

# SELACHIAN-DOMINATED VERTEBRATE FOSSIL ASSEMBLAGE FROM THE UPPER CRETACEOUS TOCITO SANDSTONE, SOUTHEASTERN SAN JUAN BASIN, NEW MEXICO

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Selachian-dominated vertebrate fossil assemblage from the Upper Cretaceous Tocito Sandstone, southeastern San Juan Basin, New Mexico

An extensive fossil vertebrate assemblage collected from a series of anthills on the Tocito Sandstone (Upper Cretaceous, Coniacian), south of the Cabezon Peak volcanic plug in the southeastern San Juan Basin, consists of over 18,000 teeth from a variety of marine animals, the vast majority belonging to the class Chondrichthyes. About 200 pounds of anthill were collected, screen washed, and then picked under a microscope. Preliminary identification of these sharks, sawfish, and rays identifies the families Anacoracidae, Cretoxyrhinidae, Gingymostomatidae, Hybondontidae, Leptostyraxidae, Mitsukurinidae, Orectolobidae, Polyacrodontidae, Ptychodontidae, Rhombodontidae, Rhynobatidae, and Sclerorhynchidae. The vast majority of the teeth belong to the two genera *Scapanorhynchus* and *Cretolamna*, each represented by more than 8,000 teeth. Other faunal elements include baculites and other ammonites, varieties of teleost fish (including gar), at least two types of pycnodontids, crocodylians, gastropods, inoceramid clams, yet to be identified marine reptiles, and one mammal incisor. Reworked fusulinids were found, a result of erosional redeposition, possibly from Pennsylvanian deposits in the nearby Jemez Mountains. Several coprolites were also collected. Due to the fact that very few of the selachians have complete roots, and that the small number of larger teeth are fragmented, we inferred that these teeth were transported and then deposited on offshore sandbars or barrier islands. Of the 16,000 plus teeth assigned to the Mitsukurinidae and the Cretoxyrhinidae, less than one percent exceed a main cusp height of 8 mm (from the tip of the crown to the base of the root). Why are the majority of the teeth so minuscule? Is this simply due to hydraulic sorting, or could this be evidence of a nearby pupping area for these two families of sharks? It has been established that modern sharks have dedicated nursery areas for their young, and this may be one of the few published examples of a Cretaceous selachian nursery. Another question to be studied is why some scapanorhynchid teeth have labial plications and others do not. Is this due to ontogenetic reasons, as some have posited, or is there another reason? Included in this fauna is a proposed new species of a ptychotrygonid based upon the mesial ornamentation of the teeth. As research continues on this assemblage, further selachian families may be recorded, listed families may be revised, and new species described. It is also possible that more than one species may be discovered within a particular established genus.

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