

Notulae Malacologicae, XLIV.

A neotype for *Agriolimax caruanae* POLLONERA 1891

(Pulmonata: Agriolimacidae).¹⁾

By

FOLCO GIUSTI & GIUSEPPE MANGANELLI.

With 2 figures.

Abstract: A neotype has been selected for "*Agriolimax caruanae*", a species of the Agriolimacidae which, after recent revision, is considered a junior synonym of *Deroceras panormitanum* (LESSONA & POLLONERA).

Introduction.

The problem of the identity of *Agriolimax caruanae* POLLONERA (i. e. *Deroceras caruanai* as emended by GIUSTI 1973, 1976)²⁾ and of its synonymy with the older *Deroceras panormitanum* (LESSONA & POLLONERA 1882) were recently discussed by GIUSTI (1986).

The hypothesis that the two species are synonymous arose because of concordance in the morphological characters of the distal genital duct (penial complex) of topotypical specimens from Malta (corresponding to *D. caruanae*) and from Palermo (Sicily) (corresponding to *D. panormitanum*) and the results of the analysis of much data elucidating body and genital variability in many Italian populations.

As a consequence GIUSTI (1976, 1986) proposed the inclusion of the two taxa in a unique "morphospecies" named *D. panormitanum*, leaving the solution of the problem of whether the morphospecies corresponded to a single biological species until the availability of genetic evidence in support of the conclusions based on morphological analysis.

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²⁾ The emendation of the specific name *caruanae* to *caruanai* was introduced according to the second edition of the ICZN (1964). Nevertheless according to the last edition of the ICZN (1985) this emendment is no longer necessary (i. e. CARUANA can be accepted as a Latin name of the first declension). Since the new rules are retroactive the right spelling of the Name becomes again: *D. caruanae*.

Addresses of the authors: Prof. Dr. FOLCO GIUSTI, Dr. GIUSEPPE MANGANELLI, Dipartimento di Biologia Evolutiva, Via Mattioli 4, I-53100 Siena, Italy.

In the meantime we have tried to trace typical materials of the above mentioned taxa in order to build up a legal reconstruction of the case and facilitate the solution of the problem in accordance with the rules of the ICZN. We have been able to establish the absence of typical materials of *Agriolimax caruanae* in the POLLONERA Collection in the Museo Regionale di Scienze Naturali of Turin. Nevertheless, according to REGTEREN ALTENA (1962: 48) two specimens of this species collected by A. CARUANA GATTO, possibly belonging to the original series which was in part sent to C. POLLONERA and utilized for the original description, still appeared to exist in the spirit collection of the Natur Museum Senckenberg (no. 165018, labelled "*Deroceras caruanae* (POLLONERA); Malta C. GATTO 1890: Sammlung O. BOETTGER").

Since these two specimens were available for the selection of a neotype we requested them from Dr. R. JANSSEN so that we could study and clearly identify them.

Description of the neotype.

Body (Fig. 1A): The sides and the mantle (clypeus) have faded as a consequence of long preservation in spirit. The sides of the body show large rectangular or polygonal tubercles. The respiratory orifice, surrounded by a uniformly pale and protruding border, opens on the right side behind the mid point of the mantle. This specimen was opened to examine the genitalia and viscera by C. O. VAN REGTEREN ALTENA (see REGTEREN ALTENA 1962) and appears to lack the buccal bulb utilized for study of the radula.

Max. length of the contracted specimen: 13.2 mm.

Genital duct (Fig. 2A): The genital duct shows a large penial complex distinguished into a proximal and a distal portion. According to the nomenclature used by GIUSTI (1973, 1976, 1986) the apex of the proximal portion of the penial complex has a short penial lobe (D) on one side, a short pointed digitiform penial caecum (F) on the other and a tuft of branched (5 branches: 4 long, 1 short) and lobate flagelliform appendages (AF) arising from a common base and lying between of the first two structures. The vas deferens ends at the walls of the proximal portion of the penial complex in an area lying a little behind the base of the flagelliform appendages tuft. Its point of entry is concealed by the large base of the penial retractor muscle on the penial complex wall. The distal portion of the penial complex is globular and almost entirely covered by a layer of glandular tissue. This portion contains a conical stimulator whose surface, like the other inner walls, is finely striated. The bursa copulatrix duct ends near the point where the distal portion of the penial complex opens into the genital atrium. This duct is fairly short and slender. The bursa copulatrix (i.e. gametolytic gland) is oval and sac-like in shape. The ovispermiduct has not been examined in detail because it was strongly contracted. The gonad, depigmented, was situated on the left side of the visceral mass of the animal seen in ventral view.

Neotype collocation: The dissected specimen (genital duct, body wall) and a slide with the radula are kept in the SMF Malacological Collection no 165018/A.

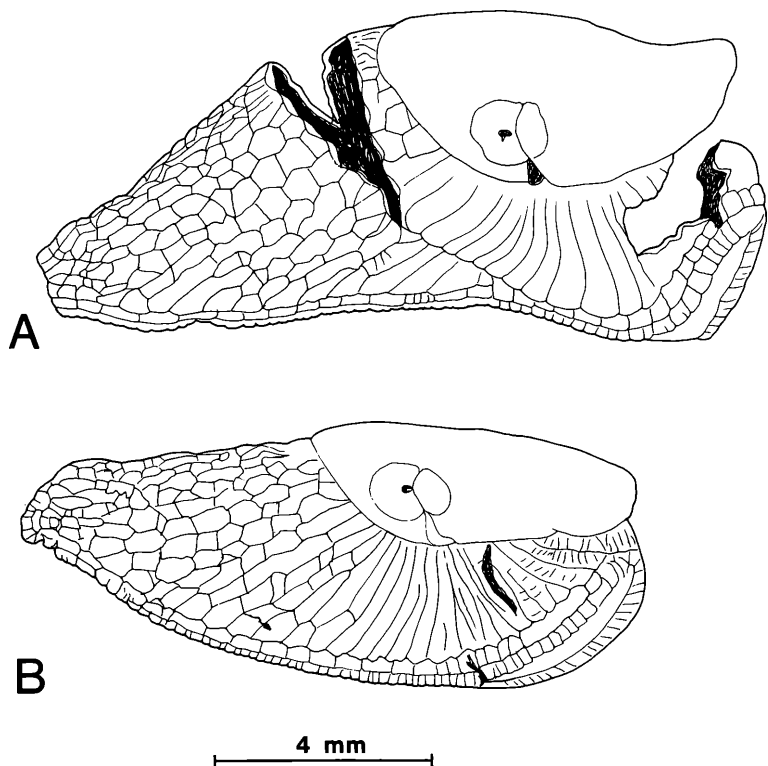


Fig. 1. View of right side of the body of the neotype (A, SMF 165018/A) and of a younger specimen (B, SMF 165018/B) of "*Agriolimax caruanae*" POLLONERA, collected by A. CARUANA GATTO in Malta in 1890.

Description of the second specimen in the same tube.

Body (Fig. 1B): Similar to that described for the neotype but smaller. Max. length: 11.4 mm

Genital duct (Fig. 2B): The penial complex almost entirely corresponds to that of the neotype. It shows a longer digitiform penial caecum (F) and a tuft of flagelliform appendages with a longer stalk and consisting of only 4 branches (3 long, 1 short).

Collocation of the specimen: Dissected specimen (genital duct and body wall) kept in the SMF Malacological Collection no 165018/B.

Comments.

As evidenced by GOETHEM & DE WILDE (1985: 306) the original description of *D. caruanae* published by POLLONERA (1891: 3, fig.2) speaks of an animal long 2.5 cm when living and in motion, characterized by a uniform dark reddish body: a

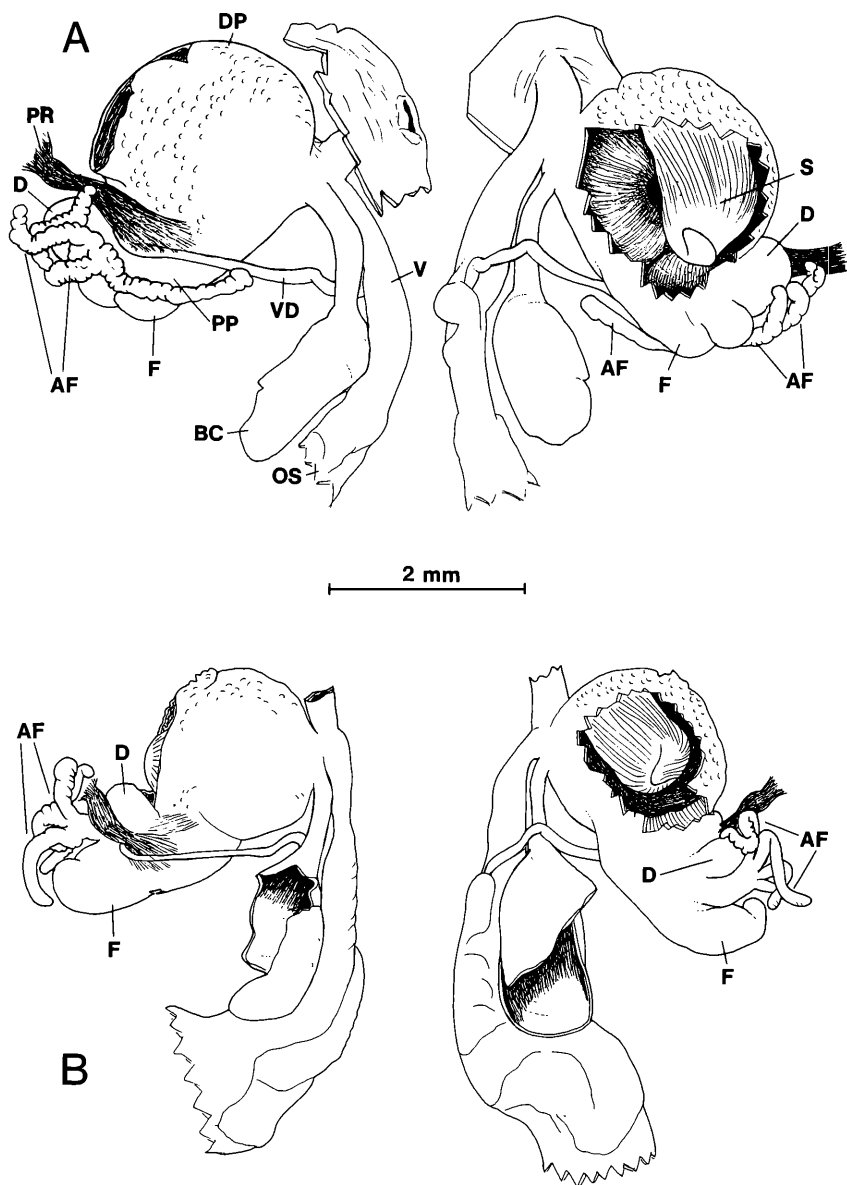


Fig.2. Penial complex (seen on both sides) of the neotype (A, SMF 165018/A) and of a younger specimen (B, SMF 165018/B) of "*Agriolimax caruanae*" POLLONERA, collected by A. CARUANA GATTO in Malta in 1890. AF flagelliform appendages; BC bursa copulatrix (i. e. gametolytic gland); D penial lobe; DP distal penis; F digitiform penial caecum; OS ovispermiduct; PR penial retractor; PP proximal penis; S stimulator; V vagina; VD vas deferens.

pale brown mantle (i. e. clypeus) with sparse minute dark spots, large elongated and strikingly corrugated, as long as or longer than the tail; a short blackish keel; a uniformly white sole; a large swollen penial complex with two large elongated rounded and curved protuberances, between the bases of which arise 3-4 small flagelliform appendages which are smooth, different in length and independent from one another (i. e. not fused and with a very short stalk or stalkless).

As stressed by GIUSTI (1986) most of these characters are subject to wide variability in shape and dimensions not only from population to population but also from specimen to specimen as demonstrated by the study of a large series of Italian populations and two topotypical specimens from Malta (GIUSTI 1986: 63, fig. 3) and confirmed by the present study.

The materials collected by A. CARUANA GATTO and kept in the Collection of SMF, apart from being faded, are also shorter, not only because they are preserved in spirit but possibly also because they are at a different stage of growth. This difference in growth does not seem to affect the development of the distal portion of the genital duct, particularly the penial complex. The proximal portion of the latter shows the three main peculiarities observed by POLLONERA: a variably developed lobe (D), a more (in the smaller specimen) or less (in the neotype) elongated digitiform caecum (F) and in the middle a tuft of 4-5 flagelliform appendages (AF) (see GIUSTI 1986: figs. 1-3).

The only difference worthy of note appears to consist in the flagelliform appendages which are "smooth" in the original description, and always "more or less" lobated on one side in the CARUANA GATTO specimens of the SMF and in recent topotypical materials.

This character is nevertheless variable too (possibly with age or functional state), as GIUSTI (1973) has demonstrated in specimens of the Aeolian Islands corresponding to *D. panormitanum*, which, described earlier, comes to include *D. caruanae* as a junior synonym.

The characters of the chosen neotype and the second specimen (originally kept in the same tube), correspond not only to those seen in two recent topotypical specimens, but also to those of *D. panormitanum* as deduced from original description and drawings (and from the examination of topotypical specimens) (GIUSTI 1973, 1976, 1986)³).

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³) Two other species: *Deroceras polloneræ* (SIMROTH 1889) and *Deroceras dubium* (HOFFMANN 1941), both having Palermo as locus typicus, also become junior synonyms of *D. panormitanum* (see GIUSTI 1973, 1976, 1980).

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Autor(en)/Author(s): Giusti Folco, Manganelli Giuseppe

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