New results on the remains of Ursidae from Untermaßfeld: comparisons with *Ursus dolinensis* from Atapuerca and other Early and Middle Pleistocene sites

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In 1978, the fossil locality of Untermaßfeld was discovered in Southern Thuringia (Central Germany). The Lower Pleistocene sequence of fluviatile sediments exhibits a change from reversed to normal polarity, just below the fossil-bearing layers (Wiegank 1997). In conjunction with broad biostratigraphic considerations, this palaeomagnetic boundary marks the base of the Jaramillo subchron, thus suggesting an age around 1 Ma B.P. for the faunal association (OIS 31, Kahlke 2001). Later excavations undertaken by the Institute of Quaternary Palaeontology, Weimar, have provided numerous fossils which include 101 different taxa of Gastropoda, Osteichtyes, Amphibia, Reptilia, Aves and Mammalia. The remains of an ursid of uncertain attribution and evolutionary position have also been recovered and described as a new species *Ursus rodei* n. sp. (Musil 2001). Originally only mandibles with lower dentitions and some maxillary remains were found, together with a complete (although deformed) skull and a limited number of postcranial elements. Additional material was recovered thereafter. The entire bear collection was reviewed and compared with remains from other localities chronologically equivalent.

The Untermaßfeld bears are medium- to large-sized and possess many primitive features that are also present in modern brown bears as well as in the Early Pleistocene *Ursus etruscus*. The variable combination of premolar in the Untermaßfeld specimens suggests that this bear was losing some anterior check teeth. This dental reduction is also observed in *Ursus arctos*, in the *U. deningeri-spelaeus* lineage and in *Ursus dolinensis* from Atapuerca (northern Spain) and Le Vallonnet (southern France) (García 2003), while it never occurs in *Ursus etruscus* not even in the most advanced specimens from Crostolo Modolena (northern Italy) and Pietrafitta (Central Italy) (Rustioni & Mazza 1993; Mazza & Rustioni 1994).

The Untermaßfeld bears recall *Ursus dolinensis* from the Early Pleistocene levels of Gran Dolina (Atapuerca) in many respects. Both share a combination of traits. Some are primitive arctoid-like features which are also present in *Ursus etruscus* (slender horizontal ramus with straight ventral profile; all teeth sides converge towards the midline; P_4 narrow and elliptical- shaped with a massive and prominent protoconid; M_1 slender; M_2 rectangular-shaped without medial constrictions; P^4 triangular shaped, with simple, high pointed cusps; M^1 quadrangular- to rectangular-shaped without central constriction; large M^2 without torsion). Other characters instead, are exclusive to the Untermaßfeld bears, to *U. arctos*, *U. dolinensis* and some also to *U. deningeri* representatives. Although very scarce, the Untermaßfeld postcranial remains are proportionally intermediate between equivalent arctoid and speloid bones and differ substantially in this from *Ursus etruscus*.

A population of primitive representatives, close to brown bears and quite different from *Ursus etruscus* bears, inhabited Europe around 1 Ma B.P. Possible phylogenetic relationships between the Untermaßfeld population and the cave bear lineage, which was emerging in Europe approximately at the same age, could be established by carefully directed investigations. The Untermaßfeld population, together with the Vallonnet bears (Mazza & Rustioni 1994) and *Ursus dolinensis* from Atapuerca (Garcia & Arsuaga 2001), might represent the ancient stock from which the cave bear arose.

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