

First record of the non-native Chinese Stripe-necked Turtle *Mauremys sinensis* (Gray, 1834) on Rhodes Island, Greece

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The continuous growth of international trade has driven an increase in biological invasions worldwide, with no indication of slowing in the near future (Hulme, 2009; Chown et al., 2015). The exotic pet trade is facilitating the introduction of biota beyond their native geographic range, leading to biological invasions (Kraus, 2009). Undoubtedly, aquatic habitats host the highest densities of non-native reptiles in Europe (Pysek et al., 2010). In particular, freshwater turtles, highly popular in the pet trade, are frequently abandoned or released, often resulting to their establishment in the wild (Masin et al., 2014). Although turtles represent a relatively species-poor order, they account for the highest number of introduction events among reptiles (Kraus, 2009). At least 61 chelonian species have been recorded in the worldwide pet trade (Gong et al., 2009), while in Europe, at least 17 non-native turtles have been reported from the wild, 13 of which are freshwater taxa (Kopecky et al., 2013).

To date, seven non-native turtle species have been reported in Greece (Kalaentzis et al., 2023), including the Pond Slider, *Trachemys scripta* (Thunberg, 1792); the Florida Cooter, *Pseudemys floridana* (Le Conte, 1830); the Florida Redbelly Cooter, *Pseudemys nelsoni* Carr, 1938; the Eastern River Cooter, *Pseudemys concinna* (Le Conte, 1830); the Chinese Stripe-necked Turtle, *Mauremys sinensis* (Gray, 1834); the Chinese Soft-shelled Turtle, *Pelodiscus sinensis* (Wiegmann, 1835); and the Common Snapping Turtle, *Chelydra serpentina*

(Linnaeus, 1758) (Adamopoulou and Legakis, 2016; Urosevic, 2022; Kalaentzis et al., 2023).

Mauremys sinensis is a member of the family Geoemydidae, native to Southeast Asia (China, Taiwan, Laos, Vietnam; van Dijk et al., 2014), and one of the most commonly traded species in the worldwide pet trade (Masin et al., 2014). In Europe, it has been recorded in Italy (Panzeri et al., 2014), Spain (Martinez-Silvestre et al., 2019), Portugal (Rato et al., 2024), Greece (Kalaentzis et al., 2023), and Slovakia, where it was found to naturally overwinter (Jablonski et al., 2018). In Greece, it has been recorded on the Greek mainland in five different localities (Maria Callas Park, Athens; Valanaris Stream, Mt. Penteli; Mavrobara Lake, Halkidiki; Pirsinella Park, Ioannina; Water Garden Park, Thessaloniki; Kalaentzis et al., 2023), and also on the island of Lesbos (Iakovidis et al., 2025). Reproduction in the wild has been reported from the Iberian Peninsula (Martinez-Silvestre et al., 2019). In Europe, *M. sinensis* has been documented to hybridize with the Iberian Pond Turtle, *Mauremys leprosa* (Schweigger, 1812) in captive conditions (Sancho et al., 2020). Hybridization between the Western Caspian Turtle, *M. rivulata* (Valenciennes, 1833), and *M. sinensis* is yet to be confirmed. Herein, we present the first record of *M. sinensis* on the island of Rhodes.

In September 2025, during a fieldwork expedition in Rodini Park in the urban centre of Rhodes with an area of approximately 0.47 km², three adult *M. sinensis* were recorded in a stream (3 m wide and approximately 2–3 m deep; 36.4274°N, 28.2200°E). On the same spot, six *T. scripta* and two *M. rivulata* were also recorded. Using a telescopic net and commercial turtle flakes as bait, one female *M. sinensis* (Fig. 1) and four *T. scripta* (two *T. s. scripta*, two *T. s. elegans*) were captured. Two *M. rivulata* were also captured but were immediately released. All five non-native terrapins were brought to the Hydrobiological Station of Rhodes, where biological samples (tail clips) were collected in absolute ethanol for the purpose of a DNA-barcode reference library. This is the first record of *M. sinensis* on Rhodes and the second record of the species from a Greek island.

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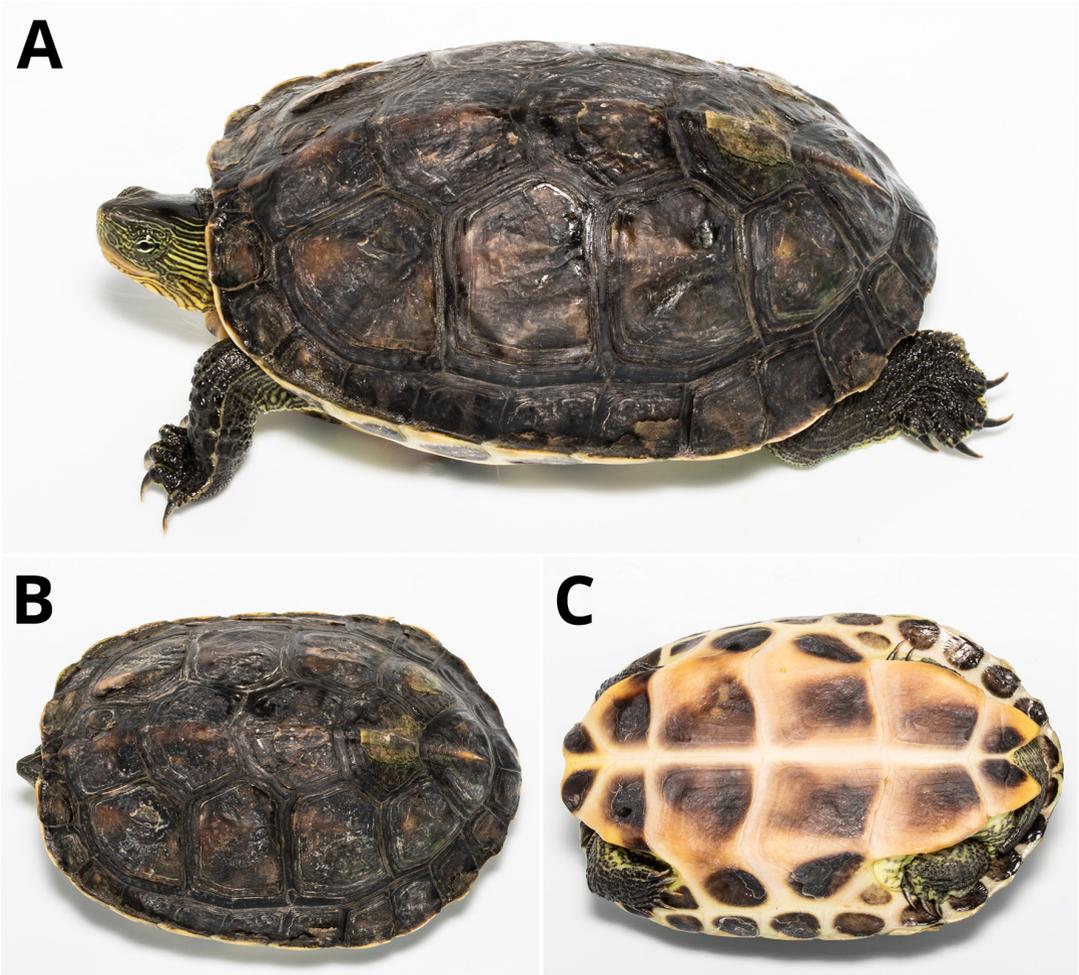


Figure 1. Female *Mauremys sinensis* captured from the stream in Rodini Park, Rhodes, Greece in (A) Dorsolateral, (B) dorsal, and (C) ventral views. Photos by Konstantinos Kalaentzis.

Rhodes is the largest island of the Dodecanese and the fourth largest in Greece, with a total surface of 1401 km² and a coastline of 253 km, hosting 35 wetlands of which 24 are natural (WWF Greece, 2013). There are no large natural wetlands with permanent water presence (Paragkamian and Katsadorakis, 2007). In the summer, water is only preserved near the springs or in small river and lake basins along the stream beds and near the estuaries. In this inhospitable environment, a variety of aquatic organisms are found that manage to survive during the summer months, such as the endemic Rhodes Minnow (*Squalius ghigii*), the regionally endemic freshwater shrimp *Palaemon colossus*, the regionally endemic freshwater crab *Potamon rhodium*, and the freshwater snail *Melanopsis wagneri* (Kottelat,

1997; Jesse et al., 2011; Tzomos and Koukouras, 2015). The effects of the newly introduced species to the native freshwater fauna should be evaluated in order to secure the conservation of the aforementioned species and their fragile ecosystems.

The herpetofauna of the island has so far consisted of three amphibian and 22 reptile species (Speybroeck et al., 2016), including the marine turtles *Caretta caretta* and *Chelonia mydas*, both of which are known to nest on the island (Teneketzis et al., 2024). Out of these 25 species, two arrived on the island by anthropogenic means and are considered non-native (*T. scripta* and *Tarentola mauritanica*; Kalaentzis et al., 2023; Strachinis et al., 2025). This record adds the 26th species to the herpetofauna of the island.

The occurrence of *M. sinensis* in Rodini Park is of particular concern, because native freshwater species and especially the Balkan terrapin may be adversely affected by its presence and potential population expansion. Negative impacts of non-native terrapins on native populations include competition for food and basking sites, disease and parasite transmission and genetic introgression through hybridisation with native species (Polo-Calvia, 2010; Sancho et al., 2020; Martínez-Ríos et al., 2022; Kalaentzis et al., 2023). The latter point should be emphasized, as hybridization between *M. sinensis* and the native *M. rivulata*, both of which were found co-occurring in the stream, is highly plausible – not only because it has already been documented for other species of the genus *Mauremys*, such as *M. reevesii* (Xia et al., 2011; Baek et al., 2024), *M. japonica* (Suzuki et al., 2013), and *M. leprosa* (Sancho et al., 2020), but also with different genera such as *Cyclemys* (Schilde et al., 2004) and *Sacalia* (Buskirk et al., 2005). The potential impacts discussed highlight the importance of extensive monitoring on Rhodes to evaluate and control this potentially invasive species.

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