

**DESCRIPTION OF INVASIVE EXOTIC REPTILE SPECIES  
FROM THE LESSER ANTILLES**



## *Trachemys scripta*

(Schoeff, 1792)

Common name: Yellow-bellied slider turtle,  
Pondslider, Pond slider

Local name: Tortue de Floride

Order: Testunides, Family: Emydidae

### Description

**Morphology.** Medium sized freshwater turtle, *Trachemys scripta* is characterised by an elliptical carapace, moderately domed and serrated on the posterior part. The carapace varies from brown, olive green to black, with different yellow-orange patterns on the pleural scutes (Vamberger, 2020). The plastron is relatively large and without hinge, with a posterior notch. The plastron of young individuals is pale yellow to light orange, with a variety of dark markings in different subspecies (Seidel, 2002; Seidel and Ernst, 2012).

*T. scripta* is distinguished from other *Trachemys* species by the presence of a yellow and/or red postorbital stripe accompanied by several yellow stripes on the head (Jacob and Kinet, 2007; Vamberger, 2020).

The neck and limbs of juvenile individuals often show yellow and black stripes or wavy marks. Old males frequently develop melanism resulting in the loss of these characteristic marks (Seidel, 1988; Seidel, 2002).

**Standard body size (carapace length).** males: 110 to 240 mm; females: 120 to 290 mm (Gibbons and Lovich 1990, Gradela et al. 2017).

Plastron length: 90 to 168 mm in males; 150 to 264 mm in females (Taniguchi et al. 2017).

**Sexual dimorphism.** Females are generally larger and heavier than males (Parker, 1996).

Male *Trachemys* have elongated tails and a cloaca extending from the posterior part of the carapace, while females have a shorter tail and a cloaca that does not extend beyond the posterior part of the carapace (Seidel and Ernst 2012, Gradela et al. 2017).

**Variations.** Three subspecies have been identified: *T. s. scripta*, *T. s. elegans*, *T. s. troosti*. The last two would be distinguished from the first by the presence of a postorbital stripe, red in colour in *T. s. elegans*, and yellow in *T. s. troosti* (Ernst and Jett, 1969). However, recent data suggest that the differences observed stem more from differentiation between populations rather than from true taxonomic differentiation (Vamberger et al. 2020).

**Possible confusion with other species.** Confusion is possible with several species of the genus *Trachemys* formerly considered as subspecies: *T. ornata*, *T. gaigeae*, *T. grayi*, *T. dorbignini*, *T. adiutrix*. The specific status of these species has been determined on the basis of differences in courtship behaviour and reproductive isolation observed in captivity (Jackson and Davis, 1972; Seidel and Fritz, 1997; Seidel, 2002). However, no exhaustive phylogenetic study of continental forms of *Trachemys* has been conducted (Seidel, 2002).

## **Distribution**

**Native.** United States and Mexico.

### **Introduced.**

America: Canada, United States (Guam, Hawaii, Mariana islands), Guatemala, Belize, Honduras, Salvador, Nicaragua, Costa Rica, Colombia, Guyana, Surinam, Chile, Brazil, Argentina (Ramsay et al., 2007; Maillard and David, 2014).

Europe: Ireland, Great Britain, France (continental, Réunion, Polynésie), Portugal, Spain, Sweden, Denmark, Netherlands, Belgium, Germany, Switzerland, Italia, Czech Republic, Slovakia, Austria, Poland, Hungaria, Slovenia, Greece, Cyprus, Romania, Bulgaria, Turkey, Russia (Ramsay et al., 2007; Maillard and David, 2014).

Africa: Gambia, Egypt, South Africa, Sri Lanka, Seychelles (Ramsay et al., 2007; Maillard and David, 2014).

Asia: Israel, Saudi Arabia, Bahrein, Iran, Myanmar, Thailand, Cambodia, Vietnam, Hong Kong, Taiwan (Lee et al., 2019), Japan, Malaysia, Singapore, Indonesia, Philippines, South Korea (Ramsay et al., 2007; Maillard and David, 2014).

Oceania: Australia, Palau, New Zealand, Micronesia (Ramsay et al., 2007; Maillard and David, 2014).

Caribbean: Bermuda, Cayman islands, Dominican Republic, Porto Rico, US and British Virgin Islands, Saint Martin, Guadeloupe, Martinique (Ramsay et al., 2007; Maillard and David, 2014).

## **Biology and ecology**

**Habitat.** As demonstrated by its global distribution, *Trachemys scripta* is able to cope with a great variety of climat conditions and habitats. The species appears more abundant in shallow, soft-bottomed water bodies with minimal flow, good access to sunlight, and extensive vegetation. However, in Mexico, the species appears to be more abundant in riverine habitats. In Europe, *T. scripta* is also observed near human dwellings and recreation centres (Van Dijk, 2011; Thomas, 2006; Ernst and Lovich, 2009).

**Diet.** Omnivore, with variations according to the ontogenetic stage. The diet of juveniles is mainly composed of insects, spiders, snails and tadpoles with a small amount of macrophytes and macro-algae (Newbery, 1984; Arasco et al., 2015). Adults consume fewer insects, but more macro-algae, macrophytes, amphibians and fish, as well as waterbird chicks (Newbery 1984; Parmenter and Avery 1990; Jacob and Kinet, 2007; Ramsay et al. al., 2007; Arasco et al., 2015).

**Reproduction.** The nesting season happen from late April to mid-July (Cagle, 1950). Females produce up to three clutches, of 5 to 20 eggs, per year. Incubation lasts 60 to 91 days (Gibbons, 1990; Thomas 2006; Ernst and Lovich 2009).

### **Impact and management of introduced populations**

**Impact.** In regions where the species has been introduced, the presence of *T. scripta* can result in significant competitive pressure on autochthonous populations of freshwater turtles that share equivalent ecological niches. It has been shown that the presence of *T. scripta* led to a reduction in sunbathing time in the European species *Emys orbicularis* (Cadi and Joly, 2003) and in the Leprous Emyde *Mauremys leprosa*, native to Spain and the Maghreb (Polo-Cavia et al., 2010a). This degradation of sunbathing activity can have negative repercussions on the thermoregulation of individuals, and thus affect physiological functions such as digestion or locomotion.

Polo-Cavia and colleagues (2009) have also demonstrated in *M. leprosa* an avoidance behaviour of water ponds in which the chemical signals of *T. scripta* were detected.

*T. scripta* could also generate significant competitive pressure for access to resources. The species has been shown to be more aggressive and dominant during interactions with *M. leprosa*, allowing it to take up more food resources than the latter (Polo-Cavia et al., 2011).

Polo-Cavia and colleagues (2010b) studied the recognition of chemical signals of *T. scripta* and *M. leprosa* in tadpoles of different anuran species from the Iberian Peninsula. This work highlights the poor recognition of chemical signals of the exotic species compared to those of the native species. This naiveté of anuran species for an exotic predator can have important consequences in terms of predation pressure for these prey species, and competition for *M. leprosa* (Polo-Cavia et al., 2010b).

*T. scripta* can also have a significant impact on aquatic invertebrates, particularly in ecosystems where there is no native analogue species (Cuthbert et al. 2019).

**Management.** *T. scripta* as an invasive species is prohibited from introduction into several European countries by Regulation (CE) No. 338/97 of the European Council (Conseil Européen, 1997) and Regulation No. 1143/2014 of the European Union (Parlement Européen, 2014). Globally, CITES establishes several restrictions on the import of the species (CITES, 2011).

In Australia and New Zealand, plans to manage and reduce the presence of *T. scripta* are also conducted (O’Keeffe, 2006).

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