Extensive Late Cretaceous (Coniacian), mostly marine vertebrate fossil assemblages from the southeastern San Juan Basin, New Mexico

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ABSTRACT

An extensive vertebrate faunal assemblage has been collected from anthills that have gathered fossil material from the Upper Cretaceous (Coniacian) Tocito Sandstone. The fossil-bearing deposit is a crossbedded, very coarse grained to pebbly sandstone that was deposited on an offshore bar or barrier island. The fossils mostly represent selachian taxa, are worn and tumbled and thus are allochthonous. This is an ongoing project consisting of sorting and identifying at least 17,000 fossils, and thus far there have been at least 12 selachians, 3 bony fish, four invertebrates, at least two types of reptiles, and one mammal collected. The selachian taxa include *Scapanorhynchus raphiodon, Ptychodus mortoni, Squalicorax* cf. *falcatus, Scindocorax novimexicanus, Cretolamna appendiculata, Ptychotrygon* nov. sp., *Hybodus* sp., *Polyacrodus* aff. *parvidens, Pseudohypolophus ellipsis,* rhynobatoid sp., *Myledaphus* sp.,and *Cantioscyllium decipiens,* as well as yet to be identified species. The bony fishes include *Micropycnodon kansasensis, Anomodeus* sp., *Lepidotes* sp.and an unidentified ginglymodian. Inoceramid clams make up the majority of the invertebrates, with the rest being baculites, other ammonites, crinoids (reworked from Paleozoic strata), and gastropods. The reptiles include crocodile, plesiosaur, and mosasaur. The one mammal tooth collected is an incisor of an unknown taxon. Teeth of *Scapanorhynchus* make up the vast majority of the faunal assemblage, while some other taxa are rare, notably *Polyacrodus* aff. *parvidens,* which is known from five or less examples. Almost all of the teeth are very small, less than 10 mm in maximum dimension, but whether this is caused by hydraulic sorting, the ability of the ants to carry material to build up their hills, or the fossil assemblage sourcing a possible shark pupping area is yet to be determined.

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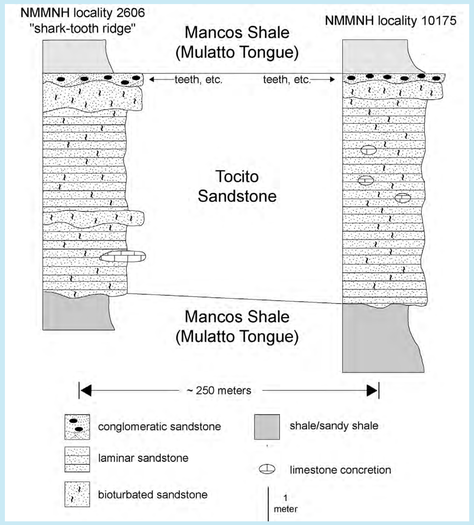
NMMNH locality 2606

Hillside with anthill (marked by pillow cases).

The anthill, showing a small debris disk.



Stratigraphic sections, showing the two localities

Initial finds, after screenwashing 43 kg of anthill material (teeth and some exotic material). Diameter of coin is 18 mm

NMMNH locality 10175

Fossil locality is on top of bench

Anthill debris

Scapanorhynchus cf. S.raphiodon

Rhinobatos sp.

unidentified orectolobid

Micropycnodon kansasensis

Parvidens cf. P. decepiens

Ptychotrygon new species

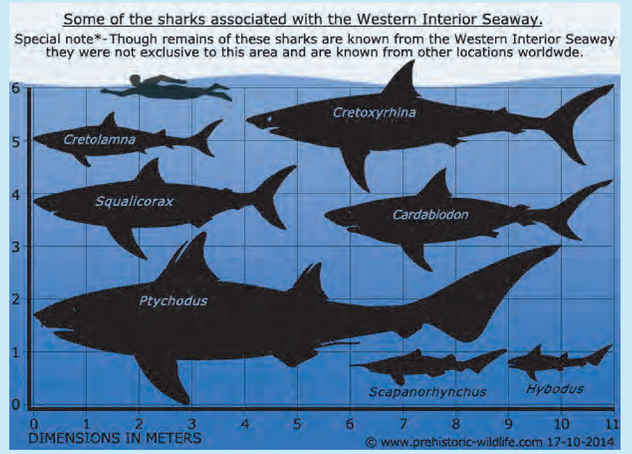
Anomoeodus sp.

gastropod

Scindocorax novimexicanus

Pseudocorax affinis

Cretolamna cf. *C. appendiculata*



Teeth, mainly juvenile, of most of these shark genera, are found in the Tocito Sandstone.