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A NEW LOCALITY OF TWO RARE VERTIGINID SPECIES (GASTROPODA: PULMONATA: VERTIGINIDAE) IN NW POLAND

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ABSTRACT: Seven species of *Vertigo* were found during a malacological survey of the neighbourhood of Sąpolno (central part of Pomeranian Lakeland, NW Poland); three of them are rare in Poland: *V. moulinsiana* (Dupuy, 1849), *V. ronnebyensis* (Westerlund, 1871) and *V. angustior* Jeffreys, 1830. The UTM grid coordinates of the site are XV 56.

KEY WORDS: land snails, Vertiginidae, distribution, shell variation

INTRODUCTION

The malacofauna of the central part of Pomeranian Lakeland, in the region of village Sąpolno (NW Poland) is being investigated at present. The area is located ca. 10 km W of the border of the Bory Tucholskie National Park and ca. 15 km N of Człuchów and Chojnice (Figs 1, 2). The UTM grid coordinates of the site are XV 56.

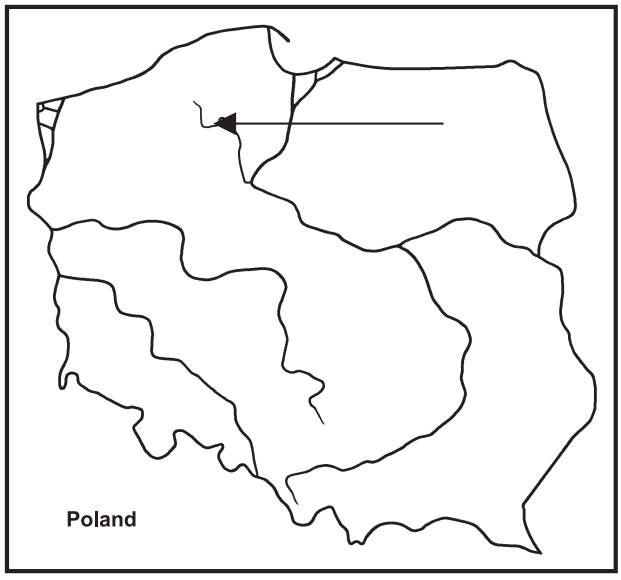


Fig 1. Location of the study area

The Polish vertiginid fauna includes 16 species: 10 of the genus *Vertigo* O. F. Müller, 1774, three of the genus *Columella* Westerlund, 1878 and three of the genus *Truncatellina* Lowe, 1852 (POKRYSZKO 1990). Ten species were found in the studied area: *Vertigo*

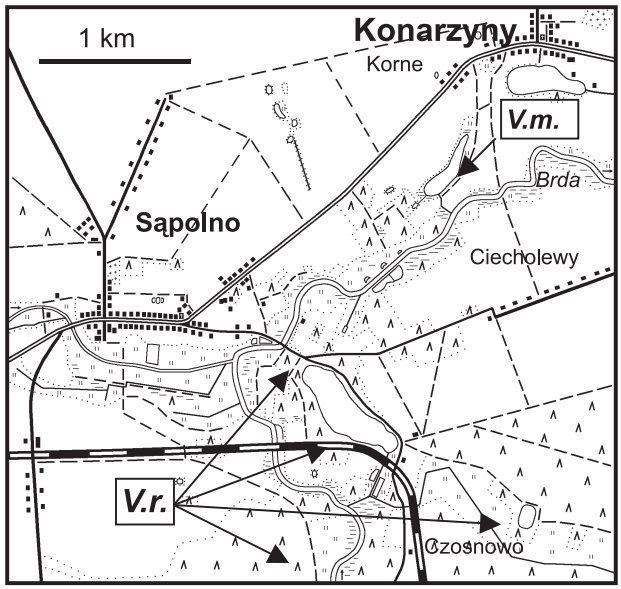


Fig. 2. Localities of *Vertigo moulinsiana* (*V.m.*) and *V. ronnebyensis* (*V.r.*) indicated with arrows

Fig. 3. The lake near Korne – the locality of *Vertigo moulinsiana*

antivertigo (Draparnaud, 1801), *V. pusilla* O. F. Müller, 1774, *V. substriata* (Jeffreys, 1833), *V. pygmaea* (Draparnaud, 1801), *V. moulinsiana* (Dupuy, 1849), *V. ronnebyensis* (Westerlund, 1871), *V. angustior* Jeffreys, 1830, *Truncatellina cylindrica* (Férussac, 1807), *Columella edentula* (Draparnaud, 1805) and *C. aspera* Waldén, 1966. *V. moulinsiana* and *V. ronnebyensis* are regarded as very rare in Poland (POKRYSZKO 1990, 2003). The number of sites of *V. angustior* in Poland is still fairly high, but the species is getting increasingly rare within its entire range (CAMERON et al. 2003, POKRYSZKO 2003). *V. moulinsiana* and *V. angustior* are listed in Annex II of the Habitat Directive (CAMERON et al. 2003). This paper presents new records and data on shell variation in *V. moulinsiana* and *V. ronnebyensis*. *V. angustior* will be dealt with in a separate paper.

The species were identified based on the monograph of POKRYSZKO (1990). Shells were measured with the accuracy of 0.025 mm, the whorls counted to the nearest 0.05 whorl. The abbreviations used in the text are: n – number of specimens, SD – standard deviation, r – Pearson's correlation coefficient.

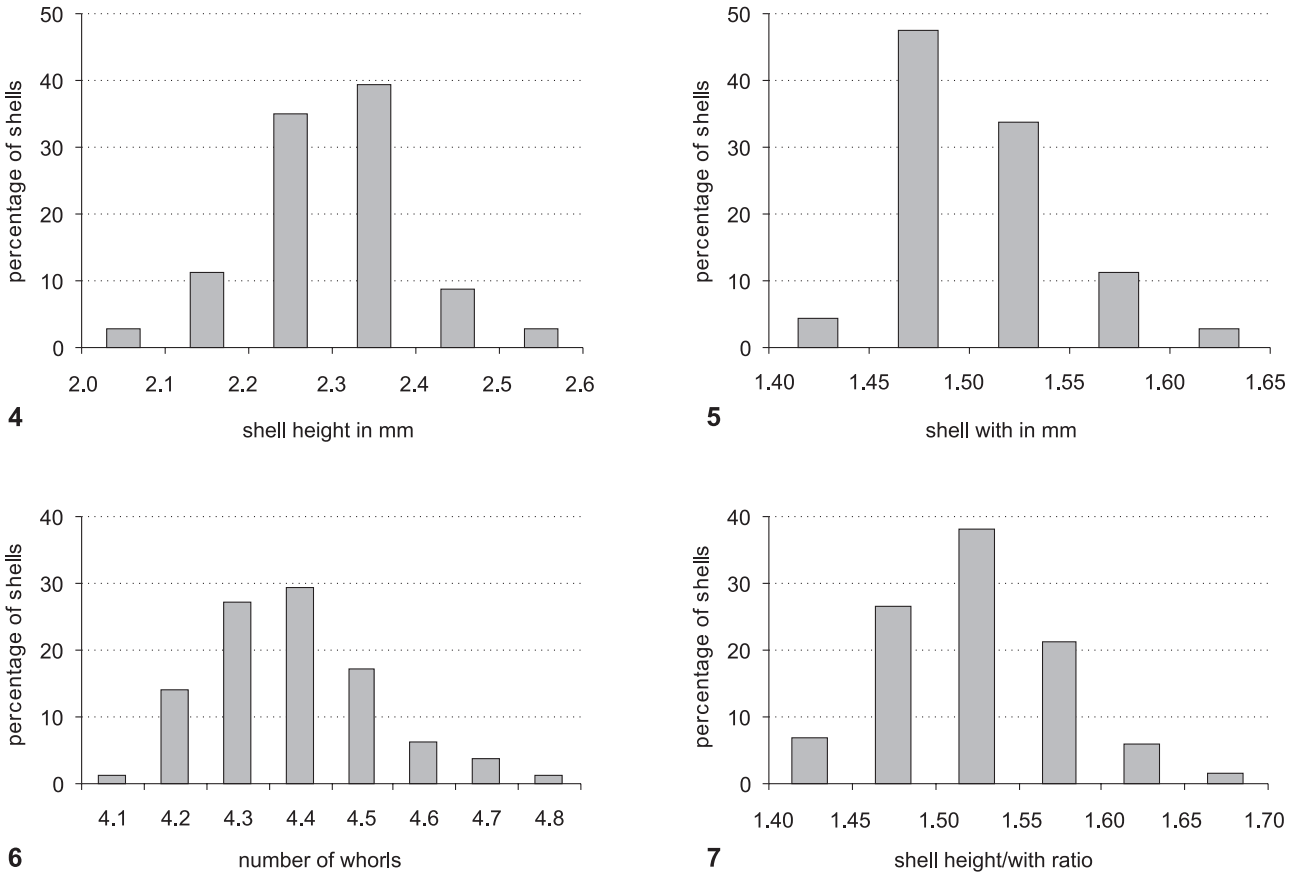
Vertigo moulinsiana (Dupuy, 1849)

The species range includes a considerable part of Europe from the Atlantic Ocean to Transcaucasia. Hovewer, everywhere its localities are sparse and isolated. It inhabits swamps, wet meadows, river banks and lake shores. Drainage and physical destruction of the habitats result in its gradual extinction. In Poland the only recently confirmed sites are Lubniewice near Gorzów Wielkopolski (Lubuskie Lakeland) and the vicinity of Białowieża (DYDUCH 1980, POKRYSZKO 1990, 2003). Older records come from Pomerania – vicinity of Świecie, Dobiegniew and Moryń (RIEDEL 1988 after PROTZ 1896, 1897, SCHUMANN 1905, EHRMANN 1933, JANKOWSKI 1939, JAECKEL JR. 1950, URBAŃSKI 1957, DROZDOWSKI 1978).

The new site is located on a shore of a small lake near the village Korne, district Konarzyny (Fig. 2 – *V.m.*). They lake is surrounded by fields, and situated in a valley connected to the Brda River. The marshy shore is mainly covered in reeds, reed-mace, sedges and horsetail (Fig. 3). Around 1995 the southern shore of the lake was re-forested and cattle grazing was abandoned. In the previous years the shore vegetation was burnt down every spring. At the end of July 2002, I found an abundant population of *V. moulinsiana* on the plants surrounding the lake: *Phragmites communis*, *Glyceria* sp., *Carex* sp., *Leonurus cardiaca*, *Polygonum persicaria*, *Rumex* sp., *Urtica dioica*, *Equisetum* sp. and on leaves of trees which grow next to the shore. Most snails were found 0.2–0.5 m above the ground or water table, but on tall reeds (ca. 2.5 m) single individuals were observed to climb up to 1.5–1.8 m. On these plants the accompanying species were *Succinea putris* (Linnaeus, 1758), and closer to the ground also *S. sarsi* Esmark, 1886, *Vertigo antivertigo* (Draparnaud, 1801), *Zonitoides nitidus* (O. F. Müller, 1774), *Euconulus alderi* (Gray, 1840) and *Deroceras laeve* (O. F. Müller, 1774).

No other sites of *V. moulinsiana* were found in the vicinity of the locality. Even the outflow ditch of the lake, overgrown with reeds, manna and sedges, probably did not create adequate conditions.

Measurements of 275 shells from the new locality gave the following results: shell height 2.05–2.58 mm (mean 2.29 mm, SD 0.09 mm), shell width 1.40–1.63 mm (mean 1.51 mm, SD 0.04 mm), number of whorls 4.1–4.8 (mean 4.39, SD 0.14), height/width ratio 1.40–1.70 (Figs 4–7). The correlation between the shell parameters was: height-width r=0.59, height-number of whorls r=0.76, width-number of whorls r=0.42. Just after growth termination and lip formation there were four teeth in the aperture, all rather thin and low: columellar, parietal, lower and



Figs 4–7. *Vertigo moulinsiana*; shell size variation (n = 275)

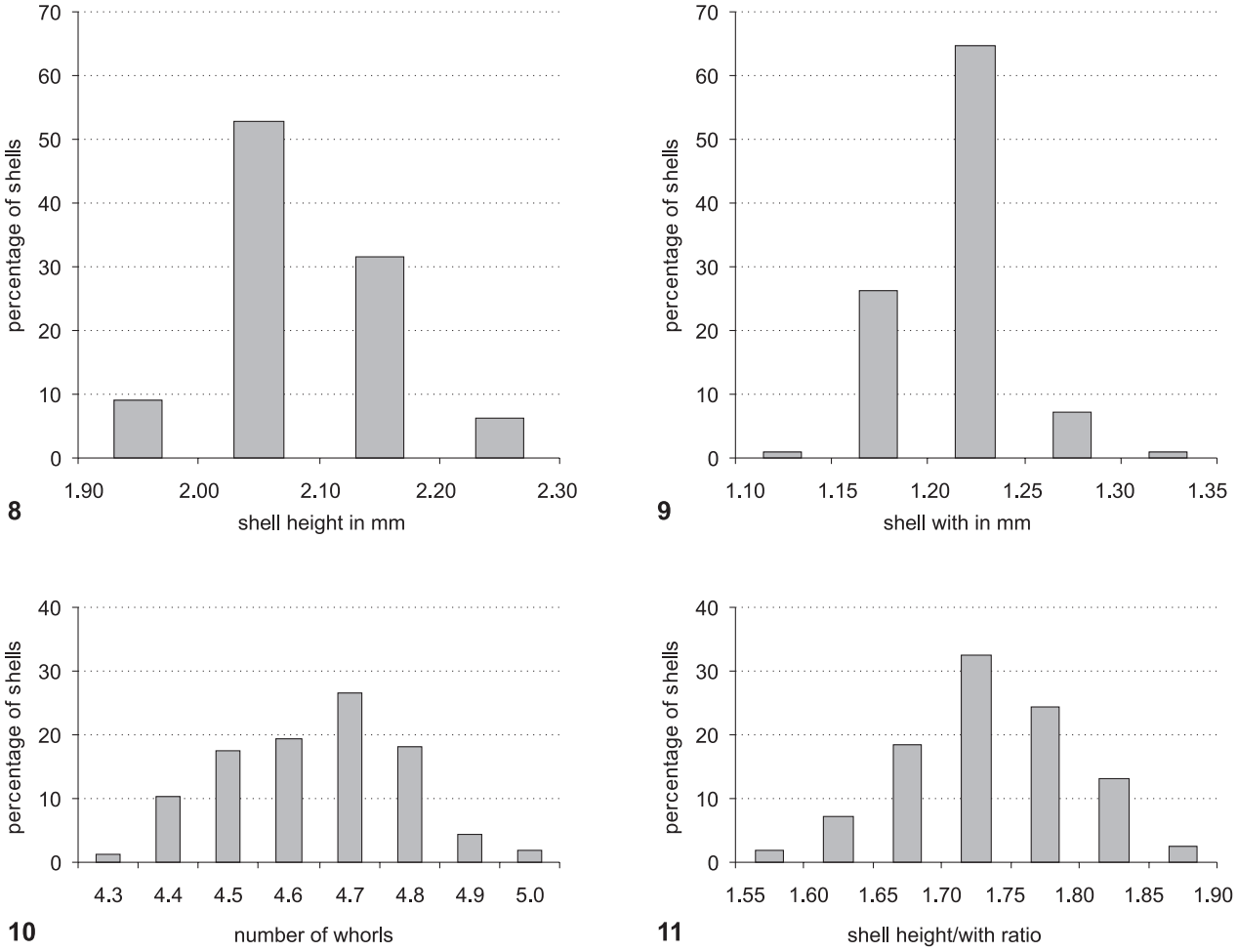
upper palatals. Later the teeth thickened and callus appeared. On the basal wall, on the callus, mostly one or two tuberculate teeth were formed (less often no such teeth or up to four teeth), as well as an angular tooth. The angular tooth was present and distinct in 50–75% adult shells, depending on sample. Suprapalatal and interpalatal teeth appeared sporadically. The shells were ovate or somewhat conical. The colour was initially brown and shiny, later it most often became matt. Compared to literature data (URBAŃSKI 1957, KERNEY et al. 1983, POKRYSZKO 1990) the snails from the population became mature at a much lower shell height and number of whorls. Since the shell width was similar to that found in other populations, they were more tumid (lower height/width ratio).

Vertigo ronnebyensis (Westerlund, 1871)

The main distribution range of the species includes Scandinavia and the north-western part of Russia. Isolated localities are scattered south of the Danish Straits and the Baltic. The known Polish localities are scattered over the central and northern part of the country (POKRYSZKO 1990). In older literature it was mentioned also from Pomerania – region of Świecie and Chojna (RIEDEL 1988 after PROTZ 1896, 1897, SCHUMANN 1905, EHRMANN 1933, JAECKEL JR. 1950, URBAŃSKI 1957).

During my studies, I found *V. ronnebyensis* in the forests extending from Sąpolno towards Chojnice and Człuchów (Fig. 2 – *V.r.*). The snails were found in mixed forests, aged 20–30 years (*Pinus sylvestris*, *Betula* sp., *Quercus* sp.) and in old pine forests with thick undergrowth (thick moss layer, *Vaccinium* sp., ferns *Pteridium aquilinum*, thick shrubs or young trees). They inhabit mainly central parts of the forests, margins of forest lakes and wind-protected places. In summer the snails were rather numerous on fallen deciduous twigs. They climbed live plants (*Pteridium aquilinum*, *Lupinus polyphyllus*), shrubs (e.g. *Rubus* sp., *Ramnus frangula*) and young trees (e.g. *Betula* sp., *Quercus* sp.) up to ca. 1 m. They were always accompanied by *Columella aspera* Waldén, 1966.

Shells of 250 adult snails were measured, with the following results: shell height 1.91–2.28 mm (mean 2.09 mm, SD 0.07 mm), shell width 1.13–1.33 mm (mean 1.21 mm, SD 0.03 mm), number of whorls 4.3–5.0 (mean 4.64, SD 0.14), height/width ratio 1.57–1.88 (Figs 8–11). Snails with damaged and then regenerated shells terminated their growth even at the height of 1.70 mm and 4.15 whorls. The correlation between the shell parameters was: height-width r=0.36, height-number of whorls r=0.74, width-number of whorls r=0.15 (not significant). Adult snails had 1–5 teeth in their apertures. All the shells had



Figs 8–11. *Vertigo ronnebyensis*; shell size variation (n = 250)

columellar tooth, while the number of teeth on the parietal and palatal walls varied (Table 1). A more or less distinct angular tooth was present in 17.6% shells, and there is no information on its presence in this species in the literature. Though usually all the teeth were rather low and poorly developed, in some shells the parieteal and lower palatal teeth reached a length of 1/4 aperture height. The last section of the body whorl varied: it was even till the lip, or distended without any thickening (crest) at the level of teeth. The lip varied from not reflexed, sharp or slightly thickened from the inside to sharp and more or less reflexed. The shell outline was most often cylindrical. The surface of middle whorls bore distinct, regular radial striae and sometimes very poorly marked spiral striae. The colour was often light brown with slightly lighter apex. Compared to literature data (URBAŃSKI 1957, KERNEY et al. 1983, POKRYSZKO 1990), the shells from the new site are much smaller (size intermediate between *V. ronnebyensis* and *V. alpestris*) and showed a wider variation in other characters.

Table 1. *Vertigo ronnebyensis* – variation in the number of teeth on the parietal and palatal walls; percentage of adult snails

Palatal wall	Parietal wall			
	without tooth	only parietal tooth	parietal and angular teeth	total
Only lower palatal tooth	8.8	43.2	3.2	55.2
Upper and lower palatal teeth	0.4	30.0	14.4	44.8
Total	9.2	73.2	17.6	100.0

Reports on the occurrence of *V. alpestris* in the region of Tuchola and Chojnice (PROTZ 1896, 1897, SCHUMANN 1905, EHRMANN 1933, DROZDOWSKI 1978, RIEDEL 1988) may actually pertain to *V. ronnebyensis*.

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