

Outside the home: the Hermann's Tortoise, *Testudo hermanni* Gmelin, 1789 on Milos Island, Cyclades, Greece

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In the last few years, many reports of amphibian or reptile translocations have been published from continental and insular Greece, such as *Algyroides nigropunctatus* reported from Athens (native to the western, coastal Balkans), *Pelophylax epeiroticus* from the eastern slopes of Hellenides (southwestern coastal areas of the Balkans), and *Testudo marginata* from Samos Island (southwestern Balkans and Peloponnese; Deimezis-Tsikoutas et al., 2020; Strachinis, 2021; Tzoras et al., 2021). Such translocations are due to both accidental and deliberate human activities and, in some cases, have been reported in earlier decades (e.g., Sowig, 1989). Additionally, molecular data from several species or specific populations that were previously considered as autochthonous to the country or regions, including *Chalcides ocellatus*, *Chamaeleo africanus*, *Mediodactylus* spp., *Tarentola mauritanica*, *Hierophis viridiflavus* (as *H. gyarosensis*), has provided evidence that these species are likely colonizers that arrived in ancient times (Harris et al., 2004; Utiger and Schätti, 2004; Dimaki et al., 2008; Kornilios et al., 2010; Kotsakiozi et al., 2018). At present, records of observed and newly established populations originating in Greece through human-mediated activities are usually reported for lizards (Mačát et al., 2014; Dimaki et al., 2015; Mizerakis and Strachinis, 2017; Strachinis and Artavanis, 2017; Kapsalas et al., 2020; Strachinis et al., 2020), and chelonians (Strachinis and Roussos, 2016; Strachinis and Artavanis, 2017; Annousis et al., 2021; Tzoras et al., 2021), whereas they are not well known or difficult to trace for snakes and amphibians (Warnecke, 1988; Kyriazi et al., 2013; Strachinis, 2021). Here, we present a report for *Testudo hermanni* from Milos Island, Cyclades, Greece.

Testudo hermanni is a common species throughout southern Europe that occupies a variety of habitats (Speybroeck et al., 2016). In Greece, the species ranges from the extreme north of continental Greece to the southern edge of the Peloponnese, excluding the Attica Peninsula (Valakos et al., 2008). Its insular distribution in Greece includes only Euboea Island in the eastern part of the country and several Ionian Islands in the west (Kerkyra, Lefkada, Provati, Kefalonia, Zakynthos; Buttle, 1995; Valakos et al., 2008).

During a herpetological investigation on 26 October 2021 in the central part of Milos Island (Achivadolimni Lake; 36.6870°N, 24.4404°E; sea level; Fig. 1A), we found multiple detached marginal scutes from a *T. hermanni* carapace next to a single piece of its plastron and skull (Fig. 1B, C). The carapace fragment measured approximately 16 cm. Species identification was based on the plastron's colour pattern and scute arrangement. The shell appeared to have been at the site for a long period of time and most likely had been destroyed by an animal (scutes were bleached with the high level of disarticulation of the skeleton). The wetland area as well as other sites on the island were then searched for this tortoise, but none were found.

Milos hosts ten reptile and one amphibian and is considered the island with the highest level of endemism in Greece (Valakos et al., 2008). However, according to recently published genetic data on populations on Milos, only *Podarcis milensis*, *Lacerta trilineata hansschweizeri*, and *Mediodactylus kotschyi concolor* have genetic or morphological uniqueness. Other taxa considered endemics are *Macrovipera schweizeri* and *Natrix natrix schweizeri*, but these share genetic information with mainland populations (Kindler et al., 2013; Fritz and Schmidtler, 2020; Speybroeck et al., 2020). Additionally, there is evidence that individuals of the only native chelonian (*Mauremys rivulata*) originated in Anatolia, whence they arrived by cross-water dispersal (Vamberger et al., 2014). This suggests a pattern for Milos, whose herpetofauna appears to have originated primarily elsewhere, arriving either by natural dispersal events or by historical human-mediated translocations.

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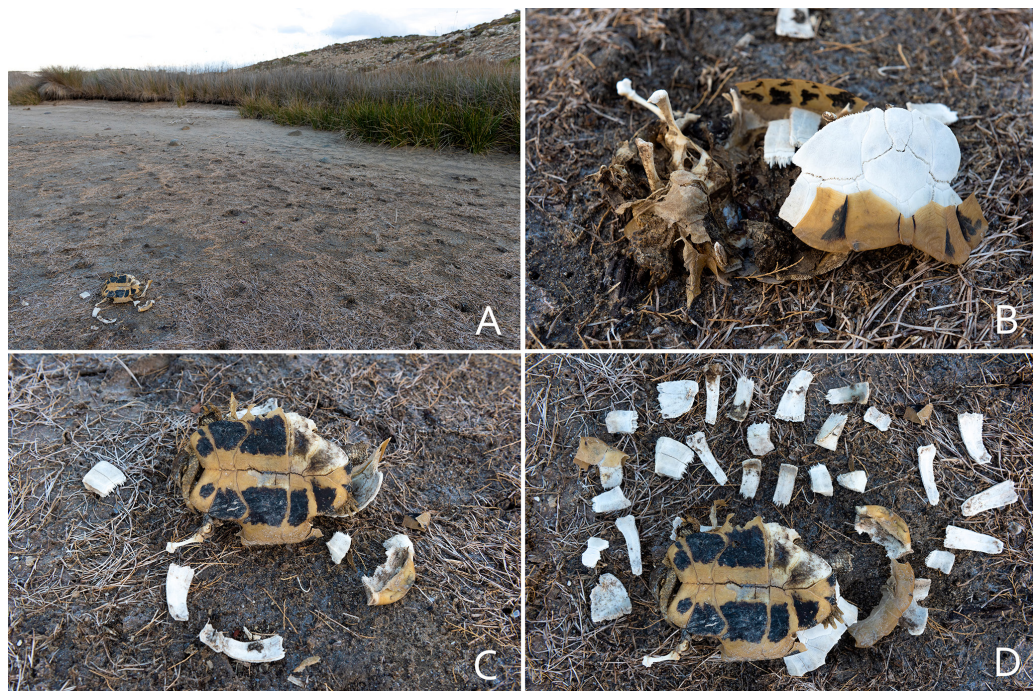


Figure 1. (A) The habitat at Achivadolimni Lake on Milos Island. (B) View of the carapace, (C) plastron, and (D) the detached remains of *Testudo hermanni*.

Recent reptile translocations to Milos Island are reported in the literature. These records include three snake species (*Dolichopsis caspius*, *Eryx jaculus*, *Elaphe quatuorlineta*) and two tortoises (*T. graeca*, *T. marginata*) (Ondrias 1968; Kratzer, 1973; Cattaneo, 1984; Chondropoulos, 1989; Ščerbak and Böhme, 1993; Broggi, 2000). Land tortoises are not native to Milos. The first presence of a tortoise (*T. graeca*) was mentioned by Ondrias (1968) but without further information about the species' status or origin. Cattaneo (1984) reported a medium-sized individual of *T. marginata* encountered in a locality called Turla near Adamas Village. Interestingly, Mario Schweiger (in litt., 2022) mentioned *T. hermanni* from the island based on his own observations from the 1980s and 1990s (a few specimens in a garden in Zefiria Village; 36.7004°N, 24.4909°E) and from information provided by a local shepherd. Unfortunately, he did not provide further details or photos to confirm these reports and the information was not verified. Hence, our record is the first to document this species on Milos.

Because we observed no additional *T. hermanni* during this or previous trips, nor have numerous herpetologists that annually visit the island reported the species, this record is likely a single incident of a locally released or escaped pet. Tortoises are popular pets, especially

in Greece, where they are still sold illegally at outdoor bazaars (e.g., in Athens; Elias Tzoras, pers. obs.) and have been found outside of their native ranges since at least the early 1970s (Clark, 1970). Reporting such information is thus important and should be taken into account when the genetic affiliation of species and their populations is studied further and when geographic origin may not correspond to the genetics.

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