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Amendment of the type locality of the endemic Sicilian pond turtle *Emys trinacris* Fritz et al. 2005, with some notes on the highest altitude reached by the species (Testudines, Emydidae)

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Abstract. The type locality of the Sicilian pond turtle *Emys trinacris* is here amended, and its correct name and geographical coordinates are provided. The *locus typicus* of the species lies at 1007 m a.s.l., i.e. nearly 400 m below what previously thought. The updated altitudinal distribution range of the species, based on verified published localities only, is between 0 and 1036 m a.s.l.

Keywords. Altitudinal limit, type locality, Sicily, Emydidae.

The largely Nearctic family Emydidae is represented in the Palaearctic region by two species belonging to the genus *Emys* Duméril 1805: the polytypic European pond turtle, *E. orbicularis* (Linnaeus 1758), which is widely spread in Eurasia and Maghreb, and the endemic Sicilian pond turtle, *E. trinacris* Fritz et al., 2005 (Stuckas et al., 2015; Vamberger et al., 2015).

The Sicilian pond turtle was originally described based on molecular data only (Fritz et al., 2005), while its morphological variability and the possible morphological or morphometric differences between *E. trinacris* and *E. orbicularis* were later investigated by several authors (e.g. Fritz et al., 2006; Zuffi et al., 2006; D'Angelo et al., 2008; Arizza et al., 2014). Some data on the leech parasites occurring on *E. trinacris* and *E. orbicularis* are reported by Marrone et al. (2006).

The holotype of *Emys trinacris* is an adult male collected on May 9th 1968 on the Nebrodi mountain range (north-eastern Sicily) by E. Kramer and S. Dereani, and stored in Museo Zoologico 'La Specola', Florence, with accession number MZUF11136 (Fritz et al., 2005). In the description of the species, the name of the collection locality has been reported as "Lago Gian Fenaro, below the pass of Pizzo Laminaria approximately 1400 m above sea level" (Fritz et al. 2005). The same locality name for this specimen was reported by Turrisi and Vaccaro (1997), and Di Cerbo (2011), all of them directly or indirectly referring to Fritz (1995) or Fritz et al. (2005). Conversely, referring to the same specimen stored in 'La Specola', the locality name was reported as "Gran Ferraro" by Zuffi et al. (2006), and the specimen was erroneously reported as a female.

In the light of the unusually high altitude reported for the type locality of *E. trinacris*, and of the lack of other information about the type locality of this important endemic species, we attempted to gather further information on the precise location where the holotype was collected. We explored the Sicilian toponyms through the 'Portale Cartografico Nazionale" of the Italian 'Ministero dell'ambiente e della tutela del territorio e del mare' (http://www.pcn.minambiente.it/GN/) and through an accurate study of the available cartography focusing on

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Fig. 1. Label of the holotype of *Emys trinacris* Fritz et al., 2005 stored in the Museo 'La Specola', Florence. Note that the code reported on the label is "111136", while on the specimen the code "11136" is reported (cf. Fig. 2B).

the Monti Nebrodi area, but the toponyms "Gian Fenaro" and "Pizzo Laminaria" were not found in the whole Sicilian territory.

Through the courtesy of dr. Annamaria Nistri, we obtained access to the original hand-written label for the E. *trinacris* holotype, and could check for the spelling of the locality reported on it. The label reads: "Nel Lago Gian Ferraro, sotto il Passo di Pizzo Laminaria (Monti Nebrodi; Sicilia) m 1400 s.l.m." (Fig. 1). In fact, on the Nebrodi mountains, few hundreds of metres NW of Pizzo Luminaria (coord.: 14.50695 E, 37.95337 N, elevation: 1260 m a.s.l.), there is a spring (Sorgente Gianferraro, coord.: 14.50078 E, 37.95612 N, altitude: 1088 m a.s.l.) which feeds a pond. This last pond does not have a name on the official Italian IGM maps, but local shepherds call it "Laghetto Gianferraro" (i.e. "Lakelet Gianferraro").

We positively think that this pond is the locality where the specimen coded MZUF11136 in the collection of 'La Specola' was collected, furthermore we believe that "Pizzo Laminaria" (which does not exist in Sicily) is to be considered a misspelling of "Pizzo Luminaria", and that "Lago Gian Ferraro" is a misspelling of "Lago Gianferraro". Accordingly, the erroneous name of the type locality was corrected, following Recommendation 74A.2 of the International Code on Zoological Nomenclature (ICZN, 1999). Thus, the amended type locality of *Emys trinacris* is:

Laghetto Gianferraro
Coordinates (WGS84, decimal degrees): 14.497241 E, 37.951625 N
Elevation: 1007 m a.s.l.

This pond occurs within the protected area "Parco Regionale dei Nebrodi", in the Municipality of Caronia (Province of Messina), Sicily, Italy. The amended type locality for *Emys trinacris* lies at an altitude of 1007 m a.s.l., which is within the known range of the species. In fact, although existing literature reports for the species an altitudinal distribution range of 0-1200 m a.s.l. (e.g. Turrisi, 2008), or 0-1400 m a.s.l., when the altitude reported in the label of the specimen MZUF11136 is included (e.g. Podloucky, 1997; Turrisi and Vaccaro, 1997, Di Cerbo, 2010; Mazzotti and Zuffi, 2006), to our knowledge the higher occurrence locality for the species published to date is the pond Urio Quattrocchi (coord.: 14.395758 E, 37.901304 N), occurring at 1036 m a.s.l. on the Nebrodi mountain range (municipality of Mistretta); the occurrence of the species at higher altitudes is to date only anecdotal, and the isolate observations of single *E. trinacris* specimens in the highly popular Lago Maulazzo (coord.: 14.672098 E, 37.941825 N, altitude: 1448 m a.s.l.) (F.P. Faraone and M. Romano, *pers. comm.*) are likely to

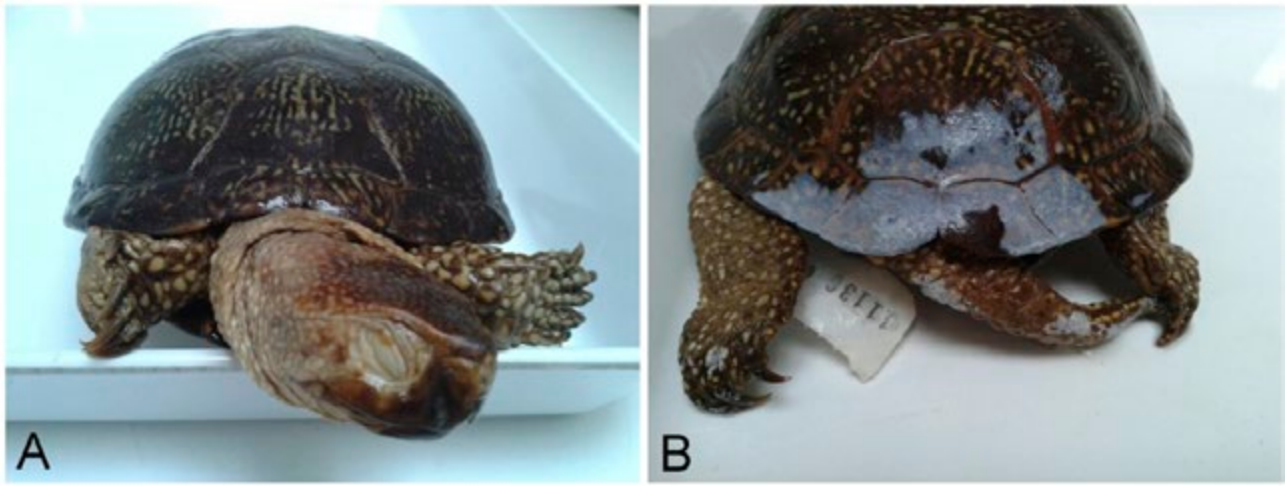

Fig. 2. Holotype of *Emys trinacris*. A: anterior view; B: posterior view. Note the label with the code "11136".

be ascribed to the anthropogenic introduction of observed specimens. Accordingly, to date, the updated altitudinal distribution range of the species is 0-1036 m a.s.l.

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REFERENCES

Arizza, V., Russo, D., Marrone, F., Sacco, F., Arculeo, M. (2014): Morphological characterization of the blood cells in the endangered endemic pond turtle, *Emys trinacris* (Testudines: Emydidae) Ital. J. Zool. **81**: 344-353.

D'Angelo, S., Galia, F., Lo Valvo, M. (2008): Biometric characterization of two Sicilian pond turtle (*Emys trinacris*) populations of south-western Sicily. Rev. Esp. Herp. **22**: 15-22.

Di Cerbo, A. (2010): *Emys trinacris*. In: Fauna d'Italia Reptilia, p. 163-168. Corti, C., Capula, M., Luiselli, L., Razzetti, E., Sindaco, R., Eds, Calderini, Bologna.

Duméril, A.M.C. (1805): Zoologie analytique, ou méthode naturelle de classification des animaux. Perronneau, Paris.

Fritz, U. (1995): Zur innerartlichen Variabilität von *Emys orbicularis* (Linnaeus, 1758). 5a. Taxonomie in Mittel-Westeuropa, auf Korsika, Sardinien, der Apenninen-Halbinsel und Sizilien und Unterartengruppen von *E. orbicularis*. Zool. Abh. **48**: 185-242.

Fritz, U., Fattizzo, T., Guicking, D., Tripepi, S., Pennisi, M.G., Lenk, P., Joger, U., Wink, M. (2005): A new cryptic species of pond turtle from southern Italy, the hottest spot in the range of the genus *Emys* (Reptilia, Testudines, Emydidae). Zool. Scripta **34**: 351-371.

Fritz, U., D'Angelo, S., Pennisi, M. G., Lo Valvo, M. (2006a): Variation of Sicilian pond turtles, *Emys trinacris* - What makes a species cryptic? Amphibia-Reptilia **27**: 513-529.

ICZN (International Commission on Zoological Nomenclature) (1999): International Code of Zoological Nomenclature, 4th edn. International Trust for Zoological Nomenclature, London. (accessible at: http://www.iczn.org/iczn/index.jsp).

Linnaeus, C. (1758): *Systema naturae per regna tria naturae: secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis* (10th ed.). Laurentius Salvius, Stockholm.

Marrone, F., Sacco, F., Kehlmaier, C., Arizza, V., Arculeo, M. (2016): Some like it cold: the glossiphoniid parasites of the Sicilian endemic pond turtle *Emys trinacris* (Testudines, Emydidae), an example of 'parasite inertia'? J. Zool. Syst. Evol. Res. **54**: 60-66.

Mazzotti, S., Zuffi, M. (2006): *Emys orbicularis*. In: Atlante degli Anfibi e dei Rettili d'Italia, p. 377- 381. Barbieri, F., Doria, G., Sindaco, R. Eds., Firenze, Polistampa.

Podloucky, R., (1997): *Emys orbicularis*. In: Atlas of Amphibians and Reptiles in Europe, pp. 170-171. Gasc, J.-P., Cabela, A., Crnobrnja-Isailovic, J., Dolmen, D., Grossenbacher, K., Haffner, P., Lescure, J., Martens, H., Martinez Rica, J.P., Maurin, H., Oliveira, M.E., Sofianidou, T.S., Veith, M., Zuiderwijk, A. Eds., Societas Europaea Herpetologica and Museum National d'Histoire Naturelle (IEGB/SPN), Paris.

Stuckas, H., Velo-Antón, G., Fahd, S., Kalboussi, M., Rouag, R., Arculeo, M., Marrone, F., Sacco, F., Vamberger, M., Fritz, U. (2014): Where are you from, stranger? The enigmatic biogeography of North African pond turtles (*Emys orbicularis*). Org. Divers. Evol. **14**: 295-306.

Turrisi, G.F., Vaccaro, A. (1997): Contributo alla conoscenza degli anfibi e dei rettili di Sicilia. Boll. Acc. Gioenia Sci. Nat. **353**: 5-88.

Turrisi, G.F. (2008): *Emys trinacris*. In: Atlante della Biodiversità della Sicilia: Vertebrati terrestri, p. 277-280. AA.VV., Palermo, Arpa Sicilia.

Vamberger, M., Stuckas, H., Sacco, F., D'Angelo, S., Arculeo, M., Cheylan, M., Corti, C., Lo Valvo, M., Marrone, F., Wink, M., Fritz, U. (2015): Differences in gene flow in a twofold secondary contact zone of pond turtles in southern Italy (Testudines: Emydidae: *Emys orbicularis galloitalica, E. o. hellenica, E. trinacris*). Zool. Scripta **44**: 233-249.

Zuffi, M.A.L., Odetti, F., Battistoni, R., Mancino, G. (2006). Geographic variation of sexual size dimorphism and genetics in the European pond turtle, *Emys orbicularis* and *Emys trinacris*, of Italy. Ital. J. Zool. **73**: 363-372.