A NEW TESTUDINOID TURTLE FROM THE UPPER CRETACEOUS (CAMPANIAN) FRUITLAND FORMATION, SAN JUAN BASIN, NEW MEXICO

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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.

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