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# A specific small game exploitation for Lower Paleolithic: The beaver (*Castor fiber*) exploitation at the Caune de l'Arago (Pyrénées-Orientales, France)

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ABSTRACT

Beaver exploitation is little documented for the Lower Paleolithic, in the Caune de l'Arago (Tautavel, France) beaver remains are present in ten levels dated from the Middle Pleistocene. Levels Gs4 and J provide bones with cut-marks. These cut-marks are located on the long bones, indicating meat removal and also on the metapodials, indicating that the animals were skinned before defleshing. The few beaver remains in each level could lead us to think that its exploitation was opportunistic but the fact that this exploitation occurs in two levels shows that it was not an exceptional practice. Even if small game was proposed in addition to large mammal exploitation for the model of hominid subsistence, evidence is scarce for the Lower Paleolithic. Their exploitation, even occasional, shows that large mammals are not the only meat resource used in this site.

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## 1. Introduction

In Europe the use of small size animals is well documented for the Upper Paleolithic. This period is often considered to be marked by an increase of the small prey exploitation due to ecologic and/or anthropic factors (demographic variation, nutritional aspect, mobility) (Cochard and Brugal, 2004; Hockett and Haws, 2002; Jones, 2006; Lloveras et al., 2016; Stiner et al., 2000; Stiner and Munro, 2002; Villaverde et al., 1996). Nevertheless recent studies highlight small game exploitation in Middle Paleolithic sites in Europe and South-Western Asia, (Blasco and Fernández Peris, 2012; Blasco et al., 2013; Blasco et al., 2016; Cochard et al., 2012; Costamagno and Laroulandie, 2004; Hardy et al., 2013; Speth and Tchernov, 2002). For the Lower Paleolithic, in Europe, there is little documentation about small game exploitation (Desclaux et al., 2011; Huguet, 2007).

The exploitation of the beaver (*Castor fiber*) is poorly documented for the Paleolithic in Europe. It can be due to the scarcity of the remains, generally sparsely present in the archaeological site, and/or to a lack of research for this species. Indeed the beaver is often present in mammal assemblage but the taphonomic analysis was rarely done. Here we regroup the sites with taphonomic analyses on beaver remains. During Upper Paleolithic, exploitation of the beaver was recorded in the site of Dalmeri in Italy (Fiore et al., 2001) and in the site of Kettig in Germany (Baales, 2002). For the Middle Paleolithic, cut-marks were found on beaver remains in the Grotta San Bernadino, in Italy (Fiore et al., 2004). In Germany, exploitation of the beaver was identified at Taubach (Dusseldorp, 2012) and at Lehringen with cut-marks on a pelvis fragment (Gaudzinski, 2004). In Spain, in Bolomor cave, level XI, 2 beaver burnt bones were found (Blasco et al., 2013). In France exploitation of the beaver was described at Pech-de l'Azé-IV (level 8) with cut marks on one bone (Dibble et al., 2009); at Pech-de-l'Azé I (level 7), with cut marks on two remains (Rendu, 2010) and at the Grand Abri aux Puces with cut marks on mandibles, cranial elements, pelves, metapodials and also with burnt bones (Slimak et al., 2010). For the Lower Paleolithic beavers were found at Hoxne in association with lithic artifacts, there is no direct evidence of exploitation by humans but this possibility is suggested (Brown et al., 2013; Stuart et al., 1993). In Ukraine a burnt tooth was found in Medzhibozh (layer 16a) (Stepanchuk and Moigne, 2015). Beaver remains were also found at the Early Pleistocene sites of the Sierra de Atapuerca, Trinchera del Elefante (TE9) and Gran Dolina (TD6) but there are no traces that they have been exploited by humans (Cuenca-Bescós et al., 2016).

## 2. The Caune de l'Arago site

The Caune de l'Arago (Southern France) is a vast karstic cavity located in a limestone formation close to the mouth of the Gouleyrous gorge,

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a canyon occupied by the Verdouble River (Fig. 1). The cave is a well-known archaeological site, which gives a good vision of human behavior, faunal associations and climatic variations between MIS 14 and MIS 5 (Falguères et al., 2004, 2015; de Lumley et al., 1984; Yokoyama and Nguyen, 1981). The site was occupied several times by groups of Hominids described, by more than 148 remains, as *H. erectus tautavelensis* (de Lumley, 2015b), the major agent of the accumulation of a large and diverse quantity of animal remains and lithic material in the cave. The stratigraphical sequence is developed on more than 15 m of stratified sediments (clay and sand). The main part is the middle

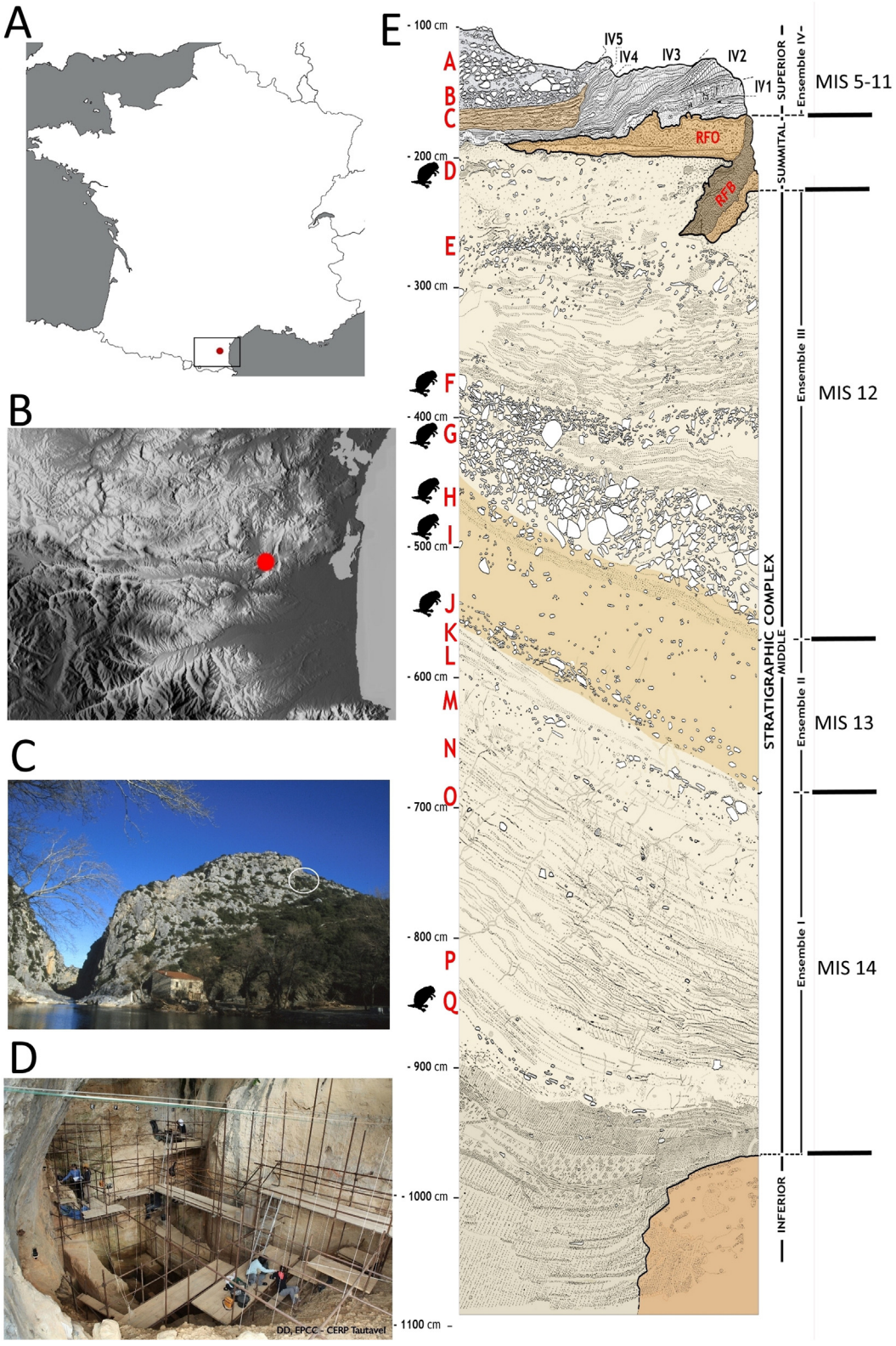


**Fig. 1.** A–B: Localization of the cave; C: View of the cave from the river (Picture: Denis Dainat EPCC-CERP Tautavel); D: View of the inside of the cave (Picture: Denis Dainat EPCC-CERP Tautavel); E: Synthetic stratigraphic column of the Caune de l'Arago (by Christian Perrenoud), with the correlation with the MIS after Falguères et al. (2015).

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