

# Identification and neotype designation of *Mangelia striolata*, type species of *Mangelia* Risso, 1826 (Neogastropoda, Conoidea)

Gianni Spada\*(✉) & Giano Della Bella#

\* 51 rue de L'Orme Gras,  
F-91640 Vaugrigneuse,  
France, gspada@orange.fr  
(✉) Corresponding  
Author

# Via dei Cedri 91,  
I-40050, Monterenzio  
(Bologna), Italy

## Abstract

We attempt to identify *Mangelia striolata* Risso, 1826, type species of the genus *Mangelia* Risso, 1826, which is in turn type genus of the toxoglossan subfamily Mangeliinae Fischer, 1883. As the type material is now lost, we examined characters minutely in the original drawing and description. We conclude that *M. striolata* is a senior synonym of *M. bertrandi* (Payraudeau, 1827). A neotype is designated here for *Mangelia striolata* to stabilize its use.

## Riassunto

Il presente lavoro riguarda l'identità del taxon problematico *Mangelia striolata* Risso, 1826, specie tipo del genere *Mangelia*, a sua volta genere tipo della sottofamiglia Mangeliinae. Il materiale tipico è andato perduto, perciò gli autori hanno proceduto ad un esame critico della descrizione e dell'illustrazione originali. Comparando questi caratteri a quelli delle specie viventi nel Mediterraneo, si conclude che *M. striolata* ricade nella variabilità di *Mangelia bertrandi* (Payraudeau) e, poiché risulta che la pubblicazione di Payraudeau deve essere datata 1827, *Mangelia striolata* (Risso, 1826) precede *Mangelia bertrandi* (Payraudeau, 1827). Un neotipo di *Mangelia striolata* viene designato in questo lavoro al fine di stabilizzare l'uso del nome.

## Key words

Type species, neotype, *Mangelia*, systematics, Mediterranean.

## Introduction

The flourishing of malacology in Europe from the late XVIII to the late XIX centuries, at the beginning of modern taxonomy, resulted in the introduction of many supraspecific taxa based on species from the northeastern Atlantic Ocean and the Mediterranean Sea. While many of these taxa have proven to be applicable to species in other biogeographical provinces, in many cases the use of genus- and family-level names for species from other seas is the result of tradition rather than of detailed studies. Particularly in very speciose groups like the toxoglossans (formerly collectively called "turrids"), to avoid the inappropriate use of such taxa, it is important to characterize them accurately and to define their limits. This is the case examined here with the genus *Mangelia* and the subfamily Mangeliinae.

## Acronyms

ICZN	International Code of Zoological Nomenclature
MZB	Museo di Zoologia dell'Università di Bologna, Italy
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MZR	Museo Civico di Zoologia di Roma, Italy
SMF	Senckenberg Museum, Frankfurt, Germany
SMNH	Swedish Museum of Natural History, Stockholm, Sweden.

## The genus *Mangelia*

The genus *Mangelia* (Risso, 1826) includes about 17 species in the Mediterranean Sea. Further species are known from the Atlantic coasts of Africa and northern Europe. The subfamily Mangeliinae Fischer, 1833, has an even larger, world-wide distribution.

We conceive this subfamily as including 7 genera in the Mediterranean Sea: *Mangelia* Risso, 1826, *Lyromangelia* Monterosato, 1817, *Bela* Gray, 1847, *Brachycythara* Woodring, 1928, *Benthomangelia* Thiele 1925, *Smithiella* Monterosato, 1880 and *Villiersiella* Monterosato, 1890. Although the last three are treated as synonyms of *Mangelia* by many authors [Powell, 1966 (pars); Sabelli et al., 1990-1992 (pars)], their shell characters are sufficiently distinct for them to be kept as separate genera, at least while the systematics of this group is based mostly on shell characters. Species of these genera live mostly on soft bottoms, ranging from intertidal down to the bathyal zone.

It is still difficult to estimate the number of genera belonging to the subfamily Mangeliinae worldwide. Of course, it is worthy of attention that shell characters may be misleading when attributing a genus to a subfamily, as exemplified by the case of *Clathromangelia* (Oliverio, 1995). After careful verification, and considering authors' clear documentation, we report the following genera all belonging to the subfamily Mangeliinae. For South Africa: *Eucithara* Fischer, 1883, *Gingicithara* Kilburn, 1992, *Leiocithara* Hedley, 1922, *Papillocithara* Kilburn, 1992, *Citharomangelia* Kilburn, 1992, *Pseudoraphi-*

toma Boettger, 1895, *Metaclathurella* Shuto, 1983, *Otitoma* Jousseume 1898 (Kilburn, 1992, 1993, 1995). Also *Kyllinia* must now be included in the list of Mangeliinae for this area (Garilli & Galletti, 2007). For the American coasts: *Kurtzia* Bartsch, 1944, *Kurtziella* Dall, 1918, *Kurtzina* Bartsch, 1944, *Agathotoma* Crossmann, 1899, *Cryoturris* Woodring, 1828 and *Pyrgocythara* Woodring, 1828 (Powell, 1966; McLean, 1971). For SE Asia and Australia: *Guraleus* Hedley, 1818, *Neoguraleus* Powell, 1939, *Graciliclava* Shuto, 1983, *Antiguraleus* Powell, 1942, *Austropussilla* Laseron, 1954 (Powell, 1966; Shuto, 1983a, b).

Phylogenetic systematics of the Toxoglossa have just started to be reassessed by molecular data (Puillandre et al., 2008) and the limits of the various genera and subfamilies are likely to be redefined in the near future. However, molecular analysis must be based on precise identification of the material in order to ensure correct use of such data.

## On the identity of the genus *Mangelia*

From a systematic point of view, the main obstacle to using the generic name *Mangelia* has been the existence of *Cythara* Schumacher, 1817 (type species *C. striata* Schumacher, 1817). Schumacher referred briefly to Martini & Chemnitz (1780: pl. 142, fig. 1330). The very short description by Martini & Chemnitz mentioned the presence of striae on the columellar side of the aperture, a character that is absent in *Mangelia*. Besides, the figure shows a shell from the dorsal side with a wide last whorl bearing several axial costae. There have been several interpretations of this figure, and these sometimes disagreed as the illustrated species was attributed to different families such as Mitridae, Cancellariidae, Turridae, Strombidae or Vasidae. Fischer (1883) proposed *Eucithara* (type species: *Mangelia stromboides* Reeve, 1846, living throughout the Indo-Pacific area) to include the numerous species of "Turridae" previously attributed to the genus *Cythara*, and many modern authors have followed him. However, the Mediterranean and northeastern Atlantic species usually ascribed to *Mangelia* cannot be included in this group, lacking its basic character, i.e. two series of denticulations in the aperture, both inside the lip and on the columella.

The name *Cythara* is valid according to the ICZN Code and has been adopted by many palaeontologists including Dall (1890), Gardner (1937), Wenz (1938-1944) and Thiele (1929). Among the scholars of Recent molluscs, we note Nevill & Nevill (1875), and more recently Knudsen (1952) and Nordsieck (1977) using this name. Yet its use is very problematic, due to the impossibility of identifying its type species. For a thorough discussion of this case, see Powell (1966: p. 109, 110). A further discordance developed twenty years after the publication of the name *Mangelia*. Risso (1826) derived and quoted the generic name *Mangelia* from an unpublished manuscript by Leach. Later Lovén (1846: p. 145) used a different spelling, "*Mangilia*", without further comments. One year later he reverted to the original spell-

ing, *Mangelia* (Lovén, 1847: p. 185, 196, pl. 5). Various authors have used Lovén's alternative spelling, some arguing it was a spelling emendation, the name being dedicated to the Italian naturalist Giuseppe Mangili (e.g., Bucquoy et al., 1882: p. 103). It is still occasionally used, especially for non-Mediterranean species. As there is no indication by either Risso or Leach that the name was dedicated to G. Mangili, we consider *Mangilia* of Lovén (1846) to be an incorrect emendation, not available in nomenclature. Instead, the spelling *Mangelia* has been used continuously by a remarkable number of malacologists since its introduction, becoming rather generalized in recent checklists (with *Mangilia* considered as a synonym of *Mangelia*, e.g. Sabelli et al., 1990; Gofas & le Renard, 2007).

The scientific contribution of Antoine Risso is usually treated with caution by the scientific community, and particularly by malacologists. His systematic framework for molluscs reveals several inconsistencies and his work is scattered with classification errors and inaccuracies, probably due to his working in a state of isolation. In Risso (1826) the genus *Mangelia* is introduced with the following short description: "*Coq. longuement turriculée; suture souvent profonde; péritrème mince, parfait*".

This is followed by a list of 13 species: *M. costulata*, *M. plicatilis*, *M. reticulata*, *M. gimmania*, *M. lineolata*, *M. poliana*, *M. striolata*, *M. undulata*, *M. paucicostata*, *M. purpurea*, *M. clarissa*, *M. menardiana*, *M. vitrea*. All species were introduced by Risso except *M. purpurea*, which is correctly attributed to Montagu (1803). According to our observations on the type material and to present-day systematics, 7 out of these 13 species are Mangeliinae: 4 belong in *Mangelia* (*striolata*, *lineolata*, *undulata*, *paucicostata*), 2 in *Bela* (*gimmania*, *plicatilis*), 1 in *Smithiella* (*costulata*), 1 in *genus incertum* (*clarissa*), 1 in *Raphitoma* (*purpurea*), 2 are unrecognizable (*menardiana*, *vitrea*), and 2 are *Rissoina* *bruquierei* (Payraudeau, 1827) (*reticulata*, *poliana*).

## The type species of *Mangelia* Risso, 1826

The earliest designation of a type species for *Mangelia* is attributed to Gray (1847: p. 134). Gray's designation was met with objections (Woodring, 1928) because it seems to show some weak points. Criticism by early authors focused on the uncertainties, fragmentariness and brevity characterizing the designation. We quote it here for the reader's convenience, from paragraph 15 about the genus *Mangelia*:

Page 134 - b CONINA

"15 - *Mangelia*, Leach 1817.

*Mangelia (striolata)*, Risso, 1826, f. 101. *Pleur. taeniatum*, Desh.?

? *Mangelia*, "Leach", Hinds, 1844. *M. cinnamomea*.

N.B. *Mangelia*, Risso, pict. 102, 103, are *Rissoinae*."

In the first line we can note the attribution of *Mangelia* to Leach, 1817, as if Leach's work was published and not a manuscript. The second line, including a reference

to figure 101, is the designation proper. Then, Gray supposed that *M. striolata* might be *Mangelia taeniata* (Deshayes); this is the first attempt at an interpretation of Risso's species, although it bears no influence on the preceding designation as it is proposed in tentative form (ICZN Art. 67.5.3). In the third line, Gray introduced a possible relationship among species tentatively attributed to the genus *Mangelia*, as interpreted by Hinds, and *M. cinnamomea*. In the fourth and last line Gray remarked on the misidentification of *Rissoina* species as belonging in *Mangelia*.

The ICZN Code appeared in 1895 and is retroactively valid. Gray's designation meets its essential condition perfectly: the selected type species is among the species the original author included when introducing the genus *Mangelia* (ICZN Art. 67.2, 67.2.1). Gray's work, as confirmed in the title, has the characteristics of a catalogue of genera, where these genera are isolated in numbered sections and each one is related to a representative species within the section. So the designations in this text are commonly recognized as valid, supporting Gray's designation of *Mangelia striolata* as the type species of *Mangelia*.

Finally, we point out a surprising proposal by Reeve (1846a). In his introduction to the genus *Mangelia* (Vol. III), Reeve intentionally ignored Risso's publication of this name 20 years earlier, and used the name extensively, introducing in it about 70 "new species" of "aberrant *Pleurotoma*" found during Hugh Cuming's researches, carried out mostly in the Philippines. Reeve placed "at the beginning of the series" *Mangelia sicula*, a species that he described in the same year (1846b) and considered as a linking element between *Mangelia* and *Pleurotoma*. It is noteworthy that this designation attempt does not meet the ICZN requirements, as there is no explicit or implicit indication of the intention of the author to designate a type. Besides, *Mangelia sicula* is not included in the series of taxa originally included by Risso in the genus *Mangelia*. Therefore, Reeve's attempt has no value, even though it was made one year earlier than Gray's, and Reeve's proposals have been generally ignored. Gray's type species designation was published a year later in the same journal. Only Monterosato (1917) accepted the designation of *Mangelia sicula* as the type species of the genus *Mangelia*, as we will discuss later on.

## Identity of *Mangelia striolata*

The original type material for *Mangelia striolata* is to be considered lost. Arnaud (1978: p. 135) found specimens of *Rissoina bruguieri* in the box labelled *M. striolata*. The original figure in Risso (1826: pl. 8, fig. 101; **Fig. 1A**) clearly shows that *M. striolata* is a species of *Mangelia*. Very few authors have reported finding *M. striolata* in the Mediterranean Sea, while many Mediterranean species have been considered as corresponding to *M. striolata*. For a complete summary of all interpretations, see the entry *striolata* in the remarkable work by Tucker

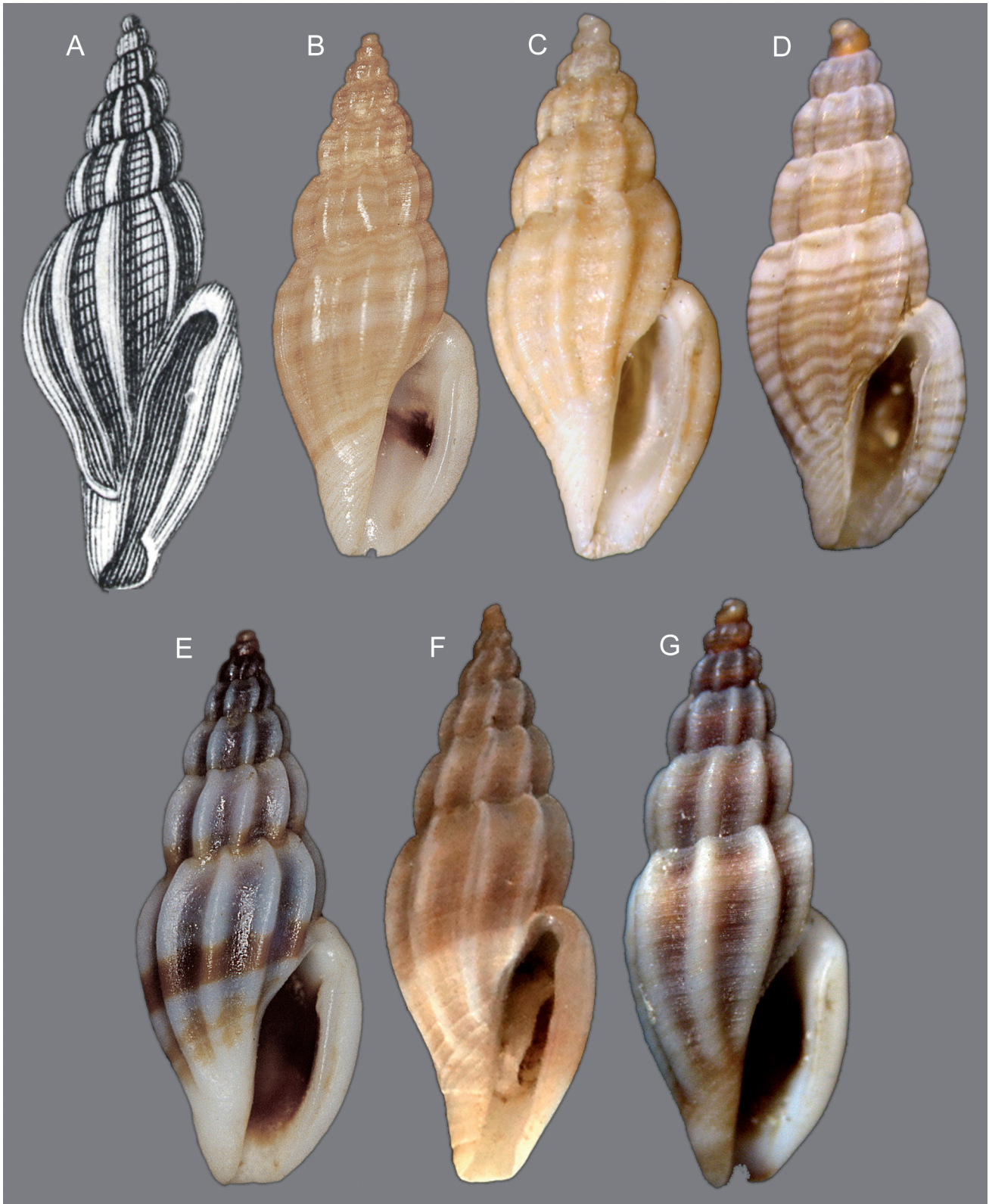
(2002: p. 940). Here we will just quote the opinions of a few particularly well known authors.

Blainville (1830: p. 99) wrote that *M. striolata* resembles *M. bertrandi* (Payraudeau) except for the presence of horizontal striae between the costae (actually not reported by Payraudeau).

Bucquoy et al. (1882: p. 101), with brilliant intuition, did not place *attenuata* in *Mangelia*, but rather in *Raphitoma* (used at that time also for species that today are included in *Bela*) just after "*Raphitoma*" *nebula* (Montagu). Bucquoy et al. (1882: p. 102) highlighted also the structural differences between *Mangelia striolata*, defined as "*une vrai Mangelia*" (a true *Mangelia*) and "*Raphitoma*" *attenuata*, referring carefully to the original description by Risso.

Monterosato (1917: p. 24) recognized as valid the designation of *Mangelia sicula* as type species by Reeve (1846a), but he also considered *Mangelia sicula* as the only *Mangelia* species living in the Mediterranean Sea. For other Mediterranean species, Monterosato proposed his new genus *Rissomangelia*, with *M. bertrandi* (Payraudeau) or *M. caerulans* (Philippi) both indicated as "un buon tipo" (an appropriate type). *Rissomangelia* is generally considered to be a synonym of *Mangelia* (Monterosato's concept of *Rissomangelia* overlaps our concept of *Mangelia*) and *M. caerulans* a synonym of *M. bertrandi*. This means that according to Monterosato, *M. bertrandi* can be considered as a good representative of *Mangelia*. The use of the name *striolata* by Scacchi, followed by Philippi and finally by Monterosato, deserves some consideration. Scacchi (1836: p. 13) classified a shell as "*Pleurotoma striolatum (Mangelia) Risso*". Philippi (1844: p. 168, 169, pl. 26, fig. 79), having checked Scacchi's material, wrote that Scacchi's specimen was different from Risso's description of *striolata* (in particular the outer lip is not thickened) and recorded it as *Pleurotoma striolatum* Scacchi, thus establishing a new (although homonymous) name. Monterosato (1884: p. 128) selected *Pleurotoma striolatum* Scacchi as the type of his new genus *Smithia*, later emended to *Smithiella* (Monterosato, 1890: p. 186). He also recognised (Monterosato 1875: p. 43; 1877: p. 37; 1890: p. 186) its synonymy with "*Pleurotoma costulata* Blainville". But, since Blainville (1830: p. 100) correctly ascribed the species to Risso, the result is that *Pleurotoma striolata* Scacchi is a synonym of *Mangelia costulata* Risso. Powell (1966: p. 97) opted for *Mangelia attenuata*, but he forced its description, stating that the species is spirally striated, whereas the original description (Montagu, 1808: p. 266) stated: "Elegant, slender shell, [...] destitute of striae and furnished with nine equidistant, strong ribs". Eleven years later, Nordsieck (1977: p. 39), stated of *striolata*: "The species – if one finds it (!) – is unmistakable [...] *striolata* until today was believed to be vanished, but the evidence of my collection shows a lot of well preserved specimens". We have examined these specimens (in the Nordsieck collection at SMF) and verified that those from Ibiza (Spain) are actually *M. multilineolata* (Deshayes, 1835), whereas the specimens of "*striolata* subspecies *pseudopontica*" from the Black Sea are *M. pontica* (Milatchewich, 1808).





**Fig. 1.** *Mangelia striolata* Risso, 1826. **A.** Original drawing of *Mangelia striolata* after Risso (1826: pl. 8, fig. 101), height 23 mm, height of the original size bar 13 mm. **B.** Neotype, 11 mm. San Remo (Liguria, Italy), MNHN n° 22049. **C.** Posillipo (Naples, Italy), 5.5 mm, probably variety ex colore *spirolineata* Monterosato, 1875. **D.** Talamone, Latium, Italy, 5.5 mm, probably variety ex colore *spirolineata* Monterosato, 1875. **E.** Procida (Naples, Italy), 12 mm [formerly identified as *M. caerulans* (Philippi, 1844)]. **F.** St. Raphaël (France), 8.8 mm (unusual colour). **G.** St. Florent (Corsica, France), 8 mm [typical colour for *M. bertrandi* (Payraudeau, 1827)] [Photo B. Sabelli].

**Fig. 1.** *Mangelia striolata* Risso, 1826. **A.** Disegno originale di *Mangelia striolata* da Risso (1826: tav. 8, fig. 101), altezza 23 mm, altezza del segmento dimensionale originale 13 mm. **B.** Neotipo, 11 mm. San Remo (Liguria, Italia), MNHN n° 22049. **C.** Posillipo (Napoli, Italia), 5,5 mm, probabilmente varietà ex colore *spirolineata* Monterosato, 1875. **D.** Talamone, Lazio, Italia, 5,5 mm, probabilmente varietà ex colore *spirolineata* Monterosato, 1875. **E.** Procida (Napoli, Italia), 12 mm [in precedenza identificato come *M. caerulans* (Philippi, 1844)]. **F.** St. Raphaël (Francia), 8,8 mm (colorazione insolita). **G.** St. Florent (Corsica, Francia), 8 mm [colorazione tipica per *M. bertrandi* (Payraudeau, 1827)] [Foto B. Sabelli].



The non-existence of *M. striolata* as a separate species seems evident, so it is necessary to identify it correctly among the Mediterranean species that have been described previously. An erroneous identification could seriously affect the systematic position of the genus *Mangelia*. For instance, the choice of *Villiersiella attenuata* or *Lyromangelia taeniata* as the species to bear the name *Mangelia striolata* would be extremely harmful, as they have radulae that differ from those of most Mediterranean species included in *Mangelia* (Powell, 1966: pl. 13, fig. 129), and a substantial, homogeneous group of species would then be excluded from *Mangelia*. Authors who favoured an identification of *M. striolata* with *V. attenuata* have probably been influenced by the words in the first line of the original description: “*Testa glaberrima, nitidissima, pellucida*”. However, it must be remembered that this smooth, translucent look can be produced by slight abrasion when the shell gets washed around by marine currents. In addition, we note that *V. attenuata* never features a thick outer lip. Its posterior sinus also never has the C shape typical of *Mangelia* species and it never has spiral striae between the axial folds.

*Mangelia striolata* was described as follows:

“*M. Testa glaberrima, nitidissima, pellucida; anfractibus septem; costis valde distantibus, arcuatis, convexis; interstitiis striolis exiguis longitudoinalibus sculptis; epidermide eburnea, striis longitudoinalibus inter costas croceo pallido.*”

*Coq. très lisse, fort luisante, translucide; à sept tours de spire sculptés de côtes très distantes; arquées, convexes, et dans les interstices de très fines stries longitudinales; sa couleur est d'un blanc d'émail; ornée entre les côtes de stries longitudinales d'un jaune safran pâle. Long. 0,004. Régions coralligènes. App. hiver, été. Se trouve subfossile.* [Very smooth, very shiny, translucent shell; shaped with seven whorls sculptured with rather distant, arched, convex costae, and with minute spiral striae in between them; its colour is pure white, decorated with pale yellow spiral stripes in the intervals. Coralligenous areas. Appears in winter and summer. Found sub-fossil.]

We must remember that gastropod shells were considered as lying with their axis on a horizontal plane; therefore axial costae are horizontal, and spiral striae are called “longitudinal”. The drawing quality is rather poor, and some of the figured species are quite difficult to identify. In the present case, a critical study of the original description and illustration is useful to establish the identity of *M. striolata*.

The size is one of the most problematic points. Risso used to place aside several figures a size bar, which in the printed plate would be as long as the original specimen. However, in this case it is hard to define a relationship between the bar represented beside the figure, which is 13 mm long, and the number “0.004” provided on the penultimate line of the French description. The metric system was made mandatory in France from 1837, 11 years after Risso’s publication. Therefore Risso may have used another old system. We have checked a positive correlation between the size of the specimens

and the length of the bars in Risso’s work (larger bars for larger specimens). The case of *Mangelia striolata* is an exception: the bar in the figure is 13 mm long, but the length reported in the text, “0.004” is equal or smaller than that reported for some *Alvania* or *Rissoa* species. Whatever the system used, it is evident that the number “0.004” is erroneous. Since the length of the bars seems more reliable, we maintain 13 mm as the correct size of the figured specimen. This is also supported by other elements, specified in the description or shown in the illustration, indicating that this is a full-grown specimen: the slender shape, the 7 whorls, the thickened outer lip and the clear C shape of the posterior canal. *M. bertrandi* is the only Mediterranean *Mangelia* attaining 13 mm in length.

As far as the sculpture is concerned, two words in the Latin description are worthy of attention. The first word is *striolis*. The author used it in the sentence concerning the sculpture, and it was so important to him that he took the specific epithet *striolata* from it. The second word is *striis*. The author used it only in the next sentence about colour. We think the choice of two different words is really significant. The presence of striae is one of the most important characters in order to narrow the range of species to be considered. We can distinguish between species clearly showing spiral striae in the intervals between axial costae and species with no sculptures in these intervals (we are not dealing here with growth striae or with microsculptures visible at high magnification only). Therefore we can exclude Mediterranean species with a smooth surface in between their axial folds, namely: *M. multilineolata* (Deshayes), *M. paciniana* (Calcara), *M. jerbaensis* Spada & Della Bella, *M. brusinae* van Aartsen & Fehr-de Val, *M. pontica* (Milaschewitch), *M. costata* (Pennant), and also *Lyromangelia taeniata* (Deshayes) and *Villiersiella attenuata* (Montagu), often listed as species of *Mangelia*. In the group of *Mangelia* species with a sculptured surface between the axial folds, we include: *M. bertrandi* (Payraudeau), *M. coarctata* (Forbes), *M. farina* (Nordsieck), *M. goodalli* (Reeve), *M. unifasciata* (Deshayes) including its morphotypes often called *albida*, *rugulosa* and *companyoi*, *M. scabrida* Monterosato, *M. stossiciana* (Brusina), *M. pallaryi* (Nordsieck), *M. fieldeni* (van Aartsen & Fehr-de Val), *M. callosa* (Nordsieck), *M. barashi* (van Aartsen & Fehr-de Val), *M. sicula* (Reeve), and *M. vauquelini* (Payraudeau).

We will limit the rest of our discussion to species belonging to this second group. We can immediately exclude *M. vauquelini* and *M. sicula*, as their spiral sculpture does not feature fine striae, but flat ribbons bordered by very narrow furrows. Most of the other species are not slender and high-spired like Risso’s figure. Only two species match these characters: *M. coarctata* and *M. bertrandi*. Maximum height in *M. coarctata* is 11 mm, in *M. bertrandi* 14 mm (Tryon, 1884). Spiral coloured stripes (if present) are pale pink in *M. coarctata*; they can be yellow in *M. bertrandi* (see Fig. 1B-D). Furthermore, *M. bertrandi* is the sole species devoid of an obvious spiral keel at the shoulder. All these observations are concordant in indicating that *M. bertrandi* is

the species most similar to the original description and drawing of *M. striolata*. Payraudeau's description dates from 1827, as has been demonstrated by Arnaud (1978: 105) and Falkner et al. (2002: 312). Therefore, *M. bertrandi* Payraudeau, 1827 becomes a junior synonym of *M. striolata* Risso, 1826.

### Neotype designation for *Mangelia striolata*

We have emphasized that: 1) the original description and drawing by Risso refer to an adult specimen with 7 whorls, a fully formed outer lip, an evident posterior sinus, an uncarinated spire outline, sculptured of spiral striae between the axial costae, and a height of 13 mm; 2) other Mediterranean species of *Mangelia* have characters that differ from those described and figured for *M. striolata*.

Many of the examined characters indicate that the specimen described and figured by Risso was a specimen of *M. bertrandi* of large size and unusual (and yet not rare) colour. Indeed, our collections include 7 specimens of *M. striolata* of various origins with the colour specified by Risso. A similar specimen, kept at MNHN, was figured by Pallary (1920: pl. 1, fig. 13) and was described as "*Mangilia aurea* Brugnone". In 1974 we examined 8 syntypes of *M. indistincta* Monterosato, 1875 (maximum height 12.8 mm), kept at MZR, and we recognized them as *M. bertrandi*. The 5 varieties of *M. indistincta* listed by Monterosato included the variety *spirolineata*, which might be the same as *M. striolata*. Unfortunately, no specimen of this variety seems to be present today in the Monterosato collection (M. Oliverio, pers. comm.). Colour variants that have been described as distinct species include the very *bertrandi*

Payraudeau (Fig. 1G), dark-brown with lighter ribs, and *caerulans* Philippi (Fig. 1E), blue-ash. They fall within the large variability of the species, which includes other variants, some of them common such as the one whitish with a brown-reddish spiral band, others unusual as the one in Fig. 1F.

In order to stabilize the use of the name of the type species of the genus *Mangelia*, we are justified in selecting a good-sized neotype, with shape and colour matching those in Risso's description, originating from a place as close as possible to Risso's research area. We have therefore selected a shell collected on the coast of San Remo, Ventimiglia, Italy, at 5 m depth, and designate it as the neotype of *Mangelia striolata* Risso. The neotype is deposited in MNHN, n° 22094.

### Description

Shell spindle-shaped, 11 mm high, with 7 teleoconch whorls, decorated with axial costae – of which 8 on last whorl – of rounded section, with slight bend at suture insertion. Very thin spiral striae – in a few specimens alternating with a few in higher relief – in intervals between axial costae. Aperture elongate, narrow, hardly higher than half last whorl. Anterior canal relatively short, straight, sculptured with striae that are sparser, more oblique and more prominent than those between axial costae. C-shaped posterior sinus thickened by callosus extending over inside outer lip. Thick, wide varix outside rim of lip. Protoconch paucispiral (< 1.5 whorls), smooth apart from a few markedly arched axial folds, crossed by a series of very slender spiral striae, microsculpture marking passage to teleoconch. Background colour ranging from whitish to ivory, with spiral yellowish stripes that become denser on lower half of last



**Fig. 2. A.** Living mollusc, from Bruccoli (eastern Sicily) [drawing by GS]. **B.** Radular tooth, scale bar = 25  $\mu\text{m}$  [SEM A. Warén]; specimen from Ceuta (Spain, northern African coast).

**Fig. 2. A.** Mollusco vivente; da Bruccoli (Sicilia orientale) [disegno GS]. **B.** Dente radulare, scala = 25  $\mu\text{m}$  [SEM A. Warén], esemplare da Ceuta (Spagna, costa nordafricana).



whorl. Small brown spirally elongate maculation visible on outer lip halfway down last whorl (Fig. 1B).

## Remarks

The neotype was found empty; however, several living specimens from southern Jerba (Tunisia), Ceuta (Spain,) and Brucoli (eastern Sicily, Italy) have been examined. The shape of the protruding animal is similar to that of most Mediterranean species of the genus *Mangelia*. Cephalic tentacles are short and club-shaped at the end. The eyes are placed about halfway along the tentacles. The foot features two highly mobile lobes at the front and a pointed tail ending. The colour is milk-white all over except, in adult specimens, the higher portion of the body, which fades to sooty grey (Fig. 2A). The radula is hypodermic needle-shaped with 3-4 lines of holes along the stem and one fissure near the tip (Fig. 2B).

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