

Catalogue of American Amphibians and Reptiles.

IVERSON, JOHN B. 1976. *Kinosternon sonoriense*.*Kinosternon sonoriense*
Sonora Mud Turtle

Kinosternon sonoriense LeConte, 1854:184. Type-locality, "Tucson, in Sonora," Arizona. Holotype: presumably in Acad. Nat. Sci. Philadelphia, presently unlocatable; collected by LeConte's son, collecting date unknown.

Thyosternum sonoriense: Agassiz, 1857:428.

Cinosternum sonoriense: Agassiz, 1857:Plate V, fig. 8-11.

Kinosternum henrici: LeConte, 1859:4. Type-locality, "New Mexico." Holotype: Acad. Nat. Sci. Philadelphia 83, a male, collected by Dr. T. C. Henry, collecting date unknown (examined by author). Locality data with type is "Gila River, New Mexico." Type-locality incorrectly restricted by Schmidt (1953:91) to "vicinity of Las Cruces."

Kinosternon henrici: Strauch, 1862:41.

Cinosternon sonoriense: Strauch, 1862:41.

Swanka henricii: Gray, 1870:69.

Cinosternum henrici: Cope, 1875:52.

Kinosternon sonoriense: Stejneger, 1902:149. Present usage.

Kinosternon sonoriensis: Smith and Buechner, 1947:10.

• **CONTENT.** *Kinosternon sonoriense* is a monotypic species.

• **DEFINITION.** Adult females reach approximately 175 mm in carapace length, whereas males reach only 155 mm. The adult carapace is generally tricarinate with the medial keel most apparent. Some turtles possess well-defined keels, others have only the median keel present with mere hints of the two lateral keels, and still others have an apparently smooth shell. Hatchlings and juveniles possess three weak keels. Nasal scale not furcate behind in adults. The first vertebral scute usually touches the second marginal. The axillary is in contact with the inguinal. The inguinal contacts the eighth marginal. The ninth marginal scute is not elevated above the preceding marginals. The tenth marginal is higher than the ninth marginal and the eleventh marginal may or may not be elevated to the height of the posterior portion of the tenth marginal. Interpectoral seam length is less than one-half of gular length. The nuchal bone very often contacts the first neural bone. The carapace is brown to olive in color, the seams marked more darkly. Well-developed transverse plastral hinges border the abdominal scutes. The plastron is yellow to brownish, with darker brown seams. The bridge area is dark brown. In hatchlings, the carapace is brown with a yellow shell margin. The bridge is black or dark brown. The plastron is creamy yellow with a brown to black, foliate, central figure applied to the seams. At all ages, the skin is dark gray and the head and neck bear cream colored mottlings that tend to form at least one pair of stripes on each side. From the orbit, one line extends above the tympanum and the other below it after intersecting the angle of the jaw. These head stripes are very distinctive and colored yellow in hatchlings. A yellow or cream stripe also extends from the palmar surface of each foot to the base of the limb along its posterior surface in the hatchling and many adults. Adult females possess short, stubby tails, whereas males possess long, thickened tails with a terminal spine and a patch of elevated, acute, nonimbricated scales on the posterior surface of the crus and thigh of each hind leg.

• **DESCRIPTIONS.** General descriptions are in Boulenger (1889), Ruthven (1907), Siebenrock (1907, 1909), Van Denburgh (1922), Pope (1939), Carr (1952), Stebbins (1954, 1966), and Ernst and Barbour (1972). Juveniles and hatchlings are described in Agassiz (1857), Carr (1952), and Ernst and Barbour (1972). Detailed anatomical descriptions include cervical vertebrae (Williams, 1950), arterial canals in the ear region (McDowell, 1961), carapacial seam arrangements (Tinkle, 1962), choanal structure (Parsons, 1968), and musk glands (Waagen, 1972).

• **ILLUSTRATIONS.** Color photographs of adults appear in Pritchard (1967), and Ernst and Barbour (1972); black and white photographs in Van Denburgh (1922), Carr (1952), Keasey (1971), and Ernst and Barbour (1972); line drawings of adults in Yarrow (1875), Stebbins (1954, 1966), and Wermuth and Mer-

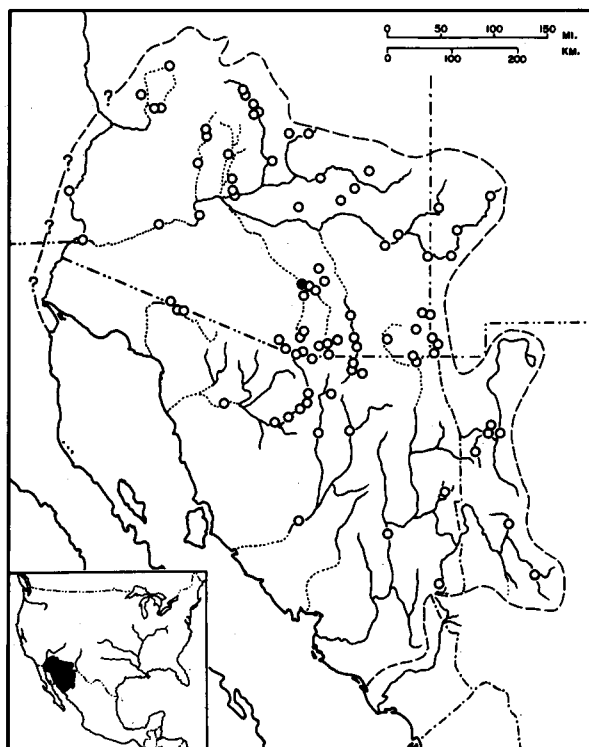
tens (1961); drawings of young in Agassiz (1857). Special illustrations are lateral carapacial scute arrangement (Blair *et al.*, 1957); skull (Ernst and Barbour, 1972); and skull with arteries and canals of the ear region (McDowell, 1961).

• **DISTRIBUTION.** *Kinosternon sonoriense* occurs in the United States from the Lower Colorado and Gila Rivers (Stebbins, 1966; Funk, 1974) eastward throughout the Gila drainage in Arizona and New Mexico to at least an altitude of 6,700 (Niles, 1962; Degenhardt and Christiansen, 1974). An isolated record from along the Colorado River in Nevada needs verification (LaRivers, 1942), as does a specimen of *sonoriense* from "Utah" listed as *flavescens* by Yarrow (1882). Populations of the turtles also occur on the eastern slopes of the Peloncillos Mountains in Arizona and New Mexico (Degenhardt and Christiansen, 1974), and Quitobaquito Pond, Pima Co., Arizona (Stebbins, 1966). The numerous reports of Texan *K. sonoriense* are based on *K. hirtipes* records. In Sonora, Mexico the turtle occurs at least in the drainages between and including the Sonoyta and Yaqui Rivers. It is also found in the Casa Grandes Interior Basin in Chihuahua, Mexico. Records from Durango (Stebbins, 1966; Ernst and Barbour, 1972) are presumably referable to *K. hirtipes*.

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** General accounts of the biology of *Kinosternon sonoriense* are in Pope (1939), Carr (1952), Stebbins (1954, 1966), Pritchard (1967), and Ernst and Barbour (1972). Additional important references are: taxonomy (Siebenrock, 1907; Wermuth and Mertens, 1961; Frair, 1972); reproduction (Keasey, 1971); serology (Frair, 1964, 1972); blood chemistry (Frair, 1963); rostral pores (Winokur and Legler, 1974); longevity (Conant and Hudson, 1949); ecology (Lowe, 1972; Degenhardt and Christiansen, 1974; Hulse, 1974); algal relationships (Dixon, 1960); parasites (Ernst and Barbour, 1972); food and feeding behavior (Van Denburgh and Slevin, 1913; Hulse, 1974); habits in captivity (Van Denburgh and Slevin, 1913; Keasey, 1971).

• **ETYMOLOGY.** The specific name *sonoriense* refers to the Sonoran Province, wherein the turtle is found.



MAP. Closed circle indicates type-locality, open circles mark other localities. Broken line follows outer periphery of drainage systems in which the species is known to occur.

COMMENT

Kinosternon punctatum = *K. subrubrum* was described by Gray in 1855 based on a specimen in the British Museum from "North America, East Florida." Smith and Taylor (1950) erroneously synonymized *punctatum* with *sonoriense* and restricted the type-locality to "Tucson, Arizona."

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