

## Comments on

### “*Chersine* Merrem, 1820 and *Chersina* Gray, 1831: a nomenclatural survey by Bour & Ohler, Zootaxa, 1752: 66–68”

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In a recent correspondence, Bour & Ohler (2008) readdress the question of whether or not *Testudo hermanni* Gmelin, 1789 is the type species of the genus-group names *Chersine* Merrem, 1820 and *Medaestia* Wussow, 1916 (Reptilia: Testudines: Testudinidae). The senior author, Roger Bour, co-authored the earlier description of a new genus-group name for *T. hermanni* (Eurotestudo Lapparent de Broin, Bour, Parham & Perälä, 2006), a name considered as an objective junior synonym of both *Chersine* and *Medaestia* by Fritz & Bininda-Emonds (2007) and Fritz & Havaš (2007), who argued that all three names are based on the same type species, *T. hermanni*. Bour & Ohler (2008) disputed this conclusion. In the present paper, we wish to clarify nomenclatural issues raised by Bour & Ohler (2008).

#### Which is the type species of *Chersine* Merrem, 1820?

Bour & Ohler (2008) claim that *Chersine* is a replacement name (*nomen novum*) for *Testudo* Linnaeus, 1758 (type species: *Testudo graeca* Linnaeus, 1758), and consequently has the same type species, because Merrem (1820: p. 29) ‘only included *Testudo* as synonym of *Chersine*.’ However, Merrem (1820: p. 17) listed *Testudo* as synonym of his order ‘Schild-Pholidoten (Testudinata)’ as well, indicating a different concept of *Testudo* compared to its current use. When the name *Testudo* was introduced, Linnaeus (1758) applied it to all eleven chelonian species known to him (Table 1), including sea turtles (Cheloniidae), New World pond turtles (Emydidae), tortoises (Testudinidae), and snapping turtles (Chelydridae). A type species for *Testudo* was not fixed until Fitzinger (1843: p. 29) designated *Testudo graeca* Linnaeus, 1758, implying that when *Chersine* was erected, *Testudo* was still without type species and covering a wide range of highly distinct chelonian species. Hence, the argument by Bour & Ohler (2008) is invalid.

**TABLE 1.** Chelonian species described in the 10<sup>th</sup> Edition of the *Systema Naturae* by Linnaeus (1758) and their current taxonomic allocation according to Fritz & Havaš (2007).

Original name	Current name	Family
<i>Testudo caretta</i>	<i>Caretta caretta</i>	Cheloniidae
<i>Testudo carinata</i>	<i>Terrapene carolina</i>	Emydidae
<i>Testudo carolina</i>	<i>Terrapene carolina</i>	Emydidae
<i>Testudo geometrica</i>	<i>Psammobates geometricus</i>	Testudinidae
<i>Testudo graeca</i>	<i>Testudo graeca</i>	Testudinidae
<i>Testudo lutaria</i>	<i>Emys orbicularis</i>	Emydidae
<i>Testudo mydas</i>	<i>Chelonia mydas</i>	Cheloniidae
<i>Testudo orbicularis</i>	<i>Emys orbicularis</i>	Emydidae
<i>Testudo pusilla</i>	<i>Testudo graeca</i>	Testudinidae
<i>Testudo scabra</i>	unclear	unclear
<i>Testudo serpentina</i>	<i>Chelydra serpentina</i>	Chelydridae

*Chersine*, for which Merrem (1820: p. 29) gave a clear bilingual diagnosis in German and Latin, is not a replacement name of *Testudo*. It was created to comprise only ‘Landschildkröten’ (= tortoises; Merrem 1820: footnote p. 29) but, in contrast to Linnaeus (1758), not sea turtles (placed by Merrem into *Caretta* and *Sphargis*) and not most freshwater turtles (placed by Merrem into *Emys*, *Matamata*, *Terrapene*, and *Trionyx*). This is also evident from the fact that Merrem included in the synonymy of *Chersine*, besides *Testudo*, Pliny’s *Testudines terrestres*. Parenthetically it may be noted, however, that Merrem’s ‘tortoises’ included quite a variety of chelonians of distinct families, not only true tortoises of the family Testudinidae (Table 2).

**TABLE 2.** Chelonian species placed by Merrem (1820) in *Chersine* and their current taxonomic allocation according to Fritz & Havaš (2007).

Merrem’s name	Current name	Family
<i>Chersine areolata</i>	<i>Homopus areolatus</i> (Thunberg, 1787)	Testudinidae
<i>Chersine calcarata</i>	<i>Geoche lone sulcata</i> (Miller, 1779)	Testudinidae
<i>Chersine denticulata</i>	<i>Chelonoidis denticulata</i> (Linnaeus, 1766)	Testudinidae
<i>Chersine elegans</i>	<i>Geoche lone elegans</i> (Schoepff, 1795)	Testudinidae
<i>Chersine fasciata</i>	<i>Homopus areolatus</i> (Thunberg, 1787)	Testudinidae
<i>Chersine geometrica</i>	<i>Psammobates geometricus</i> (Linnaeus, 1758)	Testudinidae
<i>Chersine graeca</i>	<i>Testudo hermanni</i> Gmelin, 1789	Testudinidae
<i>Chersine marginata</i>	<i>Testudo marginata</i> Schoepff, 1793	Testudinidae
<i>Chersine Mühlenbergii</i>	<i>Glyptemys muhlenbergii</i> (Schoepff, 1801)	Emydidae
<i>Chersine planitia</i>	<i>Macrochelys temminckii</i> (Troost, 1835)	Chelydridae
<i>Chersine punctularia</i>	<i>Rhinoclemmys punctularia</i> (Daudin, 1802)	Geoemydidae
<i>Chersine pusilla</i>	<i>Testudo graeca</i> Linnaeus, 1758	Testudinidae
<i>Chersine retusa</i>	<i>Cylindraspis indica</i> (Schneider, 1783)	Testudinidae
<i>Chersine rotunda</i>	<i>Cylindraspis peltastes</i> (Duméril & Bibron, 1835) or <i>Cylindraspis vosmaeri</i> (Suckow, 1798)?	Testudinidae
<i>Chersine scorpioides</i>	<i>Kinosternon scorpioides</i> (Linnaeus, 1766)	Kinosternidae
<i>Chersine signata</i>	<i>Homopus signatus</i> (Gmelin, 1789)	Testudinidae
<i>Chersine tessellata</i>	<i>Chelonoidis denticulata</i> (Linnaeus, 1766)	Testudinidae
<i>Chersine tetradactyla</i>	<i>Homopus areolatus</i> (Thunberg, 1787)	Testudinidae

More than a century after the original description of *Chersine*, Lindholm (1929) fixed ‘*Testudo graeca* “L.” auct. = *Testudo hermanni* Gmelin’ as its type species. Bour & Ohler (2008) argue that this nomenclatural act would represent an ‘unforeseen designation’ and were ‘certainly not in accordance with Merrem’s design when he created the genus.’ But Lindholm (1929) clearly referred to the reversal of the meaning of *T. graeca* that occurred only a few years before his own paper was published. Merrem (1820) evidently meant the taxonomic species *T. hermanni* that was previously known under the name of *T. graeca*. We cite here Fritz & Bininda-Emonds (2007: pp. 303–304):

“In support of erecting the new genus *Eurotestudo* (type species: *T. hermanni* Gmelin, 1789) in the face of two older names being available (*Chersine* Merrem, 1820 and *Medaestia* Wussow, 1916), Lapparent de Broin *et al.* (2006) claim that these latter names were based on the type species *T. graeca* Linnaeus, 1758 and, therefore, cannot be applied to *T. hermanni*. In so doing, Lapparent de Broin *et al.* (2006) have unfortunately added a further chapter to the complicated and confusing nomenclatural history of *Testudo*. The name of *T. graeca* was misapplied for decades after its description by Linnaeus (1758) by virtually all subsequent authors (e.g., Schoepff 1792–1801; Hermann 1804; Merrem 1820; Fitzinger 1826; Gray 1844, 1870; Strauch 1862; Schreiber 1875; Lortet 1887; Boulenger 1889; Siebenrock 1909), who used this name for the species now known as *T. hermanni* Gmelin, 1789. It was not until the early 20<sup>th</sup> century that Siebenrock (1913) and Flower (1925, 1926) recognized this error. Whereas Siebenrock (1913) hesitated to change the long-established usage of the name *T. graeca*, Flower (1925, 1926) pointed out that the name *T. graeca* has to be applied to the species previously known under the name of *T. ibera* Pallas, 1814 and that *T. hermanni* Gmelin, 1789, a name treated for

more than a century as junior synonym of *T. graeca* Linnaeus, 1758, has to be used for what was known before as *T. graeca*. [...] As regards the names *Chersine* Merrem, 1820 and *Medaestia* Wussow, 1916, it is obvious from the period when they were proposed that they were based on the misapplication of the name *T. graeca* Linnaeus, 1758 and that actually *T. hermanni* was meant."

That Merrem (1820: p. 31) referred to the taxonomic species *Testudo hermanni* indeed is demonstrated by his species diagnosis, translated as follows (italics as in the original; Fig. 1):

<p>"<i>graeca</i> 38. T. C. Shell broad, inverted ovoid, rear humpy. Areoles of scutes coarse; feet with scales.  <i>Lives in the neighbourhood of the Mediterranean Sea.</i>  <i>Shell distinctly domed. Plastron anteriorly weakly, posteriorly distinctly emarginated. Tail short, cone-shaped, with bent, horny tip. Claws 5, 4, sometimes 4, 4.</i>"</p>
<p><b>echte</b>      38. T. C. Schale breit, verkehrt-eyförmig,            hinten buckelig. Schildchen mit härschem            Felde; Füsse schuppig. v)  <i>Aufenthalt: die Länder am Mittelländischen            Meere.</i>            Schale stark gewölbt. Brustschild vorn            schwach, hinten stark ausgerandet. Schwanz            kurz, kegelförmig, mit krummer, hornar-            tiger Spitze. Krallen 5, 4, zu Zeiten 4, 4.</p>
<p><b>graeca</b>      38. T. C. testa obouato - orbiculata pone gib-            ba, scutellorum areolis punctato - scabris,            pedibus squamosis.  <i>Habitat in viciniis Maris mediterranei.</i>  <i>Testa connexa. Sternum antice minus, postice            magis emarginatum. Cauda brevis, conica,            apice corneo incurvata. Vngues 5, 4, non            raro 4, 4.</i></p>

**FIGURE 1.** Reproduction of the bilingual diagnosis of *Chersine graeca* by Merrem (1820). It is obvious from the diagnosis that the taxonomic species *Testudo hermanni* was meant (see text). That Merrem named the species in German 'echte' (= true) [tortoise] may have prompted Lindholm (1929) to designate *T. hermanni* as the type species of *Chersine*.

The horny, claw-like scale at the tip of the tail is diagnostic for *T. hermanni* (Cheylan 2001) and provides unambiguous evidence that this species, and not *T. graeca*, was meant. Considering this, it is obvious that Lindholm (1929) deliberately used the wording '*Testudo graeca* "L." auct. = *Testudo hermanni* Gmelin'; he intended to point out that Merrem (1820) actually referred to the taxonomic species *T. hermanni* when using the name *graeca*. Thus, Lindholm fulfilled the requirements of Article 69.2.4 of the Code (ICZN 1999): "If an author subsequently designates as type species a species originally included [...] as an expressly stated misidentification or misapplication of a previously established nominal species, the species so designated is the nominal species denoted by the name of the taxonomic species actually involved (and not the nominal species cited)." In consequence, the type species of *Chersine* Merrem, 1820 is clearly *T. hermanni* Gmelin, 1789.

#### Which is the type species of *Medaestia* Wussow, 1916?

*Medaestia* is a genus-group name for tortoises that was never used as valid except in its original description, an article about the captive maintenance of tortoises (Wussow 1916). The following species were originally included (as spelled by Wussow 1916: p. 170; in parentheses the current names of the taxonomic species actually involved): '*Medaestia graeca*' (= *Testudo hermanni*), '*M. horsfieldi*' (= *T. horsfieldii*), '*M. ibera*' (= *T. graeca*), and '*M. leithi*' (= *T. kleinmanni*).

Mertens (1949) formally designated the type species of *Medaestia* as follows: 'I fix it here as *graeca* (*hermanni* Gmelin).' By adding '*hermanni* Gmelin' in brackets, Mertens (1949) clearly expressed that he was aware that Wussow (1916) used the name *graeca* in the contemporary sense, to denote the taxonomic species later known under the name *hermanni*. This act is in accordance with Article 69.2.4 of the Code (ICZN 1999) as well, which is why *Testudo hermanni* Gmelin, 1789 is the valid type species of *Medaestia* Wussow, 1916.

## Conclusions

*Chersine* Merrem, 1820, *Medaestia* Wussow, 1916, and *Eurotestudo* Lapparent de Broin, Bour, Parham & Perälä, 2006 are objective synonyms. They are all based on the same type species, *Testudo hermanni* Gmelin, 1789, for which prior to Flower (1925, 1926) the name *T. graeca* Linnaeus, 1758 was widely used. The phylogenetic analyses of Fritz & Bininda-Emonds (2007) based on a five-gene data set (mtDNA: 12S rRNA, 16S rRNA, cyt b; nDNA: C-mos, Rag2) representing approximately two-thirds of all extant testudinid species and all species of *Testudo* did not support the removal of *T. hermanni* from *Testudo*, rendering the discussion started by Bour & Ohler (2008) academic. If within *Testudo* a nomenclatural distinction were desired for the clade comprising *T. hermanni* and *T. horsfieldii*, the oldest available name, *Chersine*, would have to be applied in subgeneric rank.

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