

Ann. Naturhist. Mus. Wien	94/95	B	181–186	Wien, 1993
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***Belgrandiella ganslmayri*, a new hydrobiid species from Upper Austria (Caenogastropoda)**

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(With 1 Table, 3 Figures and 1 Plate)

Manuscript submitted October 20th, 1992

S u m m a r y

A new species belonging to the genus *Belgrandiella* A. J. WAGNER, 1927 from Weyer/Enns in Upper Austria is described. It has been previously misidentified as *B. lacheineri* (KÜSTER, 1853).

Z u s a m m e n f a s s u n g

Eine neue Art der Gattung *Belgrandiella* A. J. WAGNER, 1927 von Weyer/Enns wird beschrieben. Zuvor wurde sie fälschlich als *B. lacheineri* (KÜSTER, 1853) identifiziert.

I n t r o d u c t i o n

Findings of species of the genus *Belgrandiella* A. J. WAGNER, 1927 in Upper Austria have traditionally been attributed to *Belgrandiella lacheineri* (KÜSTER, 1853). It is reported from the region of Weyer/Enns (ZIMMERMANN 1930, GANSLMAYR 1935, KLEMM 1954) in the southeast and Frankenmarkt (MAHLER 1952) in the west of Upper Austria. BOETERS (1970) considered *B. lacheineri* a junior synonym (and in the same paper also a subspecies!) of *B. saxatilis* (REYNIES, 1844), due to a systematic misconception. Since, according to REISCHÜTZ (1988), *B. lacheineri* is a Southeast Alpine species with its northern-most range in the south of Lower Austria, it can with certainty be excluded that this species occurs also in Upper Austria.

FRANK (1988) records a single, empty shell of *B. fuchsi* (BOETERS, 1970) from the left bank of the river Danube near Haichenbach. The specific identification of this shell is likewise doubtful, since *B. fuchsi* has a very limited range in central Lower Austria (REISCHÜTZ 1988).

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These theoretical, biogeographical considerations have been confirmed, at least for the region of Weyer, through anatomical investigations of own findings and critical reexaminations of published and unpublished shell material deposited at the Museum of Natural History in Vienna. Consequently, these investigations resulted in the identification of a new species, which is described in the following.

FRANK's (1988) and MAHLER's (1952) material was not at disposal. Thus nothing can be said about the true identity of these findings.

Abbreviations

NHMW: Museum of Natural History Vienna

NHMW/E: collection EDLAUER

NHMW/K: collection KLEMM

Material and Methods

Living snails of the new species were found in a single spring in the upper drainage area of the Kirchbichlbach southwest of Weyer/Enns together with *Bythinella austriaca* (FRAUENFELD, 1857). The surrounding springs were only inhabited by the latter. But it cannot be excluded that the new species occurs also in other springs in that area. All this material has been considered type material and is deposited under the collection numbers NHMW 86832 and NHMW 86833. The following stations from the region of Weyer, all collected by GANSLMAYR, were also investigated: NHMW/E 8157, NHMW/E 32064–070, NHMW/E 37549, NHMW/E 37550, NHMW/E 37553, NHMW/E 37556, NHMW/E 37568, NHMW/E 37570, NHMW/E 37572, NHMW/K 1635, NHMW/K 1801, NHMW/K 6208, NHMW/K 48757. ZIMMERMANN (1930) and GANSLMAYR (1935) certainly refer to this material, at least in part, although they do not mention any collections. NHMW/K 1635 and NHMW/K 1801 are published by KLEMM (1954) and also investigated by BOETERS (1970).

Methods are those of HAASE (1992). Histological serial sections were prepared from 6 males and 4 females.

Results

The stations collected by GANSLMAYR turned out to be samples of several species. KLEMM's published (KLEMM 1954, BOETERS 1970) stations NHMW/K 1635 and NHMW/K 1801 belong to *Alzoniella hartwigschueti* (REISCHÜTZ, 1983). There were also *Bythinella austriaca* (FRAUENFELD, 1857) and *Bythiospeum* sp. among the material. NHMW/E 37553 from an alluvium of the river Gafrenz in Weyer contained, among others, a single shell of the here described new species. A shell of a second, undescribed *Belgrandiella* sp. was found in NHMW/E 32068. The exact specific composition of the stations is available on request at the NHMW.

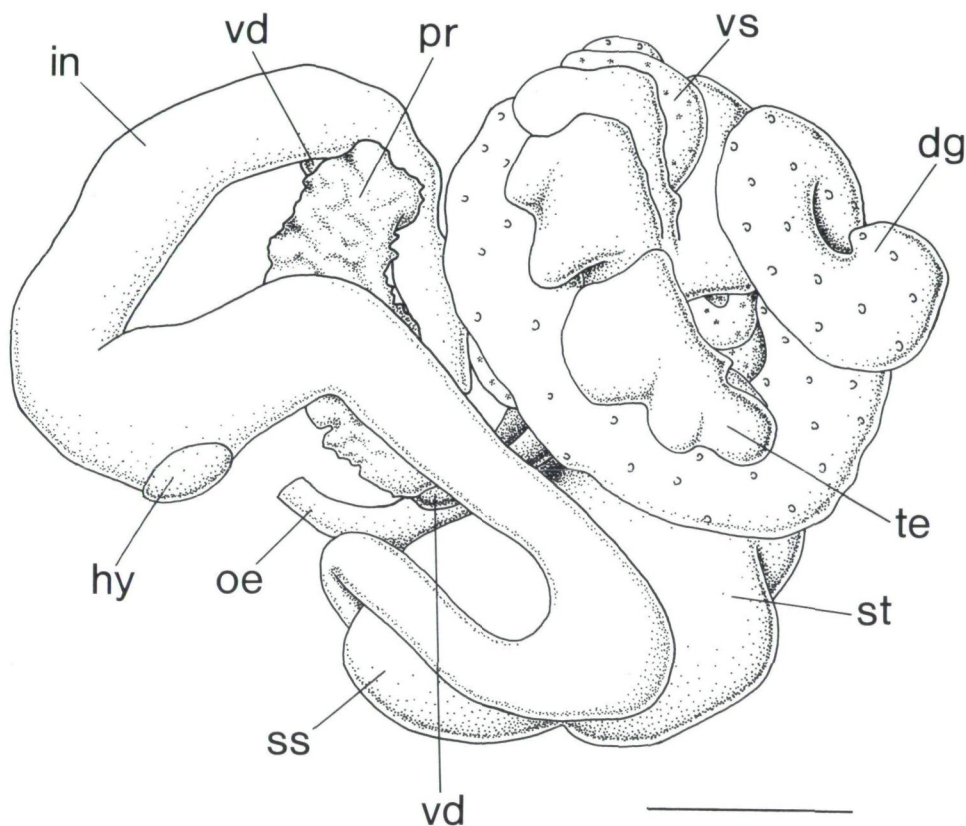


Fig. 1: Male genital system (without penis), parts of the digestive system and hypobranchial gland from the left; scale bar = 200 μ m. Abbreviations: dg = digestive gland, hy = hypobranchial gland, in = intestine, oe = oesophagus (cut off apprximately in the middle), pr = prostate, ss = style sac, st = stomach, te = testis, vd = vas deferens, vs = vesicula seminalis.

Systematic description

Belgrandiella ganslmayri, nov. spec.

Synonymy

- 1930 *Frauenfeldia lacheineri*, – ZIMMERMANN, Arch. Moll., **62**: 234, partim.
 1935 *Frauenfeldia lacheineri*, – GANSLMAYR, Arch. Moll., **67**: 54, partim.
 1954 *Bythinella lacheineri*, – KLEMM in FRANZ: Die Nordost-Alpen im Spiegel ihrer Land-tierwelt: 214, partim.
 1970 *Microna saxatilis*, – BOETERS, Arch. Moll., **100**: 124.

Description:

Shell (Plate 1, Figs. 1–3): The pupiform shell is colourless and translucent with up to four whorls. The wrinkled protoconch has 1 whorl. The outer lip is almost straight. Measurements are given in Table 1.

Table 1: Shell morphometry of 25 individuals. Measurements in mm. ah = aperture-height, aw = aperture-width, max = maximum, min = minimum, s = standard deviation, sh = shell-height, sw = shell-width, \bar{x} = mean.

	sh	sw	ah	aw	sh/sw	ah/aw	sh/ah	sw/aw
\bar{x}	1.49	0.89	0.67	0.65	1.66	1.03	2.23	1.37
s	0.05	0.04	0.03	0.04	0.06	0.05	0.08	0.05
max	1.62	0.96	0.73	0.76	1.83	1.12	2.36	1.44
min	1.40	0.80	0.62	0.58	1.57	0.88	2.03	1.26

Operculum: The chitinous, orange operculum is paucispiral with an excentric nucleus.

Epidermal pigmentation: The animal is deeply black from the mantle edge to the distal arm of the intestinal loop in the roof of the mantle cavity. The adjacent area is almost unpigmented. From the region overlying the stomach the epidermis becomes darker again, but the pigmentation is not as dense as in the anterior part of the mantle. There are also lighter specimens, but the pattern of pigmentation is always the same.

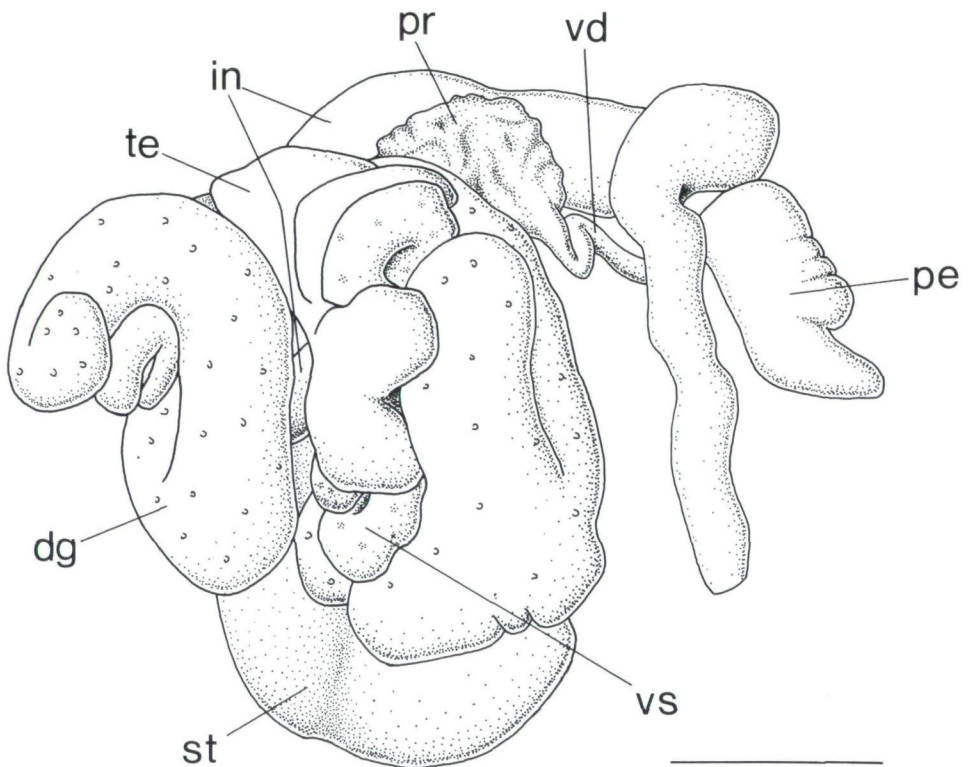


Fig. 2: Male genital system and parts of the digestive system from the right; scale bar = 200 μ m. Abbreviations: dg = digestive gland, in = intestine, pe = penis, pr = prostate, st = stomach, te = testis, vd = vas deferens, vs = vesicula seminalis.

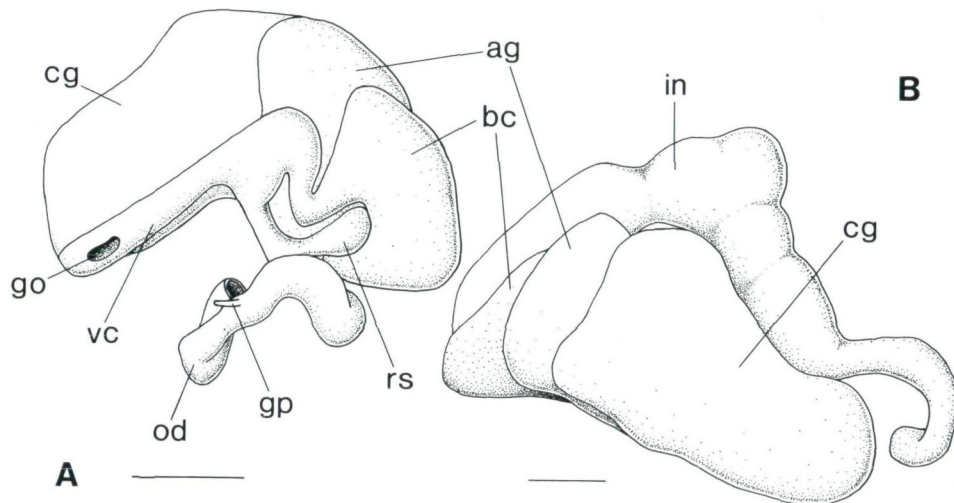


Fig. 3: Distal female genital system; scale bars = 100 µm. A from ventral, B from dorsal. Abbreviations: ag = albumen gland, bc = bursa copulatrix, cg = capsule gland, go = genital opening, gp = gonopericardial duct, in = intestine, od = oviduct, rs = receptaculum seminis, vc = ventral channel.

Mantle cavity: The gill is completely reduced. The intestinal loop is much longer in males than in females (compare Figs. 1 and 3B). A small hypobranchial gland lies in the back of the mantle cavity close to the intestine (Fig. 1).

Radula (Plate 1, Fig. 4): The radula is described by the formula R: $\frac{4-5 \ 1 \ 4-5}{1 \ 1}$, L: 3 1 6, M₁: 21–22, M₂: 18–19.

Nervous system: The pleurosupraoesophageal connective is long, the pleurosuboesophageal connective short.

Female genital system (Fig. 3): The ovary is a simple sac beginning one whorl below the apex. The oviduct makes a wide loop. Just before its glandular part the very thin and massive gonopericardial “duct” branches off. The U-shaped genital chamber surrounds the seminal receptacle (RS₁ sensu RADOMAN 1966). The partition between albumen and capsule gland is not vertical to the longitudinal axis of the pallial oviduct. Ventrally-right the albumen gland is longer than dorsally-left.

Male genital system (Figs. 1, 2): The testis is a deeply lobed sac beginning one whorl below the apex. The seminal vesicle lies anterior to the testis. The vas deferens enters and leaves the prostate at its extreme ends. There is no ejaculatory duct differentiated. The penis (Plate 1, Fig. 5) is unpigmented with a broadened base, which passes into a rounded lobe on the left side.

Parasites: Several animals were infested with trematode sporocysts and rediae. Very often ciliates were found in the mantle cavity.

Type material: Holotype – NHMW 86832, Paratypes – NHMW 86833, NHMW 86834 (one shell ex NHMW/E 37553).

Type locality: Spring in the drainage area of the Kirchbichlbach southwest of Weyer/Enns, Upper Austria.

Derivatio nominis: This species is named after the teacher Josef GANSLMAYR from Weyer, who first described the gastropod fauna of this region and who found the first specimen of this species without recognizing its peculiarity.

Discussion

The shape of the shell and the differentiation of the distal female genital apparatus (position and shape of bursa copulatrix and receptaculum seminis, pallial oviduct) clearly separate *Belgrandiella ganslmayri* n. sp. from all other up to now described species. The shape of the penis, although it is also a diagnostic character in its special formation, clearly indicates a close relation of the new species to the other hitherto known Northeast-Alpine species *B. fuchsi* and *B. parreyssii* (L. PFEIFFER, 1841). [For the range of these species see REISCHÜTZ (1988). Anatomical information is based on personal observations.] The geographical vicinity suggests that even reductions like that of the hypobranchial gland or the lack of gill filaments are synapomorphies of these three species.

Acknowledgements

I thank Dr. L. SALVINI-PLAWEN for reading the manuscript and Dr. E. WAWRA for providing the facilities of the computer supported reconstructions at the NHMW.

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Plate 1

- Fig. 1: Shells (paratypes); scale bar = 500 µm.
- Fig. 2: Apical view; scale bar = 10 µm.
- Fig. 3: Structure of the protoconch; scale bar = 10 µm.
- Fig. 4: Radula; scale bar = 10 µm.
- Fig. 5: Penis; scale bar = 50 µm.

