

# Review of the genera *Eulimastoma* Bartsch, 1916 and *Egila* Dall & Bartsch, 1904 (Mollusca, Gastropoda, Pyramidellidae) from Brazil

**Alexandre D. PIMENTA**

Departamento de Zoologia, Instituto de Biologia, Centro de Ciências da Saúde,  
Universidade Federal do Rio de Janeiro,  
Ilha do Fundão, Rio de Janeiro, RJ-21941-570 (Brazil)  
alexpim@biologia.ufrj.br

**Ricardo S. ABSALÃO**

Departamento de Zoologia, Instituto de Biologia, Centro de Ciências da Saúde,  
Universidade Federal do Rio de Janeiro,  
Ilha do Fundão, Rio de Janeiro, RJ-21941-570 (Brazil)  
and Departamento de Biologia Animal e Vegetal, Instituto de Biologia,  
Universidade do Estado do Rio de Janeiro,  
Avenida São Francisco Xavier 524, Maracanã, Rio de Janeiro, RJ-20550-900 (Brazil)  
absalao@biologia.ufrj.br

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Pimenta A. D. & Absalão R. S. 2004. — Review of the genera *Eulimastoma* Bartsch, 1916 and *Egila* Dall & Bartsch, 1904 (Mollusca, Gastropoda, Pyramidellidae) from Brazil. *Zoosystema* 26 (2) : 157-173.

## ABSTRACT

The taxonomy of the species belonging to the genera *Eulimastoma* Bartsch, 1916 and *Egila* Dall & Bartsch, 1904 from Brazil is reviewed: *Eulimastoma canaliculatum* (C. B. Adams, 1850), *Eulimastoma engonium* (Bush, 1885), *Eulimastoma surinamense* Altena, 1975, *Eulimastoma didyma* (Verrill & Bush, 1900), *Eulimastoma* aff. *didyma*, *Eulimastoma* aff. *weberi* (Morrison, 1965), “*Egila*” *virginiae* Altena, 1975 and “*Egila*” *ektopa* n. sp. are recorded. A lectotype is designated for *E. engonium*, which is considered senior synonym of *Eulimastoma teres* (Bush, 1885), based on general shell shape variation; previous records of *E. weberi* from Brazil were based on misidentifications of *E. engonium*. *Eulimastoma surinamense*, originally described as variety of *E. engonium*, is treated as a full species; previous records of *Eulimastoma humboldtii* (Weisbord, 1962) from Brazil were based on misidentifications of *E. didyma* which shows great intraspecific variation, specially in the spiral sculpture, including a group of shells from Brazil with helicoid protoconchs, herein called *E. aff. didyma*. “*Egila*” *virginiae* and “*Egila*” *ektopa* n. sp. are tentatively included in this genus. “*Egila*” *ektopa* n. sp. is distinguished from “*E.*” *virginiae* by general shell shape, suprasutural spiral cord and pattern of axial sculpture.

## KEY WORDS

Mollusca,  
Gastropoda,  
Pyramidellidae,  
*Eulimastoma*,  
*Egila*,  
Brazil,  
new species.

## RÉSUMÉ

Révision des genres *Eulimastoma* Bartsch, 1916 et *Egila* Dall & Bartsch, 1904 (Mollusca, Gastropoda, Pyramidellidae) du Brésil.

La taxonomie des espèces des genres *Eulimastoma* Bartsch, 1916 et *Egila* Dall & Bartsch, 1904 du Brésil est révisée. *Eulimastoma canaliculatum* (C. B. Adams, 1850), *Eulimastoma engonium* (Bush, 1885), *Eulimastoma surinamensis* Altena, 1875, *Eulimastoma didyma* (Verrill & Bush, 1900), *Eulimastoma* aff. *didyma*, *Eulimastoma* aff. *weberi* (Morrison, 1965), "*Egila*" *virginiae* Altena, 1975 et "*Egila*" *ektopa* n. sp. sont décrites. Un lectotype est désigné pour *E. engonium*, qui est considéré synonyme plus ancien d'*Eulimastoma teres* (Bush, 1885), cette synonymie est basée sur la variation du format général de la coquille ; les mentions antérieures de *E. weberi* sont de mauvaises identifications d'*E. engonium*. *Eulimastoma surinamense*, décrit originellement comme une variation d'*E. engonium*, est considérée ici comme une espèce. Les mentions antérieures d'*Eulimastoma humboldti* (Weisbord, 1962) sont de mauvaises identifications d'*E. didyma* qui montre une variation intraspécifique accentuée, principalement dans sa sculpture spirale, et inclut un groupe de coquilles du Brésil à protoconques turriculée, nommées ici *Eulimastoma* aff. *didyma*. "*Egila*" *virginiae* et "*Egila*" *ektopa* n. sp. sont provisoirement inclus dans ce genre. "*Egila*" *ektopa* n. sp. se distingue de "*E.*" *virginiae* sur le plan de la sculpture axiale et par une coquille de forme particulière et un cordon spiral suprasutural.

## MOTS CLÉS

Mollusca,  
Gastropoda,  
Pyramidellidae,  
*Eulimastoma*,  
*Egila*,  
Brésil,  
nouvelle espèce.

## INTRODUCTION

Elements of the family Pyramidellidae from the Brazilian coast have been the subject of taxonomic reviews in recent reports on certain consistent genera (Pimenta & Absalão 2001a, b, 2002). In this paper, we continue the study of this fauna, dealing with the genera *Eulimastoma* Bartsch, 1916 and *Egila* Dall & Bartsch, 1904.

Some of the two genera herein studied have been treated elsewhere as subgenera of *Odostomia* (e.g., Abbott 1974; Vokes & Vokes 1983; Van Aartsen 1987; Vaught 1989; Mello 1990; Díaz & Puyana 1994; Rios 1994; Wise 1996), while other authors have used some of them as full genera (e.g., Bartsch 1955; Laseron 1959; Odé & Speers 1972; Altena 1975; Jong & Coomans 1988; Mello & Barros 1991; Odé 1993a-c, 1994; Barros 1994b, c; Rios 1994). This absence of general consensus about the definitions and boundaries of the genera and subgenera is widespread in the family and contributes to its much confused taxonomy, with

over 300 supraspecific taxa named (Schander *et al.* 1999), which are often misemployed. Actually, a precise employment of the generic names will remain somewhat subjective and upcoming changes due to future anatomical and/or molecular available data are expected.

Some of the species herein assigned to these two genera have already been recorded from Brazil (Mello & Perrier 1986; Mello 1990; Barros 1994b, c; Rios 1994; Absalão *et al.* 1996); however, some of the records were based on misidentifications or were not well documented by illustrations of authentic Brazilian specimens.

## ABBREVIATIONS

### Collections

IBUFRJ

Instituto de Biologia, Universidade Federal do Rio de Janeiro;

MCZ

Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts;

MMUFRPE

Museu de Malacologia, Universidade Federal Rural de Pernambuco, Recife;

MNHN	Muséum national d'Histoire naturelle, Paris;
MNRJ	Museu Nacional, Universidade Federal do Rio de Janeiro;
PRI	Paleontological Research Institution, New York;
UERJ	Universidade do Estado do Rio de Janeiro;
USNM	National Museum of Natural History, Washington DC;
YPM	Peabody Museum of Natural History, Yale University, New Haven;
ZMA	Zoölogisch Museum Amsterdam.

*Expeditions*

AMASEDS	A Multidisciplinary Amazon Shelf Sedimentary Study, Research Vessel <i>Columbus Iseling</i> ;
GEOMAR XII	Comissão Oceanográfica Geologia Marinha XII, Oceanographic Ship <i>Almirante Saldanha</i> ;
REVIZEE	Recursos Vivos da Zona Econômica Exclusiva, Supply Boat <i>Astro Garoupa</i> , Petrobras S.A.

MATERIAL AND METHODS

The determination of the material was based on comparisons with type material and/or original descriptions and illustrations. In the material examined, listed by species, the number in brackets indicates the number of shells in each lot. This report is based entirely on empty shells from Brazilian and foreign collections. All collection lots from MNHN were collected by P. Maestrati from 1984 to 1989.

SYSTEMATICS

Family PYRAMIDELLIDAE Gray, 1840

Genus *Eulimastoma* Bartsch, 1916

*Odostomia* (*Eulimastoma*) Bartsch, 1916: 73.

TYPE SPECIES. — *Odostomia* (*Scalenostoma*) *dotella* Dall & Bartsch, 1909 by original designation.

DIAGNOSIS. — Shell small, elongate-conic, smooth or with microscopic spiral striae on the base; protoconch heterostrophic generally with immersed nucleus; teleoconch whorls flattened; suture V-shaped notched, with

or without suprasutural spiral cord; with or without columellar fold; umbilicus variable, from absent to a deep one.

REMARKS

*Eulimastoma* was employed at full generic level by Bartsch (1955), Altena (1975), Odé & Speers (1972), Odé (1994) and Rios (1994). For discussion on nomenclature and synonymy, see Odé (1994).

According to Odé & Speers (1972), this genus, although well defined as a group, includes several species that display a great range of variation in shell morphology. The main diagnostic characters of this genus are the immersed protoconch and the V-shaped suture (Odé & Speers 1972; Odé 1994). Also, a spiral cord above the V-shaped suture can be seen from the third or fourth whorl onward and is very conspicuous in the type species *Eulimastoma dotella* (Dall & Bartsch, 1909) (Dall & Bartsch 1909: pl. 30, fig. 5).

The genus *Eulimastoma* has not been used in recent reviews of European pyramidellids. However, some species included in other genera, such as *Odostomia* (*Megastomia*) *pagodiformis* Schander, 1994 (Schander 1994: fig. 6b) and *Odostomia* (*Pyramistomia*) *fehbrae* Van Aartsen, Gittenberger & Goud, 1998 (Van Aartsen *et al.* 1998: fig. 40) are similar to the concept of *Eulimastoma* herein used and further studies comparing the faunas from the two sides of the Atlantic Ocean are necessary to better clarify the classification of the species in the Pyramidellidae. Beside the species herein reported from Brazil, additional species from Western Atlantic coast have been, elsewhere, referred to *Eulimastoma*. We give a brief summary of them:

1. *Odostomia* (*Evalea*) *pocahontasae* Henderson & Bartsch, 1914 (Henderson & Bartsch 1914: 418, pl. 13, fig. 6), described from Chincoteague Bay, Virginia, USA. This species was reported from the Gulf of Mexico by Odé (1994) who considered that it is probably an adaptation of *Eulimastoma canaliculatum* to its environment. The figure provided by Henderson & Bartsch (1914) resembles *E. canaliculatum* indeed.

2. *Eulimastoma harbisonae* Bartsch, 1955 (Bartsch 1955: 82, pl. 16, fig. 1) and *Eulimastoma olsoni* Bartsch, 1955 (Bartsch 1955: 83, pl. 16, fig. 5), both described from Pliocene of North St Petersburg, Florida, USA. Odé (1994) reported *E. harbisonae* from Texas coastal bays and stated that it produces specimens with open and with closed umbilicus, suggesting the synonym with *E. olsoni*.

3. *Pyramidella (Sulcorinella) bartschi* Winkley, 1909 (Winkley 1909: 39, fig. 1), described from Woods Hole, Massachusetts, USA. Odé (1994) reported specimens from Texas as *Eulimastoma* cf. *bartschi*. However, as demonstrated by Robertson (1996) based on anatomy, reproductive characters and host preferences, this species is better included in the genus *Fargoa*, a genus that encloses both high sculptured shells and nearly smooth ones due to evolutionary divergence in shell sculpture (Robertson 1996).

4. *Orinella? (Cricolophus) humboldti* Weisbord, 1962 (Weisbord 1962: 460, pl. 43, figs 15, 16). Holotype PRI 26351, Pliocene of La Salina, Carabobo (Venezuela). This species has been reported from Yucatan Peninsula, Mexico (Vokes & Vokes 1983) and Brazil (Rios 1994), in the genus *Eulimastoma*. See discussion under *Eulimastoma didyma*.

*Eulimastoma canaliculatum* (C. B. Adams, 1850)  
(Fig. 1)

*Odostomia canaliculata* C. B. Adams, 1850: 109. — Clench & Turner 1950: 262, pl. 40, fig. 3. — Jong & Coomans 1988: 121.

*Eulimastoma canaliculatum* – Altena 1975: 70, fig. 26a, b.

*Eulimastoma canaliculata* – Odé & Speers 1972: 14, fig. 12. — Odé 1994: 21, figs 5-7.

*Odostomia (Odostomia) canaliculata* – Vokes & Vokes 1983: 32, pl. 30, fig. 1. — Mello & Perrier 1986: 138. — Díaz & Puyana 1994: 233, pl. 69, fig. 625. — Rios 1975: 142, pl. 43, fig. 656; 1985: 163, pl. 54, fig. 771; 1994: 185, pl. 61, fig. 860.

*Odostomia (Evalea) canaliculata* – Mello 1990: 40, fig. 7.

TYPE MATERIAL. — Holotype (MCZ 186101).

TYPE LOCALITY. — Jamaica.

OTHER MATERIAL EXAMINED. — **Brazil.** Amapá State, AMASSEDS, RV *Columbus Iseling*, stn 3221, 03°23.08'N, 50°04.08'W, 40 m, 15.V.1990, 4 specs (IBUFRJ 4180). — Pará State, AMASSEDS, RV *Columbus Iseling*, stn 3210, 01°52.45'N, 48°16.02'W, 47 m, 12.V.1990, 6 specs (IBUFRJ 4147). — Pernambuco State, Itamaracá, Praia de Jaguaribe, 1 spec. (MNHN); Recife, Praia do Pina, 5 specs (MNHN); Cabo, Praia de Gaibu, 2 specs (MNHN); Paulista, Praia de Maria Farinha, 9 specs (MNHN); Cabo (pedras pretas), 2 specs (MNHN); Paulista, Praia de Maria Farinha, 2 specs (MNHN); Paulista, Praia da Conceição, 1 spec. (MNHN). — Maranhão State, São Luiz, Praia de Areia Preta, 1 spec. (MNHN). — Bahia State, Itaparica, Praia do Despacho, 2 specs (MNHN). — Rio de Janeiro State, Arquipélago de Santana, Macaé, *Astro Garoupa*, V.1993, 5 specs (IBUFRJ 9623); Enseada de Dois Rios, Ilha Grande, stn 6, 1996, 11 specs (UERJ 1971).

Material of *Eulimastoma* cf. *canaliculatum*: Pernambuco State, Praia de Raposa, 3 specs (MNHN). — Bahia State, Itaparica, Praia do Despacho, 10 specs (MNHN).

DISTRIBUTION. — USA (Texas); Jamaica; Mexico (Yucatan Peninsula; NW Gulf of Mexico); Colombian Caribbean; West Indies (Aruba, Bonaire and Curaçao Islands); Suriname; N, NE and SE coasts of Brazil (Amapá, Pará, Pernambuco, Maranhão, Bahia and Rio de Janeiro states).

DESCRIPTION

Shell white, conical with slightly convex whorls. Holotype 3.2 mm in length; 1.14 mm in width. Protoconch intorted, sunken into first teleoconch whorl. Sutures oblique to shell main axis, almost straight, somewhat channeled, without adjacent spiral cords. Axial and spiral sculpture absent. Base rounded, smooth with a very distinct small chink-like umbilicus. Aperture rhomboid. Outer lip thin. Columellar fold very prominent.

REMARKS

The original description of *E. canaliculatum* does not mention the umbilicus which is very conspicuous in the holotype (Fig. 1A) and in Brazilian specimens (Fig. 1B-E). This species exhibits some degree of variation in the spire angle of the shell and in the convexity of the whorls (Fig. 1A-D). Besides that, 13 Brazilian specimens from some localities in Bahia and Pernambuco states, herein called *E. cf. canaliculata*, are very similar to typical

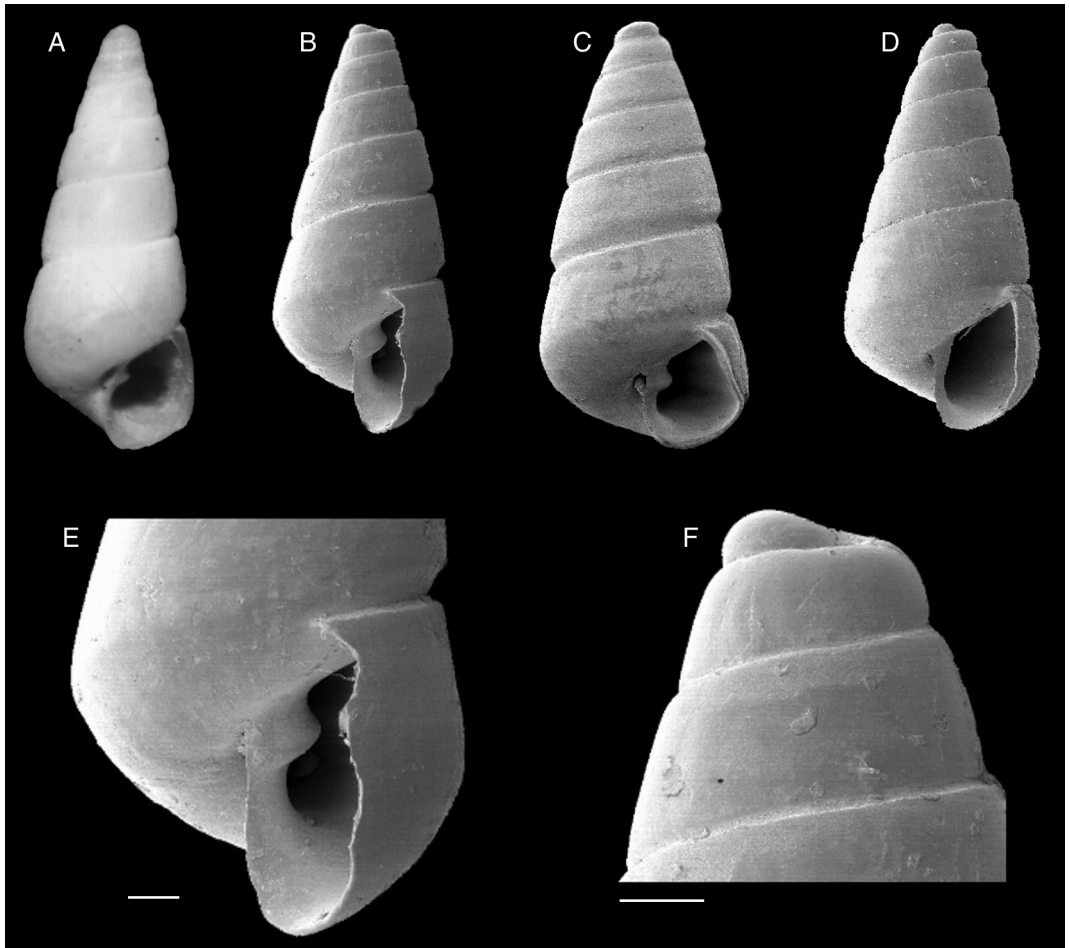


FIG. 1. — *Eulimastoma canaliculatum* (C. B. Adams, 1850); **A**, holotype (MCZ 186101), length 3.20 mm; **B-F**, Brazilian specimens (all from off Pernambuco State, MNHN); **B, C**, whole shells, respective lengths: 2.56 mm, 2.60 mm; **D**, whole shell of *E. cf. canaliculatum*, length 2.52 mm; **E**, aperture; **F**, protoconch of *E. cf. canaliculatum*. Scale bars: 100  $\mu$ m.

specimens of *E. canaliculatum* and probably the same species, with the same type of protoconch, teleoconch shape, sculpture and identical umbilicus, but lacking the columellar fold (Fig. 1D). Considering the co-occurrence of these specimens and typical *E. canaliculatum* (Fig. 1B, C) and the fact that *Eulimastoma* species display a wide range of intraspecific variation in shell morphology (Odé & Speers 1972; Odé 1994), we feel not secure to treat them as a different species. As will be seen for *E. engonium*, the expression of the columellar fold is a variable character in the species.

*Eulimastoma engonium* (Bush, 1885)  
(Fig. 2)

*Odostomia engonium* Bush, 1885: 466. — Abbott 1974: 292. — Johnson 1989: 36, pl. 16, fig. 1.

*Odostomia engonium* var. *teres* Bush, 1885: 467, pl. 45, fig. 9. — Johnson 1989: 69.

*Eulimastoma engonium* – Odé & Speers 1972: 13, fig. 10. — Odé 1994: 21, fig. 4.

*Eulimastoma teres* – Odé & Speers 1972: 13, figs 8, 9. — Lyons 1989: 29, pl. 12, fig. 4. — Odé 1994: fig. 3.

*Odostomia teres* – Jong & Coomans 1988: 122, pl. 6, fig. 641a. — Abbott 1974: 292.

*Eulimastoma engonia* – Lyons 1989: 29, pl. 12, fig. 3.

*Eulimastoma weberi* – Absalão *et al.* 1996: 66, fig. 10.

TYPE MATERIAL. — Lectotype (herein designated): Beaufort, North Carolina (YPM 16145); paralectotypes: Vicinity of Cape Hatteras, North Carolina, 2 specs (YPM 16146, 16148); off Cape Hatteras, North Carolina, 3 specs (YPM 16147); 1 spec. (USNM 44762); syntypes of *E. engonium* var. *teres*: Vicinity of Cape Hatteras, North Carolina, 9 specs (YPM 16149, 16152, 16153, 16154); off Cape Hatteras, North Carolina, 5 specs (YPM 16150, USNM 44951).

TYPE LOCALITY. — Off Cape Hatteras, 27-28.8 m and Beaufort, North Carolina.

MATERIAL EXAMINED. — The type material from YPM and the following specimens:

**Brazil.** Pará State, off Pará, 40-70 m, 2 specs (IBUFRJ 6024). — Maranhão state, São Luiz, Praia de Areia Preta, 6 specs (MNHN). — Bahia State, Itaparica, Praia do Despacho, 1 spec. (MNHN). — Espírito Santo State, off Aracruz, 1 spec. (IBUFRJ 8996). — Rio de Janeiro State, GEOMAR XII, stn 10, 1 spec. (IBUFRJ 7780); Arquipélago de Santana, Macaé, V.1993, *Astro Garoupa*, 11 specs (IBUFRJ 9622), 15 specs (IBUFRJ 9621); GEOMAR XII, stn 112, 1 spec. (IBUFRJ 7812).

DISTRIBUTION. — USA (North Carolina, Texas); Mexico (NE Gulf of Mexico); West Indies (Aruba Island); N, NE and SE coasts of Brazil (Pará, Maranhão, Bahia, Espírito Santo and Rio de Janeiro states).

#### DESCRIPTION

Shell white, conical-elongate with rectilinear whorls. Lectotype (here designated) 6.1 mm in length; 2.1 mm in width. Protoconch intorted, sunken into first teleoconch whorl. Sutures oblique, almost straight, channeled, with adjacent posterior spiral cord. Axial sculpture absent but spiral sculpture present on the base. Suture deep, bordered by a rounded suprasutural spiral cord. Base rounded, with fine spiral stria; with a distinct but small chink-like umbilicus somewhat variable in development. Aperture rhomboid. Outer lip thin. Columellar fold usually inconspicuous.

#### REMARKS

Johnson (1989) listed holotypes (in USNM) and paratypes (in YPM) for both *Eulimastoma engonium* and *E. engonium* var. *teres*, probably based on

the fact that the specimens from USNM had been measured (*E. engonium*) or illustrated (*E. teres*) in the original publication. However, the original publication of these two species by Bush (1885) does not mention holotypes, paratypes, “the type” or other equivalent expression referring to the type series used to describe the species; actually, both descriptions were based on more than one specimen. In this case, the inference of a holotype made by Johnson (1989) cannot be considered a lectotype designation by inference of holotype (ICZN 1999), since Johnson knew that there was more than one specimen in the type series. The *International Code of Zoological Nomenclature* (ICZN 1999: Article 74.6) states that fixation of lectotype by inference of “holotype” before 2000 requires that the author that makes such inference assumes that the species-group taxon was based upon a single specimen.

We examined the four lots labeled as syntypes of *E. engonium* in YPM. From these, we designate the shell in lot YPM 16145 (Fig. 2A, B) as lectotype of *E. engonium*. This designation is made to establish the type status of the specimens in the type series, since there are confusion regarding their type status following Johnson (1989). The selection of the YPM 16145 specimen is based on its good condition, locality, for being from a collection that bears several other syntypes of this species, according to the recommendation of Article 74.7 of the *Code* (ICZN 1999). This specimen is referred to in Bush's original remarks as: “A more mature specimen from Beaufort, N.C., is 6.5 mm long; 2.8 mm broad”; we measured this specimen, founding 6.1 mm in length and 2.1 mm in width; the difference in the measurements can be probably explained assuming that Bush calculated the measurements using a microscope equipped with a camera lucida and overlooks the additional magnification produced by that instrument (Absalão & Pimenta 1999).

Also, the YPM collection bears six lots (15 specimens, not 13 as reported by Altena [1975]) labeled as syntypes for *Eulimastoma engonium* var. *teres*. From these, one shell (YPM 16151) is

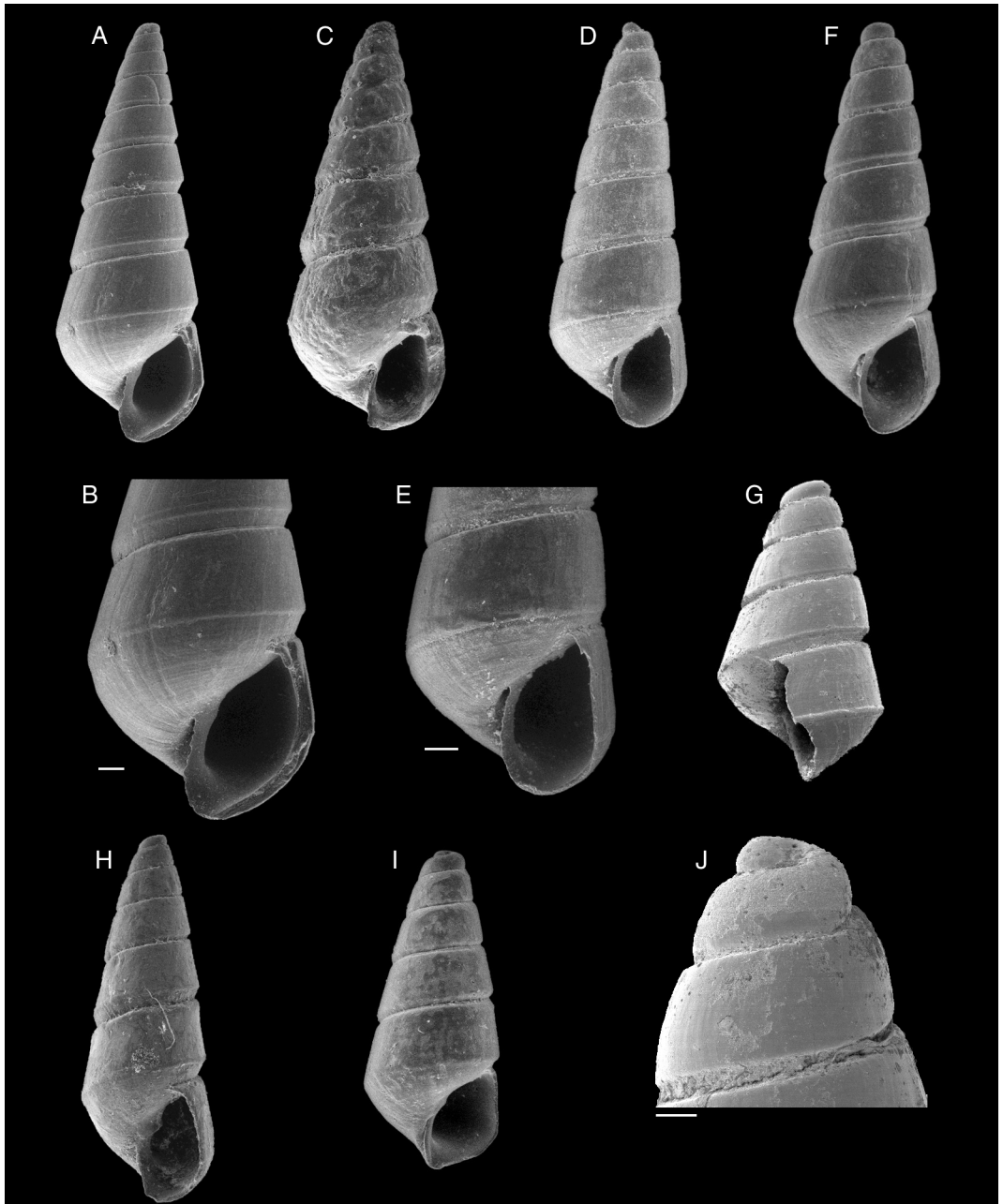


FIG. 2. — *Eulimastoma engonium* (Bush, 1885); **A, B**, lectotype here designated (YPM 16145), **A**, whole shell, length 6.10 mm; **B**, last whorl; **C**, paralectotype (YPM 16146), length 4.95 mm; **D-F**, syntypes of *E. engonium* var. *teres* (Bush, 1885); **D, E**, YPM 16153; **F**, YPM 16150; **D, F**, whole shells, respective lengths: 4.00 mm, 3.08 mm; **E**, last whorl of syntype of *E. engonium* var. *teres* (YPM 16153); **G-J**, Brazilian specimens; **G-I**, whole shells, respective lengths: 1.95 mm, 3.73 mm, 2.04 mm; **G, H**, IBUFRJ 9621; **I**, MNHN; **J**, protoconch (MNHN). Scale bars: **B, E**, 200  $\mu$ m; **J**, 100  $\mu$ m.

not *Eulimastoma*, but *Chrysallida*, as noticed by Altena (1975) and another one (one shell out four of YPM 16154) has a very distinct tooth on the columella and is more likely *Eulimastoma canaliculatum*. The remaining 13 have no columellar tooth, are slender, fitting very well in the description by Bush (1885). We figure two of them (Fig. 2D-F).

According to Odé (1994), *Eulimastoma engonium* can be distinguished from *E. teres* by its larger shells, with an apical angle wider, a less deep suture, a more diamond shaped aperture and by the presence of an obsolete columellar fold, while *E. teres* is more slender and has no columellar fold, even an obsolete one. In spite of these differences, Odé (1994) states that the *Eulimastoma engonium* is rather variable with respect to the depth of the suture, size and slenderness.

There is some variation in the degree of expression of the columellar fold as well. As reported by Altena (1975), from the six shells labeled as syntypes of *E. engonium* in YPM, three of them (lots 16145, 16146, 16148) have an indistinct (obsolete) fold on the columella, while two of them (YPM 16147) have no tooth; in fact, these two shells to which Altena refers and a third one from the same lot, which is glued by its aperture in a paper card (and so the aperture is invisible), are more slender than typical *E. engonium*, being more similar to *E. engonium* var. *teres* (an observation also written on the label of this lot). We follow the Article 57.7 (ICZN 1999), "precedence of names of species over those of subspecies", to synonymize *E. engonium* over *E. engonium* var. *teres*.

The Brazilian shells herein identified as *E. engonium* (Fig. 2G-J) are very similar to the type specimens of this species and of *E. engonium* var. *teres* (Fig. 2D-F), except for the columellar fold, which is somewhat visible in the type specimens and is very distinct in the Brazilian specimens. Moreover, the Brazilian specimens show a variation in the expression of the umbilicus; some specimens have a chink-like umbilicus, whereas others are imperforate (Fig. 2I). On the other hand all the type specimens have a chink-like umbilicus (Fig. 2A-E).

The large range of variation in *Eulimastoma* species had already been observed by Odé & Speers (1972) when they stated that all species appear to be highly variable in shell morphology; in the same population one can find umbilicate and imperforate shells, specimens with keeled or rounded periphery, and shells with a strongly notched or shallow suture. Thus, we do not consider the variation in the size of the shell, width of the whorls, depth of the suture, expression of the columellar fold and umbilicus as characters that can be used to distinguish between *E. engonium* and its variety *teres*.

Absalão *et al.* (1996) identified shells of *E. engonium* as *Eulimastoma weberi* Morrison, 1965, based on the similarity of their material to the specimen determined by Altena (1975: fig. 28) (which is also imperforate and has a well developed columellar fold). However, Altena (1975) expressed doubts about the accuracy of his identification of *E. weberi*, since, as he reported, the holotype (USNM 635638) and paratypes of *E. weberi* do not show any trace of columellar fold. Moreover, the holotype of *E. weberi* (Fig. 4A, B) shows two spiral keels, one above the suture, the other below it, in a pattern similar to *E. didyma*. The shells illustrated by Altena (1975) as *E. weberi* and *E. engonium* lack the keel below the suture.

*Eulimastoma surinamense* Altena, 1975  
(Fig. 3)

*Eulimastoma engonium surinamense* Altena, 1975: 70, fig. 27. — Rios 1994: 187, pl. 61, fig. 870. — Barros 1994a: 69, fig. 12b.

*Odostomia (Eulimastoma) engonium surinamense* — Mello 1990: 42, fig. 19. — Díaz & Puyana 1994: 236, pl. 69, fig. 940.

TYPE MATERIAL. — Holotype and 33 paratypes (Rijksmuseum van Natuurlijke Historie, Leiden).

TYPE LOCALITY. — Near Popogaimama Creek, Saramacca District, Surinam.

MATERIAL EXAMINED. — Maranhão State, São Luiz, Praia de Areia Preta, 2 specs (MNHN). — Pernambuco State, Cabo, Laguna de Suape, 1 spec. (MNHN); Praia de Raposa, 4 specs (MNHN). —



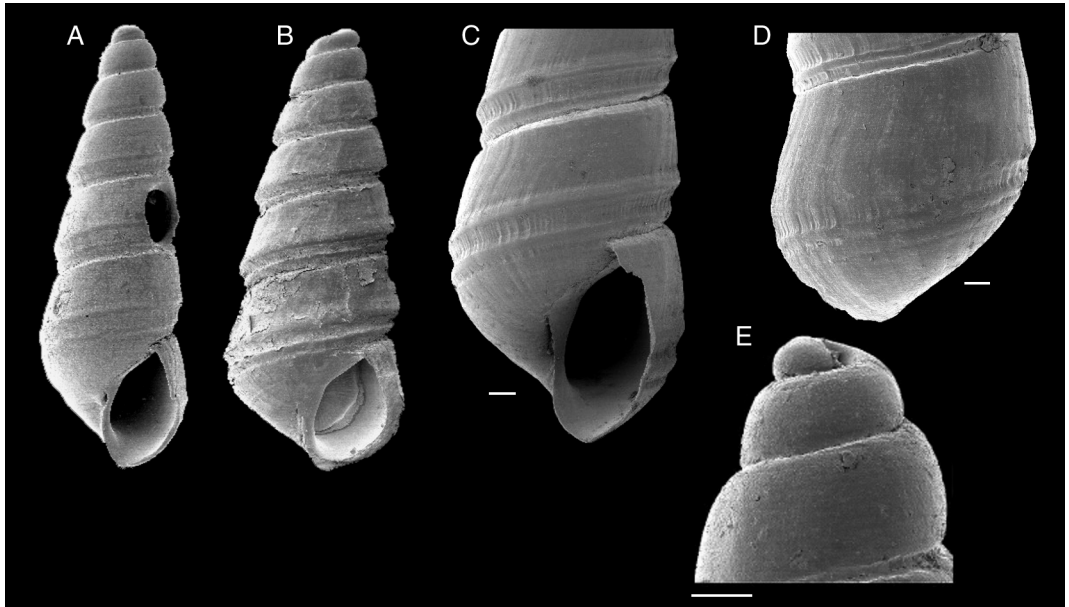


FIG. 3. — *Eulimastoma surinamense* Altena, 1975 from Brazil (MNHN); **A, B**, whole shells, respective lengths: 3.17 mm, 2.95 mm; **C**, last whorl; **D**, base of last whorl; **E**, protoconch. Scale bars: 100  $\mu$ m.

Bahia State, off Caravelas, IX.1985, R. Noveli coll., 2 specs (IBUFRJ 5993); Itaparica, Praia do Despacho, 1 spec. (MNHN). — Espírito Santo State, REVIZEE, stn C63, 19°40'42"S, 038°08'15"W, 61 m, NOAN, 25.IV.1996, 1 spec. (IBUFRJ 12675). — Rio de Janeiro State, Arquipélago de Santana, Macaé, *Astro Garoupa*, V.1993, 3 specs (IBUFRJ 6372).

DISTRIBUTION. — Colombian Caribbean; Surinam (Saramacca District); N, NE and SE coasts of Brazil (Maranhão, Pernambuco, Bahia, Espírito Santo and Rio de Janeiro states).

#### DESCRIPTION

Shell white, elongate-conic with rectilinear to slightly convex whorls with anterior periphery strongly angulated. Holotype 3.2 mm in length; 1.1 mm in width. Protoconch intorted, partially sunken into first teleoconch whorl. Sutures deep, oblique, slightly sinuous; with two rounded suprasutural spiral cords. Usually the suprasutural spiral cord immediately above the suture is narrower. Minute axial ridges present between the suprasutural spiral cords and below the narrower one, sometimes extending to the upper part of the base as evanescent scars. These supra-

sutural cords are more visible toward the latter whorls. Base rounded, smooth (except by obsolete axials posteriorly); usually imperforate but a barely-discernible chink-like umbilicus may be present. Aperture rhomboid. Outer lip thin. Columellar fold absent.

#### REMARKS

*Eulimastoma surinamense* (Fig. 3) was described as a variety of *E. engonium* but despite the same shell profile, the conchological differences are enough to give it a full species status. Especially relevant are the two suprasutural spiral cords and the axial ridges in sutural region (Fig. 3C, D).

#### *Eulimastoma didyma* (Verrill & Bush, 1900) (Fig. 4A-I)

*Odostomia* (*Cyclodostomia*) *didyma* Verrill & Bush, 1900: 533, pl. 45, fig. 14. — Odé & Speers 1972: 13. — Johnson 1989: 34. — Díaz & Puyana 1994: 233, 69, fig. 926. — Wise 1996: 492, 493, fig. 14a-g.

*Cyclodostomia didyma* — Odé 1993b: 56.

*Odostomia didyma* – Jong & Coomans 1988: 122, pl. 19, fig. 641. — Redfern 2001: 142, pl. 64, fig. 586A-C.

*Eulimastoma humboldti* – Rios 1994: 187, pl. 61, fig. 871.

TYPE MATERIAL. — Holotype (YPM 15706).

TYPE LOCALITY. — Bermuda.

OTHER MATERIAL EXAMINED. — **West Indies.** Aruba, I. Peeters coll., 14 specs (ZMA); Curaçao, Santa Marta, 30 m, de Jong leg., 50+ specs (ZMA); W Tiara Beach Hotel, Cayman Brac, 10.IV.1991, M. J. Faber leg., 3 specs (ZMA); Curaçao, de Jong coll., 4 specs (ZMA).

**Brazil.** Amapá State, AMASSEDS, RV *Columbus Iseling*, stn 3228, 03°25.13'N, 49°54.76'W, 74 m, 17.V.1990, 3 specs (IBUFRJ 6534). — Pernambuco State, Recife, Praia do Pina, 2 specs (MNHN); Praia de Raposa, 1 spec. (MNHN); Paulista, Praia de Maria Farinha, 2 specs (MNHN); Recife, Praia do Pina, 1 spec. (MNHN); Praia de Raposa, 1 spec. (MNHN). — Bahia State, Itaparica, Praia do Despacho, 4 specs (MNHN). — Rio de Janeiro State, GEOMAR XII, stn 11, 1 spec. (IBUFRJ 6970); Enseada de Dois Rios, Ilha Grande, stn 3, 1996, 1 spec. (UERJ 1972).

Material of *Eulimastoma* aff. *didyma*: Enseada de Dois Rios, Ilha Grande, RJ, stn 6, 1996, 4 specs (UERJ 1973).

DISTRIBUTION. — USA (Texas); Bermuda; Bahamas Islands (Abaco Island); Colombian Caribbean; West Indies (Aruba and Curaçao Islands); Mexico (NW Gulf of Mexico); N, NE and SE coasts of Brazil (Amapá, Pernambuco, Bahia, and Rio de Janeiro states).

#### DESCRIPTION

Shell white, conical with rectilinear whorls. Holotype 1.78 mm in length. Protoconch intorted, sunken into first teleoconch whorl. Axial and spiral sculpture absent except at suture. Suture almost straight, deep, somewhat channeled, surrounded by a suprasutural spiral cord and a less conspicuous subsutural spiral one. Base rounded, varying from smooth to spirally striated, with its anterior periphery marked by a deep furrow below the spiral cord of the preceding whorl and bordered anteriorly by another spiral cord; with a very distinct small chink-like umbilicus variably developed. Aperture rhomboid. Outer lip thin. Columellar fold very prominent.

#### REMARKS

*Eulimastoma didyma* was included in the genus *Cyclodostomia* by Verrill & Bush (1900) and Odé (1993b). However, as demonstrated by Van Aartsen & Corgan (1999), *Cyclodostomia* should be considered monotypic, including only its type species, *Odontostomia (Cyclodostomia) mutinensis* Sacco, 1892, renamed *Odostomia italiana* by Corgan & Van Aartsen (1998).

*Eulimastoma didyma* has some degree of variation in the expression of the upper spiral cord (Fig. 4B-D). In addition, Jong & Coomans (1988) and Díaz & Puyana (1994) illustrated specimens with spiral cords on the base. Despite the eroded state of the holotype of this species (Fig. 4A), the original description and illustration do not show this sculpture. Jong & Coomans (1988) consider this species to bear two “forms”, depending on the expression of the “cingula” and groove on the periphery of the base. Indeed, we could see a large variation in the specimens studied regarding the expression of the cords, the periphery of last whorl, on the upper spiral cord and on the striation of the base (Fig. 4E-G).

Vokes & Vokes (1983) and Rios (1994) reported *Eulimastoma humboldti* (Weisbord, 1962) from Peninsula of Yucatan (Mexico) and northeast Brazil, respectively. This is a fossil species from the Pliocene of La Salina, Carabobo (Venezuela), originally described as *Orinella? (Cricolophus) humboldti*. The material studied by Vokes & Vokes (1983) could not be found, but we examined the specimens upon which Rios (1994) based his record from Brazil, from the locality of Pina, Pernambuco State, and noticed that the shells belong to *E. didyma*, with spiral cords along the entire surface of the base (Fig. 4D, G, H). Actually the original figure of *E. humboldti* resembles *E. dydima*, what led to the record by Rios (1994) and probably that of Vokes & Vokes (1983). Examination of the holotype of *E. humboldti* (PRI 26351) (Fig. 4L) revealed a shell with the last whorl, base and aperture broken; the remaining parts of the shell, however, are very similar to *E. dydima*, with a little smaller protoconch. Due to the similarity between the shells from Brazil and holotype of *E. didyma* and speci-

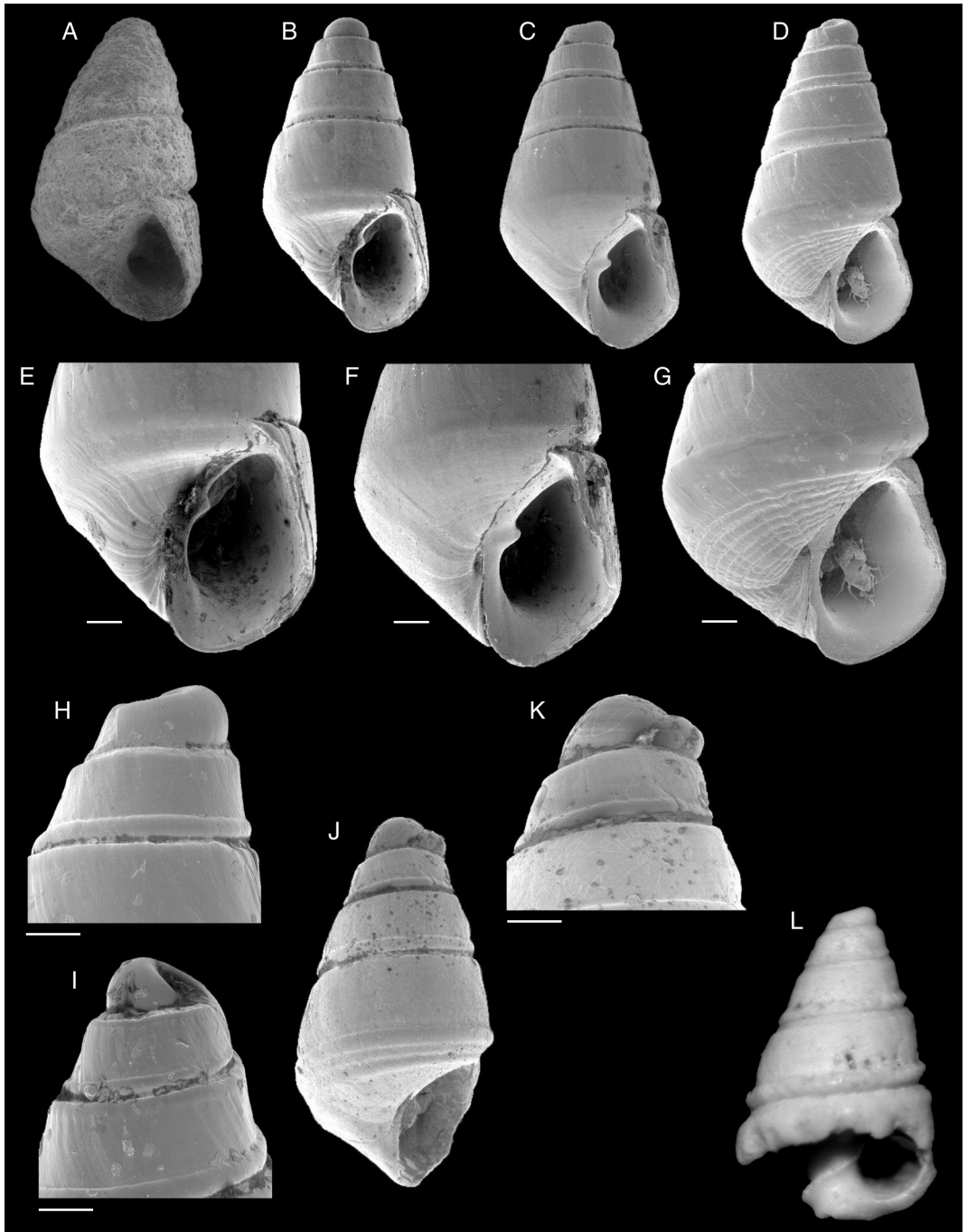


FIG. 4. — **A**, *Eulimastoma didyma* (Verrill & Bush, 1900), holotype, length 1.78 mm (YPM 15706); **B-I**, *E. didyma*, Brazilian material, **B, E**, UERJ 1973; **C, D, F-I**, MNHN; **B-D**, whole shells, respective lengths: 1.70 mm, 1.73 mm, 1.65 mm; **E-G**, last whorls; **H, I**, protoconchs; **J, K**, *Eulimastoma* aff. *didyma* (UERJ 1973); **J**, whole shell, length 1.60 mm; **K**, protoconch; **L**, *Eulimastoma humboldti* (Weisbord, 1962), holotype, length 1.40 mm (PRI 26351). Scale bars: 100  $\mu$ m.

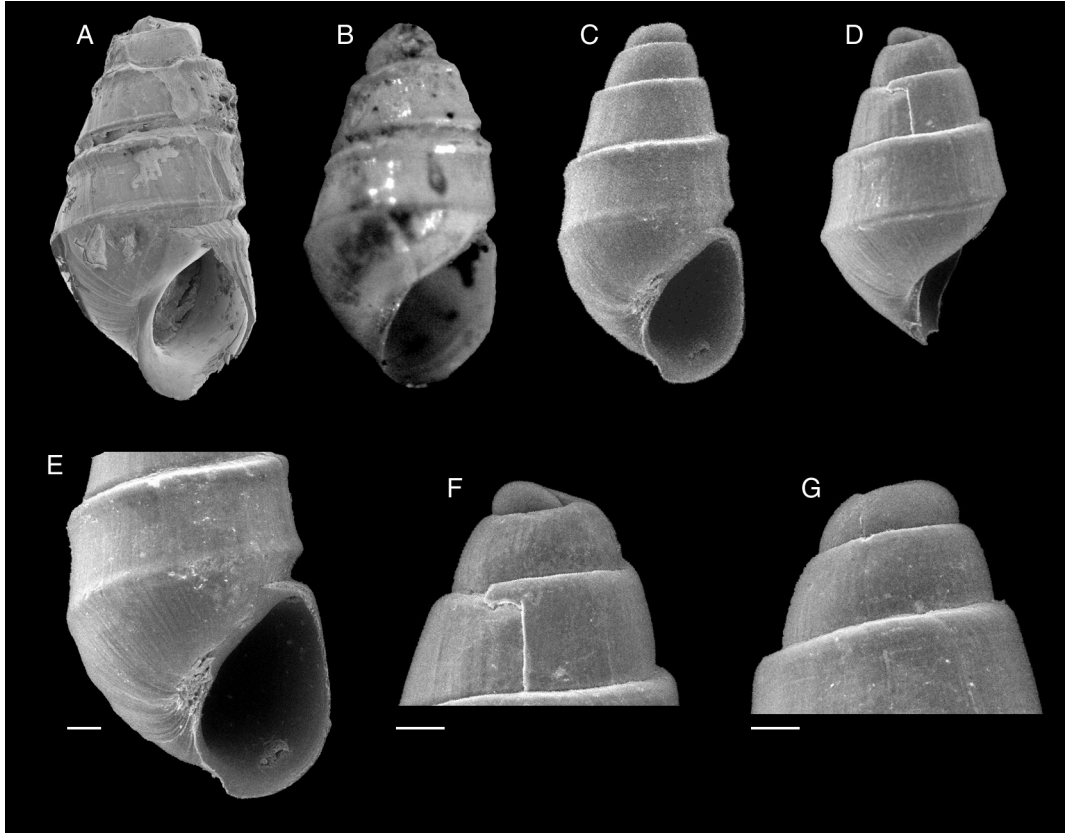


FIG. 5. — **A, B**, *Eulimastoma weberi* (Morrison, 1965), holotype, length 1.40 mm (USNM 635638), courtesy Dr Jerry Harasewych, Yolanda Villacampa (USNM); **C-G**, *Eulimastoma* aff. *weberi* (IBUFRJ 12678); **C, D**, whole shells, respective lengths: 1.73 mm, 1.26 mm; **E**, last whorl; **F, G**, protoconchs. Scale bars: 100  $\mu$ m.

mens of this species from West Indies, and also considering that this is a recent taxon, contrary to the Pliocene fossil *E. humboldti*, we use the specific name *E. didyma* to refer to Brazilian specimens. Although Grant & Gale (1931), working with Pyramidellidae, stated that “perhaps none of the Pleistocene species is extinct” and lists several species of *Turbonilla* occurring from Pleistocene to Recent and few species from Pliocene to Recent, we prefer to keep *Eulimastoma humboldti* as a valid species, based on the lack of additional specimens from type locality for study and to the geological time separating both taxa.

Some shells collected in Rio de Janeiro State (Fig. 4J, K) have the same shell shape and sculp-

ture of *E. didyma*, including the double spiral cords in the periphery of the base (Fig. 4J). However, these examples have a different protoconch, with its axis oriented about 90° in relation to teleoconch axis (Fig. 4K). As we are not sure about the exact taxonomic significance of this character, we prefer to simply designate them *Eulimastoma* aff. *didyma*.

*Eulimastoma* aff. *weberi* (Morrison, 1965)  
(Fig. 5C-G)

*Odostomia weberi* Morrison, 1965: 221, fig. 3.

MATERIAL EXAMINED. — **Brazil**. REVIZEE, stn 52C, 21°46'S, 40°05'W, 450 m, 9 specs (IBUFRJ 12678).

DISTRIBUTION. — USA (Louisiana; Texas); Mexico (NW of Gulf of Mexico); occurrence of *E. aff. weberi* in Brazil (coast of Rio de Janeiro State).

#### DESCRIPTION

Shell white, conical with rectilinear whorls. Holotype 1.4 mm in length; 0.7 mm in width. Protoconch intorted, partially sunken into first teleoconch whorl. Sutures almost straight, channeled. A supra- and other subsutural rounded keels present, axial sculpture absent. Base rounded, smooth; no umbilicus. Aperture rhomboid. Outer lip thin. Columellar fold absent.

#### REMARKS

According to its original description (Morrison 1965), holotype (USNM 635638, from North of Bayou Chene Fleur, northern part of Barataria Bay, Louisiana) (Fig. 5A, B) and as seen in the shell illustrated by Odé & Speers (1972: fig. 7), *E. weberi* has two spiral cords per whorl, contrary to the definition of *Eulimastoma* of a suprasutural cord only. For this reason, and in the lack of further clear options, we consider that this species should be only provisionally included in *Eulimastoma*.

The Brazilian specimens herein identified as *Eulimastoma aff. weberi* (Fig. 5C-G) differ from *E. weberi* by their less canaliculate suture compared to the holotype and illustrations of *E. weberi* which has an excavated V-shaped suture. Besides, the subsutural spiral cord in *E. weberi* is visible from the second teleoconch whorl onward but in *E. aff. weberi* it is only discernible on the body whorl (Fig. 5C-E). Odé (1994) reported *E. weberi* from Gulf of Mexico, with a great variability in shape, both in spire angle and development of spiral ridges. Barros (1994a, c) recorded *E. weberi* from north-east coast of Brazil, but the illustration is lacking or too poor to allow a precise identification. Absalão *et al.* (1996: fig. 10) and Altena (1975: fig. 28) illustrated specimens of *E. engonium* misidentified as *E. weberi*.

#### Genus *Egila* Dall & Bartsch, 1904

*Egila* Dall & Bartsch, 1904: 11.

TYPE SPECIES. — *Parthenia lacunata* Carpenter, 1856 by original designation.

DIAGNOSIS. — Shell small, elongate-conic, micro-sculpture absent or with minute spiral striae on the base; protoconch heterostrophic with immersed nucleus; suture V-shaped notched; characterized by well developed ribs extending to the umbilical region; periphery deeply sulcate, with or without columellar fold; a chink-like umbilicus usually present.

#### REMARKS

The genus *Egila* was created by Dall & Bartsch (1904) as subgenus of *Odostomia* based on *Parthenia lacunata* Carpenter, 1856, with the following characters: axial ribs consisting of well developed ribs extending to the umbilical region, spiral striations consisting of impressed lines on the base only, periphery deeply sulcate. Besides the type species, Dall & Bartsch (1909) included *C. (Egila) poppei* and Laseron (1959) included six species from Australia. Besides *E. virginiae* Altena, 1975, there is another western Atlantic taxon assigned to this genus, *Egila* sp. (Odé 1993c). Both Laseron (1959) and Odé (1993c) stated that some species may not bear the groove or it may be weakly developed, which allows for a wide range of variation in the generic concept. Both *E. virginiae* and the new species here described do not fit the concept of the genus *Egila* well. Altena (1975: 74) was not sure about this assignment but was unable to find a better generic placement.

#### “*Egila*” *virginiae* Altena, 1975 (Fig. 6A-D)

*Egila* (?) *virginiae* Altena, 1975: 74, fig. 29a, b.

*Egila virgineae* – Mello & Barros 1991: 14, fig. 7.

*Odostomia (Egila) virginiae* – Díaz & Puyana 1994: 235, pl. 69, fig. 938. — Rios 1994: 186, pl. 61, fig. 869.

TYPE MATERIAL. — Holotype and 98 paratypes (Rijksmuseum van Natuurlijke Historie, Leiden).

TYPE LOCALITY. — Popogaimama Creek, Saramacca District, Suriname.

MATERIAL EXAMINED. — **Brazil.** Pernambuco State, Raposa (praia de Raposa), tide mark, 1 spec. (MNHN); Praia de Raposa, 1 spec. (MNHN). — Maranhão

State, São Luiz, Praia de Areia Preta, 5 specs (MNHN); São Luiz, Praia de Areia Preta, 1 spec. (MNHN). — Bahia State, off Caravels, 17.VII.1985, 58 specs (IBUFRJ 12066). — Espírito Santo State, off Camburi, 17.III.1992, IBUFRJ team coll., 1 spec. (IBUFRJ 5930); off Aracruz, 18.XII.1989, R. Cruz coll., 2 specs (IBUFRJ 8997). — Rio de Janeiro State, off Cabiúnas, 20.IV.1993 (IBUFRJ 7267); Arquipélago de Santana, Macaé, *Astro Garoupa*, V.1993, 10 specs (IBUFRJ 9618).

DISTRIBUTION. — Colombian Caribbean; Suriname (Saramacca District); N, NE and SE coasts of Brazil (Pernambuco, Maranhão, Bahia, Espírito Santo and Rio de Janeiro states).

#### DESCRIPTION

Shell white, conical-elongated with slightly concave whorls. Holotype 2.2 mm in length; 1.0 mm in width. Protoconch intorted, partially sunken into first teleoconch whorl. Sutures oblique, slightly sinuous, channeled, with adjacent spiral cords. Axial and spiral sculpture present. About 16-18 rounded axial opisthocline ribs producing weak nodules where they cross the spiral cords. These axial ribs may be not visible in the earlier whorls. Base rounded, smooth or with a delicate spiral striae; a small chink-like umbilicus present. Aperture pyriform elongate. Outer lip thin. Columellar fold absent.

#### REMARKS

"*Egila*" *virginiae* departure from the typical *Egila* concept (Dall & Bartsch 1904, 1909) by its hardly discernible axial ribs on the base and by the absence of the groove at the periphery. Altena (1975) expressed his reservations in placing this species in an appropriate genus, and it is best regarded as a tentative assignment.

In many Brazilian specimens (see Fig. 6A-D), some disimilarities from Altena's description and illustration were evident. Our specimens have more distinct spiral striations on the base (Fig. 6A) and show few conchological variation: the axial ribs are sometimes not visible in the earlier whorls (Fig. 6B, C) and may extent in the base towards the umbilical region but hardly reaching it (Fig. 6A). The expression of the suprasutural cord is very variable, especially on the body whorl (Fig. 6A-C).

#### "*Egila*" *ektopa* n. sp. (Fig. 6E-H)

TYPE MATERIAL. — Holotype: REVIZEE, stn VV38, 19°44'S, 38°22'W, 71.4 m, *Astro Garoupa*, 29.II.1996 (MNRJ 10255); paratypes: 1 spec., same locality (MNHN); GEOMAR XII, stn 95, 1 spec. (IBUFRJ 7800).

TYPE LOCALITY. — Off Espírito Santo State, Brazil, REVIZEE, stn VV38, 19°44'S, 038°22'W, 71.4 m.

DIAGNOSIS. — Shell conical with a rounded suprasutural spiral cord and axial ribs with well rounded upper summits and disappearing towards the lower part of the whorl; base smooth with a very distinct small chink-like umbilicus; columellar fold very prominent.

ETYMOLOGY. — From the Greek *ektōpos*: out of place, displaced, strange, an allusion to our uncertainty about the generic allocation of this species.

DISTRIBUTION. — SE coast of Brazil (Espírito Santo and Rio de Janeiro states).

#### DESCRIPTION

Shell white, conical with rectilinear whorls. Holotype with 2.0 mm in length. Protoconch intorted, sunken into first teleoconch whorl. Sutures almost perpendicular to main shell axis, somewhat deep; with a rounded suprasutural spiral cord. About 20 orthocline axial ribs disappearing towards the lower part of the whorl; upper summits of the ribs well rounded, given a waved appearance to the suture above it. Base slightly convex, smooth with a very distinct small chink-like umbilicus. Aperture rhomboid, angulated in the middle. Outer lip thin. Columellar fold very prominent.

#### REMARKS

Our choice to include this species in *Egila* is based on some general similarities with "*Egila*" *virginiae*. However, as discussed earlier, the generic placement is tentative. As with "*Egila*" *virginiae*, "*Egila*" *ektopa* n. sp. does not conform to some of the diagnostic characters of *Egila*, especially the peripheral groove and the presence in "*Egila*" *ektopa* n. sp. of a rounded subsutural cord at which the axial ribs stop (Fig. 6E, F).

"*Egila*" *ektopa* n. sp. can be easily distinguished from "*Egila*" *virginiae* based on its trigonal shell shape (Fig. 6E), orthocline axial ribs (Fig. 6E),

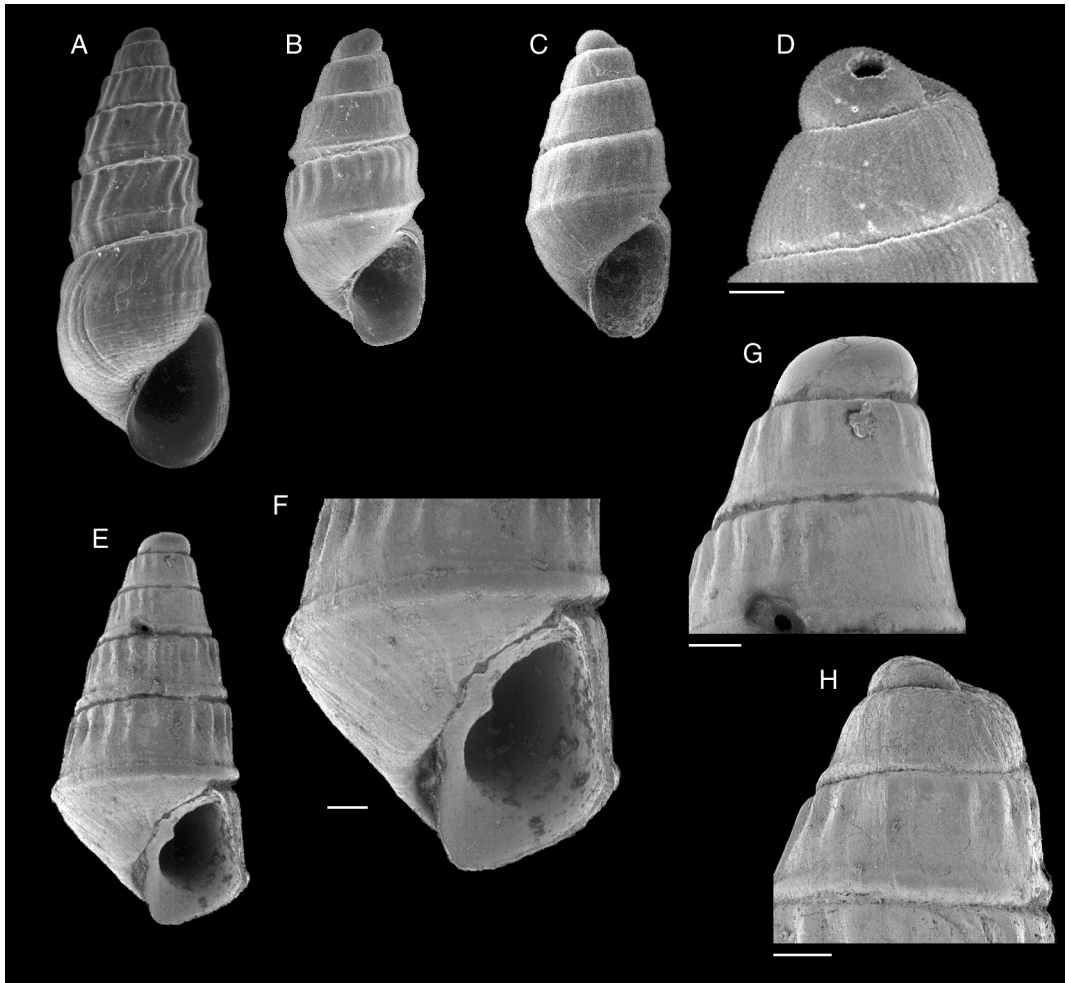


FIG. 6. — **A-D**, “*Egila*” *virginiae* Altena, 1975; **A**, MNHN; **B-D**, MMUFRPE; **A-C**, whole shells, respective lengths: 3.65 mm, 1.78 mm; 1.52 mm; **D**, protoconch; **E-H**, “*Egila*” *ektopa* n. sp.; **E-G**, holotype (MNRJ 10255); **E**, whole shell, length 2.00 mm; **F**, last whorl; **G**, protoconch; **H**, protoconch of paratype (IBUFRJ 7800). Scale bars: 100  $\mu$ m.

strong rounded keel at periphery (Fig. 6F), base slightly rounded and presence of columellar fold (Fig. 6E), while “*Egila*” *virginiae* (Fig. 6A-D) shows elongate shell shape, opisthocline axial ribs, no keel at periphery of body whorl, well rounded base and absence of columellar fold.

#### Acknowledgements

We are grateful to Dr Eric Lazo-Wasen (YPM) and Dr Amy P. Moe (PRI) for loan of type mate-

rial and comments. Prof. Philippe Bouchet and Philippe Maestrati (MNHN) for loan of material from Pernambuco, Brazil; Dr Robert Moolenbeeck (ZMA) for the loan of specimens of *Eulimastoma didyma* from West Indies. Dr Jerry Harasewych, Yolanda Villacampa and Tyjuana Nickens (USNM) graciously provided us with photographs of the holotype of “*Eulimastoma*” *weberi*. Jonas de Britto (Universidade do Estado do Rio de Janeiro) and Maria Fátima Lopes (Departamento de Ciências dos Materiais e

Metalurgia, Pontifícia Universidade Católica do Rio de Janeiro) for their help with SEM photos. Dr Harry Lee, Dr Emilio Rolán and Prof. Philippe Bouchet for their valuable critics on the manuscript. Dr Jacobus Van Aartsen for his comments about supraspecific classification of pyramidellids. MSc Alexandre de Alencar for his help in the beginning of the work. This work was partially supported by CNPq (“Conselho Nacional de Desenvolvimento Científico e Tecnológico”) and CAPES (“Conselho de Aperfeiçoamento de Pessoal de Nível Superior”).

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Submitted on 19 November 2002;  
accepted on 29 August 2003.