

Correct dating of *Equus hydruntinus* from the Upper Pleistocene of Le Castella (Calabria, Southern Italy)

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ABSTRACT - The age of 62 ky B.P. previously attributed to *Equus hydruntinus* from Le Castella (Calabria, Southern Italy) results incongruent and is here revised to 104 ± 1.2 ky B.P. The recovered teeth (a third lower molar of *Equus hydruntinus*; an upper premolar and an upper molar of bovid) come from a marine terrace, considered of 3rd rank in the Crotona peninsula and related to MIS 5c. The first finding of *Equus hydruntinus* in Calabria can confidently be attributed to MIS 5c and dated 104 ± 1.2 ky B.P.

RIASSUNTO - [Correzione della datazione di *Equus hydruntinus* del Pleistocene Superiore di Le Castella (Calabria, Italia meridionale)] - La prima segnalazione di *Equus hydruntinus* in Calabria è stata attribuita al Pleistocene Superiore in una precedente pubblicazione, tuttavia l'interpretazione dei dati stratigrafici e radiometrici, che ha suggerito un'età di 62 ka (MIS 4), risulta incongruente. I denti di mammiferi (un terzo molare inferiore di *Equus hydruntinus*, un molare superiore ed un premolare superiore di bovide) provengono da un terrazzo marino della penisola di Crotona, ritenuto di terzo rango e correlato al MIS 5c, e pertanto può essere loro attribuita un'età di 104 ± 1.2 ka.

INTRODUCTION

The note by prof. L. Bonfiglio (2009) concerning the paper "*Equus hydruntinus* from the Upper Pleistocene (MIS 4) of Calabria (Southern Italy)" (Marra & Bellomo, 2008), spurred me on to revise and update the data sets produced by E. Bellomo in our collaboration (i.e.: Geologic and Stratigraphic Setting; Taxonomy and Palaeocology of the Invertebrate Fauna). As a matter of facts, the interpretations of stratigraphical and radiometrical data provided by E. Bellomo in Marra & Bellomo (2008), which indicated the age of 62 ky B.P., result incongruent. Moreover, some useful data, not considered by Marra & Bellomo (2008) and Bonfiglio (this volume), are introduced and discussed.

REVISION OF THE DATING

The described teeth (a third lower molar of *Equus hydruntinus*; an upper premolar and an upper molar of bovid) have been recovered at Baia del Tucano, North East to Le Castella (province of Crotona; Fig. 1), in a marine biocalcarene at 10 m a.s.l. belonging to a terrace overlying the Cutro Formation (Marra & Bellomo, 2008). The marine terrace is extended as an almost continuous belt from Le Castella to Capo Cimiti, and presents elevations between 10 and 65 m. In the Crotona peninsula, this terrace is considered of 3rd rank (Fig. 1, Tab. 1; Zecchin et al., 2004). The cover of the terrace, Upper Pleistocene in age, presents carbonate sediments made up by algal reefs and hybrid sandstones locally interrupted by upper shoreface sediments (Zecchin et al., 2004). The mammal teeth come from chaotically accumulated grainstones with abundant molluscs (Tab. 1 in Marra & Bellomo, 2008), probably deposited in the upper shoreface, dominant in the western part of the terrace, near Le Castella (facies B5c, according to Zecchin et al., 2004). The 3rd terrace can be attributed to MIS 5c on the basis of the correlations provided by Gliozzi (1987) and Zecchin et al. (2004).

CONCLUSIONS

The present revision suggests that the age of 62 ky B.P. (MIS 4) erroneously attributed to *Equus hydruntinus* and bovid teeth

(Marra & Bellomo, 2008) can be overhauled to 104 ± 1.2 ky B.P. (MIS 5c, Edwards et al., 1997).

The older age of *Equus hydruntinus* from Le Castella does not invalidate my considerations on mammal fauna provided in Marra & Bellomo (2008). In particular, the record of *E. hydruntinus* in the MIS 5c of Calabria is still in keeping with the spreading of the specie to Sicily, probably occurred after the

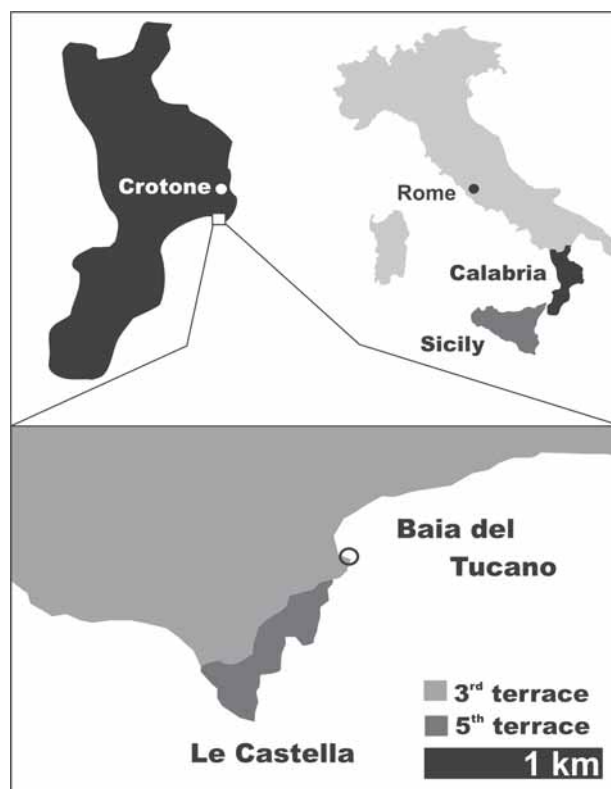


Fig. 1 - Location of the vertebrate site (circle) at Baia del Tucano (Le Castella, Crotona).

Terraces	Marine Isotopic Stages	References
Cutro (1 st)	MIS 9 MIS 7 (220-190 ky B.P.)	Palmentola et al., 1990 Gliozzi, 1987
Campolongo – La Mazzotta (2 nd)	MIS 5e (128-121 ky B.P.)	Gliozzi, 1987; Palmentola et al., 1990; Mauz and Hassler (2000); Zecchin et al., 2004
Le Castella – Capo Cimiti (3 rd)	MIS 5c (104±1.2 ky B.P.)	Gliozzi (1987); Zecchin et al., 2004
Capo Rizzuto (4 th)	MIS 5a (85-79 ky B.P.)	Mauz and Hassler (2000); Zecchin et al. (2004)
Le Castella (5 th)	MIS 3 (52-49 ky B.P. peak)	Mauz and Hassler (2000); Zecchin et al. (2004)

Tab. 1 – Ranks and correlation to MIS of the marine terraces of the Crotona peninsula.

MIS 5e and before the late Glacial (Bonfiglio et al., 2001). The presence of *Equus hydruntinus* on the island is attested for the first time in the “Grotta S. Teodoro – Pianetti Faunal Complex”, dated from 70 to 20 ky B.P. (Masini et al., 2008).

By a palaeoecological point of view, the presence of the “European Steppe Ass” in the warm and moist environment with mild winters occurring during the MIS 5c in southern Italy (Allen et al., 2000), should appear incoherent. However, a more temperate-Mediterranean character of *E. hydruntinus* as compared to *Equus caballus* has been supposed (Rustioni, 1996). The occurrence of the species in the MIS 5c of Calabria should be considered in this hypothesis.

Although corrected to an age of 104±1.2 ky B.P. (MIS 5c), the conclusions by Marra & Bellomo (2008) can be confirmed, being *Equus hydruntinus* from Le Castella:

- the first record of the species in Calabria;
- dated 104±1.2 ky B.P. (MIS 5c) by its occurrence in a well-dated marine terrace
- present in the time-span of its supposed dispersal from Calabria to Sicily.

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ERRATA CORRIGE of:

- Marra A. C. & Bellomo E. (2008). *Equus hydruntinus* from the Upper Pleistocene (MIS 4) of Calabria, Southern Italy. *Bollettino della Società Paleontologica Italiana*, 47 (1): 1-6.

Tab. 2, first column, fourth line: *Errata*: 5e; *Corrige*: pre 5e - 5e

Lacking references:

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