

THE TORTOISE *CAUDOCHELYS* FROM THE MIOCENE TESUQUE FORMATION OF THE ESPAÑOLA BASIN, NEW MEXICO

Asher J Lichtig¹ and Spencer G Lucas¹

¹New Mexico Museum of Natural History and Science, 1801 Mountain Rd. NW, Albuquerque, NM, 87104, ajlichtig@gmail.com

There is an extensive fossil record of Neogene tortoises in New Mexico, but they have received little study to date. *Caudochelys* is a genus of North American giant tortoises (family Testudinidae) primarily known from the Miocene of Texas and the Pleistocene of Florida. Here, we present the first report of *Caudochelys* in New Mexico, which includes some specimens that had previously been called *Hesperotestudo* sp. *Hesperotestudo* is the only other genus of giant tortoises recognized from the Neogene of North America.

Two skulls from the Tesuque Formation in "First Wash," in the Barstovian Pojoaque Member of the Tesuque Formation, one of which has associated postcrania, are referable to *Caudochelys* and provide some insight into the cranial anatomy of this genus. These skulls differ from *Hesperotestudo* in the lack of a second lingual ridge and the presence of a large medial septum of the palatines. The fenestra subtemporalis is significantly larger, particularly medio-laterally, than in *H. impensa* and *H. osbornia*. This indicates increased size of the jaw closing muscles in *Caudochelys*. This, combined with the tuberculate rather than striated morphology of the labial triturating surface, leads us to conclude the New Mexico *Caudochelys* likely consumed a tougher, more fibrous diet than the *Hesperotestudo* examined. This suggests possible niche partitioning using different food sources for each genus, reducing competition.

The postcranium associated with one of the skulls of *Caudochelys* includes unguale-shaped osteoderms similar to those seen in *Hesperotestudo osbornia*. Among living turtles these are only seen in *Manouria* and have no previously suggested function. The presence of these osteoderms fits with the previous idea that *Hesperotestudo* and *Caudochelys* are sister lineages. Furthermore, this raises the question, given this shared unique trait, is *Manouria*, the Asian Forest Tortoise, more closely related to North American giant tortoises than previously thought? The gulars of the New Mexican *Caudochelys* individual have a more pronounced lateral constriction than some of the other Tesuque Formation tortoise fossils, which we interpret to indicate that it is likely a male. Anterior lobes of Miocene New Mexico giant tortoises are generally less constricted at the gular-humeral sulcus than younger individuals previously assigned to *Hesperotestudo*. Thus, it is important to realize that the Miocene and Pliocene giant tortoises of New Mexico may not be members of the same lineage. The westward expansion of the range of *Caudochelys* further expands the geographic overlap of *Hesperotestudo* and *Caudochelys*.

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