A New Testudinoid Turtle from the Upper Cretaceous (Campanian) Fruitland Formation, San Juan Basin, New Mexico

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ABSTRACT

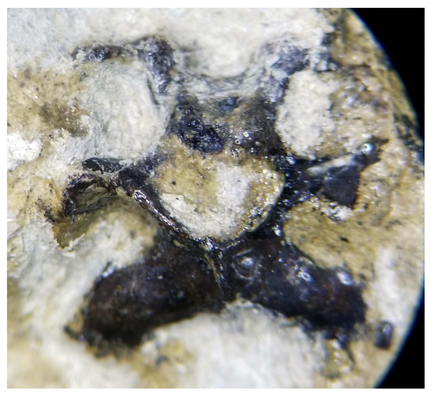
A mostly complete turtle shell from the neurals to the edge of the carapace from the Upper Cretaceous (Campanian) Fruitland Formation in the San Juan Basin, northwestern New Mexico, and recently prepared. In addition, the remainder of the shell, a cervical vertebra and a skull fragment are fractured and stacked in the adjacent rock. This fossil is identified as a testudinoid turtle because it lacks the mesoplastron characteristic of either a pleurodire or a baenid turtle. The neural bone lacks the costiform process characteristic of either chelydrid or kinosternoid turtles.

This turtle has hexagonal neurals with the short sides anterior. The costal bones are of near equal width along their entire length. The anterior of the carapace has a deep cephalic emargination similar to that of *Cardichelyon*. The bridge of the plastron is solidly sutured to the carapace. The cervical scute is either absent or extremely narrow. The plastron has a large caudal embayment, and the xiphiplastron terminates in angular points.

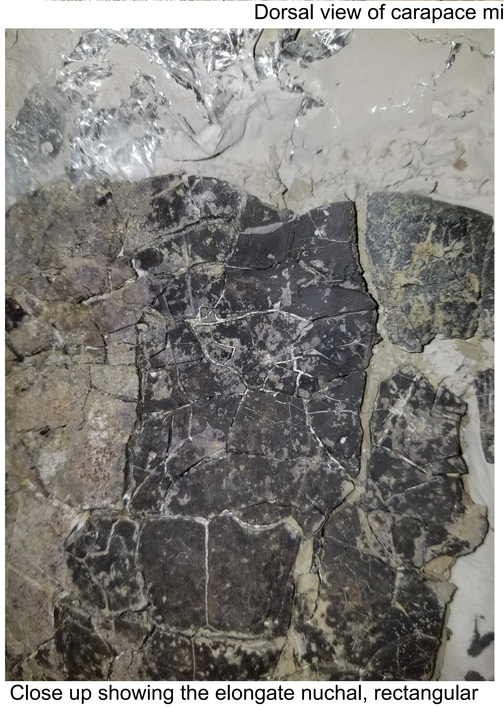
This is the oldest testudinoid in North America, the previous oldest record being the early Paleocene Puercan *Cardichelyon*. This Late Cretaceous turtle indicates that testudinoids entered North America significantly earlier than previously believed. Furthermore, both this specimen and *Cardichelyon* appear to be from the emydid-platysternid branch of the Testudinidae. This suggests the possibility that this early split in the Testudinoidea may be vicariant--the emydid-platysternid branch originating in North America, and the Geoemydidae-Testudinidae branch that originated from those groups remaining in Asia. Later periods of connectivity between Asia and North America would then provide a mechanism for the interchange of these two groups seen more recently.

Dorsal view of carapace missing most of the right half.

Ventral view of the specimen showing the plastron with a large caudal embayment and a large axillary scute.



Cervical vertebrae in anterior view. This appears to be a fairly unremarkable cryptodire cervical at the present stage of preparation.



Close up showing the elongate nuchal, rectangular neural 1 and hexagonal neural 2. Also noteworthy is the lack of a cervical scute and the shallow cephalic emargination.

Maxilla found in associated matrix overlying the carapace. More bone appears to be further into the block so more revelations to come!

Dromaeosaur (theropod dinosaur) claw found in associated matrix further corroborates the Cretaceous age of this specimen

Two indeterminate limb bones associated with the shell.