

A tale of two snails: “Le Pouchet” from Adanson (Mollusca, Gastropoda, Helicoidea, Helicidae)

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ABSTRACT

As consequence of an uninterrupted series of taxonomic, but mainly nomenclatural errors made up to now by various malacologists, the first land snail species recorded from the Canary Islands (Spain) at the present time has been left without a valid name. This species was discovered by Adanson and published with the pre-Linnean name “Le Pouchet” in 1757. It is now named *Hemicycla pouchadan* n. sp. and compared with two closely related taxa: *H. pouchet* (A. Férussac, 1821) and *H. plicaria* (Lamarck, 1816), *H. pouchadan* n. sp. being the smallest and more globose. *Hemicycla pouchadan* n. sp. differs conchologically from both species mainly by its shell ornamentation. The shell surface has numerous series of radially thickened ribs, each one with a strong transversal striation produced by very numerous, fine and densely set, spiral grooves which do not affect the shell surface located between the radial ribs.

KEY WORDS

Mollusca,
Gastropoda,
Helicidae,
Adanson,
“Le Pouchet”,
Hemicycla pouchet,
H. pouchadan n. sp.,
Tenerife,
new species.

RÉSUMÉ

Une histoire de deux escargots: «Le Pouchet» d'Adanson (Mollusca, Gastropoda, Helicoidea, Helicidae).

Suite à une série ininterrompue d'erreurs taxonomique, mais surtout nomenclaturales, faites jusqu'à présent par de nombreux malacologistes, la première espèce d'escargot mentionnée des Îles Canaries n'a pas de nom valide. Cette espèce a été découverte par Adanson et a été décrite sous le nom pré-linnéen de «Le Pouchet» en 1757. Elle est maintenant nommée *Hemicycla pouchadan* n. sp. et comparée avec les espèces proches: *H. pouchet* (A. Férussac, 1821) et *H. plicaria* (Lamarck, 1816), *H. pouchadan* n. sp. étant le plus petit et plus globuleux. *Hemicycla pouchadan* n. sp. diffère de ces deux espèces principalement par l'ornementation de sa coquille. La surface de la coquille a de nombreuses séries de côtes radialement épaissies, chacune ayant une forte striation transversale produite par de très nombreuses, fines et denses rainures en spirale, qui n'affectent pas la surface de la coquille située entre les côtes radiales.

MOTS CLÉS

Mollusca,
Gastropoda,
Helicidae,
Adanson,
«Le Pouchet»,
Hemicycla pouchet,
H. pouchadan n. sp.,
Tenerife,
espèce nouvelle.

INTRODUCTION

Michel Adanson published in 1757, one year before the publication of the 10th edition of *Systema Naturae* (Linnaeus 1758), the first record and drawing of a land snail species discovered in the Canaries, named “Le Pouchet” (Fig. 1B) and collected near Santa Cruz de Tenerife (Canary Islands). Unfortunately, almost all the authors that published data about this species made taxonomic, or mainly nomenclatural errors, resulting in an intricate nomenclatural history which recently has been summarized by Bank *et al.* (2002: 189) as follows (the text has been slightly abbreviated):

“*Helix* [*Helicogena*] *pouchet* A. Férussac, 1821, *Tabl. syst. limaçons* (= “*Prodrome*”), livr. 10: 32 (Quarto edition) [Folio edition: 36] (= 26-V-1821). Type locality (restricted because of lectotype selection by Groh (1985: 414)): ‘Ténériffé’. Lectotype by subsequent designation of Groh (1985: 414, pl. 1, fig. 1a-c) MNHN. Current status: *Hemicycla* (*Hemicycla*) *pouchet* (A. Férussac, 1821). Note (1): the name *pouchet* first appeared as a *nomen nudum* in A. Férussac (1821: xv); in this publication A. Férussac referred to plate 42, fig. 3. This plate was published by A. Férussac (1822), but without explanations on the plate or on the covers. The epithet has been validly introduced by A. Férussac (1821: 32 or 36); he referred to Adanson (1757: pl. 1, fig. 2) and to material in his own collection obtained from Maugé. In his paper, A. Férussac (1821: 32 or 36) also referred to his own plate 42, fig. 3; this plate appeared in 1822 and is based on a specimen from Maugé. The author Adanson (1757: 18) used for the shell the pre-Linnean name ‘Le Pouchet’. It so happened that Adanson’s shell is not conspecific with that of Maugé; as a consequence, *pouchet* A. Férussac, 1821 is a mixture of two species. According to the *Code* [ICZN 1999], Article 72.4.1, “The type series of a nominal species-group taxon consists of all the specimens included by the author in the new nominal taxon (whether directly or by bibliographic reference)’. Thus, the syntypes of *pouchet* consists of the shells from Maugé and the shell figured by Adanson. The collection of Adanson contains two shells (Fischer-Piette 1942: 135, 136, pl. 1, figs 9-10). Fischer-

Piette did not indicated whether one of these shells is the one figured by Adanson (and thus if one of these shells can be considered a syntype of *pouchet*). The Férussac collection contains 4 specimens of *pouchet* from Maugé (Chevallier 1965: 483); one of the latter specimens was validly selected as the lectotype of *pouchet* by Groh (1985: 414, pl. 1, fig. 1a-c; the spelling *poucheti* used by Groh is an unjustified emendation for *pouchet*). Remarkably, Ibáñez, Groh, Alonso & Cavelero (1988: 311) later stated that “This shell has no status as type material”, and considered the two shells of “Le Pouchet” in the Adanson collection as the two syntypes of *Helix* [*Helicogena*] *pouchet*. A year earlier, Ibáñez, Groh, Cavelero & Alonso (1987: 87) also ignored the valid lectotype selection of Groh. Note (2): Webb & Berthelot (1833: 313 [reprint: 9]) treated the two shells figured by Adanson and A. Férussac as conspecific. They introduced *Helix adansoni* as a new replacement name (*nomen novum*) for *Helix* [*Helicogena*] *pouchet* A. Férussac, 1821 (*Nomen latinum annuente ipso cl. de Ferruss. mutavimus*). As the latter name is validly introduced and not preoccupied, *adansoni* becomes a junior objective synonym of *pouchet*. Indeed, both nominal taxa have the same name-bearing type (ICZN 1999: Article 72.7), that is, the lectotype of *pouchet* selected by Groh (1985: 414) is also the lectotype of *adansoni*. Consequently, the taxon described by Ibáñez, Groh, Alonso & Cavelero (1988: 310-313, pl. 1, fig. 1, pl. 2, fig. 5, pl. 3, figs 7-10, pl. 4, figs 11-13) as *Hemicycla* (*Adiverticula*) *adansoni* (Webb & Berthelot, 1833) should be renamed. We here select the epitheton *hedeia* J. Mabilie, 1882 as the valid name for the taxon under consideration. The status of *Adiverticula* Alonso & Ibáñez, 1988 does not change; the type species is *Helix adansoni* sensu Ibáñez, Groh, Alonso & Cavelero, 1988 (*non* Webb & Berthelot 1833) = *Helix hedeia* J. Mabilie, 1882.”

With such a complex history, although remarkable, it does not seem strange that Bank *et al.* (2002) forget to propose a new, valid name to “Le Pouchet”. Unfortunately, they should also be added to the list of mistaken authors, with respect to their selection of *Helix hedeia* as the valid name for the taxon described by Ibáñez *et al.* (1988) as *Hemicycla adansoni*, as well as when they placed *Hemicycla pouchet* in the

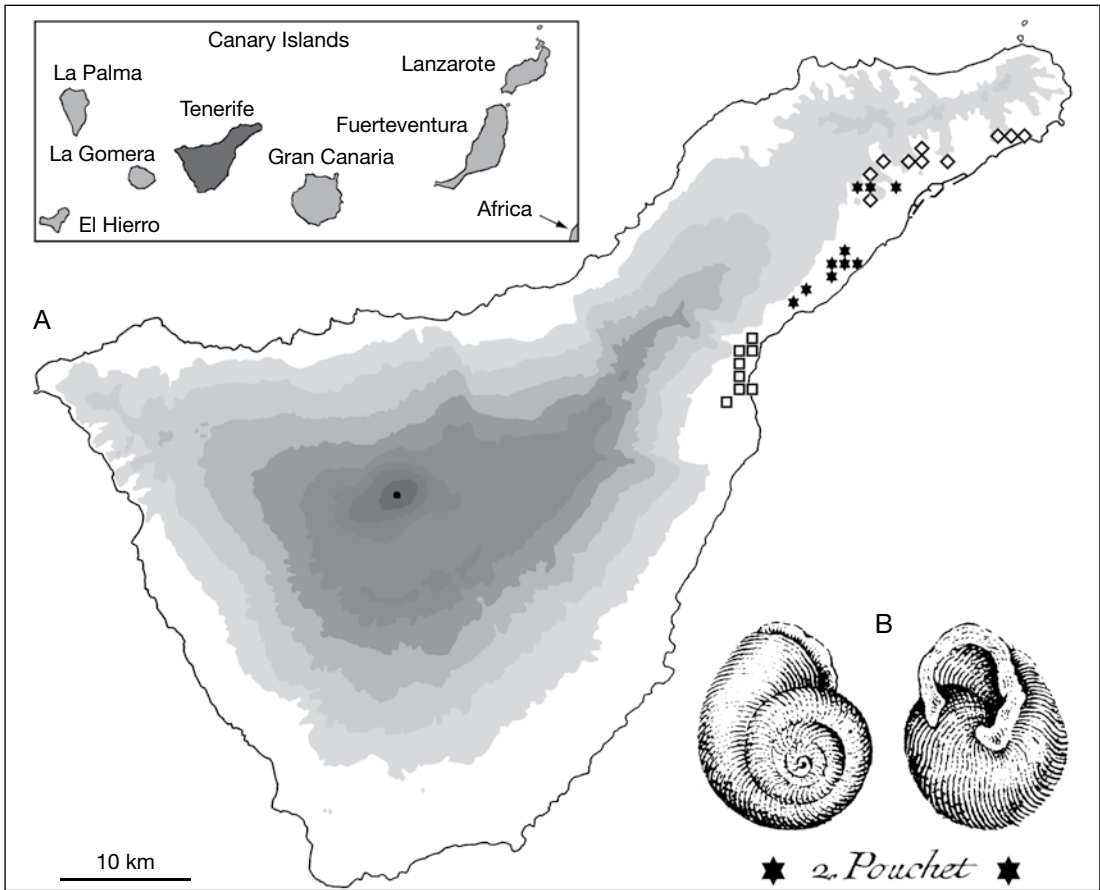


FIG. 1. — **A**, geographical distribution of *Hemicycla pouchadan* n. sp. ("Le Pouchet") (★), *H. pouchet* (A. Férussac, 1821) (◇) and *H. plicaria* (Lamarck, 1816) (□). Symbols represent 1 × 1 km UTM squares; equidistance: 400 m; **B**, drawings of "Le Pouchet" shell reproduced from Adanson (1757).

subgenus *Hemicycla* (*Hemicycla*) (Bank *et al.* 2002: 130, 189). This is because the authors overlooked that *Hemicycla adansoni* described by Ibáñez *et al.* (1988) is in fact *H. pouchet* (A. Férussac, 1821), and that *H. pouchet* described by Ibáñez *et al.* (1987) is the unnamed species. Another author that was in error is Fischer-Piette (1942), who also mistakenly determined the two shells of Adanson as *Hemicycla plicaria* (Lamarck, 1816).

The aim of this contribution is to conclude (we hope) the work undertaken by Bank *et al.* (2002) about the taxonomy and nomenclature of *Hemicycla pouchet* and "Le Pouchet", which is now named *Hemicycla pouchadan* n. sp.

MATERIAL AND METHODS

The material used for the dissections is deposited in the AIT collection. "Proximal" and "distal" refer to the position in relation to the gonad. The nomenclature of the penis anatomy is the same as that of Giusti *et al.* (1995) and Neubert & Bank (2006). Calculation of the number of shell whorls follows Kerney & Cameron (1979: 13).

The photographic methodology is the same as that of Ibáñez *et al.* (2006). The shell measurements of the taxa (Table 1; Fig. 2) were obtained following Alonso *et al.* (2006a, b) with the software analySIS[®] of the Soft Imaging System GmbH (<http://www.microscopy>).

TABLE 1. — *Hemicycla pouchadan* n. sp., shell dimensions (in mm or mm², 14 specimens measured). Abbreviations: **SD**, standard deviation; **Min**, minimum; **Max**, maximum; other abbreviations as in Figure 2.

Character	Mean	SD	Min	Max	Holotype
D1	20.41	1.37	18.48	24.21	20.10
D2	17.08	1.00	15.40	19.44	17.50
SS	262.56	34.23	214.50	353.15	264.55
SP	59.89	4.08	53.75	70.06	60.00
SH	12.34	0.98	10.89	14.13	12.15
FS	168.93	22.39	136.03	219.53	171.33
FP	52.98	3.72	47.68	61.16	53.45
BH	9.80	0.80	8.27	11.27	9.64
BS	151.49	19.72	118.94	192.89	153.88
BP	51.82	3.38	46.81	59.77	52.17

olympus.eu/microscopes/Software_Materials_Science_Application_Packages.htm). The lectotype of *Helix pouchet* and a detail of its shell ornamentation (Fig. 3A, B) as well as the shell and a detail of the shell ornamentation of a *Hemicycla plicaria* specimen (Fig. 3E, F), are shown for comparisons with the holotype of *Hemicycla pouchadan* n. sp. (“Le Pouchet”) and a detail of its shell ornamentation (Fig. 3C, D).

ABBREVIATIONS

AIT	Alonso & Ibáñez collection, Departamento de Biología Animal, Universidad de La Laguna, Tenerife, Canary Islands;
MNHN	Muséum national d’Histoire naturelle, Paris;
TFMC	Museo de Ciencias Naturales de Tenerife, Canary Islands.

SYSTEMATICS

Genus *Hemicycla* Swainson, 1840

TYPE SPECIES (by monotypy). — *Helix plicaria* Lamarck, 1816.

Hemicycla (Adiverticula) pouchet (A. Férussac, 1821)

Helix (Helicogena) pouchet A. Férussac, 1821: 32 [quarto edition; folio edition: 36], *partim* (here restricted to the

four shells of *pouchet* from Maugé, from the collection of A. Férussac, MNHN).

Helix adansoni Webb & Berthelot, 1833: 313 [reprint: 9], *partim* (here restricted to the four shells of *pouchet* from Maugé, from the collection of A. Férussac, MNHN). — Shuttleworth 1975: pl. 5, fig. 6.

Helix hedeia J. Mabile, 1882: 134.

Hemicycla pouchet – Groh 1985: pl. 1, fig. 1a-c. — Bank *et al.* 2002: 130, 189.

Hemicycla adansoni – Ibáñez *et al.* 1988: 310-313, pl. 1, fig. 1, pl. 2, fig. 5, pl. 3, figs 7-10, pl. 4, figs 11-13.

REMARKS

For a full description of this well known species refer to Ibáñez *et al.* (1988: 310-313, pl. 1, fig. 1, pl. 2, fig. 5, pl. 3, figs 7-10, pl. 4, figs 11-13) under the name *Hemicycla (Adiverticula) adansoni* (Webb & Berthelot, 1833). Its shell is also figured in Shuttleworth (1975: pl. 5, fig. 6) under the name *Helix adansoni* Webb & Berthelot, 1833.

The shell of the lectotype of *H. pouchet* (Groh 1985: pl. 1, fig. 1a-c; Fig. 3A, B), as well as those of *Hemicycla adansoni* sensu Ibáñez *et al.* (1988: pl. 3, figs 7-9) and the lectotype of *Helix hedeia* (Ibáñez *et al.* 1988: pl. 4, fig. 12), belong to the same species. Because of this, the taxon *Hemicycla adansoni* sensu Ibáñez *et al.* (1988) should not be renamed, against that proposed by Bank *et al.* (2002); its name, as well as the name *Helix hedeia* J. Mabile, 1882, are junior objective synonyms of *Hemicycla (Adiverticula) pouchet*.

Hemicycla (Hemicycla) pouchadan n. sp. (Figs 2; 3C, D; 4)

“Le Pouchet” – Adanson 1757: pl. 1, fig. 2.

Helix (Helicogena) pouchet A. Férussac, 1821: 32 [quarto edition; folio edition: 36], *partim* (here restricted to the two shells of “Le Pouchet” from Adanson, from the collection of A. Férussac, MNHN).

Helix adansoni Webb & Berthelot, 1833: 313 [reprint: 9], *partim* (here restricted to the two shells of “Le Pouchet” from Adanson, from the collection of A. Férussac, MNHN).

Helix plicaria – Shuttleworth 1975: pl. 5, fig. 4.

Hemicycla plicaria – Fischer-Piette 1942: 135, 136, pl. 1, figs 9-10.

Hemicycla pouchet – Ibáñez *et al.* 1987: 86-89, fig. 3, pl. 2, fig. 6, pl. 3, fig. 10, pl. 4, figs 15, 16.

TYPE MATERIAL. — Holotype (Fig. 3 C, D): brown shell of "Le Pouchet" from Adanson (collection A. Férussac, MNHN).

Paratypes: whitish shell of "Le Pouchet" from Adanson, (collection of A. Férussac, MNHN). — Paratypes collected between 1983 and 1995, 1 shell (TFMC MT/000391); 2 alcohol specimens, 20 shells (AIT).

ETYMOLOGY. — The specific name is a combination of the first five letters of its original epithet and the first four letters of its discoverer's name.

DISTRIBUTION AND HABITAT (Fig. 1A). — The species is endemic to Tenerife. It occurs at an altitude of 100-550 m in a small area in the eastern part of the island, at the south of its dorsal chain of mountains, in dry open areas with lowland vegetation. This area is nowadays fragmented in two sub-areas near its northern end, by the development of the city of Santa Cruz de Tenerife.

DESCRIPTION

A description of this species is given in Ibáñez *et al.* (1987: 86-89, fig. 3 [genital system, general appearance], pl. 2, fig. 6 [shell], pl. 3, fig. 10 [radula], pl. 4, figs 15-16 [shell details]) under the name *Hemicycla pouchet*. Its shell is also figured in Shuttleworth (1975: pl. 5, fig. 4) under the name *Helix plicaria*. To avoid too many repetitions, we only include here some shell characteristics, and also new details of the genital system.

The shell (Fig. 3C) is imperforated, solid and opaque, without gloss, conic-depressed, with 3 $\frac{3}{4}$ -4 $\frac{1}{2}$ convex whorls. Colour brown to reddish-brown with four diffuse darker bands sometimes insinuated, three above and one below the periphery. Shell ornamentation (Fig. 3D) formed by a numerous series of radially thickened ribs, regularly arranged, in a similar way above and below the periphery. The ribs have a strong transversal striation produced by a series of very numerous, fine and dense, spiral grooves. These grooves do not affect the shell surface located between the radial ribs.

The bursa copulatrix complex in the female part of the genital system (Fig. 4A) shows a well

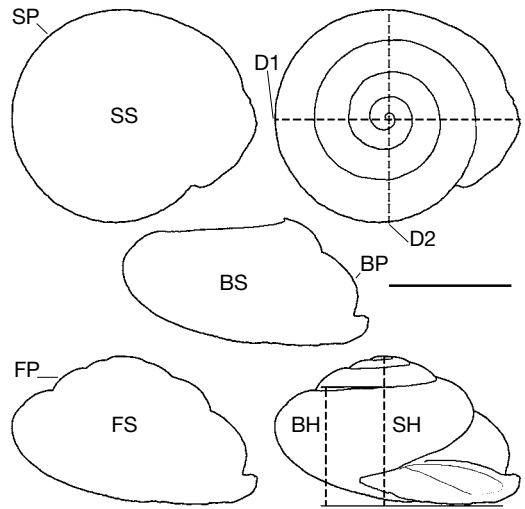


FIG. 2. — *Hemicycla pouchadan* n. sp., holotype shell showing the placement of the measurements obtained for Table 1. Abbreviations: **BH**, body whorl height; **BP**, body whorl frontal perimeter; **BS**, body whorl frontal surface (plane view); **D1**, maximum shell diameter; **D2**, shell diameter perpendicular to D1; **FP**, shell frontal perimeter; **FS**, shell frontal surface (plane view); **SH**, shell height; **SP**, shell perimeter (dorsal plane view); **SS**, shell surface (dorsal plane view). Scale bar: 10 mm.

developed diverticulum, but shorter than the bursa copulatrix duct which, in turn, is similar in length to the common stalk. The penial anatomy (Fig. 4B-D) is of the same type as that of several other genera of the subfamily Helicinae, as *Helix* Linnaeus, 1758. The penis has a system of twin papillae with a penial chamber between them. This system was already made known by Giusti *et al.* (1995) in *Helix delpretiana* Paulucci, 1878, and described by Neubert & Bank (2006). The proximal papilla is the elongate distal part of the epiphallus pointing into the lumen of the penial chamber. The function of this papilla is to place the spermatophore in the correct position inside the partner's genital system although it is located farther inside than the distal penial papilla (Alonso & Ibáñez 2007). Hence, the proximal papilla protrudes in the same way and has the same function as its homologous stylommatophoran penial papilla. The distal papilla is only an accessory papilla, as was named by Giusti *et al.* (1995).

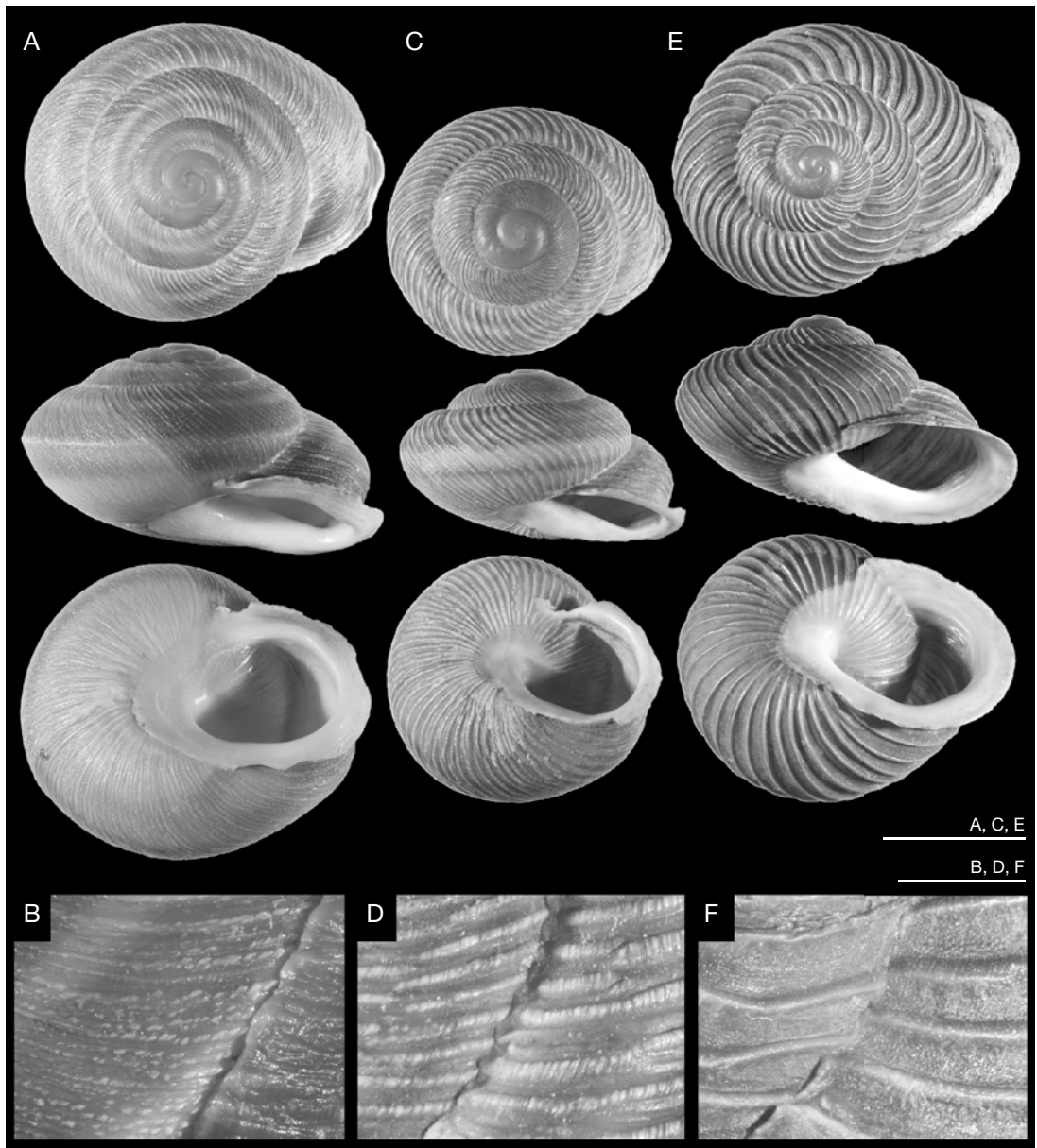


FIG. 3. — Shells and shell ornamentation details of the penultimate whorl and the body whorl, near the aperture of the same specimen (dorsal view): **A, B**, lectotype of *Helix pouchet* A. Férussac, 1821; **C, D**, holotype of *Hemicycla pouchadan* n. sp.; **E, F**, specimen of *Hemicycla plicaria* (Lamarck, 1816) from Las Caletillas (Tenerife). Scale bars: A, C, E, 10 mm; B, D, F, 2 mm.

Furthermore, a tuberculum is located standing out towards the penis lumen, between the distal penial papilla and the atrium. The tuberculum

was labelled as “contact organ” (Giusti & Lepri 1981), and is homologous to that of other Helicidae.



FIG. 4. — Genital system and details of a paratype of *Hemicycla pouchadan* n. sp. from Hoya Fría, Tenerife: **A**, general appearance of the whole genital system; **B-D**, details of the distal male duct. Abbreviations: **bc**, bursa copulatrix; **d**, diverticulum; **e**, epiphallus; **f**, flagellum; **pp₁**, proximal penial papilla; **pp₂**, distal penial papilla; **r**, retractor muscle; **t**, tuberculum (contact organ). Scale bars: A-C, 5 mm; D, 2 mm.

REMARKS

The three species involved in this paper, *Hemicycla pouchet*, *H. pouchadan* n. sp. and *H. plicaria*, are living in dry open areas with lowland vegetation and have an allopatric distribution, only with a small overlapping between the areas of the two first species (Fig. 1A).

All three taxa have a different shell morphology and shell ornamentation (Fig. 3), *H. pouchadan* n. sp. being the smallest and more globose.

Hemicycla pouchet has a granulated shell (Fig. 3A, B), with the granulations arranged on weakly pronounced radial striae which do not reach to form costulae and tend to disappear below the periphery, near the columellar zone. *Hemicycla plicaria* has the shell equipped with strong, radial, laminar, smooth and prominent costulations (Fig. 3E, F), very regularly disposed. *Hemicycla pouchadan* n. sp. has a different ornamentation than the other two species. The *H. pouchadan* n. sp. shell (Fig. 3C, D) has numerous

series of radially thickened ribs, each one with a strong transversal striation produced by very numerous, fine and densely set spiral grooves which do not affect the shell surface located between the radial ribs.

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