

## Catalogue of American Amphibians and Reptiles.

IVERSON, JOHN B. 1985. *Kinosternon hirtipes*.

***Kinosternon hirtipes* (Wagler)  
Mexican rough-footed mud turtle**

*Cinosternon hirtipes*: Wagler, 1830:137. Nomen nudum.

*Kinosternon hirtipes* Wagler, 1833:pl. 30 + 2 pp. Type-locality "Habitat in Mexico"; erroneously restricted to "Matatlan, Sinaloa" by Smith and Taylor (1950:25), but more properly restricted to "lakes near Mexico City" by Schmidt (1953:89). Holotype, Zoologisches Sammlung der Bayerischen Staaten, Munich, Germany 1374/0, a male, collected by Baron Karwinski, date unknown (examined by author).

*Cinosternon hirtipes*: Gray, 1844:33. Lapsus.

*Kinosternum hirtipes*: LeConte, 1854:186.

*Kinosternon hirtipes*: Gray, 1855:47. First use of combination.

*Thryosternum hirtipes*: Agassiz, 1857:429.

*Ozotheca hirtipes*: LeConte, 1859:6.

*Cinosternum hirtipes*: Günther, 1885:13.

*Kinosternon murrayi*: Glass and Hartweg, 1951:50. See subspecies synonymy.

*Kynosternon hirtipes*: Lopez, 1975:2. Lapsus.

*Kinosternon hertipes*: Semmler et al., 1977:18. Lapsus.

• **CONTENT.** Six subspecies are recognized: *Kinosternon hirtipes hirtipes*, *K. h. murrayi*, *K. h. chapalaense*, *K. h. megacephalum*, *K. h. tarascense*, and *K. h. magdalense*.

• **DEFINITION.** Adult females reach approximately 160 mm in carapace length, whereas males reach 185 mm. The adult carapace is generally tricarinate with the median keel most apparent; subadults always have evidence of three keels. The first vertebral usually touches the second marginal. The ninth marginal 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. The nuchal bone rarely contacts the first neural bone. The carapace is light to dark brown to nearly black; the seams are darker in light specimens. The double-hinged plastron is emarginate posteriorly. The posterior width of the plastral forelobe averages 43% (36–51) and 48% (42–54) of the carapace length in males and females, respectively. Interpectoral seam length averages 8.2% and 6.6% of the plastron length in males and females, respectively. The bridge length averages 20.1% (16–24) and 23.6% (18–29) of the carapace length in males and females, respectively; and averages 82% (61–120) and 95.5% (64–133) of the first vertebral scute width, respectively. The axillary almost always contacts the inguinal. The plastron and bridge are usually yellow with brown seams (almost never orangish), but sometimes variably stained red, brown or black. The skin varies from cream to gray to black. The head is spotted, mottled, or reticulated with dark brown to black (more dorsally than ventrally). The nasal scale is typically large and posteriorly furcate, although it is reduced to a small anterior crescent in some populations (Chapala and Zapotlán basins), and enlarged to a triangular or rhomboidal shape in other populations (Valley of Mexico). Three pairs of chin barbels are usually present, each shorter than half the orbit diameter. Adult females possess lighter chins and short, stubby tails. Males have darker chins and long, thick tails. Both sexes have tail spines (larger in the male), but only males have patches of tuberculate scales (claspings organs) on the posterior surface of the crus and thigh of each hind leg.

• **DESCRIPTIONS.** General descriptions are in Siebenrock (1907), Casas Andreu (1967), Pritchard (1979), Ernst and Barbour (1972), Conant (1975), Smith and Smith (1980), and Iverson (1981). Specific descriptions include rostral pores (Winokur and Legler, 1974), musk glands (Waagen, 1972), penial morphology (Zug, 1966), karyotype (Killebrew, 1975), and choanae (Parsons, 1968).

• **ILLUSTRATIONS.** Color photographs of adults appear in Pritchard (1979), Ernst and Barbour (1972), and Behler and King (1979). Black and white photographs: adults, Casas Andreu (1967), Ernst and Barbour (1972), Conant (1975), Conant and Berry (1978), Seidel and Reynolds (1980), Smith and Smith (1980), and Iverson (1981); hatchlings, Conant and Berry (1978); skulls, Ernst and Barbour (1972); rostral pores, Winokur and Legler (1974); karyotype, Killebrew (1975); integument, Seidel and Reynolds (1980).

Drawings: adults, Wagler (1833), Dugés (1888), Siebenrock (1906), Glass and Hartweg (1951), Freiberg (1972); of the head, Conant and Berry (1978); of the skeleton, Dugés (1896); and of the choanae, Parsons (1968). Prehistoric drawings are in Martin del Campo (1938) and Kranz et al. (1971).

• **DISTRIBUTION.** *Kinosternon hirtipes* occurs in the United States only in Presidio County, Texas, and in Mexico from the Ríos Santa María, Carmen, and Conchos in Chihuahua southward and eastward on the Mexican Plateau to the Chapala, Zapotlán, San Juanico, Pátzcuaro, and Valle de México basins of the Sierra Volcánica Transversal of southern Mexico. It is known from between 800 and 2600 m elevation. Erroneous localities are discussed and/or corrected in Iverson (1981).

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** A general account of the biology is in Ernst and Barbour (1972). Additional important references are: taxonomy (Glass and Hartweg, 1951; Iverson, 1981); biomass (Iverson, 1982); reproduction (Moll and Legler, 1971; Moll, 1979; Ewert, 1979; Iverson, 1981); sexual dimorphism (Berry and Shine, 1980); winter behavior (Beltz, 1954); parasites (Caballero y Caballero, 1939, 1940; Caballero y Caballero, and Cerecero, 1943; Hughes et al., 1941, 1942; Yamaguti, 1958; Thatcher, 1963; Lamothe-Argumedo, 1972; Ernst and Ernst, 1977; erroneous parasite references, actually *K. integrum*, include Caballero y Caballero, 1938a, 1938b, and 1940a); evaporative water loss (Seidel and Reynolds, 1980); excretion (Mora et al., 1965); serology (Frair, 1972); cardiac physiology (Martinez-Palomo and Mendez, 1971; Lopez, 1975); hemoglobin (Sullivan and Riggs, 1967), trapping methods (Legler, 1960); zoogeography (Duellman, 1965); skeletal scaling (Iverson, 1984).

• **ETYMOLOGY.** The specific name *hirtipes* is from the Latin *hirtus*, meaning rough, and *pes*, meaning foot, and refers to the rough scales on the feet of the species. The name *murrayi* is a patronym honoring Dr. Leo T. Murray of Texas A&M College. The

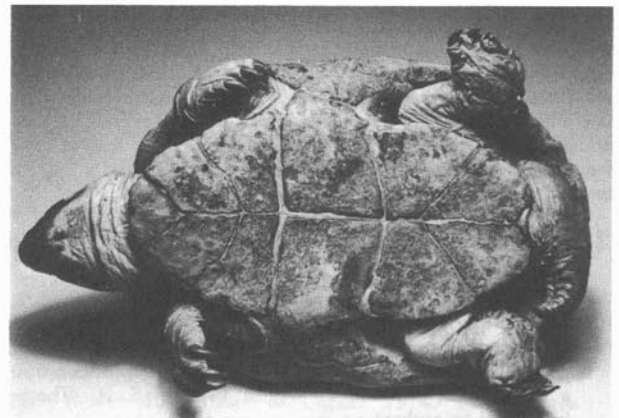
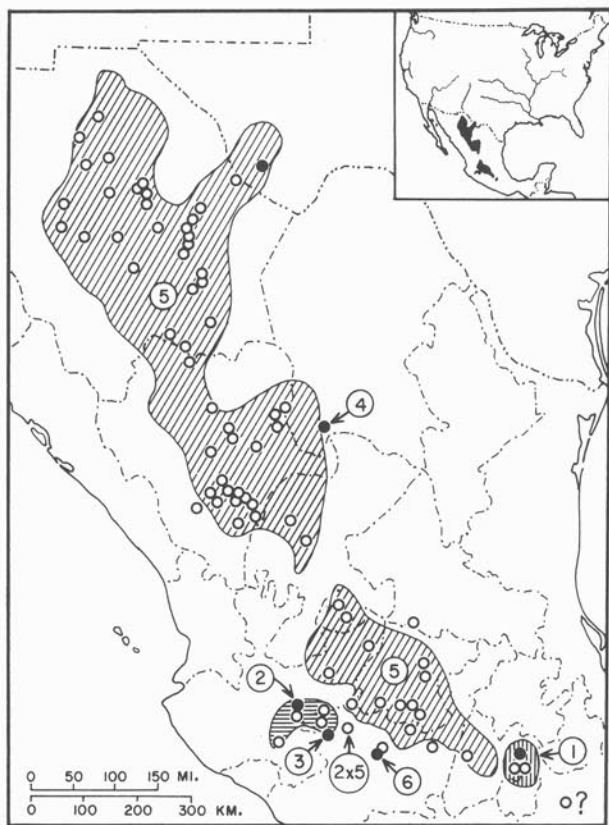


FIGURE. Holotype of *Kinosternon hirtipes*.



MAP. Solid circles mark type-localities; open circles indicate other localities.

name *chapalaense* refers to Lake Chapala wherein the type series was collected. The name *megacephalum* is from the Greek *mega*, meaning large, and *kephale*, meaning head, and refers to the large head of this form. The name *tarascense* honors the native Indians, the Tarascas, inhabiting the Lake Patzcuaro region. The name *magdalense* refers to the Magdalena Valley of Michoacan, in which this form occurs.

### 1. *Kinosternon hirtipes hirtipes* (Wagler)

*Cinosternon hirtipes*: Wagler, 1830:137. See species synonymy.  
*Cinosternon hirtipes*: Wagler, 1833:pl 30 + 2 pp. See species synonymy.

*Cinosternon hirtipes*: Gray, 1844:33. See species synonymy.  
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*Kinosternon hirtipes*: Gray, 1855:47. See species synonymy.  
*Thryosternum hirtipes*: Agassiz, 1857:429. See species synonymy.  
*Ozotheca hirtipes*: LeConte, 1859:6. See species synonymy.  
*Cinosternum hirtipes*: Günther, 1885:13. See species synonymy.  
*Kynosternon hirtipes*: Lopez, 1975:2. See species synonymy.  
*Kinosternon hertipes*: Semmler et al., 1977:18. See species synonymy.

● DEFINITION. This race has the adult nasal scale triangular, rhomboidal, or bell-shaped; a mottled head pattern (typically organized into a light streak extending posteriorly from the angle of the jaw, with a similar light postorbital streak variably evident); a short bridge (mean male BL/CL, 17.6%; female, 21.7%); a short inter-femoral seam (male IF/CL, 6.9%; female, 7.1%); and a long interanal seam (male IAN/CL, 20.6%; female, 25.8%).

### 2. *Kinosternon hirtipes murrayi* Glass and Hartweg

*Kinosternon murrayi* Glass and Hartweg, 1951:50. Type-locality, "Harper Ranch, 37 miles south of Marfa, Presidio County, Texas." Holotype, Texas Cooperative Wildlife Collection 650, a young male, collected 12 August 1941 by S. H. Wheeler (examined by author).

● DEFINITION. This race has the adult nasal scale furcate posteriorly; an extremely variable mottled to reticulated head pattern; a long bridge (mean male BL/CL, 20.0%; female, 23.7%); and a long gular scute (male GL/CL, 14.7%; female, 15.8%).

### 3. *Kinosternon hirtipes chapalaense* Iverson

*Kinosternon hirtipes chapalaense* Iverson, 1981:51. Type-locality, "Lake Chapala, 0.25 mile off Chapala, Jalisco, Mexico [20°18'N, 103°12'W]". Holotype, Univ. Michigan Mus. Zool. 97128, adult male, collected 15 July 1947 by Norman Hartweg (examined by author).

● DEFINITION. This race has the adult nasal scale reduced to a small crescent-shaped shield, lying anterior to the orbits; a boldly mottled to reticulate head pattern with two dark postorbital lines, but with very little dark pigment present dorsally; a long bridge (mean male BL/CL, 20.3%; female, 25.3%); and a long interanal seam (male IAN/CL, 19.1%; female, 25.2%).

### 4. *Kinosternon hirtipes megacephalum* Iverson

*Kinosternon hirtipes megacephalum* Iverson, 1981:52. Type-locality, "3.2 km SE Viesca [25°21'N, 102°48'W], Coahuila," Mexico. Holotype, Strecker Mus., Baylor Univ. (Bryce C. Brown Collection) 11466, adult male, collected 4 June 1961 by Bryce C. Brown and John Wottring (examined by author).

● DEFINITION. This presumably extinct race has an enlarged head with hypertrophied musculature; the adult nasal scale furcate posteriorly; a reduced plastron (mean male plastron width at femoro-anal seam is 28.2%; female, 31.4%); a narrow bridge (mean male BL/CL, 17.3%; female, 23.9%); a short gular scute (mean male GL/CL, 11.0%; female, 12.8%); and a short interanal seam (male IAN/CL, 15.9%; female, 20.9%).

### 5. *Kinosternon hirtipes tarascense* Iverson

*Kinosternon hirtipes tarascense* Iverson, 1981:52. Type-locality, "Lago de Patzcuaro, adjacent to city of Patzcuaro [19°32'N, 101°36'W]", Michoacán, Mexico. Holotype, Univ. Florida (Florida State Mus. Biol. Sci.) 43506, adult male, purchased in the Patzcuaro market 13 June 1978 by John B. Iverson.

● DEFINITION. This race has the adult nasal scale furcate posteriorly; a finely mottled or spotted head; a short bridge (mean male BL/CL, 18.0%; female, 21.4%); a short gular scute (male GL/CL, 10.6%; female, 12.6%); and a long interpectoral seam (male IP/CL, 10.1%; female, 8.5%).

### 6. *Kinosternon hirtipes magdalense* Iverson

*Kinosternon hirtipes magdalense* Iverson, 1981:53. Type-locality, "along the face of the dam Presa San Juanico, Michoacán [ca. 19°50'N, 102°40'W], Mexico." Holotype, Univ. Florida (Florida State Mus. Biol. Sci.) 45035, adult male, collected 15 June 1978 by John B. Iverson, Peter A. Meylan, and Ron Magill.

● DEFINITION. This race has the adult nasal scale furcate posteriorly; a finely mottled to spotted head pattern with very little or no jaw streaking; a narrow plastron (mean male posterior width of plastral forelobe/CL, 41.9%; female, 43.5%); a short bridge (mean male BL/CL, 18.5%; female, 19.7%); a short gular scute (mean male GL/CL, 9.9%; female, 11.0%); and a long interpectoral seam (mean male IP/CL, 8.7%; female, 11.0%).

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