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AUFFENBERG, WALTER, AND RICHARD FRANZ. 1978. *Gopherus berlandieri*

Gopherus berlandieri (Agassiz) Texas tortoise

Xerobates berlandieri Agassiz, 1857:447. Type-locality not specified by Agassiz, given as "Brownsville, Cameron County, Texas," by Schmidt (1953:105), and as "Lower Rio Grande (restricted to Brownsville, Texas), Texas," by Cochran (1961:236). The earliest specific locality is "Lower Rio Grande" (Baird, 1859:4). Two syntypes, U.S. Nat. Mus. 60 (2), collected by J. L. Berlandier (not examined by authors).

Testudo berlandieri: Cope, 1880:13.

G[opherus]. berlandieri: Stejneger, 1893:161. First use of this combination.

Gopherus polyphemus berlandieri: Mertens and Wermuth, 1955:371. See remarks in Auffenberg and Franz (1978).

• CONTENT. No subspecies are recognized.

• DEFINITION. Adults are 150–219 mm in carapace length, with a high, oval shell, domed dorsally and widely flaring at the lateroposterior border; gular projections are acute, deeply notched anteriorly at the midline and often divergent, particularly in males. Ossicles of the forelimbs are small to moderate in size and obviously keeled, but never fused. The antibrachial scales are imbricate. The axillary scale is trapezoidal to triangular. The head width varies from 57 to 89% of hind foot width. The skin color is yellow to brownish-grey, often with darker markings, particularly on the extremities. Shell ground color is black to brown, usually with yellowish areolae; old individuals are sometimes uniformly brown and juveniles are generally much darker and with smaller yellow areolae than in *G. agassizii* and *G. polyphemus* (young of *G. flavomarginatus* remain unknown). Marginals are not distinctly lighter than costal scutes.

Sexual dimorphism is more marked in *G. berlandieri* than in the other species of *Gopherus*. Females tend to be smaller than males, with a flattened, rather than an obviously concave plastron; they possess much shorter, less divergent gular projections and shorter tail. Eggs are ellipsoidal, rather than spherical as in other species.

• DESCRIPTIONS. True (1882), Pope (1939), Bogert and Oliver (1945), Carr (1952), and Ernst and Barbour (1972) provide general descriptions. Skeletal characters are discussed by Williams (1950a, 1950b), Auffenberg (1966), and Bramble (1974); mental glands by Smith and Brown (1948) and Rose et al. (1969); sexual dimorphism by Mittleman and Brown (1947) and Weaver (1970); young by Auffenberg and Weaver (1969); and penial morphology by Zug (1966).

• ILLUSTRATIONS. Photographs of adults are found in Ditmars (1936), Carr (1952), and Auffenberg and Weaver (1969); mental gland morphology and histology are shown in Rose et al. (1969); Miller (1966) illustrates the cochlear duct.

• DISTRIBUTION. Historically widely and rather uniformly distributed in appropriate habitats of subtropical brushland and thorn forest from southern Texas, south through eastern Coahuila, eastern Nuevo Leon, most of Tamaulipas, and the northeastern corner of San Luis Potosi, Mexico. Gunter (1945) and Brown (1950) state that the northern limits of its range are expanding yearly, especially toward the western sections of Texas. Agriculture and urbanization have greatly reduced its numbers in large parts of its former range. Records for near Tucson, Arizona, are no doubt based on released and escaped individuals.

• FOSSIL RECORD. None. Fossils of Late Pleistocene *Gopherus* from southeastern Texas are currently placed in *G. hexagonata* (Auffenberg, 1962), a species probably close to *G. polyphemus*. Thus, the origin and past distribution of *G. berlandieri* remains a mystery.

• PERTINENT LITERATURE. Douglass (1975, 1977) provides extensive bibliographies. Ecology and habits are described by Hamilton (1944), Carr (1952), Rotermundt (1953), Beltz (1958), Neill (1958), Grant (1960), Raun (1966), Auffenberg and Weaver (1969), Ernst and Barbour (1972), and Rose and Judd (1975). Data on distribution and the influence of the Balcones escarpment are presented by Smith and Buechner (1947); courtship and breeding are discussed by Hamilton (1944), Woodbury (1952), and Weaver (1970); righting reflex by Ashe (1970); behavior by Eglis (1962); coprophagy by Mares (1971); eggs and nesting by Strecker (1928), Grant (1960), Sabath (1960), Brown (1964), and Auffenberg and Weaver (1969); burrow and shelter utilization by Auffenberg and Weaver (1969); visual cliff perception by Patterson (1971); thermal characteristics by Hutchison et al. (1966); cranial circulatory system by McDowell (1961); buoyancy by Patterson (1973); hemoglobin structure by Sullivan and Riggs (1967a, 1967b, 1967c), serology by Frair (1964) and Helmy et al. (1969); mental gland secretions by Rose et al. (1969); ureogenesis by Baze and Horne (1970); regulation of ureabiosynthesis enzymes by Mora et al. (1965); parasites by Schad et al. (1964); cutaneous myiasis by Neck (1977); aestivation and thermoregulation by Voigt and Johnson (1976); weight regimes by Olson (1976), chromosomes by Killebrew and McKown (1978).

• ETYMOLOGY. The name *berlandieri* honors Jean Louis Berlandier, the collector of the type series.

• REMARKS. This species is protected by law in the State of Texas.

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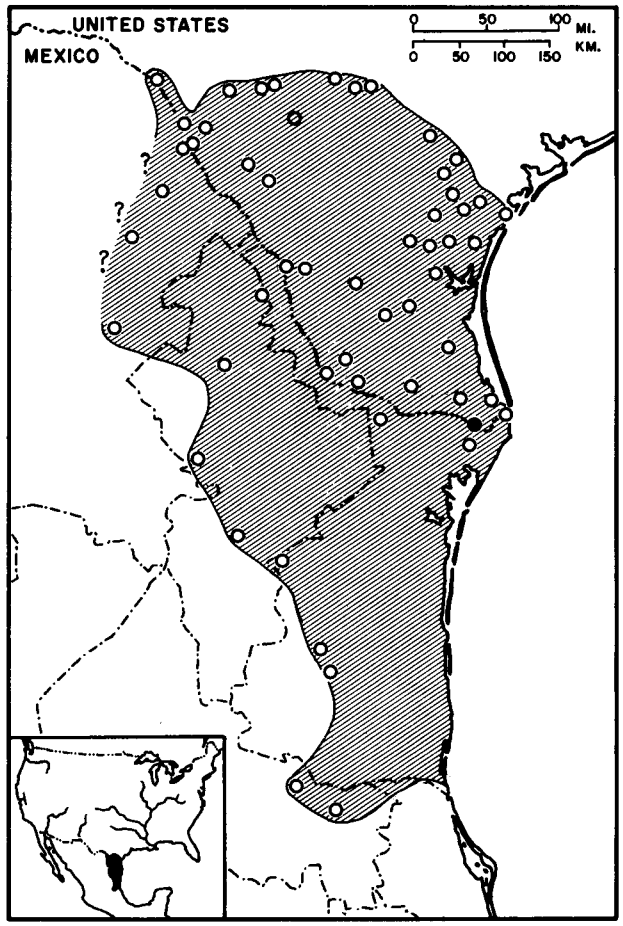

MAP. The solid circle marks the type-locality; open circles indicate other localities.

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