THE TROPICAL TORTOISE CHELONOIDIS DENTICULATA
(TESTUDINES: TESTUDINIDAE) FROM
THE LATE PLEISTOCENE OF ARGENTINA AND
ITS PALEOClimATOLOGICAL IMPLICATIONS

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INTRODUCTION

The terrestrial tortoise clade Chelonoidis is endemic to the South American continent and nearby islands. Three continental species are currently recognized that inhabit three distinct habitats. The red-footed tortoise (C. carbonaria) and yellow-footed tortoise (C. denticulata) are often sympatric tropical to semi-tropical taxa, but the former taxon generally prefers open and wet savannahs, whereas the latter distinctly prefers permanent and wet forest cover. In contrast, the Chaco Tortoise, C. chilensis, is arid-adapted and lives along the eastern dry slopes of the southern Andes (Ernst and Barbour, 1989). The diverse group of generally dry-adapted tortoises from the Galapagos Islands is currently thought to be the gigantic sisters of C. chilensis (Caccone et al., 1999).

At present only C. carbonaria and C. chilensis are native to Argentina, reflecting the lack of sufficiently wet tropical forests in that country to permit the presence of C. denticulata as well. The Pleistocene Argentinean fossil record so far only produced remains that can be identified as C. chilensis and the remain of a now extinct giant tortoise (e.g., de la Fuente, 1997, 1999; Noriega et al., 2000, 2004). Large tortoises from South America were historically classified as Geochelone, but they likely represent extinct giant forms of Chelonoidis (Le et al., 2006).

Here we report a well-preserved tortoise plastron from the Late Pleistocene of Entre Ríos Province, Argentina, referable to C. denticulata (Fig. 1). This find is significant, because it was found approximately 800 km south of the extent, tropical range of this taxon (Vanzolini, 1994). Given the restricted habitat preferences of this taxon today, this find implied that wet-tropical forests once extended significantly further south on the South American continent.

The new specimen, CICYTTP-PV-R-1-268, is housed in the paleontological collections of the Centro de Investigaciones Científicas y Transferencia de Tecnología a la Producción (CICYTTP), Diamante, Argentina. Extant specimens of C. denticulata and C. carbonaria were examined at Yale Peabody Museum of Natural History (YPM) and the American Museum of Natural History (AMNH). The shell nomenclature used herein follows Zangerl (1969) and clade names follow Joyce et al. (2004).

Comparative Specimens.—Chelonoidis denticulata (AMNH 7043, 62587, 62589; YPM 11493, 14341, 17298). Chelonoidis carbonaria (AMNH 7042, 62583, 62585, 62588, 62590; YPM 10640, 10795, 12237, 13804, 13955, 14343).

SYSTEMATIC PALEONTOLOGY

Testudines Linnaeus, 1758
Testudinidae Gray, 1825
Geochelone denticulata (Linnaeus, 1766) (synonym)
Chelonoidis denticulata (Linnaeus, 1766) (Fig. 2)

Description.—CICYTTP-PV-R-1-268 is represented by a nearly complete plastron with portions of the bridge peripherals (Fig. 2). The left half of the plastron is almost complete, only lacking small portions of the epiplastron, and is in contact with the ventral portions of the left bridge peripherals. The right half, in contrast, lacks portions of all elements with exception of the xiphiplastron. No right bridge peripherals are preserved. The plastron is significantly longer than wide with a length of 56 cm (including the anal processes) and a width of 22.5 cm. The sutures of the bony plates and scutes sulci can be identified easily.

Epiplastra.—The epiplastra form much of the anterior plastral lobe. They contact each other along the midline, the entoplastron posteromedially, and the hyoplastra posteralaterally. As usual in Chelonoidis, the anterior third of the anterior plastral lobe is upturned and the anterior rim of the epiplastra is thickened to form a distinct lip (Gaffney and Meylan, 1988, Joyce and Bell, 2004). However, due to damage to the relevant area, it is unclear if a significant visceral overhang of the epiplastral lip was present, although it is apparent that it was better developed than in Manouria spp. or Gopherus spp. At the level of the gular/humeral sulcus, the anterior plastral margin is slightly notched.

Entoplastron.—A large, diamond-shaped entoplastron is present that is surrounded by the epiplastra anteriorly and the hyoplastra posteriorly. Its ventral exposure is significantly larger than its dorsal exposure. Anteriorly, the entoplastron is clearly overlapped by the gular. In contrast, the humeropec- toral sulcus only barely intersects the most posterior tip of this element.

Hyoplastra.—The hyoplastra are large elements that form the posterior portions of the anterior plastral margin. Laterally they contact four peripheral elements along a finely sutured contact. These four elements likely represent peripherals III through VI by comparison to other testudinids. A slim, only partially preserved axillary buttress that contacts peripheral III further supports the bridge (Joyce and Bell, 2004).

Hyoplastra.—The hyoplastra are large elements that approximate the hyoplastra in size and form about half of