DEROCERAS (DEROCERAS) PANORMITANUM (LESSONA ET POLLONERA, 1882) – A NEW INTRODUCED SLUG SPECIES IN POLAND (GASTROPODA: PULMONATA: AGRIOLIMACIDAE)

ANDRZEJ WIKTOR

Museum of Natural History, Wroclaw University, Sienkiewicza 21, 50-335 Wroclaw, Poland
(e-mail: awiktor@biol.uni.wroc.pl)

ABSTRACT: The paper contains a description of a newly introduced slug species, Deroceras panormitanum (Lessona et Pollonera, 1882), spreading in Europe for several dozen years and now discovered in SW Poland, in the city of Wroclaw. One third of slugs recorded from Poland are introduced species, some of them starting to penetrate also habitats under negligible human impact.

KEY WORDS: slugs, Deroceras, introduced, synanthrope, Poland

INTRODUCTION

Invasions of foreign, introduced species increase in intensity with progressing transformation of natural habitats, which facilitates various forms of passive dispersal. Small invertebrates are especially liable to cross the borders of their natural distribution range due to transport of fresh plant products, such as fruits, vegetables, saplings, ornamental plants etc. Pulmonate slugs, in spite of their rather small drought resistance, seem to be especially likely candidates for this kind of dispersal. Due to their considerable mobility, they penetrate a variety of food sources, including agricultural and horticultural crops, stores of vegetables or fruit, hot-houses etc. This seems to be the main reason for the fact that such a high proportion of slug species, of quite different evolutionary affliation, distribution, bionomics, their only character in common being the absence of shell, occur outside their original, native distribution ranges. Numerous European species have been introduced almost world-wide, and especially in North America and Australia. The same phenomenon is observed in Europe, including Poland. In the latter country introduced slug species are: Arion distinctus Mabille, 1868, A. fasciatus (Nilsson, 1823), A. lusitanicus Mabille, 1868, Limax (Limax) maximus Linnaeus, 1758, L. (Limacus) flavus Linnaeus, 1758, Lehmannia valentina (Férussac, 1823), Tandonia budapestensis (Hazay, 1881) and Boettgerilla pallens Siroth, 1912 (WIKTOR 1973, RIEDEL & WIKTOR 1974, WIKTOR 1989, KOZŁOWSKI & KORNOBIS 1995, WIKTOR 2000). Below I discuss another introduced species. Our malacofauna comprises a total of 29 slug species (including the new arrival), nine of them, i.e. 1/3, being foreign and introduced. Some of them have already penetrated even habitats of very limited human impact, e.g. Boettgerilla pallens. Some native species also increase their range, e.g. Arion rufus (Linnaeus, 1758) which has very recently appeared at new, insular localities outside its original distribution range (KOZŁOWSKI & KORNOBIS 1995, WIKTOR 1996). All these introduced species except Boettgerilla are more or less important pests. The phenomenon is characteristic and dangerous. Contrary to slugs, introduced snails constitute only a negligible proportion of the fauna and none of them, except perhaps Cepaea nemoralis (Linnaeus, 1758), causes any damage.

All the slugs introduced in Poland originate from the west or south-west, the only exception being Boettgerilla of Trans-Caucasian origin. Another Caucasian immigrant in Europe, recorded a year ago from
the south of Germany, is *Krynickillus (Krynickillus) melanocephalus* Kaleniczenko, 1851 (MENG & BÖSSNECK 1999). This species may succeed in spreading all over Europe as it was the case with *Boettgerilla pallens*.

The newly recorded *Deroceras panormitanum* (Lessona et Pollonera, 1882) causes damage to agricultural and horticultural crops in various parts of Europe; it may be expected to become a pest also in Poland. Below I give some information on this slug.

**DESCRIPTION**

*Deroceras (Deroceras) panormitanum* (Lessona et Pollonera, 1882)

*Deroceras panormitanum* Lessona et Pollonera, 1882: 52, Pl. 1: Fig. 5, Pl. 2: Fig. 12. Locus typicus: Palermo (Italy).

Synonyms: *Agriolimax Pollonerae* [=*Pollonera*] Simroth, 1889; *Agriolimax Caruanae* Pollonera, 1891; *Agriolimax Cecconii* Pollonera, 1896; *Agriolimax Scharffi* Simroth, 1910; *Deroceras meridionale* Reygrobellet, 1963.

In its external appearance the slug does not depart from most of its congeners (Fig. 1). Live specimens strikingly resemble *Deroceras sturanyi* (Simroth, 1894) or large individuals of *Deroceras laeve* (O. F. Müller, 1774). Its body length reaches up to 35 mm, usually however it is smaller. Its coloration is much variable – various hues of creamy-brown, brown, to almost black. Some individuals are unicoloured, some have darker, blackish, fine spots on the mantle, back and sides. The mantle is proportionately large, its posterior margin reaching almost half the body length. The skin is thin, partly translucent so that the internal organs shine through. The mucus is watery and colourless, also in irritated individuals. The rectum bears at most a shallow pocket – a vestigial caecum. The Polish specimens bear no such pocket, only an abrupt widening of rectum (Fig. 2). An unambiguous diagnostic character is the appearance of penis (Fig. 3). It is slightly elongated, and in its posterior part there are two appendices directed posteriorly (!), with a bundle of finger-like processes between them (!), the latter being the penial gland. Inside the penis, in its anterior part, there is a...
small conical stimulator. The above-described situation
is found in typical specimens, which category includes
also all the individuals collected hitherto in Poland.
However, it follows from the literature that in some
specimens or whole populations at least one of the
appendices undergoes a partial or complete reduction,
which makes the structure asymmetrical. In spite of
this, the penis of *D. panormitanum* is always clearly dif-
ferent from that of *D. laeve*. There are also clear differ-
ences in the penis appearance compared to *D. sturanyi*.
In the latter species the posterior end of penis is ham-
mer-like, i.e. the pockets on the penis are directed lat-
erally (transversely) and there is no penial gland be-
tween them (!) (WIKTOR 2000).

**DISTRIBUTION**

It is difficult to ascertain the original distribution
range of the species. It probably included the Medi-
terranean area, both continental and insular. At pres-
ent the species is in expansion and spreads as a
synanthrope over extensive areas of Europe. Its range
extends from Greece and Bulgaria to Spain, Ireland,
England, France, Germany. It was recorded from
Hungary, Austria, Switzerland and Scandinavia (Swed-
en, Finland) (WIKTOR 2000). As a synanthrope, it
may be expected to occur in entire Europe and north-
ern Africa. In Poland it was found in the Botanical
Garden and adjacent areas in the city of Wrocław.
Most probably it is present also in other sites but has
as yet remained undiscovered.

**ECOLOGY**

The ecological requirements and bionomics of the
species are not known in detail. It seems to display a
wide ecological tolerance. It lives mainly in open habi-
tats, ruderal environments, in rubble heaps, gardens
and cemeteries. It shelters under stones and pieces of
wood in moderately humid places. In Central Europe,
and thus also in Poland, it is accompanied among
others by *Deroceras reticulatum*, *Arion fasciatus*, *Arion
distinctus*, *Boettgerilla pallens*, *Trichia hispida*, *Cepaea
nemoralis* and other obviously synanthropic species. At
present there is no information on any damage
caused by this slug in our climatic conditions, al-
though it can be expected to become a horticultural
pest.

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