

A REDESCRIPTION OF *CALLIANASSA DENTICULATA* LUTZE, 1937
WITH THE DESIGNATION OF A NEOTYPE
(THALASSINIDEA, GOURRETIIDAE)

BY

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ABSTRACT

The type specimen of *Callianassa denticulata* Lutze, 1937, the type species of the genus *Gourretia*, is confirmed to be lost. A redescription is given on the basis of new material from the northern Adriatic Sea, and a neotype is designated.

ZUSAMMENFASSUNG

Das Typusmaterial von *Callianassa denticulata* Lutze, 1937, der Typus-Art der Gattung *Gourretia*, ist verloren. Aufgrund neuen Materials aus der nördlichen Adria wird eine Neubeschreibung gegeben und ein Neotypus designiert.

INTRODUCTION

Callianassa denticulata was described by Lutze (1937) on the basis of a specimen captured in front of “Zara” (= Zadar) at the Dalmatian coast. The author stated the peculiarity of his specimen and listed a number of characters that made it very different from all other callianassids then known from the Adriatic Sea. De Saint Laurent & Božić (1976) included this species in the genus *Gourretia* De Saint Laurent, 1973 and treated it as a synonym of *Callianassa subterranea* var. *minor* Gourret, 1887, the type species of *Gourretia*. After De Saint Laurent & Le Loeuff (1979) had discovered the homonymy of Gourret’s name with the older *Callianassa minor* Fischer, 1866, they proposed a replacement name, i.e., *Gourretia serrata*, rather than using Lutze’s name. Lewinsohn & Holthuis (1986)

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discovered this lapsus and corrected it. After that, all authors used *G. denticulata* (Lutze, 1937) as the valid name for the species (e.g., Dworschak, 1992; d'Udekem d'Acoz, 1999: "Les problèmes de nomenclature relatifs à cet espèce ont été solutionnés par Lewinsohn & Holthuis 1986").

We would like to point out that in spite of the established common usage of Lutze's (1937) name, nobody had really reidentified his material or even discussed the original description in detail. De Saint Laurent & Božić (1976) were the first authors to establish the synonymy of *Callianassa denticulata* Lutze, 1937 with *C. subterranea* var *minor* Gourret, 1887 without, however, giving any reasons for that action. None of the subsequent authors has done so. The synonymy was accepted and only nomenclatural decisions have been taken.

In fact, all of these previous authors apparently have overlooked a number of problems in Lutze's (1937) description and figures. While the eyestalks, the morphology of the endopodite of the third maxillipeds, that of the large cheliped, as well as of other limbs including the uropods, all agree well with Gourret's (1887) species, the lack of an exopodite on the third maxilliped in his fig. 2 and in the description, the lower-posterior distal tongue of the telson in his fig. 7, which is also described in detail in the text, and the existence of a structure that he calls "appendix interna" on the third pleopod (his fig. 6 and corresponding description) differ substantially from what is currently considered under the name *Gourretia denticulata* (Lutze, 1937). The characters of the telson and the pleopods referred to by Lutze have never been recorded in other callianassids, so it is unclear what Lutze (1937) was really describing. A new specimen from Istra, collected not far from the type locality of *C. denticulata*, agrees perfectly well with the description and figures given by Holthuis & Gottlieb (1958) and by De Saint Laurent & Božić (1976) for *G. minor* (Gourret, 1887), and we can confirm that it does not possess the doubtful characters stated in Lutze's (1937) description and figures.

Only with reference to the types it would be possible to state whether Lutze's (1937) description was composite or if he rather gave erroneous descriptions and figures of some body parts of his specimens. Lutze stated that his material was part of the collection of the biological station in Rovinj, then called the German-Italian Institute in Rovigno d'Istria (Zavodnik, 1995). The collection of this station was moved to Italy in 1939 and, after some changes, in 1969 to the Hydrobiological Station of Chioggia, a separate research centre of the University of Padova. Shortly after this change of repository, Marcuzzi (1972) published a detailed catalogue of the marine collections of the Rovigno station. In this catalogue no mention is made of Lutze's species or of any specimen with data corresponding to the locality published by Lutze (1937) and Vatova (1949). The first author thus visited the Chioggia station and confirmed that the type specimen is no longer extant, and hence must be considered lost.

As we cannot preclude that Lutze described characters of various unknown decapods and that, therefore, his taxon may be composite, we are here accurately redescribing our new specimen of *Callianassa denticulata* Lutze, 1937, in order to characterize the species beyond doubt. This specimen is here also designated as a neotype, in order to stabilize the current nomenclature.

The material studied is deposited in the SMF (Forschungsinstitut Senckenberg, Frankfurt am Main); ZLT (Zoological Laboratory, University of Thessaloniki, Thessaloniki); and ZLUA (Zoological Laboratory, Department of Biology, University of Athens, Athens).

TAXONOMY

GOURRETIIDAE Sakai, 1999

Gourretiinae, Sakai, 1999a: 95.

Gourretiidae, Sakai, 2004: 556.

Gourretia denticulata (Lutze, 1937) (figs. 1-3)

Callianassa subterranea var. *minor* Gourret, 1887: 1034; Gourret, 1888: 96, pl. 8 figs. 1-15.

? *Callianassa subterranea* var. *minor* — Balss, 1936: 16, fig. 15.

Callianassa (Cheramus) subterranea var. *minor* — Borradaile, 1903: 546; Pesta, 1918: 205 (part.).

Callianassa (Cheramus) minor — De Man, 1928: 26 (list), 92, 100 (key).

Callianassa denticulata Lutze, 1937: 6, figs. 1-7; Lutze, 1938: 170; Vatova, 1949: 65, tables 22, 31, 32.

Callianassa stebbingi [Not *Callianassa stebbingi* Borradaile, 1903] — Gottlieb, 1953: 440.

Callianassa minor — Holthuis & Gottlieb, 1958: 56, figs. 11-12; Harmelin, 1964: 68, 95; Pérès & Picard, 1964: 66; Picard, 1965: 59, 104 (list); Števíć, 1969: 128 (list); De Gaillande, 1970: 377; Štjepčević & Parenzan, 1980: 47; Fishelson, 2000: 415 (appendix XIII).

Gourretia minor — De Saint Laurent, 1973: 514; De Saint Laurent & Božić, 1976 (not 1972): 16 (key), 27, figs. 6, 14, 22, 37, 41, 48; Števíć, 1976: 102; Števíć, 1979: 128 (list); Manning & Števíć, 1982: 296; Noël, 1992: 82; Števíć, 1985: 314; Fishelson, 2000: 415 (appendix VIII).

Gourretia serrata De Saint Laurent & Le Loeuff, 1979: 79, 80 (key), fig. 24c; Thessalou-Legaki & Zenetos, 1985: 311; Thessalou-Legaki, 1986: 184 (list).

Gourretia denticulata — Lewinsohn & Holthuis, 1986: 24; Števíć, 1990: 218; Manning & Felder, 1991: 785 (list), fig. 3; Dworschak, 1992: 210; Koukouras et al., 1992: 223; López de la Rosa et al., 1998: 394, fig. 1; d'Udekem d'Acoz, 1999: 56; Sakai, 1999b: 128; Tudge et al., 2000: 142; Sakai, 2004: 562, 563 (key).

Non *Gourretia minor* — Le Loeuff & Intès, 1974: 26, fig. 4a-k [= *Gourretia* sp. De Saint Laurent & Le Loeuff, 1979].

Material examined. — SMF 28053, Neotype, 1 male (TL/CL: 20.0/4.4 mm, left minor cheliped detached, lacking left P4), in front of Sotto Castello (45°08.020'N 013°39.030'E), Limski-Canal,

Istra, Croatia, 29 m depth, soft mud, 1.ix.1999, R/V "Burin", leg. K. Sakai & M. Türkay. SMF 28336, 1 female (TL/CL: 31.0/7.0), around Marseille, France, 1.8 m depth, sediment with *Posidonia*, 18.v.1983, leg. A. Willsie, det. H. Zibrowius; SMF 28785, anterior part of carapace with appendages, including both chelipeds, same data and collector, 28.v.1983.

ZLUA TH2b, 1 male (TL/CL: 16.0/4.0), 1 juv. (CL 1.5 mm, telson missing), Theologos Bay, N. Evoikos Gulf, Greece, 15 m depth, sand, Van Veen grab, 15.vii.1983, leg. M. Thessalou-Legaki; ZLUA R1d, 1 female (TL/CL: 14.0/4.0), N. Rhodes Is., Greece, 70 m depth, coarse coralligenous substrate, Van Veen grab, 05.viii.1983, leg. M. Thessalou-Legaki.

ZLT P4500 1 male (TL/CL: 15.5/3.6), Olympiada, Strymonikos Gulf, Aegean Sea, St. 146, 16.v.1977, leg. A. Koukouras.

Description of male neotype. — Rostrum (fig. 1B) triangular in dorsal view, distally pointed. Carapace (fig. 1A-C) smooth, without an anterolateral spine; dorsal oval absent; cervical groove located in posterior third of carapace; linea thalassinica entire.

Eyestalks (fig. 1A-C) triangular, 1.5 times as broad as long proximally, convex and directed downward distally on dorsal surface; tip obtuse, slightly shorter than distal end of antennular basal article; cornea small, located distomedially, pigmented black in alcohol.

Antennular peduncle (fig. 1A-C) slightly shorter than antennal peduncle, terminal article slightly longer than penultimate. Antennal scale small in a narrow triangular form; terminal article distinctly shorter than penultimate; antennal flagellum about 1.8 times length of antennular flagellum. Mxp3 (fig. 1D, E) with exopod; merus-ischium of endopod subpediform; ischium rectangular, twice as long as broad; crista dentata with row of 13 stout denticles; merus subtriangular, 1.6 times as broad as long, distal margin obliquely truncate, bearing a sharp tooth at distomesial angle; carpus triangular, 1.5 times as long as broad; propodus subrectangular, slightly convergent distally, slightly shorter than carpus, 1.8 times as long as broad; dactylus digitiform, 0.8 times length of propodus, and distally obtuse.

Branchial formula as shown in table I.

P1 unequal in size and dissimilar in shape. Larger cheliped (fig. 2A-B) massive; ischium slender, dorsal margin slightly convex distally, unarmed, and ventral margin bearing a row of six distinct denticles; merus 0.8 times length of ischium, about 1.8 times as high as long, superior margin slightly arcuate and smooth, inferior margin bearing a sharp proximal tooth and distal to it four denticles in proximal half, smooth distally to those denticles. Carpus broadened with a rounded postero-ventral angle, dorsal margin 0.6 times as short as high and about half length of merus. Chela heavy and gradually narrowed distally, five times length of carpus; palm three times length of carpus, about 1.5 times as long as high, dorsal and ventral margins smooth, ventral margin extending to base of fixed finger, distal margin unarmed and directed obliquely downward to fixed finger; fixed finger 0.6 times length of palm, prehensile margin medially bearing two lower, triangular

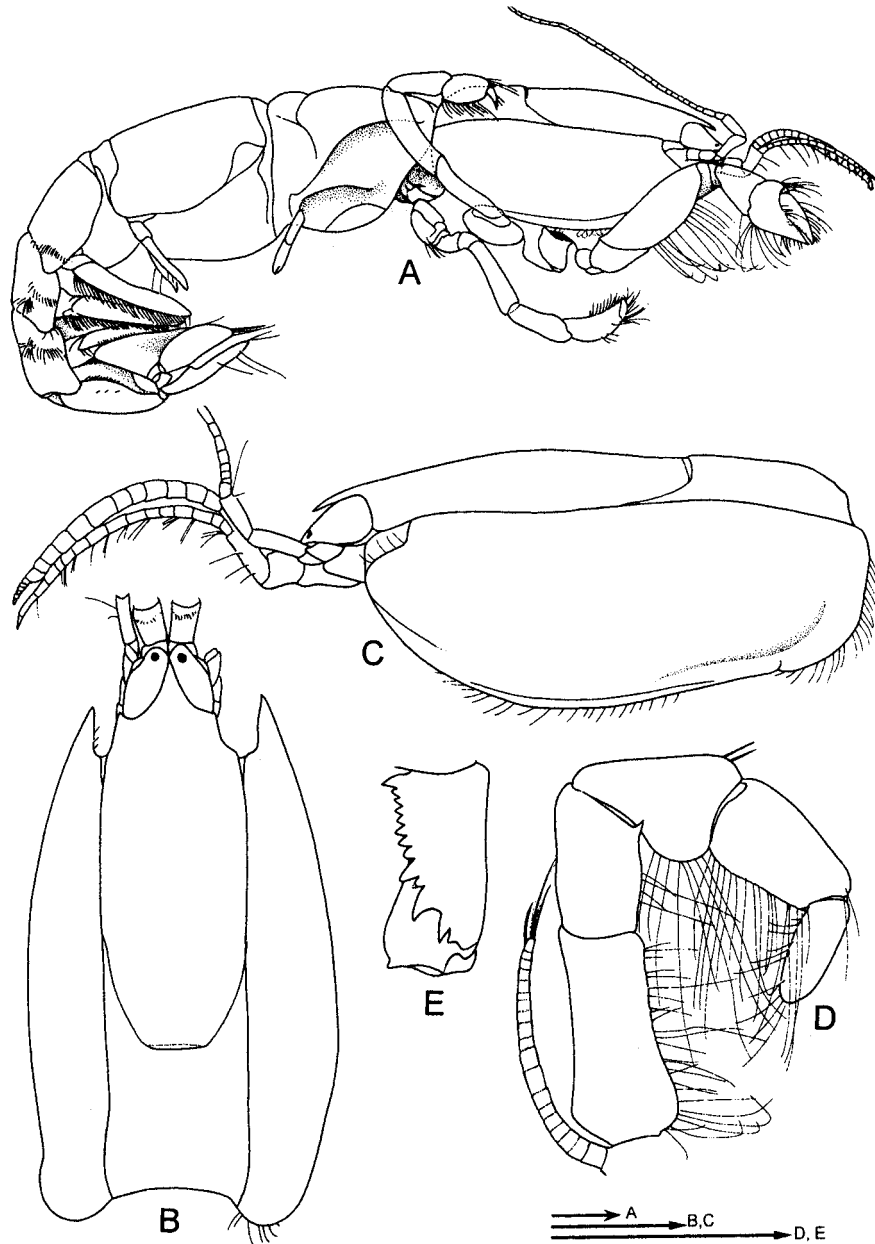


Fig. 1. *Gouretia denticulata* (Lutze, 1937). Neotype, SMF 28053, male (TL/CL: 20.0/4.4.), in front of Sotto Castello, Limski-Canal, Istra, Croatia, 29 m, 01.ix.1999. A, whole body, lateral view; B, carapace, dorsal view; C, carapace, lateral view; D, Mxp3, lateral view; E, ischium of Mxp3, mesial view. Scales all 1 mm.

TABLE I
Branchial formula of *Gourretia denticulata* (Lutze, 1937)

	Maxillipeds			Pereiopods				
	1	2	3	1	2	3	4	5
Exopods	1	1	1	—	—	—	—	—
Epipods	1	1	—	—	—	—	—	—
Podobranchs	—	1	—	—	—	—	—	—
Arthrobranchs	—	—	2	2	2	2	2	—
Pleurobranchs	—	—	—	—	—	—	—	—

swellings, and being denticulate proximally between the proximal angle and the proximal swelling, denticulate medially between the proximal and the distal swellings, unarmed distally; dactylus bent distally downward, prehensile margin finely denticulate. Smaller cheliped (fig. 2C-D) slender and less massive than larger cheliped; ischium slender, dorsal margin slightly convex distally and unarmed, ventral margin bearing a row of seven distinct denticles, merus subrectangular, about 0.8 times length of ischium, ventral margin bearing a sharp proximal tooth; carpus subrectangular, 0.6 times length of merus and its length 0.8 times its height, proximo-inferior angle rounded and protruding. Chela tapering distally, four times length of carpus; palm subsquare and elongate, about twice length of carpus and 2.5 times as long as high; fixed finger 0.7 times length of palm, prehensile margin armed with a row of teeth; gap between fingers armed with a denticle; dactylus slender, 0.8 times length of palm, about same length as fixed finger, prehensile margin armed with a series of sharp teeth.

P2 (fig. 1A) chelate; merus broadened, 2.5 times as long as broad, ventral margin with closely set setae; carpus 0.3 times length of merus; chela about 1.8 times length of carpus, setose on margins; both fingers twice length of palm.

P3 (fig. 2E) simple; merus three times as long as broad; carpus less than half length of merus; propodus oval, setose on both lateral and mesial surfaces and dorsal and ventral margins, slightly shorter than carpus and about as long as broad, dorsal margin more convex than ventral.

P4 (fig. 1A) simple; ischium elongate, about three times as long as broad, merus about same length as ischium; carpus 0.7 times length of merus; propodus oval, 0.7 times length of carpus and slightly longer than broad, inferodistal corner not protruding; dactylus sickle-shaped.

P5 (fig. 1A) chelate; ischium short; merus 3.5 times as long as broad; carpus 0.8 times length of merus; propodus forming a broad fixed finger inferodistally, mesial surface with dense setation; dactylus hooked towards external side of fixed finger, tip deflected.

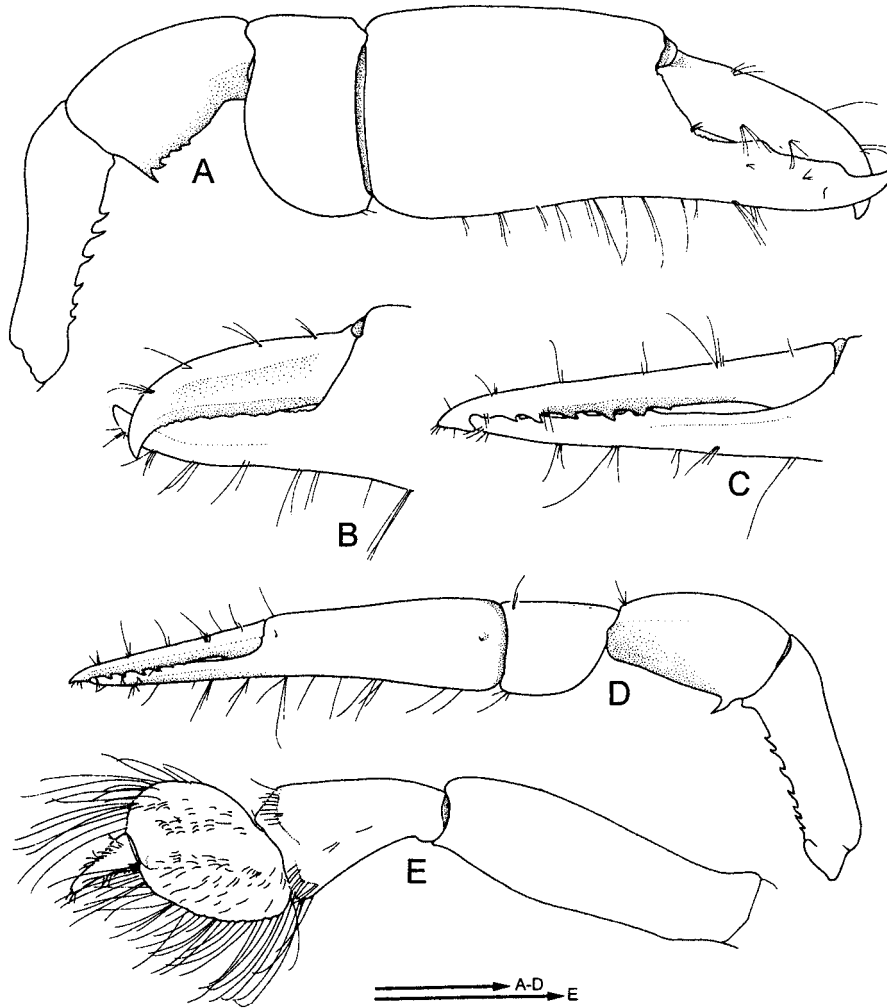


Fig. 2. *Gourretia denticulata* (Lutze, 1937). Neotype, SMF 28053, male (TL/CL: 20.0/4.4.), in front of Sotto Castello, Limski-Canal, Istra, Croatia, 29 m, 01.ix.1999. A, larger cheliped, lateral view; B, fingers of larger cheliped, mesial view; C, smaller cheliped, lateral view; D, fingers of smaller cheliped, mesial view; E, pereiopod 3, lateral view. Scales all 1 mm.

Abdominal somites (fig. 1A) smooth, glabrous dorsally; somites 1-2 obviously higher than somites 3-6; pleurites 3-5 each with a tuft of setae laterally; abdominal somite 6 (fig. 3C) smooth on lateral margin.

Telson (fig. 3C) trapezoid, about as long as broad; lateral margins slightly divergent in proximal third, then clearly convergent posteriorly; posterior margin largely rounded, setose and without a distinct median spine; dorsal surface medially with transverse row of setae in anterior fourth. Uropodal endopod subquadrate; anterior margin slightly convex, extending to truncate distal margin by rounded anterodistal

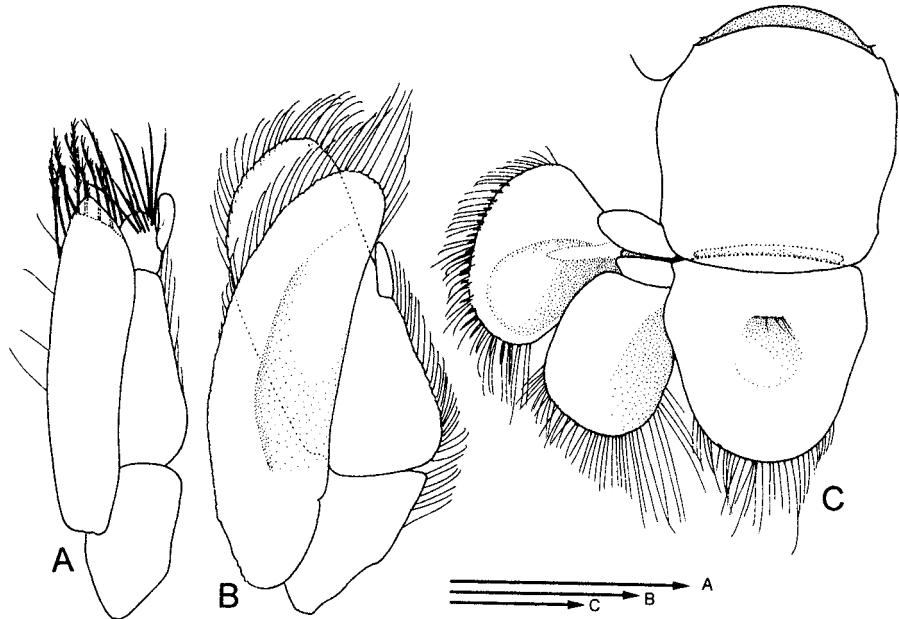


Fig. 3. *Gouretia denticulata* (Lutze, 1937). Neotype, SMF 28053, male (TL/CL: 20.0/4.4.), in front of Sotto Castello, Limski-Canal, Istra, Croatia, 29 m, 01.ix.1999. A, male Plp 1; B, male Plp2; C, abdominal somite 6 and tail-fan in left side, dorsal view. Scales all 1 mm.

angle; dorsal surface without median longitudinal carina. Uropodal exopod broadly expanded with largely rounded lateral margin, dorsal surface concave in posterior half, provided medially with a weak median longitudinal carina, bearing no denticles proximally.

Male Plp1 (fig. 1A) uniramous, bilobed distally; Plp2 (fig. 3A) biramous; exopod shorter than endopod; endopod distally with appendix masculina bearing an appendix interna medially. Plp3-5 (fig. 3B) biramous, broadly foliaceous, each bearing a small, triangular appendix interna medially on the mesial margin of the endopod.

Remarks. — With this description, the identity of Lutze's (1937) specimen is resolved in accordance with current usage. Distinction of the species from other European callianassids is obvious, as the combination of (a) pediform third maxillipeds with (b) an exopod, is unique.

Type locality. — The original type locality is in the region of Zadar at the Dalmatian coast of Croatia and situated between the NE-coast of the Island Pašman and the mainland. According to Vatova (1949) this station No. 377 was sampled on 17 July 1936 and had a depth of 16 m. The bottom was muddy with some scattered rocks.

Distribution. — Eastern Atlantic: Bay of Cadiz, Spain. Mediterranean: Gulf of Marseille, Tyrrhenian Sea, Malta, Adriatic Sea, Ionian Sea, Aegean Sea, Cyprus, Israel, (?) Alexandria (Egypt). Depth range: 2.5-146 m.

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NOTE

During discussions, it has become clear to us that for some the designation of a neotype in the present case may be a questionable action under current ICZN regulations and rules. However, we think it is necessary all the same and in support of our opinion we here wish to point out explicitly that:

The problem of *Callianassa denticulata* Lutze, 1937 has never really been solved. We even doubt that the German description by Lutze (1937) has ever been interpreted in detail. (1) As First Revisers, De Saint Laurent & Božić (1986) simply state: "Il ne fait aucun doute que les spécimens décrits par Lutze en 1937 sous le nom de *Callianassa denticulata* sp. nov. appartiennent à l'espèce de Gourret". Those authors thus gave no true reason for their assumption and, more in particular, not a single reference to the fact that Lutze's (1937) description does not match in all details the taxon they considered, and that has later on been considered, to be *Gourretia minor* (or *Gourretia denticulata*). We have already explained this in detail in our main text, above.

(2) Lewinsohn & Holthuis (1986) are always cited as the authors who have introduced the present usage of Lutze's (1937) name, but in their publication they do not go into detail concerning the identity of Lutze's species. They accept the synonymy proposed by De Saint Laurent & Božić (1986) for granted and they do take the nomenclatural action of using Lutze's name instead of the replacement name introduced earlier by De Saint Laurent & Le Loeuff (1979). So, again, no critical reconsideration of Lutze's description.

(3) Dworschak (1992) simply noted: "For taxonomic peculiarities see Lewinsohn & Holthuis (1986)". That's all. This brings d'Udekem d'Acoz (1999) to his statement "Les problèmes de nomenclature relatifs à cet espèce ont été solutionnés par Lewinsohn & Holthuis 1986".

The senior author of our present paper (KS) has studied the callianassoids, including also the genus *Gourretia*, in detail, and we are now in a position to better appreciate the characters of the species as well as the diversity within this genus. It is in the framework of these studies that specimens collected in Croatia, close to the type locality of Lutze's (1937) species, could be examined in detail and compared to the original description. Very probably this is the first detailed comparison of its kind. Our analysis yielded a number of differences, which put *Callianassa denticulata* as described by Lutze (1937) close to a nomen dubium: we have the original description of Lutze (1937), without any extant type material, and only a tradition and a common sense determining to which species to apply the name.

Hence, we believe it is not enough that a number of (be it competent) taxonomists agree about something that cannot be proven by the original description: and such cases have always been solved by the designation of a lectotype or a neotype, in order to make nomenclature stable beyond traditions that may come and go. We therefore argue that a neotype designation is needed in order to stabilize the current usage and nomenclature, and that our present action, therefore, does not comprise a "mere curatorial act" (as the Code explicitly dissuades).

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