VERTEBRATE SUCCESSION FROM LATE CRETACEOUS TO EARLY TERTIARY, SOUTH-CENTRAL PYRENEES (LLEIDA, SPAIN).

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The South-Central Pyrenean Unit comprises a continuous Cretaceous to Tertiary stratigraphic succession of coastal marine and continental deposits reaching more than 1,000 m thickness. The facies are sandstones (Arenisca de Arén Formation) and red beds (Tremp Formation). The complete section comprises a regressive-transgressive megacycle from Maastrichtian (Late Cretaceous) to Ilerdian (early Eocene).

Vertebrate fossils (teeth, bones and eggshells) belonging to fishes, dinosaurs, birds and mammals have been recovered from a dozen sites by washing and screening more than 15 tons of barren grey marls and clays. The studied area partly cover the Tremp and the Ager synclines, which are separated from each other by the Montsec thrust. Some sites are situated in stratigraphic superposition and continuity with offshore sediments and allow first-order marine-continental correlations. Paleomagnetic measurements are also available improving age estimations. The succession allows to record three main episodes of the history of vertebrate faunas during this critical period:

1) LATE CRETACEOUS: The localities of Orcau 0-2, Suterranya, Vicari 4, Biscarri, Julí, Montrebei (Tremp syncline), and Fontllonga 6 (Ager syncline) are situated at the lower part of the Tremp Formation. They are dated as Late Maastrichtian by direct correlations with marine deposits containing planctonic forams, and also by paleomagnetic measurements and charophyte biostratigraphy. Thousands of fishes, turtles, lizards, crocodyles and dinosaur remains have been recovered but so far no mammal remains have been found. Some of the identified taxa are the sharks *Lissodus* sp. and *Hemiscyllium* sp., the rays *Rhinobatos* sp., *Igdabatis* cf. *indicus* sp. and *Rhombodus*, the dinosaurs Titanosaurid, Theropoda, Coelurosaurid and Ankilosaurid indet., and the dinosaur oospecies (based on eggshells) *Megaloolithus aureliensis*, *M.petralta*, *Prismatolithus* sp. and *Megaloolithus mammillare*.

2) EARLY PALEOCENE: Only one locality has been found in this period, Fontllonga 3 (Ager syncline) which has been exhaustively sampled (7 tons). It is dated as early Danian (lowermost Paleocene), just after the K/T boundary, on the basis of paleomagnetic data (top of Chron 29R) and palynology. A very rich assemblage composed of fishes, turtles, crocodyles and mammals has been recorded, but no dinosaur remains appeared. Identified taxa are: the bony fishes *Coelodus laurenti*, *Stephanodus* sp. and Siluriform indet. and the mammals Multituberculata indet. sp.A and sp.B and Insectivora? indet.

3) LATE PALEOCENE: Four main localities, Claret 0, Tendruy, Claret 4 and Palau (Tremp syncline) have vertebrate microfossils. They are laterally correlated with marine Thanetian (late Paleocene) and are situated 30-80 m below the base of the Ilerdian stratotype (top of Chron 24.1R), separated by a regressive episod with conglomerates. The samples (about 10 tons) provided some hundred specimens of crocodyles and mammal teeth, and bird eggshells. Identified taxa are the bird oogenera *Ornitholithus* sp. and the mammals Multituberculata indet. sp.C and sp.D, Nyctitheriidae cf. *Leptacodon*, ?*Adapisorex* sp., Arctocyonidae? indet., Condylarthra sp.A and sp.B, *Microhyus* cf. *musculus*, *Paschatherium* sp., cf. *Paschatherium dolloi* and ?Chiroptera indet. The association of Claret 4 suggests a fossil nest of giant birds (eggshell thickness similar to that of thick dinosaur eggshells) with mammal remains as probable bird preys (teeths badly dammaged and corroded, eggshells intact). It has been dated as sligthly younger than the Dormaal fauna (unit MP7).

An important drop in diversity and productivity during the early Tertiary, as has been inferred by isotopic analysis, can be deduced from the scarce record and poorly diversified vertebrate assemblage of this epoch. The presence of large, probably terrestrial predator birds which are also common in Southern France in Late Paleocene faunas suggests a mature community with insularity features. The diversity increase at the end of the Paleocene (fauna not recorded yet in the Tremp-Ager areas) is due to the end of isolation (Late Paleocene regression) and the migrations of new mammal groups from other continents.