FOSSIL TURTLES OF NEW MEXICO

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New Mexico has an extensive record of fossil turtles ranging from the Triassic to the Pleistocene. The Late Triassic Chinlechelys from the Bull canyon Formation of the Chinle Group in east-central New Mexico is the oldest turtle in North America. The Upper Jurassic Morrison Formation of north-central New Mexico yielded the pleurosternid Glyptops. The Cretaceous of New Mexico host a diversity of turtles starting with trionychids in almost all marine units. The only marine turtle in New Mexico is a carapace fragment in the late Campanian interval of the Pierre Shale in northeastern New Mexico with surface sculpture similar to Archelon. The most diverse Cretaceous turtle assemblages in New Mexico are the Campanian Menefee, Fruitland and Kirtland formations in the San Juan Basin. The Menefee Formation has produced fossils of at least five families of turtles, none of which have been identified below the family level. The Fruitland and Kirtland formations contain at least 17 species of turtles, mostly baenids and trionychoidians. More rarely bothremydid and compsemeydid turtles have also been found. The Paleocene Nacimiento Formation of northwestern New Mexico has a diverse turtle fauna of at least five families, including some of the oldest testudinoids in North America, Cardichelyon. At least 28 species have been described from the Nacimiento Formation to date, but this number is likely inflated by over splitting of trionychid and dermemydid turtles. The lower Eocene San Jose Formation in the San Juan Basin hosts a diverse turtle fauna including the oldest known fossil testudinid, Hadrianus majusculus. Its turtle assemblage is further differentiated from earlier units by the near absence of baenid turtles, a common component of the Cretaceous and Paleocene turtle assemblages of New Mexico. The late Eocene (Chadronian) Palm Park Formation of south-central New Mexico has yielded fragmenary fossils of tortoises (cf. Stylemys). The Miocene strata of New Mexico hosts a largely modern turtle fauna lacking paracryptodires and all non-trionychid trionychoideans. The turtles from these deposits differ from the extant New Mexico turtle fauna in the prevalence of large tortoises, which are absent in the extant fauna. The Plio-Pleistocene record is similarly composed of various tortoises (Testudinidae) and more rarely kinosternid and emydid turtles, including New Mexico’s oldest box turtles. These final comparisons to the extant fauna are somewhat obscured by the historic anthropogenic removal of New Mexico’s surviving tortoises for food. Absent this, there would likely be one Testudinidae species left, and the turtle fauna would be more similar to that of the Plio-Pleistocene.