

**Southernmost Localities of *Trachemys dorbigni* and First Record of *Trachemys scripta elegans* for Argentina
(Cryptodira: Emydidae)**

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ABSTRACT. – We report two new localities for *Trachemys dorbigni* that expand the southern range border for approximately 120 km. These new localities are Arroyo Buñirigo and Arroyo Zapata. Both are streams related to the Río de La Plata shoreline at Buenos Aires province, Argentina. We also record the nonnative *Trachemys scripta elegans* for the first time for Argentina.

Emydidae currently comprises 10 genera and 50 species of aquatic and semiaquatic turtles. This diverse family is mainly restricted to North America; *Emys* species occur in the Western Palearctic and several *Trachemys* occur in tropical and subtropical regions of America (Ernst and Barbour 1989; Seidel 2002; Fritz and Havaš 2007; Turtle Taxonomy Working Group 2010). Two disjunctly distributed species of *Trachemys* are restricted to South America (Fritz et al. 2011); *Trachemys dorbigni* (Duméril and Bibron 1835) is partitioned in two subspecies (see Fritz et al. 2011). Both subspecies are distributed in regions more than 3000 km from each other over northeastern Argentina, southern Brazil, and Uruguay (*Trachemys dorbigni dorbigni*), and on northeastern Brazil (*Trachemys dorbigni adiutrix*) (Freiberg 1969; Seidel 1990; Cabrera 1998; Fritz and Havaš 2007).

Although the conservation status of the Brazilian populations of *T. dorbigni* is not of concern, they are strongly affected by human activities, such as egg collection to supply pet trade (Bager et al. 2007). In Argentina, *T. dorbigni* has been categorized as endangered, mainly by illegal capture for pet trade and the

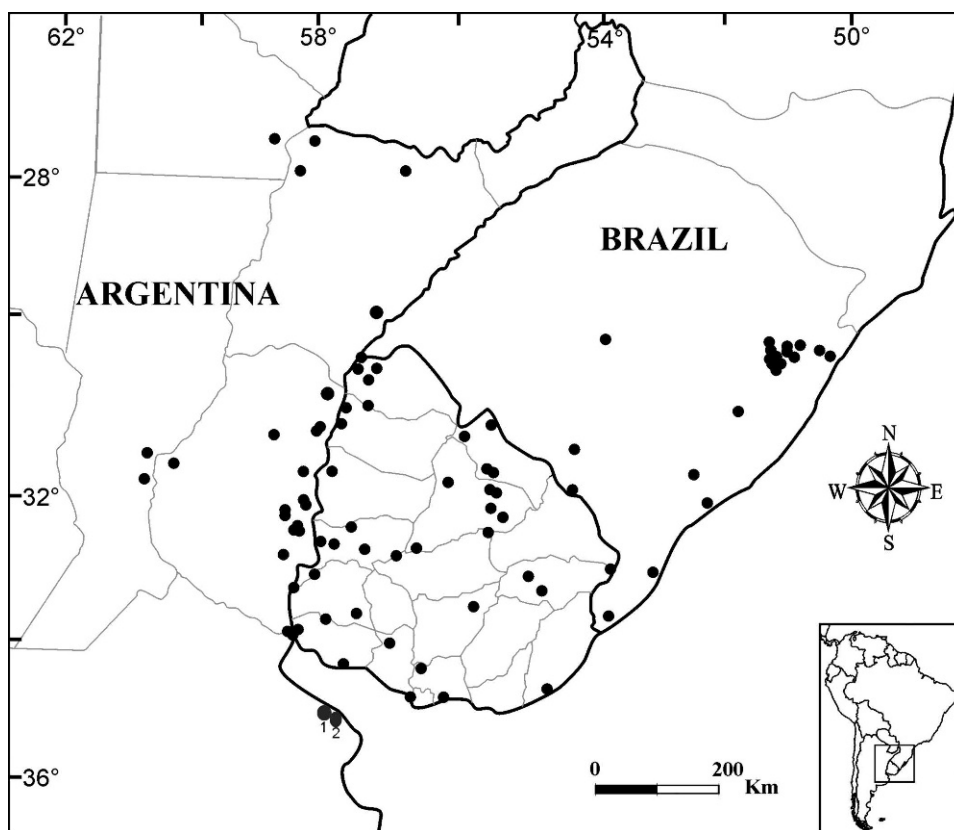


Figure 1. Geographic distribution map of *Trachemys dorbigni dorbigni*. Black dots: literature (d’Orbigny and Bibron [1847], Cabrera [1998], Carreira et al. [2005]) and museum records (Museo Argentino de Ciencias Naturales Bernardino Rivadavia–MACN: Buenos Aires, Argentina; Museo de La Plata–MLP: La Plata, Argentina; and Diego Baldo collection housed at the MLP). Numbered dots: new records from Arroyo Zapata (1) and Arroyo Buñirigo (2), Buenos Aires province, Argentina.

advance of the agricultural frontier on the few localized populations (Bertonatti 1994; Richard and Waller 2000). We report herein two new localities of *T. dorbigni* for Buenos Aires province, Argentina, which extend the southern range border of this species for about 120 km. We also record for the first time the nonnative *Trachemys scripta elegans* (Wied 1839) for Argentina.

Trachemys dorbigni was first reported by d’Orbigny and Bibron (1847) from Argentina and Uruguay in the mouth of the Paraná and Uruguay rivers and up the Paraná River, being especially common in the low islands of Coronda River, Santa Fe, Argentina. Later, in Argentina, localized populations of this species were recorded in Chaco, Corrientes, Entre Ríos, and Santa Fe provinces along the Paraná and Uruguay rivers (Freiberg 1938, 1969, 1977; Gallardo 1982; del Barco and Larriera 1991; Cabrera 1995, 1998, and references therein). Most authors consider “Buenos Aires” as type locality of *T. dorbigni* (e.g., Boulenger 1889; Freiberg 1969, 1977; Cei 1993; Cabrera 1998; Fritz and Havaš 2007) on the basis of the original description by Duméril and Bibron 1835). However, Duméril and Bibron 1835) state that the specimen used for description was “envoyée de Buenos-Ayres au Muséum d’histoire naturelle, par M. d’Orbigny.” Later, d’Orbigny and Bibron (1847) stated that “Elle habite l’embouchure du Rio Parana et du Rio Uruguay, républiques de l’Uruguay et Argentine, jusqu’assez haut dans le

Rio Parana. Elle est surtout commune dans les îles basses du Riacho de Coronda, au-dessous de Santa-Fé.” Accordingly, “Buenos Aires” is the point from which the type material was sent to Paris by d’Orbigny, but is not the type locality. More recently, Lescure et al. (2002) published the complete list of Reptiles and Amphibians collected by d’Orbigny in South America and sent to the Museum of Paris and established the type locality of *T. dorbigni* as “Río Paraná” according to the data associated with the holotype (MNHN 9221, Lescure et al. 2002; see also the catalog of Reptiles and Amphibians of the Muséum National D’Histoire Naturelle accessible at <http://coldb.mnhn.fr>).

Marelli (1924) made a citation of *T. dorbigni* in the Río de La Plata shoreline on Punta Lara (Ensenada, Buenos Aires province, Argentina) also cited by Freiberg (1938), Cei (1993), and Cabrera (1998). Moreover, Ringuelet (1955) mentioned that this species inhabits the Río de La Plata shoreline at Magdalena, Buenos Aires province. But in both cases, no voucher specimens exist in the studied herpetological collections (Cabrera 1995; present work). Herein, we report the presence of *T. dorbigni* for two localities that extend the range approximately 120 km to the south of the mouth of the Paraná and Uruguay rivers (Fig. 1). These localities are Arroyo Zapata (lat 34°59’S, long 57°42’W) and Arroyo Buñirigo (lat 35°01’S, long 57°29’W), two streams

related to the Río de La Plata shoreline in Partido de Magdalena, Buenos Aires province, Argentina.

The record for Arroyo Zapata is based on one adult female (20 cm of carapace) collected near the riverbank, on November 2000 by Víctor Piasecki. The specimen is housed on the Museo de La Plata (MLP Q.057). The Arroyo Zapata (Fig. 2A) is a pampas stream with many meanders and moderate depth (not more than 2 m at some points) with submersed (e.g., *Cabomba caroliniana* Gray, 1837; *Ceratophyllum demersum* Linnaeus, 1753), floating (e.g., *Hydrocleys nymphoides* Buchenau, 1869; *Nymphoides indica* Kuntze, 1891), and emerged (e.g., *Polygonum punctatum* Elliott, 1817; *Thalia geniculata* Linnaeus, 1753) aquatic vegetation. This stream runs discontinuous toward the end in the Río de La Plata and is mostly affected by cattle ranching.

The record for Arroyo Buñirigo is based on three adult specimens: 1 female caught on 18 December 2005, and 2 males caught on 3 February and 30 September 2007 (Figs. 3, 4A). They were collected during fieldwork regarding ecological aspects of *Hydromedusa tectifera* (Cope 1869) and *Phrynops hilarii* (Duméril and Bibron 1835) (Chelidae; Alcalde et al. 2010). All turtles were marked and then released to apply capture–recapture models. Arroyo Buñirigo shows 2 distinct areas, and *T. dorbigni* inhabits both. One area (site 1, Fig. 2B) is under the influence of the Río de La Plata by daily changes on depth (0.2–2.5 m), and its margins present mostly native vegetation (e.g., *Celtis tala* Gillies, 1848; *Passiflora caerulea* Linnaeus, 1753; *Salix humboldtiana* Willdenow, 1806) with presence of some introduced shrubs (e.g., *Lonicera japonica* Thunberg, 1784) and trees (e.g., *Morus* sp.; *Ligustrum* sp.; *Phoenix* sp.) The second area (site 2, Fig. 2C) is more homogeneous in depth (usually no more than 1 m) except in rain season. This area shows important changes of slope at some points, that determines the presence of small waterfalls (0.5 m height). The impact of cattle ranching causes riverbanks to have a small amount of vegetation except some native (e.g., *Celtis tala*) and exotic (e.g., *Morus* sp., *Phoenix* sp.) trees, with clear predominance of the last ones. Submersed vegetation is scarce, and the bottom is hard in both areas.

Native populations of *T. scripta elegans* range from northern Illinois to the Gulf of Mexico (Seidel 2002; Fritz and Havaš 2007). This species was exported from the United States since the 1970s to supply the growing demand for the international pet trade. As a consequence of this trade, the species was introduced in many countries in Africa, Central and South America, Asia, Australia, Europe, and also in regions of the United States that do not correspond with the natural range of the species (Cadi et al. 2004; Feldman 2007; Turtle Taxonomy Working Group 2010). In South America, this species was introduced in Brazil, Chile, Colombia, Ecuador, and Guyana (Iriarte et al. 2005; Turtle Taxonomy Working Group 2010). We caught one adult male of *T. scripta elegans* at site 2 of the Arroyo Buñirigo on 3 November

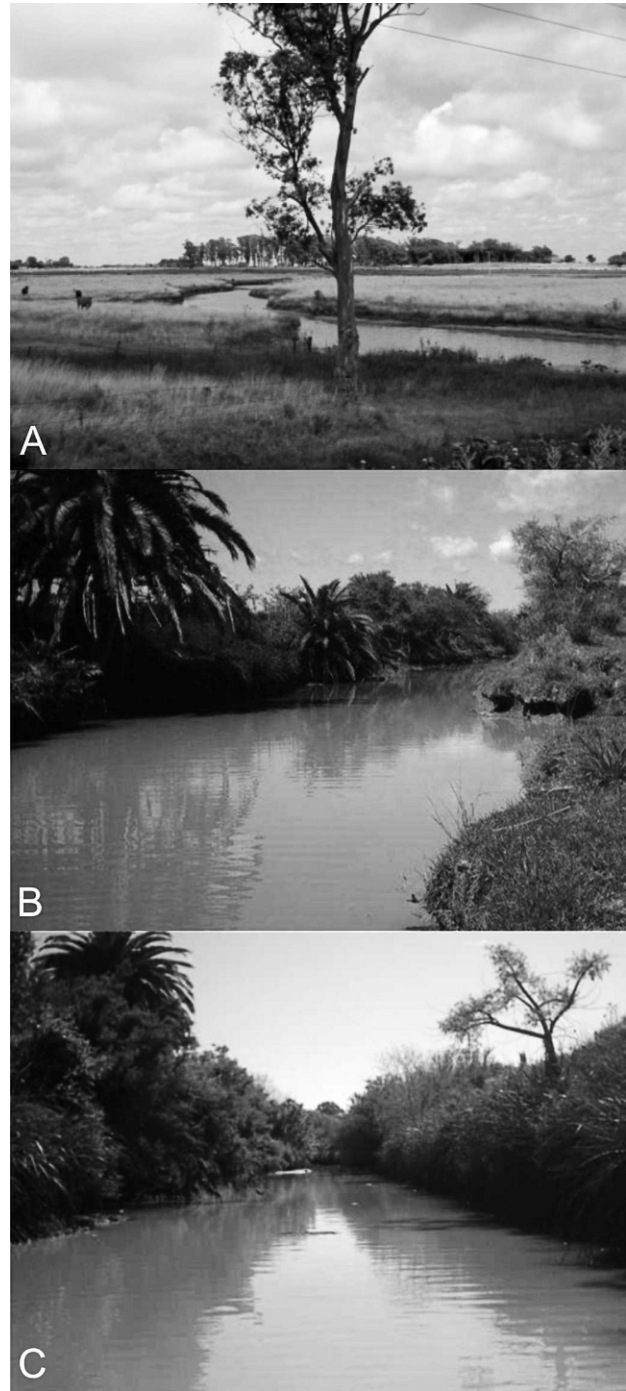


Figure 2. Habitats used by *Trachemys dorbigni* in Arroyo Zapata (A) and sites 1 (B) and 2 (C) of Arroyo Buñirigo, Buenos Aires, Argentina. Photo A: Guillermo Natale.

2007 during the course of the fieldwork mentioned previously. The specimen (15 cm of carapace, MLP R.5505, Figs. 4B, 5) was removed from the environment and currently is housed in the reptilian collection of the Museo de La Plata (MLP R. 5505). This represents the first record of the nonnative *T. scripta elegans* for Argentina.

We found that the extension of the geographic range of *T. dorbigni* is important for the following reasons: (1) to

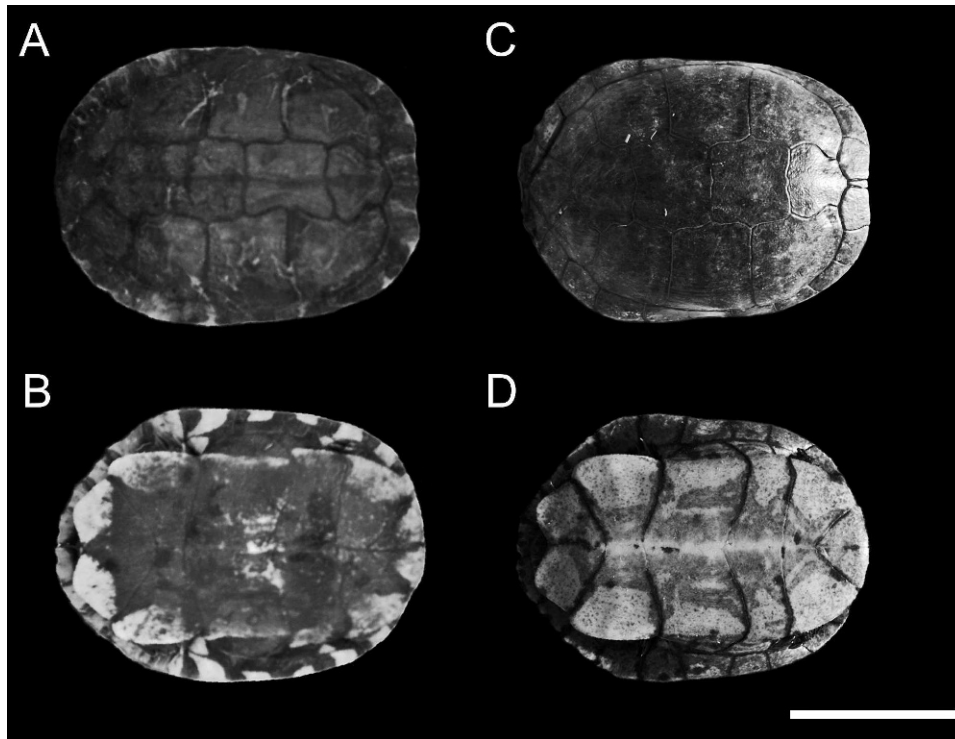


Figure 3. Specimens of *Trachemys dorbigni* from Arroyo Buñirigo, Buenos Aires, Argentina; dorsal (A, C) and ventral (B, D) view of an adult female (A, B) and an adult male (C, D) in process of melanization. Bar = 10 cm.

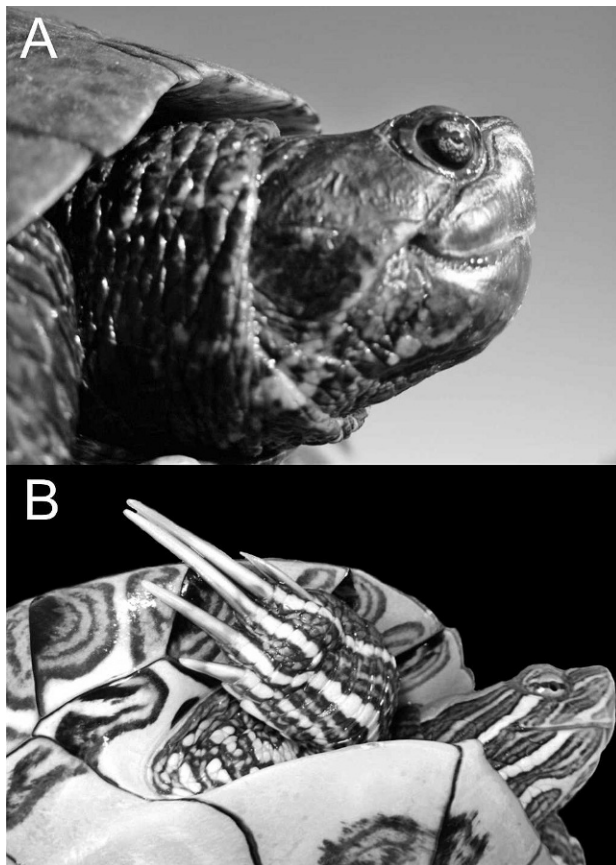


Figure 4. Details of the head of an adult male of *Trachemys dorbigni* (A) and an adult male of *Trachemys scripta elegans* (B) from Arroyo Buñirigo, Buenos Aires, Argentina.

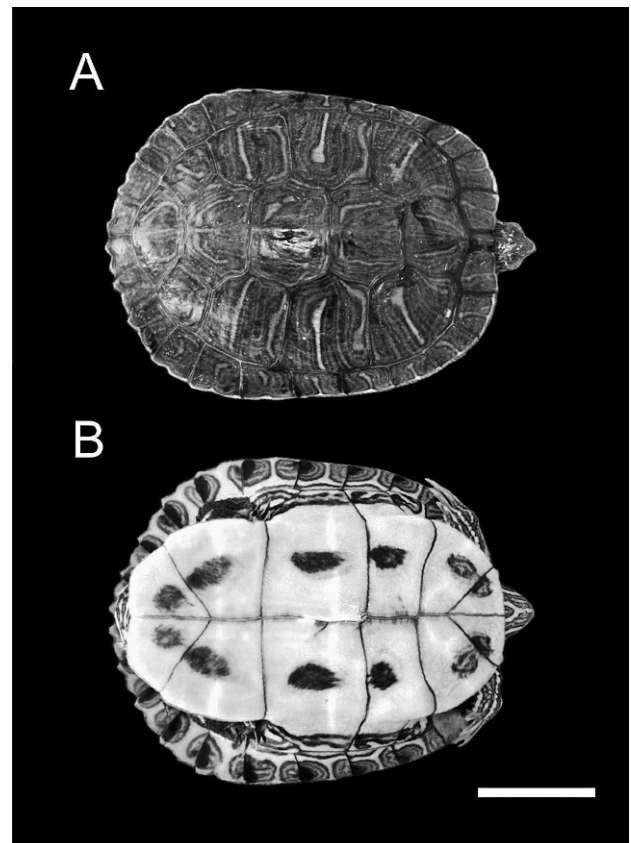


Figure 5. Adult male of *Trachemys scripta elegans* from Arroyo Buñirigo, Buenos Aires, Argentina; dorsal (A) and ventral (B) view. Bar = 5 cm.

confirm the records of Marelli (1924) and Ringuet (1955) about the presence of this species in aquatic environments related to the Río de La Plata shoreline; (2) that the most southern localities described herein for the species are virtually isolated from the northern populations by one of the biggest South American metropolises (Buenos Aires); and (3) that Arroyo Buñirigo is highly impacted by human activities (cattle ranching, alimentary industry, and tannery) and the presence of the nonnative *T. scripta elegans*. Further, the impact of industry effluents and herbicides in the water and sediments of Arroyo Buñirigo is well documented (Bauer et al. 2002). This environmental disturbance may affect the population dynamic of the native turtles of Arroyo Buñirigo. From August 2005 to December 2008, we were sampling monthly or bimonthly in Arroyo Buñirigo. At present, we identified more than 60 *Phrynops hilarii*, about 30 *Hydromedusa tectifera*, and three *T. dorbigni*. Local people told us that turtles in general, but *T. dorbigni* in particular, have become rare compared to 20–30 years ago. The apparent low population density of *T. dorbigni* in its southernmost locality made the species particularly vulnerable at the local level. Many authors recognize the evolutionary importance of marginal populations because they should be more susceptible to disappear or to speciate by geographic isolation (Lande 1998).

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