

Sailing for snails in the Ionian Islands (Pulmonata, Clausiliidae, *Albinaria*)

EDMUND GITTENBERGER

Naturalis Biodiversity Center, P.O. Box 9517, NL-2300 RA Leiden, The Netherlands; egittenberger@yahoo.com

The small Ionian Islands (Greece) of Meganisi, Kalamos, Kastos and Atokos were shortly visited to get an impression of the local *Albinaria* taxa. Five species or subspecies could be recorded, three of which are new to science. The new taxa are described as *Albinaria contaminata florisi* subsp. nov., *A. scopulosa elisae* subsp. nov. and *A. leonedani* spec. nov.

Key words: Gastropoda, Pulmonata, Clausiliidae, taxonomy, *Albinaria*, Ionian Islands, Greece.

The SE European genus *Albinaria* Vest, 1867, is the most speciose genus among the Clausiliidae and maybe even among pulmonate gastropods in general. The phylogeny reconstruction of the family (Uit de Weerd & Gittenberger, 2013) shows that its diversity cannot simply be considered a consequence of incapacity of the researchers. For example, the sistergroup of *Albinaria*, i.e. *Isabellaria* Vest, 1867, as defined with morphological, biogeographical and molecular data by Gittenberger & Schilthuizen (1996) and Uit de Weerd & Gittenberger (2004), is much less diverse than *Albinaria*.

The *Albinaria* taxa of the larger Ionian Islands have been studied in detail by Kemperman (1992) and Rähle (1980) and may be considered well known. For the smaller islands in the region, that are less easy accessible, no data on *Albinaria* are available: no ferries no snails. Therefore, when my son E.J. Gittenberger and his family made a sailing trip along the Ionian Islands (2010), he used the opportunity to collect some

Albinaria's on my request. Specimens of an aberrant species from the island of Kastos evoked my interest for the area even more and I accepted the invitation to join in a sailing trip the following year. Despite the limited amount of time that was available, four days only, we could visit the islands of Meganisi, Kalamos, Kastos and Atokos. Weather conditions did not allow a landing on Arkoudhion. With five species or subspecies, three of which still undescribed, the results exceeded my expectations. Keeping a promise, I here describe the new taxa mentioning my junior fellow sailors (all specimens: leg. E. & E.J. Gittenberger).

Abbreviations: AB, width of the aperture; AH, height of the aperture; B, shell width; H, shell height; RMNH, Naturalis Biodiversity Center, Leiden, The Netherlands.

SYSTEMATIC PART

Albinaria Vest, 1867

Albinaria contaminata florisi subsp. nov. (Fig. 1)

Material. — Holotype (RMNH 5004002) & 11 paratypes (RMNH 5004003): Greece, Nissia Ioniou, prefecture Kefalonia, Atokos Is., One House Bay, 5-25 m alt., UTM DH8359; rocky soil with bushes; 6.vii.2011.

Diagnosis. — Shell glossy, white with dark apical whorls; parietalis minute, both columellaris and sub-columellaris not visible in frontal view, peristome clearly protruding.



Description. — Shell slender fusiform, glossy, with $9\frac{1}{2}$ – $9\frac{3}{4}$ whorls; apical c. $2\frac{1}{2}$ whorls brown, apart from a short transitional part, the other whorls are white with few small brown dots. Protoconch smooth. Initial teleoconch whorls with irregular, blunt, radial riblets that are somewhat papilla-like apically and hardly or not reach the lower suture; radial sculpture vaguely discernible on most of the following whorls and increasing in prominence to complete, fine riblets on only the final half of the body whorl. Body whorl with a prominent, rounded basal keel, which is accompanied by an equally broad furrow. Peristome protruding c. 0.5 mm at the parietal side. Parietalis rudimentary, spiralis over $\frac{1}{8}$ whorl deeper inside the aperture. Columellaris and subcolumellaris not visible in frontal view, but discernible in oblique view. Lunella dorsolateral; clausilium even in oblique view not visible. Measurements (n=12): H 13.2–15.0 mm; B 3.5–3.8 mm.

Notes. — For detailed descriptions of the other subspecies of *A. contaminata* (Rossmässler, 1835) see Kemperman (1992). *Albinaria c. florisi* can be distinguished easily by the combination of character states that are indicated in the diagnosis. In shell shape it recalls *A. c. samiensis* Kemperman & Gittenberger, 1992. It shares the rudimentary parietalis with *A. c. contaminata*. A protruding peristome occurs also in several conspecific subspecies, none of which can objectively be considered most closely related. At two localities on Kalamos Is., i.e. above Kalamos village, 100 m alt. (UTM DH9374) (RMNH 5004007) (Fig. 2) and near Port Leone, 15 m alt. (UTM DH8972) (RMNH 5004006), specimens of *A. c. muraria* (Schmidt, 1868) with a protruding peristome are common on the rocky soil. In that subspecies, however,

there is a prominent parietalis, a columellaris and a subcolumellaris that are both visible in frontal view, and a more rounded shell base. In *A. c. odysseus* (Boettger, 1878), which is also geographically rather close, shells with a detached peristome do occur, but are less slender, especially broader than in *A. c. florisi*, while differing additionally by the presence of a lamella-like parietalis.

Derivatio nominis: the epithet *florisi* refers to Floris Gittenberger.

Albinaria scopulosa elisae subsp. nov. (Fig. 3)

Material. — Holotype (RMNH 5004004) & 25 paratypes (RMNH 5004005): Greece, Nissia Ioniou, prefecture Lefkada, northern Meganisi Is., along road below Spartochori, 50 m alt., UTM DH7879; limestone cliff; 7.vii.2011.

Diagnosis. — Shell with vague, broad, oblique undulations on the penultimate whorl, passing into irregular very prominent ridges on the body whorl. At c. $\frac{1}{8}$ whorl before the peristome, there are more regular, narrow, but still prominent, ridges running parallel with the growth-lines. With a rounded keel, which is accompanied by a sharp furrow incising the ribs.

Description. — Shell (very) slender fusiform, glossy, with 9 – $9\frac{3}{4}$ whorls; apart from the c. 3 brown, apical whorls, light bluish white, with some to several dark dots and vaguely delimited irregular blotches. Teleoconch with growth-striae, which vary in prominence; its initial whorls additionally with obsolete, widely and irregularly spaced undulations, that run parallel to the growth-lines. Towards the body whorl the waves become increasingly oblique and crossing the growth-lines; on the final half of the last whorl, they pass into a sculpture of some very prominent, irregular ridges, which in turn change into some sharp, lower and narrower ridges immediately before the mouth-edge. Aperture yellowish inside. Peristome broadly reflected, protruding up to over 0.5 mm. Parietalis prominent, running about as far as the beginning of the spiralis inside. Columellaris low, but visible in frontal view; subcolumellaris not even discernible in oblique view. Lunella dorsal, not prominent, only clearly distinguishable opposite the principalis.

Measurements (n=23): H 13.3–16.5 mm; B 3.3–3.7 mm.

Notes. — The various taxa that are considered subspecies of either only *A. scopulosa* (Charpentier, 1852) by Hausdorf (1987: 167) or of two species, viz. *A. scopulosa* and *A. hians* (O. Boettger, 1878) by Nordsieck (1999: 9; 2015: 4) may be quite different morphologically and are not or cannot (insular taxa) always be connected by contact zones with intermediate speci-

Figs 1–4. *Albinaria* species from Nissia Ioniou. **1.** *Albinaria contaminata florisi* subsp. nov., holotype (RMNH 5004002). Greece, Nissia Ioniou, prefecture Kefalonia, Atokos Is., One House Bay, 5–25 m alt., UTM DH8359; rocky soil with bushes; 6.vii.2011. H 14.2, B 3.7 mm; $9\frac{3}{4}$ whorls; AH 3.4, AB 2.9 mm. **2.** *Albinaria contaminata muraria* (Schmidt, 1868) (RMNH 5004007). Greece, Nissia Ioniou, prefecture Kefalonia, above Kalamos village, 100 m alt., UTM DH9374; rocky soil with bushes; 5.vii.2011. H 14.2, B 4.0 mm; $9\frac{3}{4}$ whorls; AH 3.6, AB 3.1 mm. **3.** *Albinaria scopulosa elisae* subsp. nov., holotype (RMNH 5004004). Greece, Nissia Ioniou, prefecture Lefkada, northern Meganisi Is., along road below Spartochori, 50 m alt., UTM DH7879; limestone cliff; 7.vii.2011. H 15.4, B 3.5 mm; 9 whorls; AH 3.8, AB 3.0 mm. **4.** *Albinaria leonedani* spec. nov., holotype (RMNH 5003999). Greece, Nissia Ioniou, prefecture Kefalonia, eastside southern Kastos Is., 10 m alt., UTM DH9167; 4.vii.2011. H 12.6, B 3.2 mm; $8\frac{3}{4}$ whorls; AH 3.1, AB 2.4 mm.

mens indicative of a status as subspecies. *Albinaria s. elisae* is one of the forms that occur isolated on an island. It is easily recognisable because of the unique shell sculpture. Because of the characters of the aperture it is classified with *A. scopulosa*, but it could equally well be considered a species. At the type locality, the only place from where *A. s. elisae* is known, it was found together with *A. senilis* cf. *leucadia* (Westerlund, 1901), which was also recorded at two more localities on Meganisi Is., viz. (1) 1.5 km SSE of Vathi, 20 m alt., UTM DH8178, and (2) eastside of Vathi bay, 20 m alt., UTM DH8280.

Derivatio nominis: the epithet *elisae* refers to Elise Caroline Adriana Gittenberger.

Albinaria leonedani spec. nov.

Material. — Greece, Nissia Ioniou, prefecture Kefalonia, eastside southern Kastos Is., 10 m alt., UTM DH9167; 4.vii.2011: holotype (RMNH 5003999) & 53 paratypes (RMNH 5004000). Idem, near Kastos village, 5-25 m alt., UTM DH9269; 4.vii.2011: 27 paratypes (RMNH 5004001).

Diagnosis. — Shell relatively small, with a very prominent palatal knob and a conspicuous cervical hump (dorsal keel); basalis prominent and visible in frontal view, subcolumellaris not.

Description. — Shell relatively small, more or less slender fusiform, with $7\frac{3}{4}$ - $9\frac{3}{4}$ whorls; apart from the light brown protoconch, light yellowish grey. Cervical part of the body wall with a very prominent hump, which could be considered a dorsal keel; outside of both columellar and basal wall slightly concave. Protoconch smooth. Teleoconch with c. 7/mm sharp riblets above the aperture, slightly less on the cervical part of the body whorl. Peristome broadly reflected, thickened and slightly flattened, somewhat narrowing the aperture, protruding 0.2-0.5 mm. Parietalis prominent, running from the peristome as far as the beginning of the spiralis or less far inside. Columellaris situated rather deep, broadly flaring into the aperture; subcolumellaris not discernible in frontal view. In frontal view the clausilial blade and the basalis are hardly seen, but in oblique view the subcolumellaris, the clausilial blade (partly), and the prominent basalis are clearly discernible. Opposite the broadest part of the columellaris there is a very prominent palatal knob, which is elongated inside as a quickly tapering palatalis. Lunella dorsal, prominent, shortly curved inwards above and elongated as a conspicuous basalis below. Measurements (n=83): H 10.1-13.9 mm; B 3.0-3.6 mm.

Notes. — The islands of Kastos and Kalamos, which are separated by a channel of less than 2 km, are inhabited by *Albinaria* species that are not closely related. *Albinaria leonedani* differs conspicuously, in several characters, from all the geographically close, i.e. Ionian, *Albinaria* taxa. The data do not allow a well-founded discussion regarding the systematic relationships of this species.

Derivatio nominis: the epithet *leonedani* refers to Leon Edmund Anthonie Gittenberger.

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