



NEW LOCALITIES OF *VERTIGO MOULINSIANA* (DUPUY, 1849) (GASTROPODA: PULMONATA: VERTIGINIDAE) IN NORTHWESTERN POLAND

ZOFIA KSIĄŻKIEWICZ

Institute of Nature Conservation, Polish Academy of Sciences, Mickiewicza 33, 31-120 Cracow, Poland
(e-mail: z_ksiazkiewicz@o2.pl)

ABSTRACT: Field studies, carried out from May to October 2007 and 2008 to investigate new localities of *Vertigo moulinsiana* (Dupuy) in NW. Poland, included rich fens in river valleys and marshy lake shores. Tall plants (reeds, sedges) and litter were examined for the presence of the species. Twenty five new localities of *V. moulinsiana* were found and one earlier record (Lubniewice, Lubuskie voivodeship) was confirmed.

KEY WORDS: terrestrial snails, *Vertigo moulinsiana*, endangered species, Natura 2000, distribution

INTRODUCTION

Vertigo moulinsiana (Dupuy, 1849) is regarded as a rare and declining species and is included in the global 2000 IUC, Red List of Threatened Species as LR/cd (HILTON-TAYLOR 2000) and Annex II of the European Union Habitats and Species Directive (CAMERON et al. 2003). In Poland the species is listed in the Red Data Book (POKRYSZKO 2004) and the Red List of Threatened Animals in Poland with CR category (critically endangered) (GŁOWACIŃSKI 2002).

V. moulinsiana is an Atlantic-Mediterranean species with the range extending from Ireland to Russia and south to North Africa (POKRYSZKO 1990, KILLEEN

1996). Until 2007 only two functional populations were known in Poland – one in Lubniewice and another in Białowieża (POKRYSZKO 1990, 1998, ZAJĄC 2004). The species prefers rich fens, marshes and swamps, with humid atmosphere and high ground water level. It is mostly found in open areas near rivers, lakes and ponds. During the vegetation season it climbs tall vegetation, such as *Carex panniculata*, *C. acuta*, *C. acutiformis*, *Glyceria aquatica* or *Phragmites* sp. (JANKOWSKI 1939, KILLEEN 2003a). *V. moulinsiana* has a strong but not exclusive association with calcareous substrata (DRAKE 1999).

MATERIAL AND METHODS

Field studies were carried out from May to October 2007 and 2008 in northwestern Poland. Research included mainly localities near rivers or lakes in the voivodeships Lubuskie and Zachodniopomorskie (except its western part). Moreover, parts of Wielkopolska and Pomorskie voivodeships were included.

Field studies covered rich fens with *Carex acutiformis*, *C. panniculata* and *Phragmites australis*. The snails were detected in situ without disturbing or damaging the sites; the plants were examined and snails sitting on them were identified. The search in each site lasted about 30 minutes.

RESULTS

V. moulinsiana was found in 26 localities (Fig. 1). It usually resided in places with high ground water level – in river valleys, often on floodplains. Most of the localities (nine out of 26) were located in Lubuskie voivodeship: wetlands near Jasień, along Lubsza River (VT93); fens near Brody (VT83); Ilanka banks N of Tarnawa Rzepińska, near Wystok (VU90); Pliszka banks S of Drzewce (WT19); two localities in Ilanka River Valley Reserve near Torzym (WT09); fens in Lubniewka River valley near Lubniewice (WU11); banks of Konotop – tributary to Pliszka River near Kłodnica (WT18); Ilanka bank in Rzepin (VT89).

In Wielkopolska voivodeship eight new sites of *V. moulinsiana* were recorded: fens along Gwda River in

Ptusza (XV11); wetlands near Hajda, environs of Jastrowie (XV22); sedge bed between Prądy and Szwecja, in an area with drainage ditches (XV01); ca. 6 hectares of fens on Rurzyca banks, near forester`s lodge, environs of Płytnica (XV20), Rurzyca River valley near Krępsko (XV10); a part of extensive rich fens of ca. 18 hectares in total area on Debrzynka bank, SE of Łędyczek (XV23); wetlands near Łomczewo (XV23); fens on SW. shore of the lake in Baranówko (XT28).

Seven localities were found in Zachodniopomorskie voivodeship: fens near Rymań (WV37); fens on SW. shore of Lake Lubie, N of Karwice (WV52); wetlands on SW. shore of Lake

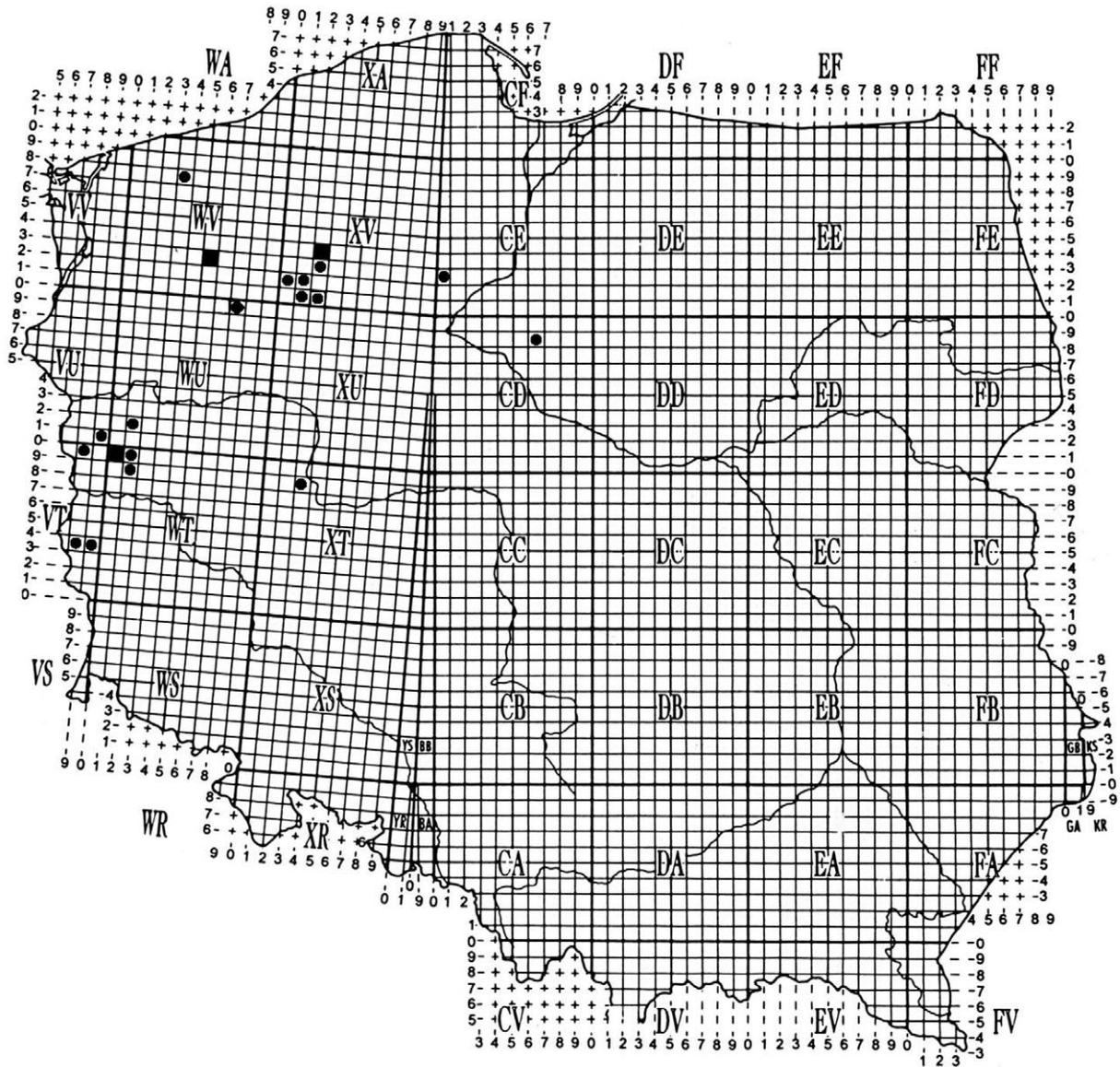


Fig.1. New localities of *Vertigo moulinsiana* in NW. Poland discovered in 2007 and 2008; round – one locality, square – two localities, diamond – four localities



Lubie, S of Karwice (WV52); Tuczno (WU79: Złotowo, shore of Lake Tuczno near Młynówka River; Miłogoszcz, shore of Lake Liptowskie and Studnica – Płociczna River valley; shore of Lake Lubicz)

Two new localities of *V. moulinsiana* were detected in Kujawsko-Pomorskie voivodeship: a part of exten-

sive rich fens (more than 30 ha in total area) on Stażka bank near Zalesie, near a vantage point in Tuchola Forest (CE02); eutrophicated site (below 1 ha) below power lines in Struga River valley near Golub-Dobrzyń, much overgrown by trees and shrubs (CD68).

DISCUSSION

The localities of *V. moulinsiana* discovered in 2007 and 2008 in Western Poland were mostly located in river valleys. Nearly all the sites in Lubuskie voivodeship were situated in the Pliszka, Ilanka and Konotop river valleys. The occurrence of *V. moulinsiana* near Lubniewice (JAECKEL 1950, POKRYSZKO 1990) was confirmed in 2008. A few sites in Kujawsko-Pomorskie voivodeship near Tuchola Forest were also located in river valleys: Stażka and Struga. In Zachodniopomorskie voivodeship two sites were situated near Lake Lubie (near Karwice), localities near Tuczno were also close to lakes Lubicz and Lubicz Mały, one locality was situated in the Mołstowa River valley (near Rymań). In Wielkopolska voivodeship the site near Baranówko was situated near the lake. The two localities near Okonek were located in the Debrzyca River valley, three were detected near Jastrowie in the valley of Gwda and one close to Płytnica in the Rurzyca River valley.

Populations of *V. moulinsiana* are generally small and geographically restricted (CAMERON et al. 2003, PROSCHWITZ 2003). The species seems to be limited to suitable microhabitats with strictly defined conditions. Some populations (metapopulations) occupy an area of 0.25 are in 30 hectares of a rich fen, and the chosen places are usually waterlogged. In such conditions *V. moulinsiana* lives in sedge tussocks (mainly *Carex panniculata*) or on reed leaves. In some cases the snails were found in damp litter; this situation occurred rarely, when the site was too dry (mainly in places with *Carex acutiformis* – e.g. in the Lubniewka River valley, or in one locality in the Ilanka River Valley Reserve).

The places in river valleys inhabited by *V. moulinsiana* are mostly covered by sedges (*Carex panniculata*, *C. acutiformis* and sometimes *C.*

appropinquata) and reed standing in shallow water. Sites near lakes are mainly reed-covered. Nearly all the localities in Lubuskie voivodeship are partly shaded by trees. Some of the localities of *V. moulinsiana* have a mosaic character, with humid and marshy parts. Such an arrangement is suitable also for *Vertigo angustior* Jeffreys, listed in Annex II of the European Union Habitats and Species Directive. Both *V. moulinsiana* and *V. angustior* were found to co-occur in Lędyczek, Rzepin, four localities near Tuczno (Złotowo, Miłogoszcz and two localities near Studnica), Zalesie, Prądy, Płytnica, Wystok and Torzym (KŚIAŹKIEWICZ 2008). These localities, when not forming parts of a more extensive fen, are endangered by eutrophication; the drying parts of the area become overgrown by *Urtica dioica*, *Cirsium oleraceum* or *Deschampsia caespitosa*.

The results of the field studies seem to be optimistic and do not suggest a contraction of the snail's range; only in northwestern Poland research has shown 25 new localities of *V. moulinsiana*. In spite of degradation of some localities (the main causes of decline of *V. moulinsiana* in Poland are drainage of wetlands, low ground water level, eutrophication and alder succession) the species seems to be prosperous. Recent studies show that *V. moulinsiana* is an effective coloniser of new habitats formed as a result of relatively recent watercourse manipulation (KILLEEN 2003b). The sticky mucus and the body and shell structure of the snail facilitate attachment to plants makes it possible to survive dispersal by water (MYZYK 2005). In Poland the species seems to be more common than was formerly believed. More research is needed to discover its new localities and to determine the direction of its population changes.

REFERENCES

- CAMERON R. A. D., COLVILLE B., FALKNER G., HOLYOAK G. A., HORNUNG E., KILLEEN I. J., MOORKENS E. A., POKRYSZKO B. M., PROSCHWITZ T. VON, TATTERSFIELD P., VALO-VIRTA I. 2003. Species accounts for snails of the genus *Vertigo* listed in Annex II of the Habitats Directive: *V. angustior*, *V. genesii*, *V. geyeri* and *V. moulinsiana* (Gastropoda, Pulmonata: Vertiginidae). *Heldia* 5: 151–170.
- DRAKE C. M. 1999. A review of the status, distribution and habitat requirements of *Vertigo moulinsiana* in England. *J. Conch.* 36: 63–79.
- GŁOWACIŃSKI Z. (ed.) 2002. Red List of Threatened Animals in Poland. Polish Academy of Sciences. Institute of Nature Conservation.



- HILTON-TAYLOR C. (ed.) 2000. 2000 IUCN, Red List of Threatened Species. IUCN, Gland, Switzerland, and Cambridge, UK.
- JAECKEL S. JUN. 1950. Zur Molluskenfauna der Neumark und Grenzmark. Verh. Dtsch. Zool. Leipzig 1949: 84–95.
- JANKOWSKI A. 1939. *Vertigo moulinsiana* (Dupuy) in Poland. Fragm. Faun. 4: 237–242.
- KILLEEN I. J. 1996. *Vertigo moulinsiana* (Dupuy, 1849). In: Background information on invertebrates of the Habitats Directive and the Bern Convention. Part III. Mollusca and Echinodermata. Nature and Environment, No. 81. Council of Europe Publishing, Strasbourg, pp. 483–490.
- KILLEEN I. J. 2003a. Ecology of Desmoulin's whorl snail *Vertigo moulinsiana*. Conserving Natura 2000 Rivers. Ecology Series 6: 1–25.
- KILLEEN I. J. 2003b. A review of *Vertigo* species in England and Scotland (Gastropoda: Pulmonata: Vertiginidae). Heldia 5: 73–84.
- KSIAŻKIEWICZ Z. 2008. The narrow-mouthed whorl snail *Vertigo angustior* (Pulmonata: Gastropoda: Vertiginidae) – distribution and habitat disturbance in northwestern Poland. Tentacle 16: 5–6.
- MYZYK S. 2005. About biology of *Vertigo moulinsiana* (Dupuy, 1849) (Gastropoda: Pulmonata: Vertiginidae). Abstracts. 21st Polish Malacological Seminar, Toruń–Ciechocinek 2005: 31–32.
- POKRYSZKO B. M. 1990. The Vertiginidae of Poland (Gastropoda: Pulmonata: Pupilloidea) – a systematic monograph. Ann. Zool. 43: 133–257.
- POKRYSZKO B. M. 1998. Vertiginidae (Gastropoda: Pulmonata: Pupilloidea) Białowieskiego Parku Narodowego i okolic. Parki Narodowe i Rezerваты Przyrody 13/3 (Suppl.): 67–75.
- POKRYSZKO B. 2004. *Vertigo moulinsiana*. In: GŁOWACINSKI Z., NOWACKI J. (eds), Polska czerwona księga zwierząt. Bezkręgowce. Instytut Ochrony Przyrody PAN, Kraków, pp. 324–325
- PROSCHWITZ T. VON 2003. A review of the distribution, habitat selection and conservation status of the species of the genus *Vertigo* in Scandinavia (Denmark, Norway and Sweden) (Gastropoda: Pulmonata: Vertiginidae). Heldia 5: 27–50.
- ZAJĄC K. 2004. *Vertigo (Vertigo) moulinsiana* (Dupuy, 1849). In: WITKOWSKI Z., ADAMSKI P. (eds), Poradnik Ochrony siedlisk i gatunków. Bezkręgowce. Ministerstwo Środowiska, Warszawa, pp. 152–154.

Received: January 1st, 2009

Accepted: March 3rd, 2009

