the

Chronocultural Ads.	*Site*	*Level*	*Function*	*Method*	*Years BP*	*Lab Ref*	*Reference*
Middle Palaeolithic	Cova Eirós	Nivel 3	Domestic	OSL	84807±4919	MAD-5612BIN	Fábregas *et al*. 2008;2009
Early Upper Palaeolithic ??	A Valiña	Nivel IV	Domestic	C-14	34800 ± 1900/1500	GrN-17729	Llana *et al*. 1996
	A Valiña	Nivel V	Domestic	C-14	31730 ± 2800/2100	GrN-20833	Llana *et al*. 1996
	A Valiña	Nivel IV	Domestic	C-14-AMS	31600 ± 250	GrA-3014	Llana *et al* . 1996
Early Upper Palaeolithic	Cova Eirós	Nivel 2	Domestic	C14-AMS	31690 ± 240	Beta - 254280	Fábregas *et al*.2010
	Cova Eirós	Nivel 1	Domestic	-	-	-	Fábregas *et al*. 2008;2009
Upper Palaeolithic	Valdavara 1	Nivel 6	Domestic	C14-AMS	15120 ± 70	Beta-257849	Vaquero *et al*. 2009
Magdalenian	Valdavara 1	Nivel 4	Domestic	C14-AMS	14630 ± 70	Beta-235726	Vaquero *et al*. 2009
	Valdavara 1	Nivel 4	Domestic	C14-AMS	13770 ± 70	Beta-235728	Fábregas *et al* l. 2010
Mesolithic/Epipaleolithic	Chan do Lindeiro	-	Indet/Burial?	C14-AMS	9212 ± 83 *	Ua-38115	Vidal *et al*. 2010
	Chan do Lindeiro	-	Indet/Burial?	C14-AMS	8847 ± 119 *	Ua-13398	Vidal *et al*. 2010
	Valdavara 1/2	Nivel C	Domestic	C14-AMS	8920 ± 50	Beta-257850	Fábregas *et al*. 2010
	Valdavara 1/2	Nivel C	Domestic	C14-AMS	8890 ± 60	Beta-259199	Fábregas *et al* . 2010
	Cintolo	Camerín (S3)	Ritual (?)	C-14	7735 ± 60	Lyon-2731 (OxA)	Villar, 2007
Late Neolithic/Chalcolithic	Rebolal	-	Indet/Burial?	C14-AMS	5449 ± 96 *	Ua-38124	Vidal *et al*. 2010
	Pala da Vella	Nivel 2	Burial	C-14	4790 ±120	GrN-19395	Fernández y Villar, 2003
	Pala da Vella	Nivel 2	Burial	C-14	4500 ± 35	GrA-1021	Fernández y Villar, 2003
	Valdavara 1	Nivel 2	Burial	C14-AMS	4490 ± 40	Beta-235727	Vaquero *et al*. 2009
Bronze Age	Cova Eirós	Pasillo	Burial?	C14-AMS	3390 ± 26 *	Ua-38121	Vidal *et al*. 2010
	Pala da Vella	Nivel 1	Domestic	C-14	3280 ±125	GrN-19394	Fernández y Villar, 2003
	Valdavara 2	Nivel 3	Burial	C14-AMS	3250 ± 40	Beta-235729	Vaquero *et al*. 2009
	Valdavara 2	Nivel 3	Burial	C14-AMS	3270 ± 40	Beta-235730	Vaquero *et al*. 2009

Figure 2: Radiometric datings for the archaeological sites mentioned in the text. (Cal BP).*

diggings are still under way, the estratigraphic sequence has provided important data about the Upper Pleistocene human settlement in NW Iberia, filling the information gaps of open-air sites and rock shelters. On the other hand, is a key site to study the relation between NW and Cantabrian sites.

Chronological outline and functionality

Although the Palaeolithic research in NW Iberia has mainly focused on the open air sites linked to the fluvial terraces and Tertiary Depressions, the works carried out in the eastern limits of Galicia have provided huge information about the palaeoenvironmental and faunal evolution. The low number of cave sites cannot be considered as a evidence of the scarce use of cavities by humans, but as a consequence of the few systematic approaches made by the researchers, the scarce development of the limestone formations in the territory and their location within the influence of glacial and periglacial processes. Consequently, regional approaches regarding cave site settlement patterns and mobility, such as those made in the Cantabrian Region (vg. González and González 2004, Marín 2008) have not been attempted.

According to the depositional context and chronology of the cave occupations some remarks about their functionality can be achieved (de Lombera 2011). Firstly, the archaeological levels identified in several caves show a continuous use of these habitats by human societies since, at least, the final stages of the Middle Pleistocene till the historic ages (Figure 2). The function of those occupations is quite different and, as we shall see later, they seem to vary during the time.

Some of the palaeontological finds made in deep galleries or caves are related to scarce and monospecific assemblages. The best example is the cave of Liñares Sur, where several remains of cervids (*Cervus elaphus*), predominant over other species, were recovered from the deposits in a deep gallery (López 2003). According to the manganese coatings that affected the bones several depositional events were identified, suggesting that the cave acted as a natural trap where animals fell down (López *et al.* 2006). Maybe, related to this kind of deposition, several faunistic finds in deep caves and galleries (most of them with only one species) can be considered as natural traps. The presence of lithic artefacts, such as Valdavara 3, could be interpreted as eventual attempts at carcasse procurement by the human communities, as testified in other Peninsular sites such as Galeria (Atapuerca, Burgos, Carbonell *et al.* 1998; Ollé *et al.* 2005) or Cova del Rinoceront (Barcelona) (Daura *et al.* 2005).

Another kind of occupation identified is the carnivore or bear den. The remains recovered from the inner galleries of Cova Eirós, as well as other bear finds (Cova da Ceza, Cova do Cancelo, Cova de Xato, etc.) show the important use made by bears (*U. spelaeus* and *U. arctos*) of the caves, being those remains produced by animals deceased during their hibernation or inmature individuals (Fábregas *et al.* 2008; Grandal 1993, Grandal *et al.* 1997). Carnivore dens have been described in the cave of Valdavara 2 (Fábregas *et al.* 2010; Vaquero *et al.* 2009) and also at the level 3 of Pala da Vella (Fernández and Villar 2003). But the best known are the remains of Cova da Valiña, where several hyaena bones and coprolites were recorded pointing to a carnivore use of the cave just after the human occupation (dated 35-31 ky ago) (Fernández 1992/1993). Caves with a greater specific variety (vg. Praducelos) and with no anthropic evidences could be regarded as carnivore dens, although we must be cautious about this issue, given the scarce development of taphonomic studies on these assemblages (Fernández 2005/2006).

Caves have been occupied since, at least, the Upper Pleistocene till historic times. The oldest evidences are those from the levels 3 and 4 of Cova Eirós, adscribed to the Middle Paleolithic and dated in the MIS 5. Though the study of the assemblage is still under way, the high densities of lithic and bone remains seem to suggest the presence of fairly long occupations, linked to residential mobility. The presence of complete debris and flaking products, as well as the high fragmentation shown by the bones, that sometimes present breakage to gain access to marrow and cut-marks, point to the anthropic factor as the main agent of the archaeological assemblage (Fábregas *et al.* 2009, 2010). However, the presence of carnivores and bears is higher in those levels too, suggesting an alternate use of the cave by human and animal, as seen in other Cantabrian caves (Yravedra 2002). Also belonging to the Middle Paleolithic are the artifacts recovered in Pala do Arroyo do Pardellán I, though the scarcity of the lithic assemblage and other information do not allow us to do further considerations (Fernández *et al.* 1993a).

Belonging to the early Upper Paleolithic, dated around 35-31 Ky BP, two archaeological levels have been identified: the level 2 of Cova Eirós, and, following excavators interpretation, the level IV of A Valiña (Llana and Soto 1991). In the latter, based on the artifact densities and taphonomic studies the human occupations are considered short lived, linked to a sporadic use of the cave. As seen before, the hyaena arrived shortly after the human left the cave. The level 2 of Cova Eirós is dated in 31690±240 BP (Beta-254280, C14-AMS) (Figure 2). The lithic assemblage is composed by quartz implements (93,3%) and, secondarily, quartzite tools (5,8%). The faunal assemblage is similar to the lower levels, being remarkable the presence of ovicaprids and roe deer (*Capreolus capreolus*). Though the archaeological works are still under way, it seems that the Level 2 correspond to the remains of a unique or successive short occupations (Fábregas *et al.* 2009).

Other Upper Paleolithic sites have been discovered during the last years. An OSL date, around 17Ky BP at the top of the Level 1 of Cova Eirós, places this level as the only evidence of human occupation during the LGM (Fábregas and Lombera 2010). Above this level, a second archaeological level was identified, maybe related to final

Pleistocene-early Holocene chronology. The artefact densities and bone remains are lower than in the underlying levels, pointing to shorter occupations.

It the archaeological sequence of Valdavara 1 several Magdalenian occupations were recorded, ranging from 16000 to 14800 Cal BC. Along with the lithic industry, mostly made on flint, faunal remains (as wolf and chamois) and bone industry have been recovered (Vaquero *et al.* 2009). These occupations are related to those identified in the rock-shelters of Terra Chá and Serra do Xistral (Lugo), such as Dos Niñas and Férvedes-II, both adscribed to the Lower-Middle Magdalenian (Ramil and Ramil, 1996). As said before, the lack of absolute datings from the rock-shelters, and the limited development of the taphonomic, seasonality, and raw material characterization analysis do not allow us to establish a close relationship among the archaeological sites of Terra Chá-Xistral and those from Cova Eirós and Cova de Valdavara. It is important to point out that in the different Upper Paleolithic sites, besides their scarce lithic assemblages, only one archaeological level has been identified in each (Dos Niñas, Férvedes, etc.), or the gap between the levels is very long (such as Cova Eirós)(Fábregas *et al.* 2010; Llana *et al.* 1992). The only place where regular occupations can be observed is Valdavara 1. This fact suggests the high mobility of these societies, as shown by the presence of *Dentalium* shells in Valdavara 1 and implying coastal-interior mobility. So that, a relationship between the northern Upper Paleolithic sites of O Xistral and those from the eastern mountains and even the Cantabrian Coast cannot be ruled out, but further studies regarding raw materials mobility, seasonality (through faunal analysis) and absolute datings of these sites must be developed.

During the Epipaleolithic continuity in settlement pattern can be observed. In the Serra do Xistral, the rock-shelters are occupied but, helped by the environmental improvement, higher peneplains and valleys are exploited, such as Xestido-III or Chan da Cruz (López Cordeiro 2003; Ramil and Ramil 1996).

At the site of Valdavara an archaeological level dated in 8890±60 BP and 8920±50 BP was discovered at the talus of the cave (Valdavara 1/2), yielding some quartz and quartzite artefacts. The identification of some flakes and quartz core refittings suggest a primary deposition of the artefacts (Fábregas *et al.* 2010). This is the only reference of a Macroltihic Mesolithic in NW Iberia, coeval with the Asturian complex identified in the Cantabrian Coast.

The bone assemblage recovered in the '*camerín'* gallery of Rei Cintolo (Mondoñedo) has yielded a radiocarbon date of 7735±60 BP (Lyon-2731 (OxA)). As stated before it has been defined as corresponding to a symbolic or ritual deposition (Villar 2007). Though the archaeological record is scanty, the symbolic or ritual use of caves has a long tradition (since Upper Pleistocene, vg. Arias 2009) mainly related to the inner galleries but given the incomplete information available we must be cautious about this interpretation. The closer parallels are the burials discovered in the cave of A Braña-Arintero (León) where the skeletons of two individuals, along with ornaments, were recovered and dated in 6980±50 (Beta-226472) and 7030±50 BP (Beta-226473) (Vidal *et al.* 2008; Vidal and Pradas 2010). In the western Cantabrian Coast (Asturias) the closer references are the burials of Cueva de los Canes (7025±80 BP) and Cueva Colomba (7090±60 BP) (Arias and Álvarez 2004).

Regarding domestic occupations, in the site of Xestido-III (Xistral) a hearth was recovered yielding a radiocarbon date of 7310±160 (GrN-16389)(Ramil and Ramil 1996). Its vicinity to Rei Cintolo cave (15-20 Km) points to the complementary use of caves and open-air sites by Epipaleolithic societies, and, maybe, the Level B of Cova Eirós (with a predominance of rock crystal implements and local resources, as the Epipalaeolithic sites of O Xistral, Fábregas *et al.* 2010) and those archaeological levels identified in the Furada caves (Mondoñedo, Soto 1995) could be related to that period, but no reliable information is yet available.

As we can see caves were used as domestic habitats since the final Middle Pleistocene, sometimes related to long-term occupations (levels 3 and 4 of Cova Eirós), sporadic activities as those documented on cave natural traps for the profiting of animal carcasses (Valdavara-3?), or short-term stays such as the archaeological levels of A Valiña, and the Upper Palaeolithic levels of Cova Eirós. Up to date no Palaeolithic burials were found. The only reference is the finding of some human remains in the Cave of Chan do Lindeiro (O Courel, Lugo) dated by radiocarbon in 8847±119 Cal BP (Ua-133398) and 9212±83 Cal BP (Ua-38115), contemporaneous to the archaeological occupations of Valdavara 1/2, but no information about the depositional and archaeological context is available yet (Vidal *et al.* 2010).

In the Recent Prehistory the funerary use of cavities is well documented during the Chalcolithic and Bronze Age. Although in some caves domestic activities have been recorded by the presence of faunal, lithics and pottery remains (Level 1 of Pala da Vella, Levels 1-3 of Valdavara 1), maybe related to agro-pastoral activities, several human remains were recovered too. Some of them are related to secondary burials (such as Valdavara 1 or Valdavara 2), but others could be linked to primary depositions though their archaeological context is not well defined (Cova Eirós, Rebolal) (Vidal *et al.* 2010). These burials are contemporaneous to the megalithic mounds built in the Galician hinterland, suggesting a complementary role played by the caves in the mountainous regions, as identified in other peninsular regions (Ontañón and Armendariz 2005).

Finally, during historic times, the high presence of medieval pottery in these caves may suggest their function as

sheepfold or hermit residence as those identified in Pala da Zorra (Rubiá, Ourense) and the upper levels of Cova de Xato (Courel, Lugo) (Fernández *et al* 1993a; Fábregas *et al.* 2008).

Conclusions

The archaeo-palaeontological surveys carried out in the cavities since the final 1980s have contributed considerably to a better understanding of the palaeoenvironmental evolution and hominid occupations, especially with respect to the site functionality and subsistence strategies. Secondly, these works have increased the Pleistocene faunal spectrum in NW Iberia.

In this sense stand out the findings of Liñares Sur, Cova da Valiña, Pala da Vella, Cova Eirós and the caves from Valdavara.

On the other side, the especial character of the cave deposits helps to obtain a chronological outline for the human occupations and faunal migrations, especially from the Middle-Upper Palaeolithic transition and subsequent periods. These data can provide a good framework for the open-air sites whose sedimentary preservation has proved, very often, to be deficient.

Although the archaeological surveys in caves are a recent feature, the data provided already have demonstrated the high importance of these habitats for the knowledge of the Palaeolithic societies of NW Iberia. Thanks to them, the relationship with the Cantabrian Coast is gradually confirmed, aiding to a better understanding of the human settlement dynamics.

Acknowledgments

The archaeological dig and research in Cova Eirós and Cova de Valdavara were done with the founding of the Spanish 'Ministerio de Ciencia e Innovación' (research projects HUM2007-63662 and HAR2010-21786/HIST). ALH has been supported by a pre-doctoral grant from Cátedra Atapuerca Foundation.

Bibliographic references

Alberti, M. T. 1985. Macromamíferos (Équidos, Bóvidos) de la cueva de Praducelos (Suegos, Lugo). *Cadernos Laboratorio Xeolóxico de Laxe* 10, 225-228.

Arias, P. and Alvárez-Fernández, E. 2004. Iberian foragers and funerary ritual – a review of Paleolithic and Mesolithic evidence in the Peninsula. In González Morales, M. and Clark, G. A. (eds.), *The Mesolithic of the Atlantic Façade: Proceedings of the Santander Symposium,* 225-248. Tempe, Arizona, Arizona State University.

Cano Pan, J.A. and Nogueira, S. 1993. Intervención arqueológica en Cova Eirós. *Furada* 1, 35-37.

Carbonell, E., Giral, S., Márquez, B. and Martín, A. 1998. El Modo 2 en Galería. Análisis de la industria lítica y sus procesos técnicos, in Díez, C. (ed.) *Ocupaciones humanas y paleoecológicas del yacimiento Galería,* 299-352. Junta de Castila y León.

Daura, J., Sanz, M., Vaquero, M. 2005. El Pleistoceno de la Cova del Rinoceront (Castelldefels, Barcelona), in Ferreira-Bicho, N. (ed.) *O Paleolítico. Actas do IV Congresso de Arqueologia Peninsular (Setembre 2004, Faro)*, 217-227. Promontoria Monográfica 02.

Fábregas Valcarce, R. and de Lombera Hermida, A. 2010. El Paleolítico superior en Galicia a la luz de las últimas investigaciones. In Mangado, X. (ed.) *Paleolítico superior peninsular. Novedades del siglo XXI. Homenaje al Profesor Javier Fortea.,* 255-270. Barcelona, Monografies SERP. Universitat de Barcelona.

Fábregas Valcarce, R., Lazuén Fernández, T., de Lombera Hermida, A., Peña Alonso, J. A., Pérez Alberti, A., Rodríguez Álvarez, X. P., Rodríguez Rellán, C. and Terradillos Bernal, M. 2007. Novos achados paleolíticos no interior de Galicia. A Depresión de Monforte de Lemos e as súas industrias líticas. *Gallaecia* 26, 7-33.

Fábregas Valcarce, R., Alonso Fernández, S., Lazuén Fernández, T., de Lombera Hermida, A., Pérez Alberti, A., Rodríguez Álvarez, X. P., Rodríguez Rellán, C., Terradillos Bernal, M., Serna González, M. R.and Vaquero Rodríguez, M. 2008. Aportacións ó estudo da Prehistoria da cunca media do Miño. Os asentamentos en cova e ó aire libre. *Gallaecia* 27, 63-88.

Fábregas Valcarce, R., Alonso Fernández, S., Ameijenda, A., Grandal D´Anglade, A., Lazuén Fernández, T., de Lombera Hermida, A., Pérez Alberti, A., Pérez Rama, M., Rodríguez Álvarez, X. P., Rodríguez Rellán, C., Serna González, M. R., Terradillos Bernal, M.and Vaquero Rodríguez, M. 2009. Novos resultados das intervencións arqueolóxicas no sur lucense. Os xacementos paleolíticos da Depresión de Monforte (Monforte de Lemos), Cova Eirós (Triacastela) e Valdavara (Becerreá). *Gallaecia* 28, 9-32.

Fábregas Valcarce, R., Alonso Fernández, S., Ameijenda Iglesias, A., Grandal d´Anglade, A., Lazuén Fernández, T., de Lombera Hermida, A., Pérez Alberti, A., Pérez Rama, M., Rodríguez Álvarez, X. P., Serna González, M. R. and Vaquero Rodríguez, M. 2010. Completando o mapa. Novas datacións absolutas para o Paleolítico e Mesolítico do interior galego. *Gallaecia* 29, 5-28.

Fernández Mosquera, D. 1998. Biogeoquímica isotópica (^{13}C, ^{15}N) del *Ursus spelaeus* del yacimiento de Cova Eirós, Lugo. *Cadernos Laboratorio Xeolóxico de Laxe* 23, 237-249.

Fernández Rodríguez, C. 1992-1993. Valoración y análisis de la ocupación de carnívoros de la cueva de A Valiña (Lugo, Galicia). *Tabona* VIII, 481-491.

Fernández Rodríguez, C. 1993. Los Macromamíferos del Pleistoceno y Holoceno Inicial en el Noroeste Peninsular. In Pérez Alberti, A., Guitián Rivera, J. and Ramil Rego, E. (eds.), *La evolución del paisaje en las Montañas del entorno de los Caminos Jacobeos,* 183-191. Santiago de Compostela, Xunta de Galicia.

Fernández Rodríguez, C. 2005/2006. La arqueozología

en el noroeste de la Península Ibérica: historia de las investigaciones. *Munibe* 57, 511-523.

Fernández Rodríguez, C. and Villar Quinteiro, R. 2003. Prospección y excavación de cuevas en la cuenca del Sil (Rubiá, Ourense): La Pala da Vella. *Brigantium* 14, 13-22.

Fernández Rodríguez, C., Villar Quinteiro, R. and Llana Rodríguez, C. 1993. Prospección arqueológica de cavidades en la Sierra de la Encina de la Lastra (Rubiá, Ourense): Primeros resultados. *Actas del XXII Congreso Nacional de Arqueología,* 43-48.

Fernández Rodríguez, C., Ramil Rego, P. and Martínez Cortizas, A. 1995. Characterization and depositional evolution of hyaena (*Crocuta crocuta*) coprolites from A Valiña Cave (NW Spain). *Journal of Archaeological Science* 22, 597-607.

Golpe Posse, M. J. and Vidal Romaní, J. R. 1985. Macromamíferos (suidos) de la cueva de Praducelos (Suegos, Lugo). *Cadernos Laboratorio Xeolóxico de Laxe* 10, 229.

Gómez Orellana, L., Ramil Rego, P.and Muñoz Sobrino, C. 2008. Bioestratigrafía para el Pleistoceno superior en el NW Ibérico: datos climáticos y paleoecológicos. *Férvedes* 5, 15-24.

González Sainz, C. and González Urquijo, J. 2004. El Magdaleniense reciente en la región Cantábrica. In Fano, M. A. (ed.) *Las Sociedades del Paleolítico en la Región Cantábrica,* 275-308. Bilbao, Diputación Foral de Bizkaia.

Grandal D´Anglade, A. 1993. *El Oso de las cavernas en Galicia, el yacimiento de Cova Eirós*. Sada, Laboratorio Xeolóxico de Laxe. Edicións O Castro.

Grandal D´Anglade, A. 2010. Bite force of the extint Pleistocene Cave Bear *Ursus spelaeus* ROSENMÜLLER from Europe. *C. R. Palevol* 9, 31-37.

Grandal D´Anglade, A. and López González, F. 1998. A population study on the Cave Bears (*Ursus Spelaeus* Rosenmüller-Heinroth) from Galician caves, NW of Iberian Peninsula. *Cadernos Laboratorio Xeolóxico de Laxe* 23, 215-224.

Grandal D´Anglade, A. and López González, F. 2001. A palaeobiological approach to the cave bears from Eirós and Liñares (Galicia, Spain). *Cadernos Laboratorio Xeolóxico de Laxe* 26, 415-422.

Grandal D´Anglade, A., López González, F.and Vidal Romaní, J. R. 1997. Condicionantes en la distribución de macromamíferos en Galicia (NW Península Ibérica) durante el Cuaternario superior. *Cadernos Laboratorio Xeolóxico de Laxe* 22, 43-66.

Llana Rodríguez, C. and Soto Barreiro, M. J. (dir.) 1991. *Cova da Valiña (Castroverde, Lugo): un xacemento do Paleolítico Superior Inicial en Galicia: (campañas de 1987 e 1988)*. Santiago de Compostela, Conselleria de Cultura. Xunta de Galicia.

Llana Rodríguez, C., Martínez Cortízas, M.and Ramil Rego, P. 1992. Algunas consideraciones acerca de la estratigrafía y del marco temporal para los yacimientos al aire libre del Paleolítico Final y Epipaleolítico en Galicia. *Zephyrus* 44-45, 155-166.

Llana Rodríguez, C., Villar Quinteiro, R. and Martínez Cortizas, A. 1996. Secuencia paleoambiental y cultural de la cueva de A Valiña (Castroverde, Lugo): Una ocupación Chatelperroniense en Galicia. In Pérez Alberti, A., Martini, P., Chesworth, W. and Martínez Cortizas, A. (eds.), *Dinámica y Evolución de Medios Cuaternarios,* 97-112. Santiago de Compostela, Xunta de Galicia.

de Lombera Hermida, A., Vaquero Rodríguez, M., Alonso Fernández, S., Rodríguez Álvarez, X. P., Lazuén Fernández, T. and Fábregas Valcarce, R. 2008. A cunca media no Miño dentro das ocupacións paleolíticas do NW peninsular. In Méndez Quintas, E. (Coord.) *Homenaxe a Xose María Álvarez Blázquez (2). Estudos sobre Paleolítico,* 321-346. Gondomar, Instituto de Estudos Miñoranos.

de Lombera Hermida, A. 2011. O retorno ás cavernas. As investigacións arqueolóxicas nas cavidades de Galicia. In Dopico, M. D. and Villanueva, M. (eds.), *A Prehistoria en Lugo a raíz das descobertas recentes*, 83-102. Lugo, Deputación provincial de Lugo.

López Cordeiro, M. M. 2003. El yacimiento epipaleolítico de Chan da Cruz (Valadouro, Lugo): Síntesis de los primeros resultados. *Complutum* 14, 39-54.

López González, F. 2003. *Paleontology and Taphonomy of Pleistocene macromammals of Galicia (NW Iberian Peninsula).*Nova Terra. A Coruña, UDC.

López González, F. and Grandal D´Anglade, A. 1998. Datos sobre *Cervus elaphus* (Cervidae, artiodactyla. mammalia) en cavidades cársticas de Galicia. *Cadernos Laboratorio Xeolóxico de Laxe* 23, 201-214.

López González, F., Grandal D´Anglade, A. and Vidal Encinas, J. M. 2006. Deciphering bone depositional sequences in caves through the study of manganese coating. *Journal of Archaeological Science* 33, 707-717.

Luzón Nogué, J. M., Sánchez-Palencia Ramos, F. J., Acuña Castroviejo, F., Alonso del Real, C., Arias Vilas, F., Caamaño Gesto, M., Rodríguez Casal, A., Sierra Rodríguez, J. C. and Vázquez Varela, J. M. 1980. *El Caurel.* Excavaciones Arqueológicas de España, Madrid, Ministerio de Cultura.

Maíllo Fernández, J. M. 2008. El Chatelperroniense en el Noroeste de la Península Ibérica *Férvedes* 5, 127-136.

Marín Arroyo, A. B. 2008. Patrones de movilidad y control del territorio en el Cantábrico oriental durante el Tardiglaciar *Trabajos de Prehistoria* 65, 29-45.

Marcos, A. Pérez-Estaún, A., Pulgar, J. A., Bastida, F.; Ruiz, F. 1980. *Mapa Geológico de España E 1:100.000. Hoja Nº 99 (09-07). Becerreá.* Instituto Geológico Minero de España, Madrid.

Maroto, J., Vaquero Rodríguez, M., Arrizabalaga, A., Baena, J., Carrión, E., Jordá Pardo, J. F., Martinón-Torres, M., Menéndez, M., Montes, R. and Rosell Ardèvol, J. 2005. Problemática cronológica del final del Paleolítico Medio en el Norte Peninsular. In. R. Montes and J. A. Lasheras (coord.) *Neandertales cantábricos. Estado de la cuestión*. Museo de Altamira MONOGRAFÍAS 20, 101-114.

Masma, R. 1988. Díaz Jacomé, cronista do "Cintolo" en 1954. *Furada, Revista dos Espeleólogos Gallegos* 2,

23-34.

Montesinos López, J. R. 1983. Estado actual del conocimiento sobre faunas de mamíferos cuaternarios de Galicia. *Cadernos Laboratorio Xeolóxico de Laxe* 6, 77-88.

Nogueira Ríos, S. 1997. Unha primeria aproximación o estudio dos materiais líticos de Cova Eirós (Triacastela-Lugo). *Historia Nova* IV, 9-29.

Ollé , A., Cáceres Cuello de Oro, I. and Vergés , J. M. 2005. Human occupations at Galeria Site (Sierre de Atapuerca, Brugos, Spain) after the technological and taphonomical data. In Molines, N., Moncel, M.-H. and Monnier, J. L. (eds.), *Données récentes sur les modalités de peuplement et sur le cadre chronostratigraphique, géologique et paléoanthropologique des industries du Paléolithique inférieur et moyen en Europe, colloque international de Rennes, septembre 2003,* 269-281. BAR International Series

Ontañón, R. and Armendáriz, A. 2005. Cuevas y megalitos: los contextos sepulcrales colectivos en la Prehistoria reciente cantábrica. *Munibe* 57, 275-286.

Pérez Alberti, A., Guitián, L.and Ramil Rego, P. (eds.) 1993. *La Evolución del Paisaje en las Montañas del Entorno de los Caminos Jacobeos*. Santiago de Compostela, Xunta de Galicia.

Pérez Alberti, A.and Valcárcel Díaz, M. 1997. Caracterización y distribución espacial del glaciarismo pleistoceno en el Noroeste de la Península Ibérica. *Las huellas glaciares de las montañas españolas.,*17-62. Santiago de Compostela.

Ramil Rego, P. and Fernández Rodríguez, C. 1996. Marco cronológico y paleoambiental de la ocupación paleolítica en el NW Ibérico. In Fábregas Valcarce, R. (ed.) *Os primeiros poboadores de Galicia: O Paleolítico,* 165-192. Sada, Edicións do Castro.

Ramil Rego, P., Iriarte, M. J., Muñoz Sobrino, C.and Gómez Orellana, L. 2005/2006. Cambio climático y dinámica temporal del paisaje y de los hábitats en las ecorregiones del NW de la Península Ibérica durante el Pleistoceno superior. *Munibe* 57, 537-551.

Rodríguez Rellán, C., de Lombera Hermida, A.and Fábregas Valcarce, R. 2010. El Sílex durante la Prehistoria reciente del NO de la Península Ibérica. In Gibaja, J. F., Terradas Batlle, X., Palomo, A.and X., Clop. (eds.), *Les grans fulles de sílex. Europa al final de la Prehistòria. Actes,* 69-74. Barcelona, Museu d´Arqueologia de Catalunya.

Soto Barreiro, M. J. 1995. Escavación arqueolóxica con remoción de terras en afloramentos calizos do concello de Mondoñedo (Lugo). *Arqueoloxía/Informes. Campaña 1989,* 185-189. Santiago de Compostela, Xunta de Galicia. Consellería de Cultura.

Taboada Castro, M. T.and Silva Hermo, B. 1999. Factores de formacións y propiedades de los suelos formados sobre calizas de Galicia. *Cadernos Laboratorio Xeolóxico de Laxe* 24, 121-139.

Torre Enciso, e. 1962. Hallazgo de dos molares de Mamut (*Elephas primigenius*), en una cantera de Buxán, Lugo. *Notas y comunicaciones del I.G.M.E.* 65, 111-118.

de Torres Pérez Hidalgo, T. 1983. Fauna cavernícola cuaternaria gallega. Datos sobre úrsidos de la Provincia de Lugo (Galicia, España). *Cadernos Laboratorio Xeolóxico de Laxe* 6, 89-97

Vaquero Rodríguez, M., Alonso Fernández, S., Fernández, C. A., Ameijenda Iglesias, A., Blain, H., Fábregas Valcarce, R., Gómez Merino, G., de Lombera Hermida, A., López-García, J. M., Lorenzo Merino, C., Lozano, M., Rodríguez Rellán, C., Rosell Ardèvol, J.and Serna González, M. R. 2009. Nuevas dataciones radiométricas para el Paleolítico Superior en Galicia: La cueva de Valdavara (Becerreá, Lugo). *Trabajos de Prehistoria* 66, 99-113.

Vázquez Seijas, M. 1965-66. La Cueva de la Valiña. *Boletín de la Comisión Provincial de Monumentos de Lugo* VIII, 25-30

Vázquez-Monxardín Fernández, A. 1988. Os materiais arqueolóxicos das covas da Serra da Encina da Lastra. *Furada, Revista dos Espeleólogos Gallegos* 2, 35-40.

Vidal Encinas, J. M. and Prada Marcos, M. E. (coords.) 2010. *Los hombres mesolíticos de la cueva de La Braña-Arintero (Valdelugueros, León)*. Estudios y Catálogos 18, Junta de Castilla y León.

Vidal Encinas, J. M., Fernández Rodríguez, C., Prada, M. E. and Fuertes, M. N. 2008. Los hombres Mesolíticos de la Braña-Arintero (Valdelugueros, León): un hallazgo funerario excepcional en la vertiente meridional de la Cordillera Cantábrica. *Férvedes* 5, 153-164.

Vidal Romaní, J. R., Fernández Mosquera, D., Marti, K.and de Brum Ferreira, A. 1999. Nuevos datos para la cronología glaciar pleistocena en el NW de la Península Ibérica. *Cadernos Laboratorio Xeolóxico de Laxe* 24, 7-29.

Vidal Romaní, J. R., Sanjurjo Sánchez, J., Grandal D´Anglade, A., Vaqueiro Rodríguez, M. and Fernández Mosquera, D. 2010. Geocaracterización de yacimientos arqueológicos en medio sedimentario: cronología absoluta y relativa. In López Díaz, A. J. and Ramil Rego, E. (eds.), *Arqueoloxía: Ciencia e Restauración.,* 7-19. Monografías 4, Vilalba, Museo de Prehistoria e Arqueoloxía.

Villar Quinteiro, R. 2007. La Cueva del Rei Cintolo (Lugo, Galicia): algunos datos cronoarqueológicos de la galería superior. *Gallaecia* 26, 31-53.

Yravedra, J. 2002. Subsistencia en la transición del Paleolítico medio al Paleolítico superior de la Península Ibérica. *Trabajos de Prehistoria* 59-1, 9-29.

Zilhao, J. 2006. Chronostratigraphy of the Middle-to-Upper Paleolithic Transition in the Iberian Peninsula. *Pyrenae* 37, 7-84.