

Catalogue of American Amphibians and Reptiles.

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Trachemys adiutrix.

***Trachemys adiutrix* Vanzolini**
Carvalho's Slider

Trachemys adiutrix Vanzolini 1995:111. Type-locality, "Brasil [Brazil]: Maranhão: Santo Amaro, 02°33' S, 43°14' W." Holotype, Museu de Zoologia da Universidade de Sao Paulo, Sao Paulo, Brazil (MZUSP) 3224, fluid preserved male with everted penis, collected by Paulo E. Vanzolini and Maria do Socorro Pinheiro, 9–11 March 1993 (not examined by authors).

• **CONTENT.** *Trachemys adiutrix* is a monotypic species.

• **DEFINITION.** Bour (2003) reported the adult carapace length as at least 150 mm, and that of a female paratype, United States National Museum of Natural History (USNM) 329467, is 143.7 mm. Batistella (2008) examined 210 individuals from different localities; males had straight-line carapace lengths of 99.1–185.5 mm, and plastron lengths of 88.7–156.2 mm; females had carapace lengths of 101.5–250.6 mm, and plastron lengths of 101.0–201.6 mm. The oval carapace is weakly keeled (the keel on the posterior vertebrals is low), has a slightly serrate posterior rim, is highest at the seam separating vertebrals 2–3, and widest at the level of marginals 7–8. Marginals behind the bridge are flared, but a posterior notch is evident. The pleural scutes may bear a series of low longitudinal ridges or wrinkles which are most pronounced on pleurals 2–3. The cervical scute is longer than broad, unnotched and not projecting. The vertebral scutes are equal to or broader than long; vertebral 1 is broad and urn-shaped, and vertebral 5 is as broad as or more flared

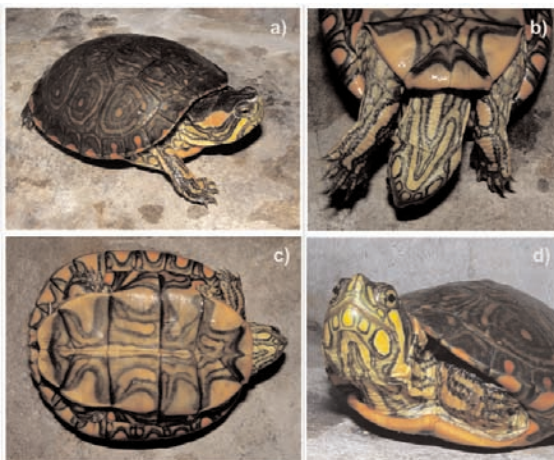


FIGURE 1. *Trachemys adiutrix* female subadult, 110 mm plastron length. Photographs by A.M. Batistella.

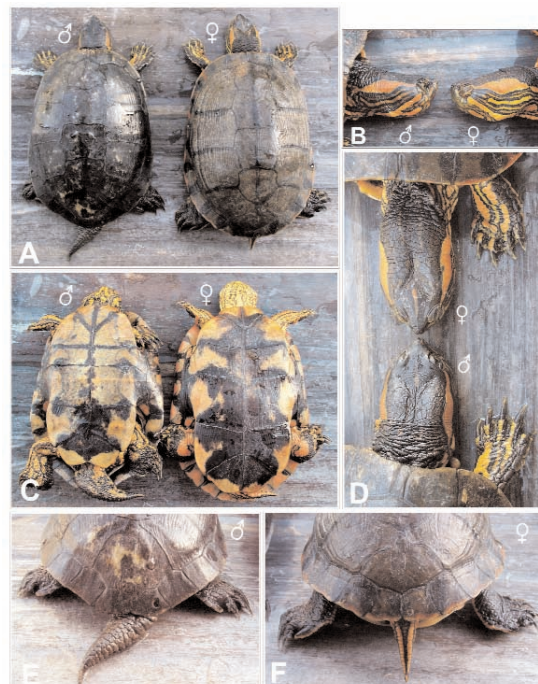


FIGURE 2. *Trachemys adiutrix*: A - dorsal aspect: CL 175 mm, weight 620 g (male) and 170 mm, 850 g (female); B - lateral aspect of head: head width 25 mm (male) and 21.7 mm (female); C - ventral aspect: plastron length, 136.8 mm (male) and 161.7 mm (female); D - toenail length, 11.6 mm (male) and 10 mm (female); E - tail length 84.4 mm (male) and F - tail length 46.4 mm (female). Photographs by A.M. Batistella.

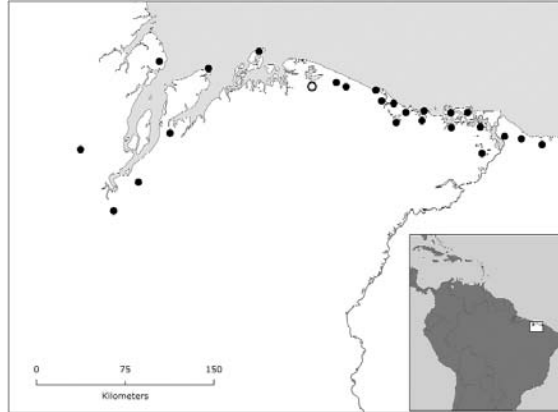
than vertebral 4. The adult carapace is brown with darker brown or black seams, and a yellow or cream rim; that of hatchlings and small juveniles is green, but becomes darker with age. In adults, each pleural bears a pattern of yellow to orangish-red, olive, dark brown or black-bordered bars; the pattern in hatchlings and small juveniles consists of a large yellow to orangish-red, dark-bordered ocellus, and an orangish-red, dark-bordered spot. The vertebrals have narrow, yellow to orangish-red, longitudinal stripes. Each dorsal marginal has a yellow to orangish-red bar; those of young individuals are yellow with a dark ocellus covering the intramarginal seam. Ventral marginals have a dark ocellus situated over each separating seam. With age, the dorsal pattern becomes mottled brown and black. The yellow bridge is usually over 33% of carapace length, and is patterned with dark wavy lines. Large axillary and inguinal scutes are present, each with a dark bar or incomplete ocellus. The large yellow plastron is flat, hingeless, and has a shallow posterior notch. The plastral forelobe is truncated to slightly convex anteriorly, and equal to or slightly broader than the hindlobe. The abdominal scute is normally the longest, followed by the anal, pectoral, femoral, humeral, and gular scutes, respectively, but some variation may occur. The plastron has a bold, intricate pattern of black lines surrounding open, usually non-ocellated, areas. It does not extend to either the anterior rim or the posterior notch, but may extend along the seams. This pattern often

fades with age. The head is relatively large with a pointed, somewhat protruding snout (more so in males), and an upper jaw with a shallow, medial notch. No tooth-like cusps are present. The triturating surfaces of the upper jaw are narrow and the cutting surface lacks elaborate serrations (only slightly serrate); the mandibular tomium may be finely serrate. The supratemporal (postorbital) stripe is yellow, orange, or orangish-red, contacts the orbit, is expanded in the temple region, may pass either dorsal to the tympanum or cross over at least a portion of it, and continues to the neck. A dark-bordered, diagonal yellow stripe extends posteriorly from the orbit to the angle of the lower jaw. A smaller, abbreviated, dark-bordered, light stripe may occur between these dorsal and ventral stripes. Dorsally, a narrow medial light stripe begins between the orbits and extends anteriorly onto the snout (absent in some individuals), and a narrow stripe extends anteriorly from each orbit to the naris on that side. One or two variable light lines are present on each anterior side of the upper jaw. The medial chin stripe is narrow anteriorly (sometimes broken), expands, and then forks posteriorly. The lower jaw has a pattern of dark-bordered ocelli. The adult head is dark olive to black dorsally, becoming lighter laterally. Other skin is olive to brown, more green in hatchlings. Yellow to cream stripes are present on the throat, neck, legs, and tail. The toes are webbed.

Males have a narrower, somewhat projecting snout; a smaller, less domed carapace; and a longer, thicker tail with the vent positioned behind the posterior marginals. Males lack elongated foreclaws such as those of *T. scripta*. Females have a more rounded, nonprojecting snout; a broader head, and a short tail with the vent situated beneath the posterior marginals.

• **DIAGNOSIS.** *Trachemys adiutrix* is most similar to *T. dorbigni*, but differs in the following character states. Adult *T. adiutrix* have the interanal seam longer than the seam between the gular scutes, the pygal bone extends beyond the marginal-vertebral seam, and the first vertebral scute is broad and anteriorly constricted; adult *T. dorbigni* have a shorter interanal seam than the seam between the gular scutes, and the first vertebral scute is narrow and not particularly constricted anteriorly. Juvenile *T. adiutrix* have an orange-centered ocellus on each pleural scute, and a less extensive dark plastron pattern which extends outward from an unpigmented area about the medial seam; juvenile *T. dorbigni* have an orange stripe on each pleural scute, and a darker, extensive, seam-following plastron pattern extending from a dark area about the medial seam.

• **DESCRIPTIONS.** General descriptions are found in Bonin et al. (1996, 2006), Bour (2003), Ernst et al. (2000), Seidel (2002), Vanzolini (1995), and Vetter (2005). Vanzolini (1995) described the habitat (climate, hydrogeology, and vegetation), and stated that the penis agrees with the description given for the genus by Zug (1966).



MAP. Distribution of *Trachemys adiutrix*. The circle marks the type-locality; dots indicate other records.

• **ILLUSTRATIONS.** Color illustrations of adults are found in Bonin et al. (1996, 2006), Ernst et al. (2000), and Vetter (2005), and of hatchlings or juveniles in Bour (2003), Vanzolini (1995), and Vetter (2005). Ernst et al. (2000) included a color illustration of the head markings and Vanzolini (1995) has a color photograph of the habitat. Black-and-white illustrations of the pattern of the head, chin, neck, legs and feet are found in Vanzolini (1995).

• **DISTRIBUTION.** The type-locality of *Trachemys adiutrix* is Santo Amaro (02°33' S, 43°14' W), on the border of Lençóis Maranhenses National Park, Maranhão, in northeastern Brazil. Batistella (2008) and Batistella et al. (2008) reported the occurrence of *T. adiutrix* in 25 distinct localities, in the states of Maranhão and Piauí: in the region of Baixada Maranhense - municipalities of Anajatuba (03°15' S, 44°36' W), Arari (03°27' S, 44°46' W), and Olinda Nova do Maranhão (03°00' S, 44°58' W); the Ilha de São Luis and nearby municipalities: Bacabeira (02°57' S, 44°18' W), Alcântara (02°23' S, 44°24' W), and Raposa (02°25' S, 44°05' W); from the Grandes Lençóis Maranhenses and internal localities of Ilha Santa (02°17' S, 43°40' W) in the municipality of Primeira Cruz, the localities of Lagoa da Gaivota (02°33' S, 43°14' W) and Queimada do Brito (02°30' S, 43°03' W), both in the municipality of Santo Amaro, in the Baixa Grande (02°32' S, 42°59' W), Atins (02°34' S, 42°45' W), and Mandacaru (02°35' S, 42°42' W), located in the municipality of Barreirinhas; from the Pequenos Lençóis Maranhenses - the localities of Barro Vermelho (02°39' S, 42°37' W), Lago da Tabúa (02°45' S, 42°34' W), Ponta do Mangue (02°42' S, 42°32' W) and Seriema (02°47' S, 42°25' W) localities in the municipality of Paulino Neves; in the region of the Delta do Rio Parnaíba - the localities of Lagoa das Cafusas (03°03' S, 41°57' W), Carnaubeira (02°49' S, 41°58' W), Ilha do Caju (02°44' S, 42°04' W) and Baía da Melancia (02°44' S, 42°11' W) from the municipality of Araiões, and in Cajazeiras (02°50' S, 42°12' W) and Arpoador (02°42' S, 42°23' W) in the municipality of Tutóia; and the coast of Piauí State - the locality Tabuleiro (02°56' S, 41°47' W) in the municipality of Parnaíba; Sobradinho (02°57' S, 41°33' W), Lake Sobradinho (02°60'

S, 41°57' W), and Lagoa do Portinho (02°56' S, 41°40' W) in the municipality of Luís Correia. Discussions of the species' distribution are presented in Bonin et al. (1996, 2006), Bour (2003), Bringsøe (2001), Ernst et al. (2000), Fritz and Havas (2007), Vanzolini (1995), and Vetter (2005). Distribution maps (out of date) can be found in Bonin et al. (1996, 2006), Ernst et al. (2000), and Vetter (2005).

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** General accounts were published by Bonin et al. (1996, 2006), Ernst et al. (2000), and Vanzolini (1995). Specific topics and pertinent references include: **systematics and taxonomy** (Bour 2003; Bringsøe 2001; Ernst et al. 2000; Fritz and Havas 2007; Seidel 2002; Vanzolini 1995), **ecology and reproduction** (Barreto et al. 2009a,b; Batistella 2008; Vanzolini 1995), **activity and movements** (Ely 2008), **diet** (Barreto et al. 2009c; Nascimento et al. 2009), and **scute anomalies** (Martins et al. 2003). The possible zoogeographical and geological histories of this species are discussed in Fritz and Havas (2007), Vanzolini (1995), and Vanzolini and Heyer (1985).

• **ETYMOLOGY.** The feminine Latin name *adiutrix*, “helper”, refers to Vanzolini’s companion in the field, Maria do Socorro. The common name honors the late Antenor Leitao de Carvalho at Museu Nacional, Rio de Janeiro, who delivered the first specimen to Paulo Vanzolini.

• **COMMENT.** Ernst et al. (2000) remarked that *Trachemys adiutrix* may prove to be a subspecies of *T. dorbigni* (Duméril and Bibron, 1835). Fritz and Havas (2007) speculated that the original description in Vanzolini (1995) suggested that this population of *T. adiutrix* could be a naturally isolated or introduced population of *T. dorbigni*. The description of *T. adiutrix* was based on only 6 individuals collected from a single locality subjected to severe seasonal environmental stress. The ponds dry completely and the turtles are forced to estivate for up to 6 months, causing a restriction in growth and maximum size. Batistella (2008) observed that populations of *T. adiutrix* occurring in permanent lakes do not experience habitat seasonality or a restriction in food. Consequently, these turtles do not estivate during the dry season and have body sizes as large as those described for *T. dorbigni*. Genetic comparisons are underway (Vianna and Vogt, in prep.) to determine the validity of these taxa.

Trachemys adiutrix is listed as endangered in the IUCN Red List (Tortoise and Freshwater Turtle Specialist Group 1996). Additional research into this turtle’s behavior and ecology are needed to form an adequate conservation and management plan.

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Carl H. Ernst, Division of Amphibians and Reptiles, MRC 162, Smithsonian Institution, P.O. Box 37012, Washington, D.C. 20013–7012 (chernst@frontiernet.net); **Alexandre M. Batistella**, Coordenadoria de Unidades de Conservação, Secretaria de Estado do Meio Ambiente do Mato Grosso – CUC/SEMA/MT, Rua C, esquina com a Rua F. Palácio Paiaguás – Centro Político Administrativo, 78050–970-Cuiabá/MT – Brazil (alexbatistella@yahoo.com.br); **Richard C. Vogt**, Coodenação de Pesquisas em Biologia Aquatica e Curador de Répteis e Anfíbios do Instituto Nacional de Pesquisas da Amazônia – INPA, Av. André Araújo 2936, Petrópolis, Caixa Postal 478, Manaus, Amazonas, Brazil, 69083–000 (vogt@inpa.gov.br).

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