

## On the specific validity of *Rupestrella jaeckeli* Beckmann, 2002 (Gastropoda, Pulmonata, Chondrinidae)

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**ABSTRACT** After studying the shells of a large population of *Rupestrella jaeckeli* Beckmann, 2002, located ESE of Agrigento (southern Sicily), near the type locality, a complete correspondence of characters with *Rupestrella philippii* (Cantraine, 1840) was observed; the latter has already been known to occur in central-eastern Sicily as well as other Mediterranean areas. Synonymy is therefore proposed between the two taxa: *R. jaeckeli* should be more properly considered a junior synonym of *R. philippii*.

**KEY WORDS** *Rupestrella jaeckeli*, *R. philippii*, southern Sicily, taxonomy.

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### INTRODUCTION

The genus *Rupestrella* Monterosato, 1894, includes xeroresistant and calciphilic molluscs inhabiting calcareous rocks, distributed in the Mediterranean region (Gittenberger, 1973, 1984; Holyoak & Seddon, 1986; Burgos & Gittenberger, 1994; Beckmann, 1997; Bank, 2011). According to the checklist of the family Chondrinidae, recently proposed by Kokshoorn & Gittenberger (2010), 15 species and some subspecies are attributed to this genus.

While highlighting the need for a critical review of the group, four species were considered belonging to the Italian fauna (Manganelli et al., 1995), all of them also present in Sicily. Three of them are considered endemic to this island: *R. occulta* (Rossmässler, 1839), *R. rupestris* (Philippi, 1836) and *R. scalaris* (Benoit, 1882), while the fourth, *R. philippii* (Cantraine, 1840), is also widespread in central and southern Italy, Sardinia and the Tuscan Archipelago, as well as the island of Majorca, the Maltese Islands, Croatia, Dalmatia, Albania, Montenegro, Greece, Turkey, Cyprus and Libya (Gittenberger, 1984; Giusti et al., 1995; Beckmann, 2007; Kokshoorn & Gittenberger, 2010).

More recently, Beckmann (2002) has revised the *Rupestrella* species endemic to Sicily, proceeding to confirm the subspecific level of some taxa described historically (*R. homala homala* (Westerlund, 1892); *R. occulta gibilfunnensis* (De Gregorio, 1895); *R. rupestris coloba* (Pilsbry, 1918)), and describing some new subspecies (*R. homala falkneri* Beckmann, 2002, *R. homala massae* Beckmann, 2002, *R. rupestris carolae* Beckmann, 2002, *R. rupestris lamellosa* Beckmann, 2002, and *R. rupestris margritae* Beckmann, 2002); however many of these do not seem to be very characterised and, probably, they represent phenotypic variations of individual populations or even of specimens of the same population. Finally, in the same article, he has described a new species: *R. jaeckeli* Beckmann, 2002. This latter entity was separated on the basis of the shell, after analyzing a small number of specimens, collected in two places located in Agrigento (Beckmann, 2002: 73).

The recent discovery of a large population of *Rupestrella*, surveyed in the same area from which the materials studied by Beckmann (2002) had been collected, allowed to check the taxonomic status of *R. jaeckeli*.

## MATERIALS AND METHODS

The population object of this note was found on a limestone cliff located 3 km ESE of Agrigento (Fig. 1), 160 m a.s.l. (Municipality of Agrigento, AG), UTM 33S UB7729, where it lives together



Figure 1. Distribution of the *Rupestrella* populations surveyed near Agrigento (southern Sicily). Black circle: site identified by the authors; red circle: site studied by Beckmann (2002).

with *Rupestrella rupestris* (Philippi, 1836). Here more than 200 shells and living adult specimens were found, W. Renda leg. 18.IX.2008 and 09.IV.2009. The visit of the locus typicus of *R. jaeckeli*, “Sizilien, Mte. Biaggio, Kalkfels SE Agrigent” (Beckmann, 2002), namely the Tempio di Demetra, S. Biagio, Valle dei Templi in Agrigento, UTM 33S UB7629, which took place in this UNESCO World Heritage Site (Nappi, 2004), under the supervision of assigned staff, highlighted the current complete absence of molluscs belonging to the genus *Rupestrella*; amongst the Chondrinidae only *Granopupa granum* (Draparnaud, 1801) specimens were collected (A. Margelli leg. 12.V.2008). Even in other rocky or ruderal areas located in the immediate vicinity of this site, such as Porta di Gela or the other temples in Valle dei Templi (M. Bodon, 04.I.1989 and 30.XII.2007; G. Nardi, 04.X.2011), the presence of the genus *Rupestrella* was not detected.

The typical material from the Jaekel collection, preserved in the CISMAR collection (Grömitz, Germany), was requested, but without

obtaining their authorization. However, good pictures of *R. jaeckeli*, which have allowed to highlight the apertural armature in detail, in addition to those present in the original publication (Beckmann, 2002), are those available in Welter-Schultes (2009).

For the nomenclature of plicae and lamellae inside the shell aperture of the specimens studied, the scheme proposed by Nardi (2009) was followed and, specifically for the genus *Rupestrella*, that by Beckmann (1997). The materials analysed are stored in the private collections of the authors.

## DISCUSSION

Beckmann (2002) described *Rupestrella jaeckeli* after studying only four specimens, three of them coming from S. Biagio, the Tempio di Demetra (S.G.A. Jaekel jun. leg. 04.IV.1958); the fourth coming from Agrigento, without further and more precise details (W. Blume legit 1958). Beckmann separated this taxon because of the presence of only one palatal plica (the upper one), moreover absent in one of the four specimens, and because of the parietal lamella absent or reduced. He compared *R. jaeckeli* only with *R. occulta* (Rossmässler, 1839), an endemic taxon present in western Sicily, not comparing it with *R. philippii*, a species widely distributed throughout south-eastern Sicily, southern Italy and other Mediterranean countries. Beckmann (2002) identified the latter in the same material from the Jaekel collection, from the same locality S. Biagio, though with one single specimen. Probably, as the author considered *R. jaeckeli* and *R. philippii* sympatric and thus distinct, did not compare them. The material studied by Beckmann (2002) not only is objectively very scarce and very variable, but some of these specimens even seem to be immature (Beckmann, 2002: Tab. 11, Fig. 13).

The population studied here, surveyed in a place very close to the locus typicus established by Beckmann for *R. jaeckeli* (Fig. 1), is undoubtedly attributable to *R. philippii* and has highlighted a high variability in the morphology of the shell, a phenomenon already known in other populations of the same species (Sacchi, 1954). The adults, with well thickened peristome, show a cylindrical-conical profile (Fig. 2 A), or conical (Fig. 2 B),

while inside the aperture it is possible to find different combinations of plicae and lamellae. Almost all of the examined shells (97%), have one columellar lamella (columellaris) and two palatal plicae, the upper palatal plica (upper palatalis) and the lower palatal plica (lower palatalis) (Figs. 2 A, 2 B, 2 D), as usually found in *R. philippii* (Figs. 3 A-C). A small proportion (2.6%) has one columellar lamella and only one palatal plica, the upper palatal plica (Fig. 2 C), while one single shell (0.4%) shows two columellar lamellae and two palatal plicae (Fig. 2 E). The lower palatal plica, when not developed, is either absent or reduced to a rudimentary tubercle (Fig. 2 C), barely visible even in the typical material (Welter-Schultes, 2009: Fig. 1). The presence of an angular lamella (angularis) and a parietal lamella

(parietalis) remains rather constant, more or less developed. The specimens without palatal plicae or angular and parietal lamellae present the peristome not thickened, they are therefore considered to be still immature (Figs. 2 F, 2 G).

## CONCLUSION

In light of the variability present in a large population of *R. philippii*, located near the locus typicus of *R. jaeckeli*, it is believed that the few specimens on which this latter taxon was described are simply morphological variations of the same species. Synonymy is therefore proposed between the two entities: *R. jaeckeli* should therefore be considered as a junior synonym of *R. philippii*.

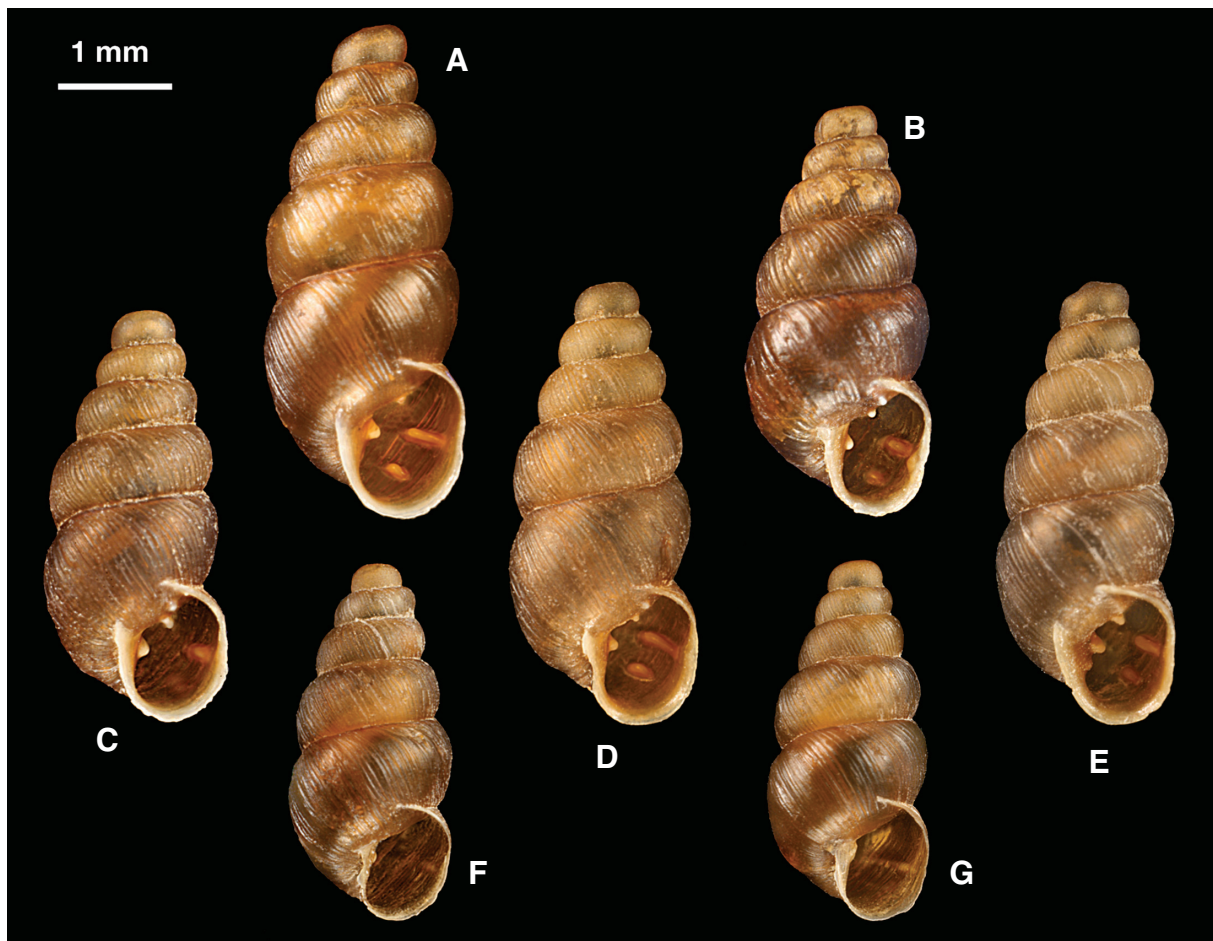


Figure 2. Variability of apertural armature in shells of *Rupestrella philippii* (Cantraine, 1840) (= *R. jaeckeli* Beckmann, 2002), belonging to a population collected 3 km ESE of Agrigento, 160 m a.s.l. (municipality of Agrigento, Agrigento, southern Sicily), 33S UB7729, W. Renda leg. 18.IX.2008 and 09.IV.2009. A: specimen with cylindrical-conical profile; B: specimen with conical profile; C: specimen with one columellar lamella and one palatal plica; D: specimen with one columellar lamella and two palatal plicae (as specimens A and B); E: specimen with two columellar lamellae and two palatal plicae; F, G: two immature specimens without palatal plicae inside the aperture and with not thickened peristome (W. Renda and G. Nardi coll.; photo by S. Bartolini).



Figure 3. Shells of *Rupestrella philippi* (Cantraine, 1840) belonging to different Italian populations. A: specimen from Monte Argentario SSW of Porto S. Stefano, 150 m a.s.l. (municipality of Monte Argentario, Grosseto, Tuscany), 32T PM7398, G. Nardi, A. Braccia & L. Romani leg. 07.XI.2004; B: specimen from S. Maria di Pulsano, 490 m a.s.l. (municipality of Monte S. Angelo, Foggia, Apulia), 33T WG7514, G. Nardi & A. Braccia leg. 22.III.2001; C: specimen from the archaeological ruins of the Teatro Greco, Siracusa, 30 m a.s.l. (municipality of Siracusa, eastern Sicily), 33S WB2403, G. Nardi leg. 06.X.2011 (G. Nardi coll.; photo by S. Bartolini).

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