

FIRST BIOSTRATINOMIC STUDY OF A FOSSIL SIRENIAN BONEBED: THE CASTEJÓN DE SOBRARBE-41 SITE (MIDDLE EOCENE, SOUTHERN PYRENEES, HUESCA PROVINCE)

E. Díaz-Berenguer^{1*}, A. Badiola², J.I. Canudo¹

¹Aragosaurus: Recursos Geológicos y Paleoambientes-IUCA, Universidad de Zaragoza, C/ Pedro Cerbuna 12, 50009 Zaragoza, Spain.

²Departamento de Geología, Universidad del País Vasco/Euskal Herriko Unibertsitatea, 48940 Leioa, Vizcaya, Spain.

*presenting author, ester.berenguer@gmail.com

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Studies on marine mammalian fossils in transitional depositional paleoenvironments are scarce in the literature. Here we present a biostratinomical study of the macrofossil assemblage of Castejón de Sobrarbe-41 (CS-41), which is a middle Eocene fossil site in the deltaic facies of the Sobrarbe Fm. (Huesca, Spain) and the type locality of the quadrupedal sirenian *Sobrarbesiren cardieli*. CS-41 is a 79 cm-thick layer of marly silts with an extension of 22 m², which has provided 703 macrovertebrate remains. For each specimen over 1 cm, 19 biostratinomic parameters were analyzed. The spatial density of 32 specimens/m² represents a grouped bone distribution. 528 specimens were identified belonging to 5 different taxa (2 testudines, 2 crocodiles, and *Sobrarbesiren*) showing a low taxonomic diversity. The minimum number of individuals is 15, of which 8 pertain to juveniles and young adult individuals of *Sobrarbesiren*. The CS-41 macrofossil assemblage is a multi-individual monodominant sirenian bonebed with a “L” age population distribution pattern. These agree with a mass mortality event. Biostratinomic breakage, abrasion, bioerosion and weathering are scarce (less than 5% of the sample), which suggest a short period of subaerial or subaquatic exposure and the absence of a long-distance transportation before burial. Nevertheless, the bones are disarticulated, but not sorted, suggesting that skeletization happened before their final accumulation. The vertebrate fossil assemblage of CS-41 represents a deposit resulting on the fluvial accumulation of a parautochthonous thanatocoenosis, in an abandoned deltaic channel, dominated by sirenians and testudines, and caused by a catastrophic event that killed a sirenian herd.

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