

Reassignment of Three Species and One Subspecies of Philippine Land Snails to the Genus *Acmella* Blanford, 1869 (Gastropoda: Assimineidae)

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ABSTRACT.– Three species of non-marine snails (*Georissa subglabrata* Möllendorff, 1887, *G. regularis* Quadras & Möllendorff, 1895, and *G. turritella* Möllendorff, 1893) and one subspecies (*G. subglabrata cebuensis* Möllendorff, 1887) from the Philippines are reassigned from *Georissa* Blanford 1864 (Hydrocenidae Troschel, 1857) to *Acmella* Blanford, 1869 (Assimineidae H. Adams & A. Adams, 1856) based on shell characters.

KEY WORDS: Philippines, Hydrocenidae, Assimineidae, *Georissa*, *Acmella*

INTRODUCTION

The land snail fauna of the Republic of the Philippines is immense with approximately 2,000 species and subspecies described (unpublished information, based on species recorded in the literature). Very few have been reviewed in recent times. Eleven species of *Georissa* W.T. Blanford 1864 (type species: *Hydrocena pyxis* Benson, 1856, by original designation, Hydrocenidae Troschel, 1857) have been recorded from the Philippines, described by Möllendorff (1887a, 1893, 1898), Quadras and Möllendorff (1895, 1896), and Auffenberg (1998). All are considered obligatory calciphiles with limited geographic distributions, except for *G. denselirata* Möllendorff, 1894 and *G. subglabrata* Möllendorff, 1887a, both being reported from several Philippine islands (Möllendorff 1898).

Georissa regularis Quadras & Möllendorff, 1895, *G. subglabrata*, *G. subglabrata cebuensis* Möllendorff, 1887 (1887b), and *G. turritella* Möllendorff, 1893 were described in the Philippine Hydrocenidae

despite that their shell characters were very unlike those of *Georissa* (see Discussion). Möllendorff (1898: 208) assigned these species to “Formenkreis der *Georissa subglabrata* Mldff.” without definition. *Georissa subglabrata cebuensis* was omitted without discussion. Zilch (1973) retained these species in *Georissa* with no mention of Möllendorff’s Formenkreis.

The first author conducted a cursory review of Philippine *Georissa* during research resulting in the description of *G. cavini* Auffenberg, 1998. It was determined by the presence of shell characters not found in *Georissa* that the species discussed below were improperly assigned to the genus (Auffenberg, 1998: 111). We here formally transfer these three species and one subspecies to the genus *Acmella* Blanford, 1869 (Assimineidae H. Adams & A. Adams, 1856), thereby removing them from the subclass Neritimorpha and assigning them to the subclass Caenogastropoda (Bouchet et al. 2017), and reducing the number of *Georissa* species known to occur in the Philippines to eight.

MATERIAL AND METHODS

Determination of the number of shell whorls (precision to 0.25 whorl) follows Kerney & Cameron (1979: 13). Approximately 10 photographs of each view were taken with a Nikon camera in the Senckenberg Museum, and merged into a single image with Photoshop.

Locality data presented with the specimen examined data are cited as verbatim from the specimen labels.

Abbreviations:

NHM – The Natural History Museum, London, UK

SMF – Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt am Main, Germany

UMCZ – University of Cambridge Museum of Zoology, Cambridge, UK

SYSTEMATICS

Genus *Acmella* W.T. Blanford, 1869

Acicula (*Acmella*) W.T. Blanford, 1869: 177 – 178, fig. 2.

Type species.– *Cyclostoma tersum* Benson, 1853, by original designation.

Remarks.– We hoped to examine the type specimen (or specimens) of *Cyclostoma tersum* Benson, 1853, but it seems to be lost. Blanford (1869) wrote that the "original specimen was probably weathered", and the specimens he examined were fresh, and were received from Godwin-Austen. Blanford (1869) identified them as *Acicula* (*Acmella*) *tersa* "with no hesitation", and published illustrations (Blanford 1869: 12: plate 16, fig. 2). We could use those specimens as reference to *C. tersum*, but the specimens examined by Blanford could not be found in the NHM or the UMZC (Richard Preece pers. comm., 2017 June). Therefore, the status of this genus is

questionable. A diagnosis of *Acmella* was recently published by Vermeulen et al. (2015), although referring only to species inhabiting Sabah (Malaysia, Borneo): "Land snails. Spire without constriction. Umbilicus often with a slight periomphalic thread starting on the columellar side of the peristome, close to the columellar corner, and spiralling (steeply) upwards. Peristome usually not or hardly thickened (except sometimes in gerontic shells)."

Acmella regularis (Quadras & Möllendorff, 1895) new combination

Fig. 1A

Georissa regularis Quadras & Möllendorff, 1895: 149.

Georissa regularis — Möllendorff, 1898: 208.

Georissa regularis — Zilch, 1973: 266, plate 13, fig. 20.

Georissa regularis — Lehmann, 2018: figs 16.1, k–l.

Material examined: Philippinen, Busuanga, Calamianes, coll. Möllendorff ex coll. Quadras, SMF 228045 (lectotype); Same data, SMF 228046 (23 paralectotypes).

Acmella subglabrata (Möllendorff, 1887) new combination

Fig. 1B

Georissa subglabrata Möllendorff, 1887a: 96, plate 4, fig. 5.

Georissa subglabrata — Möllendorff, 1893: 145.

Georissa subglabrata — Möllendorff, 1898: 208.

Georissa subglabrata — Zilch, 1973: 266–267, plate 13, fig. 18.

Material examined.– Phil. (Luzon): Montalban b. Manila, coll. O. Boettger ex coll. Möllendorff 1887, SMF 228021 (lectotype); Same data, SMF 228022 (5 paralectotypes); Same locality, coll. Möllendorff, SMF 228023 (12 paralectotypes).

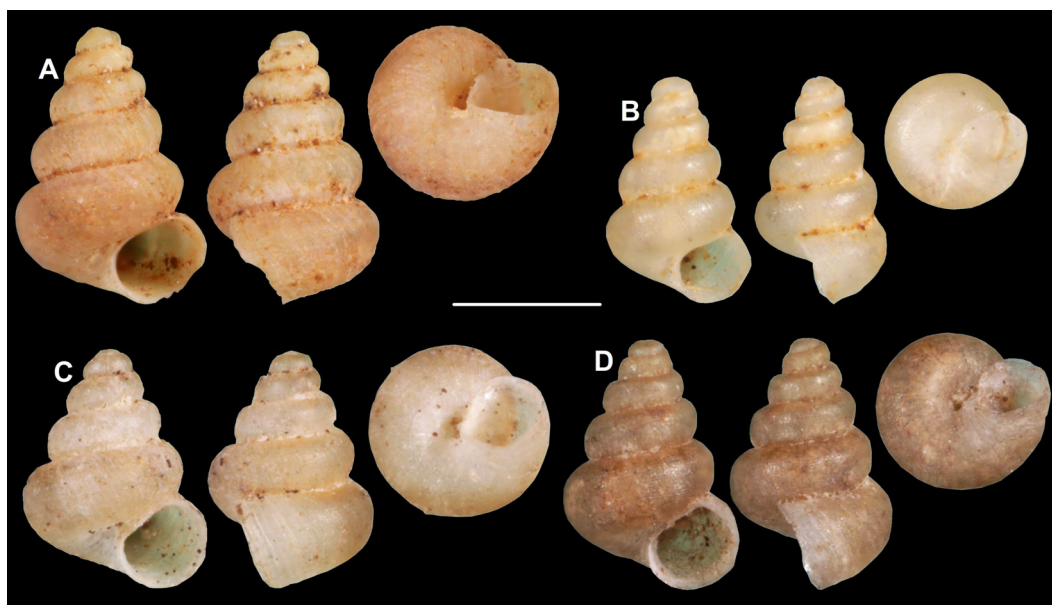


FIGURE 1. A. *Acmella regularis* (Quadras & Möllendorff, 1895) (SMF 228045, lectotype); B. *Acmella turritella* (Möllendorff, 1893) (SMF 228016, lectotype); C. *Acmella subglabrata* (Möllendorff, 1887) (SMF 228021, lectotype); D. *Acmella subglabrata cebuensis* (Möllendorff, 1887) (SMF 228040, lectotype). Note that the slight greenish colouration of the apertures is due to the green plasticine clay in which the shells were fixed for photography. Scale bars = 1.0 mm. All photos: B. Páll-Gergely, courtesy R. Janssen.

***Acmella subglabrata cebuensis* (Möllendorff, 1887) new combination**

Fig. 1C

Georissa subglabrata var. *cebuensis* Möllendorff, 1887b: 257.

Georissa subglabrata cebuensis — Zilch, 1973: 267, plate 13, fig. 19.

Material examined.— Philippinen: Cebu (höhere Berge), coll. Möllendorff, SMF 228040 (lectotype); Same data, SMF 228041 (6 paralectotypes).

***Acmella turritella* (Möllendorff, 1893) new combination**

Fig. 1D

Georissa turritella Möllendorff, 1893: 145, plate 5, figs 14, 14a–b.

Georissa turritella — Möllendorff, 1898: 208.

Georissa turritella — Zilch, 1973: 266–267, plate 13, fig. 21.

Material examined.— Philippinen, Monte Bontoc, Leyte, coll. O. Boettger ex coll. Möllendorff, SMF 228016 (lectotype); Same data, SMF 228017 (2 paralectotypes); Same locality, coll. Möllendorff, SMF 228018 (6 paralectotypes).

DISCUSSION

Möllendorff (1898: 203) lists four species and one subspecies from the Philippines as *Omphalotropis* Pfeiffer, 1851, section *Acmella* and as indicated by the photographs of the lectotypes given by Zilch (1967), the assignments to *Acmella* seem correct. Möllendorff (1898: 207–208)

records seven species of *Georissa* from the Philippines and photographs of the lectotypes (Zilch 1973) show that those assignments are correct as well. Since Möllendorff had adequate knowledge of the two genera, we do not understand why the four taxa discussed here were originally assigned to *Georissa*. Furthermore, we do not know why these taxa were not transferred from *Acmella* to *Georissa* by Zilch (1973).

The *Acmella* species discussed here are generally characterized by having a very small (ca. 1.5–2.0 mm), narrowly conic shell, consisting of 4.5–5.0 convex whorls with a deep suture, a sub-ovate aperture with a thin, simple peristome, and a narrow umbilicus. The shell is sculptured with fine radial and spiral lines resulting in a reticulated pattern. This corresponds with the current understanding of *Acmella* (family Assimineidae) (see Vermeulen et al. 2015). In contrast, the genus *Georissa* (family Hydrocenidae) is characterized by a small turbiniform shell consisting of 3.5–4.5 convex whorls, slightly thickened peristome, and a prominent columellar shield covering the narrow umbilicus in adult individuals. Shell sculpture can be almost smooth, with spiral and/or axial ribs or striations, or rugose/scaly (Khalik et al. 2019a, 2019b). We did not examine opercula or inner whorl septa of the type specimens examined in this study. *Acmella* has a simple, thin, corneous operculum, while that of *Georissa* is thickened, calcareous, with a prominent internal peg. As in other helicinoids, the upper whorl septa of *Georissa* are absorbed; they remain present in *Acmella*. These characters will be examined when additional material is available.

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