The genus *Alzoniella* Giusti & Bodon, 1984 (Gastropoda, Hydrobiidae) in Asturias (northern Spain), with the description of a new species

E. Rolán
Museo de Historia Natural, Parque Vista Alegre, Campus Universitario Norte, E-15782 Santiago de Compostella, Spain; erolan@emiliorolan.com

& H.D. Boeters
Karneidstr. 8, D-81545 München, Germany; boeters@t-online.de

After a summary of distributional data regarding the genus *Alzoniella* Giusti & Bodon, 1884, a new species of that genus is described from Asturias in northern Spain. All *Alzoniella* species are compared with the new species and shortly characterized.

Key words: Gastropoda, Caenogastropoda, Hydrobiidae, *Alzoniella*, Iberian Peninsula.

Introduction

Species of *Alzoniella* Giusti & Bodon, 1984, are known from Austria and Italy (Giusti & Bodon, 1984; Bodon, 1988), and separated by a large gap, from southwestern France (Boeters, 2000, 2001) and the Iberian Peninsula (Arconada, Rolán & Boeters, 2007). While considering the southwestern French Pyrenees and their foreland with the western Spanish Pyrenees and the neighbouring montainous regions of northwestern Spain and Portugal a continous distribution area, the presence of a single *Alzoniella* species on the Baleares means another remarkable geographical disjunction.

Regarding *Alzoniella* in the Iberian peninsula, we refer to the first review of the family Hydrobiidae on the peninsula (Boeters, 1988). According to this publication, the genus *Belgrandiella* (A.J. Wagner, 1928) is distributed mainly in the northern half of the peninsula, with only a single species in the southern half. Some of these species were published by Boeters (1983), some by Boeters & Rolán (1988) and Rolán (1993). Six years later, *Belgrandiella andalucensis* Boeters, 1983, became subject of *Guadiella* Boeters, 2003. Arconada et al. (2007, 2008) classified all these and three new species, except for *G. andalucensis*, in two subgenera of *Alzoniella*, i.e. in the nominate subgenus and *Navarriella* Boeters, 2000. Eventually, Rolán et al. (2009) added a new species of the nominate subgenus.

At present, 11 species of the nominate subgenus of *Alzoniella* are known, 10 of which with different ranges in the northern half of the Iberian peninsula. Five species are known from only one to three localities, viz. (1) *A. asturica* (Boeters & Rolán, 1988), (2) *A. galaica* (Rolán, 1993), (3) *A. iberopyrenaica* Arconada, Rolán & Boeters, 2007, (4) *A. marianae* Arconada, Rolán & Boeters, 2007, and (5) *A. somiedoensis* Rolán, Arconada & Boeters, 2009. In northwestern Spain five species are more widely distributed, viz. (6) *A. rolani* (Boeters, 1986), which is known from almost entire western Galicia to northern Portugal (Rolán, 1989), and (7) *A. cantabrica* (Boeters, 1983), (8) *A. lucensis* (Rolán, 1993), (9) *A. montana* (Rolán, 1993) and (10) *A. ovetensis* (Rolán, 1993). The ranges of these five species overlap in Asturias and Leon. One species, (11) *A. edmundi* (Boeters, 1984), is restricted to the Baleares.

Two more species might also belong to the nominate subgenus of *Alzoniella*, but these are insufficiently known, viz. (12) *A. murita* Boeters, 2003, and (13) *A. onatensis* Boeters, 2003.

The two Spanish species of the subgenus *Navarriella* do not reach Asturias; *Alzoniella (Navarriella) el-*

liptica (Paladilhe, 1874) is restricted to Navarra and *A. (N.) pellitica* Arconada, Rolán & Boeters, 2007, is known from Navarra and the Basque Country. Asturias seems to accommodate the highest number of *Alzoniella* species. Maybe its complex topographic, geological and hydro-geological circumstances have favoured speciation. Investigations by the Ministry of Medio Ambiente of Spain have revealed a high risk of extinction for many species of this genus (Arconada, Ramos & Rolán, 2006, 2009; Arconada & Rolán, 2011).

On a recent trip, Rolán detected an unknown *Alzoniella* population, which proved to belong to an unknown species of the nominate subgenus. This species is described in the present paper.

Abbreviations, for anatomical characters: AN, anus; BC, bursa; CS, crystal sac; EY, eye spot; FP, fecal pellet; GP, gonoporus; IN, intestine; MB, mantle border; PE, penis; RO, renal oviduct; RS1, distal receptaculum; RS2, proximal receptaculum; ST, stomach; VD, vas deferens. For collections: BOE, Collection Boeters, München; MHNS, Museo de Historia Natural de la Universidad, Santiago de Compostela; MNCN, Museo Nacional de Ciencias Naturales, Madrid.

Systematic part

Alzoniella Giusti & Bodon, 1984: 157.

Type species, by original designation: *Alzoniella finalina* Giusti & Bodon, 1984.

Alzoniella (Alzoniella) camocaensis spec. nov.

(Figs 1-3)

Type series.– MNCN 15.5/60141H/shell (holotype); MNCN 15.05/60141P/20 animals; MHNS/100 animals; BOE 3331/6 juv. + 35 animals.

Type locality.– Spain, Asturias, Villaviciosa, Camoca, near the road behind the property named El Ronzón, at the deviation to La Cuesta Valle, in a depression, near a curve of the road, in a fountain with several emergences, called Fuente Tebia, meaning "tibia fountain", indicating that the water is not very cold during the winter, and from there about 50 m downstream to the influx into a small river, leading to the Valdebárcenas River.

Etymology.– The epithet is after the area where the species was collected the first time.

Description.– Shell (Figs 1A-J).– Protoconch with about one whorl, 320 μm in diameter, with a microsculpture of irregular depressions. Teleoconch ovoid, with rounded and rather flattened apex and about 3½ slightly vaulted convex whorls without any sculpture, except the numerous prosocline growth lines; suture hardly marked. The aperture descends slightly on the shell wall such that the upper border of the aperture is roof-like inclined. The umbilicus is a narrow fissure. Aperture ovoid with a continuous peristome.

Measurements.– Shell height 1.20-1.58 [1.32] mm, diameter 0.82-1.05 [0.95] mm (n = 31), ratio height:diameter = 1.46-1.50; height of holotype 1.52 mm.

Operculum (Fig. 1K-L).– Chestnut coloured.

Soft parts (Fig. 3C, E).– Head almost always white, except for the blackish eye spots; mantle and most of the body also white; initial whorls sometimes partly cream coloured. Gill with 11 lamellae (n = 1 ♀). The rectum on the roof of the pallial cavity more or less prominently curved V-like. The anus located close to the anterior edge of the mantle cavity.

Radula (Fig. 2) as usual for the genus.

Female (Fig. 3A-E).– Behind the gonopericardial duct, the renal oviduct turns towards the distal wall of the stomach and from there back towards the complex of albumen and capsule gland. The renal oviduct is provided with a proximal receptaculum (RS2), a distal receptaculum (RS1) and a bursa. The length of the short duct of the proximal receptaculum corresponds to about the diameter of its sack-like receptaculum (RS2). The sack-like receptaculum touches the proximal, i.e. posterior wall of the bursa. The sack-like distal receptaculum (RS1) and the ovoid sack-like bursa have comparatively long ducts. The size of the bursa corresponds approximately with that of the crystal sack, whereas the size of the distal receptaculum corresponds with that of the proximal receptaculum. The bursa does not touch the distal wall of the stomach, but it is positioned under the intestine at a distance of its turn. The bursal duct enters the bursa dorsally, above the V-like curve of the rectum, as can sometimes already be seen through the transparent shell wall. The distal receptaculum touches the bursa at the throat-like connection of the bursal duct with the bursa. The distal part of the complex of albumen and capsule gland with the oviduct and its gonoporus ends beside the anus, at the slightly thickened hem of the mantle.

Male (Fig. 3F-H).– Penis like a finger, broad and flat and with a droplike appendix of semicircular outline.

Distribution (Figs 4, 5).– Only known from the type locality.

Habitat.– The bottom of the spring is formed by sedimentary reddish detritic rock, constituted by sandy mudstone, formed by clay and mud with an important part of sand. The red colour of the stony ground is due to the oxidant medium in which the stony material was formed. Such geological conditions are quite uncommon in Asturias.

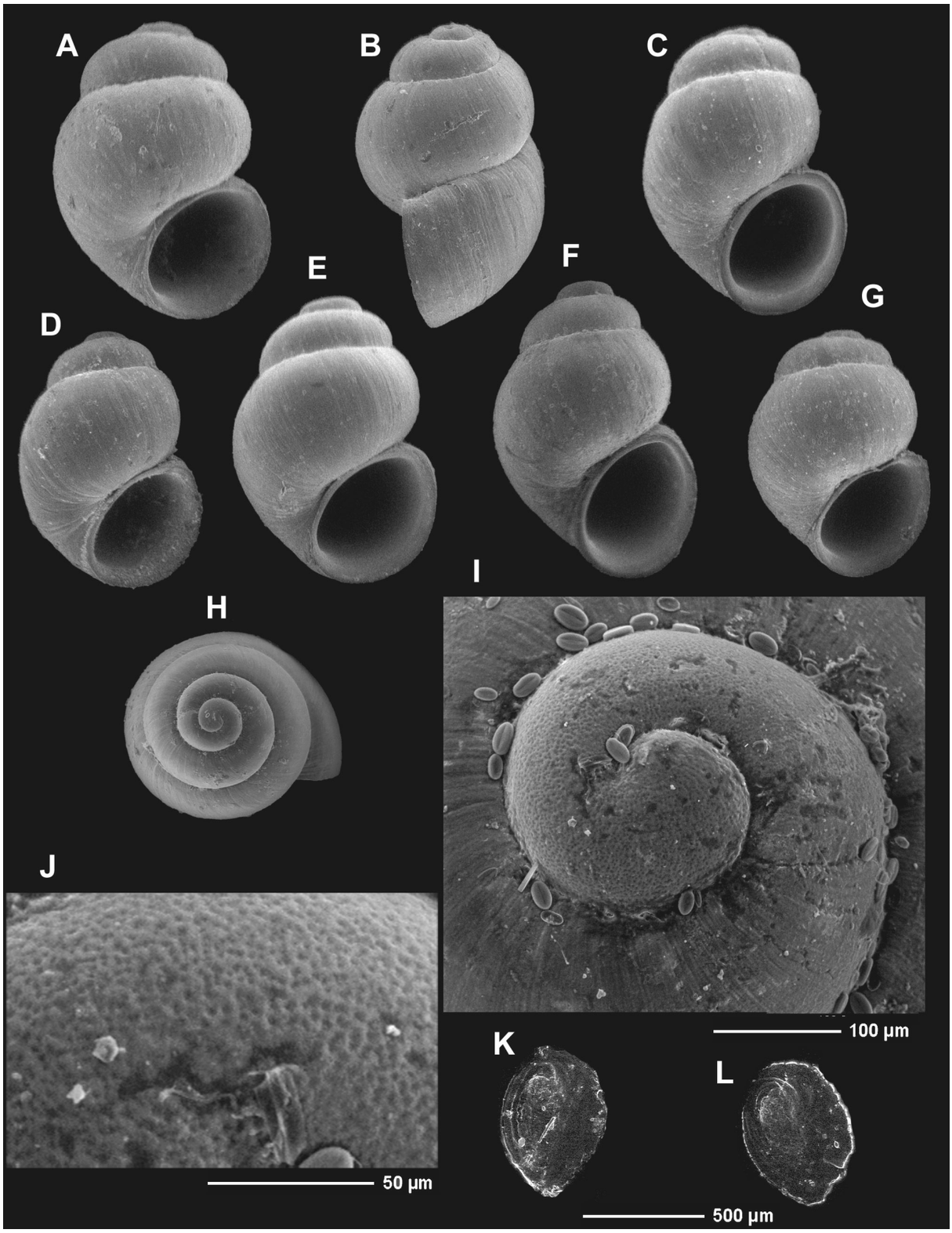


Fig. 1A-L. *Alzoniella (Alzoniella) camocaensis* spec. nov. (MNCN 15.5/60141). **A,** holotype, frontal view (height 1.52 mm); **B-G,** paratypes. B-G, frontal views (height 1.55, 1.50, 1.29, 1.29, 1.45, 1.51, 1.24 mm); **H,** apical view (diameter 0.97 mm); **I-J,** protoconch and microsculpture; **K-L,** operculae.

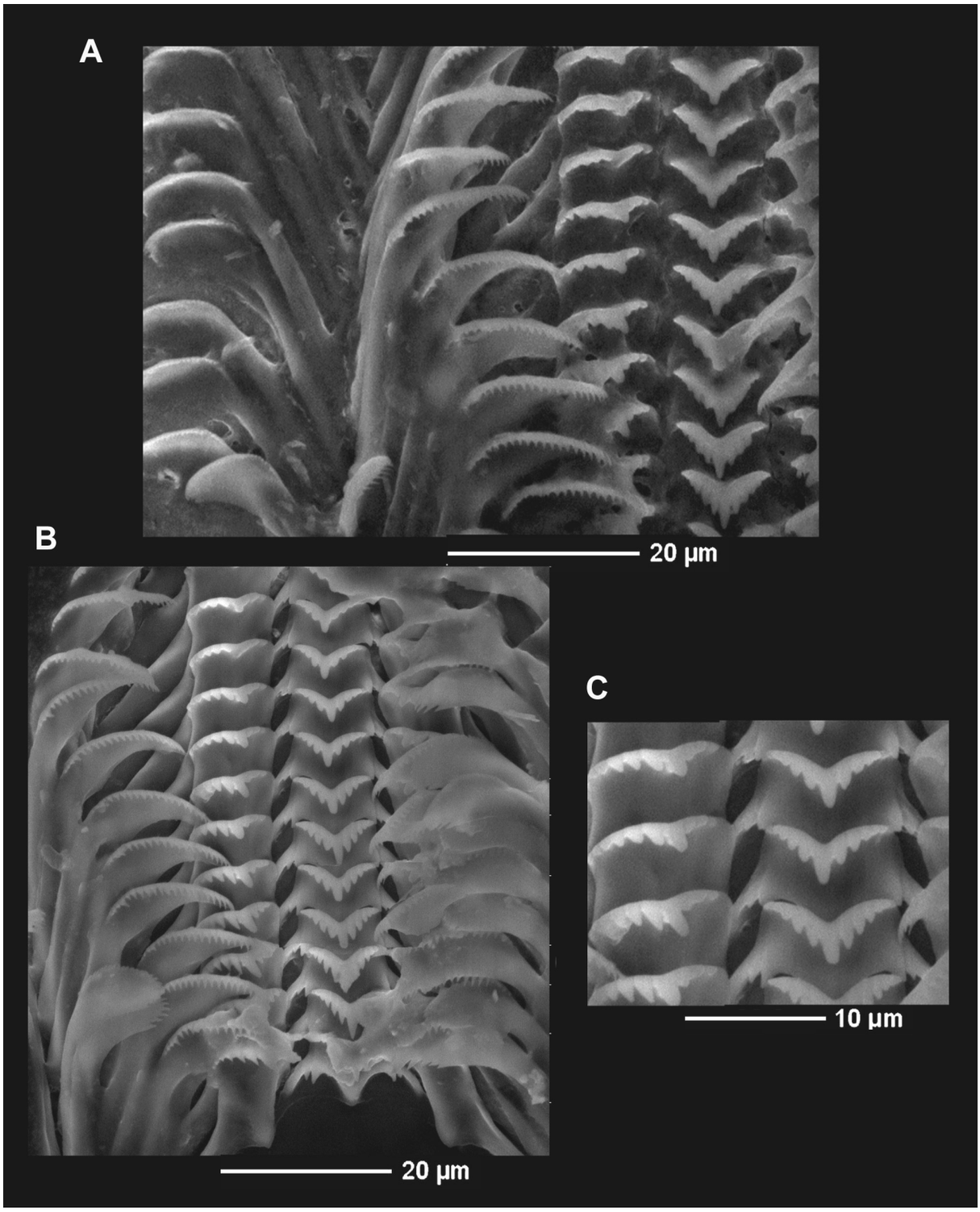


Fig. 2. *Alzoniella (Alzoniella) camocaensis* spec. nov. **A-B,** Radulae of two specimens. **C**, detail of the rachidian and lateral teeth.

Alzoniella camocaensis spec. nov. lives sympatrically with an unidentified species of *Mercuria* Boeters, 1971, which will be described separately.

Differentiating characters.– All but one species of *Alzoniella* s. str., inhabit the northwestern Iberian Peninsula. Only *A. edmundi* occurs in the Baleares. These species can be distinguished from *A. camocaensis* as follows.

Alzoniella asturica (Boeters & Rolán, 1988) has a smaller shell (height only 0.95-1.15 mm); the penis is

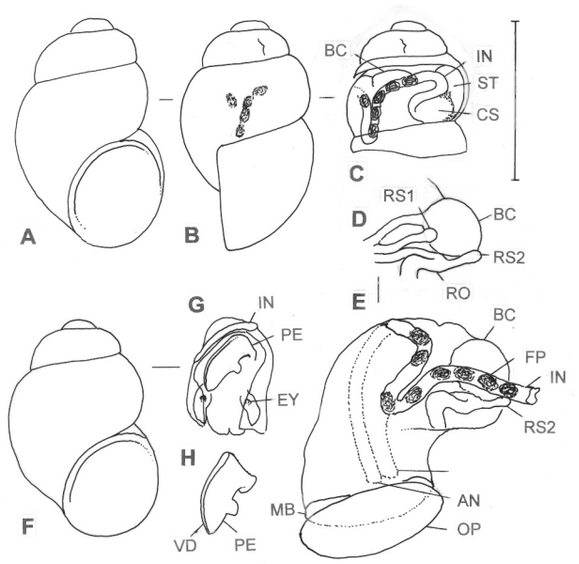


Fig. 3A-H. *Alzoniella (Alzoniella) camocaensis* spec. nov. (paratypes, BOE 3331). **A-E**, females; **A-B**, frontal and side view; **C** (same ♀ as for A-B), side view of fragment (shell opened to expose intestine); **D**, gonopericardial duct with proximal receptaculum (RS2), distal receptaculum (RS1) and bursa; **E** (same ♀ as for D), last body whorl (first body whorls removed, rectum with anus and gonoporus fictitiously seen through body); **F-H**, males; **F**: shell; **G** (same ♂ as for F), head with penis exposed through slit mantle; **H**, penis.

Scale 1 mm for Fig. 3A-C, F-H; 0.5 mm for Fig. 3D-E.

Fig. 4. Fuente Tebia, Camoca, Villaviciosa, Asturias.

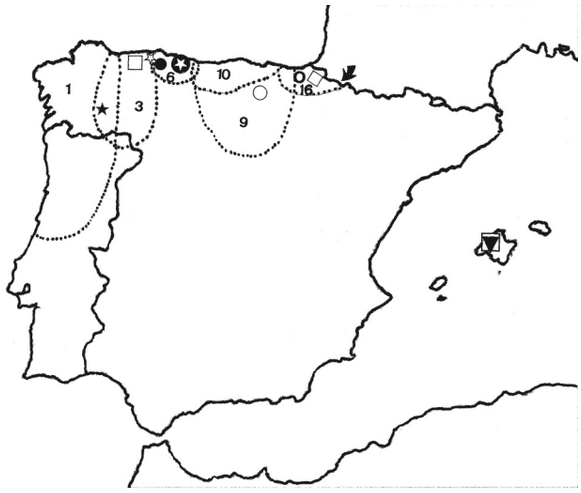


Fig. 5. Distribution area or type locality of the hispanian species of *Alzoniella*:

1- *Alzoniella rolani* (Boeters, 1986)

2- *Alzoniella galaica* (Boeters & Rolán, 1988) – ✶

3- *Alzoniella lucensis* (Rolán, 1993)

4- *Alzoniella somiedoensis* Arconda, Rolán & Boeters, 2009 – □

5- *Alzoniella marianae* Arconda, Rolán & Boeters, 2007 – ✲

6- *Alzoniella ovetensis* (Rolán, 1993)

7- *Alzoniella asturica* (Boeters & Rolán, 1988) – ●

8- *Alzoniella camocaensis* Rolán & Boeters, spec. nov. – ✪

9- *Alzoniella cantabrica* (Boeters, 1983)

10- *Alzoniella montana* (Rolán, 1993)

11- *Alzoniella murita* Boeters, 2003 – ○

12- *Alzoniella onatensis* Boeters, 2003 – o

13- *Alzoniella iberopyrenaica* Arconda, Rolán & Boeters, 2007 – ◇

14- *Alzoniella edmundi* (Boeters, 1984) – ▼

15- *Alzoniella* (*Navarriella*) *elliptica* (Paladilhe, 1874) – ◢

16- *Alzoniella* (*Navarriella*) *pellitica* Arconda, Rolán & Boeters, 2007

slim, with a small penial lobe.

Alzoniella cantabrica (Boeters, 1983) has a larger shell, i.e. 1.7-2.3 mm high; both receptaculae of the female genitalia have short ducts, so that only the proximal receptaculum (RS2) touches the bursa.

Alzoniella galaica (Boeters & Rolán, 1988) has a more cylindrical shell; the bursa of the female genitalia is not ovoid, but elongated and slightly widened at its distal part, whereas the penis is elongated and provided with a small penial lobe.

Alzoniella iberopyrenaica Arconada, Rolán & Boeters, 2007, differs by its female genitalia with 2 receptacula located in proximal position, and an elongated penis with a subterminal penial lobe. The species lives geographically very distant in Vizcaya.

Alzoniella lucensis (Rolán, 1993) has a larger shell,

i.e. 1.5-2.5 mm high; the penis is long and slender and the penial lobe is small.

Alzoniella marianae Arconada, Rolán & Boeters, 2007, has a more elongated shell (height 1.30-1.73 mm, diameter 0.79-0.93 mm) with a ratio height:diameter of 1.65-1.86 instead of 1.46-1.50; the penis is slim and pigmented, and has a small lobe.

Alzoniella montana (Rolán, 1993) has a cylindrical shell; there are white spots on the body, a Z-like folded rectum and a lobed, slim penis. Its distribution area extending from Léon, Vizcaya, Santander, Cantabria to Asturias does not reach the localities of the new species.

Alzoniella murita (Boeters, 2003) (Fig. 6) has a very narrow and elongated shell. The only known locality is situated far away in Burgos.

Alzoniella onatensis Boeters, 2003 (Fig. 7) has a larger shell with a height of 1.8 mm. The only known locality is situated far away in Guipuzcoa.

Alzoniella ovetensis (Rolán, 1993) has a larger shell, with a height of 1.5-2.5 mm; the proximal receptaculum (RS2) of the female genitalia is greater than the distal receptaculum (RS1), and the penis with its rounded penial lobe is wide and in live animals pink near its tip.

Alzoniella rolani (Boeters, 1986) has a protoconch without depressions, but a warty microsculpture; the rectum is only slightly curved and the penis has a large, ovate lobe.

Alzoniella somiedoensis (Rolán, Arconada & Boeters, 2009) has a slightly larger shell (height 1.35-1.75 [1.54] mm); the female genitalia resemble those of *A. camocaensis* spec. nov., but the penis with its lobe is not broad as in the new species, but elongate and sometimes has a pigmented axis.

The subgenus *Navarriella* Boeters, 2000, is represented by 2 species in the northwestern part of the Iberian peninsula. In contrast to species of the nominate subgenus, species of *Alzoniella (Navarriella)* are characterised by (i) a flat rectum on the roof of the mantle cavity, and (ii) an accumulation of wart-like structures on the pedestal and appendix of the penis.

Alzoniella elliptica (Paladilhe, 1874) lives geographically very distant in Navarra, sometimes together with species of the nominate subgenus (see Boeters, 2000: 162; 2001: 153). Shell larger, i.e. 1.6-2.2 mm high (n = 7); proximal receptaculum (RS2) with a long duct, penis with a large transverse gland at its base, a penial lobe of at least the size of the penis, lobe and pedestal of the penis generally with several papillae.

Alzoniella pellitica Arconada, Rolán & Boeters, 2007. Also this species lives geographically very distant in Navarra and the Basque Country, sometimes together with species of the nominate subgenus (Arconada et al., 2007: 142). Shell larger, i.e. 1.50-2.20 [1.90] mm high (n = 10); bursa as small as the 2 receptacula, both receptacula with very short ducts, penis elongated, penial lobe as large or larger than penis and with 3-6 papillae.

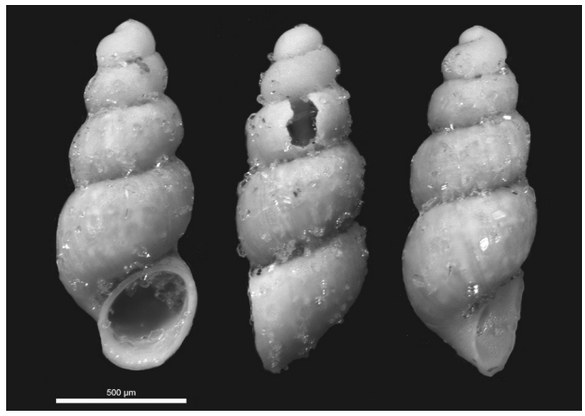
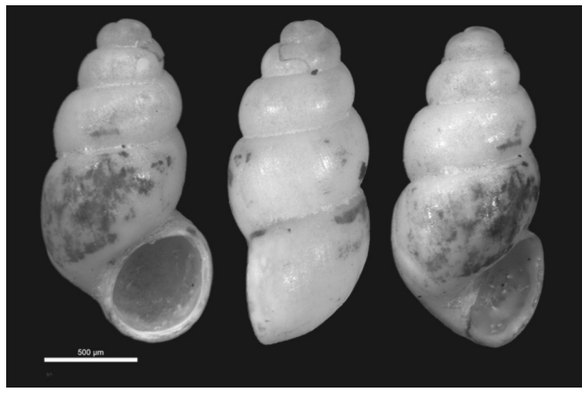


Fig. 6. *Alzoniella murita*. Spain, Burgos, Berberane, Murita, Cueva de Murita 1 (RMNH 93743/holotype). Scale 500 micrometer.

Fig. 7. *Alzoniella onatensis*. Spain, Guipuzcoa, Onate, 0.25 km S of Berezano (RMNH 93744/holotype). Scale 500 micrometer.



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